Abstract Book

6th Shiraz International Congress on Mobile Health

february 18-20

International Journal of Nutrition Sciences

Contents

Poster

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Estella: A Humanoid Robot for Enhanced Human-Robot Interaction: A Review

Behnam Rahnama, Fatemeh Heiran*

Medis Holding, Semantic Robotics Lab, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Fatemeh Heiran, MSc;
Medis Holding,
Semantic Robotics Lab,
Shiraz, Iran.
Email: fatemeh.heiran@medis.land

ABSTRACT

The development of humanoid robots has become crucial to overcome challenges in human-robot interaction, assistive care, and emotional companionship. With an aging population and increasing demand for personalized robotic assistance growth, the need for humanoid robots that closely resemble human anatomy and behavior has significantly risen. These robots offer unique advantages in communication, emotional engagement, and social interaction, making them ideal for applications such as elderly care and human-robot collaboration that were investigated in this study. Estella, a humanoid robot developed by Medis, has been designed to replicate human anatomy for enhanced interaction and movement. Its structure includes anatomically accurate joints, a spinal model inspired by the human S-shaped spine, and dexterous hands. Additionally, its neck is modeled after human cervical vertebrae, allowing for natural head movement, while its arms replicate human joint dynamics to perform complex movements. A key feature of Estella is its highly expressive humanoid face, capable of simulating detailed facial expressions. This enhances communication and promoted natural interactions, particularly with older people who are isolated and lonely. Estella's hands are optimized for precision tasks and object manipulation, while its lower limbs replicate human walking patterns, enhancing mobility and natural movement. In conclusion, by integrating anatomical precision with advanced motion capabilities, Estella represents a significant step forward in humanoid robotics. Its human-like appearance and expressive face contribute to more intuitive, emotionally engaging interactions, meeting the increasing demand for socially assistive robots in modern society.

Please cite this article as: Rahnama B, Heiran F. Estella: A Humanoid Robot for Enhanced Human-Robot Interaction: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S1.

International Journal of Nutrition Sciences

Oral

A Predictive Model for Coronary Artery Diseases Using Iomt and Artificial Intelligence Techniques: Integration of Xgboost and Random Forest

Zohre Arabi[1]*, Nayerreh Hoseininia[2]

1. Department of Computer Engineering, National University of Skills, Tehran, Iran
2. Department of Computer Engineering, Payame Noor University, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Zohre Arabi, PhD;
Department of Computer
Engineering, National University of
Skills, Tehran, Iran.
Email: Zohre.arabi@nus.ac.ir

ABSTRACT

Background: Cardiovascular diseases (CVDs) represent a significant global health challenge, and contribute substantially to morbidity and mortality. Key risk factors, such as poor diet, physical inactivity, smoking, and comorbidities like hypertension and diabetes, necessitate the development of innovative predictive models to address this growing health burden effectively. This study assessed integration of xgboost and random forest as a predictive model for coronary artery diseases using internet of medical things (IoMT) and artificial intelligence (AI) techniques.

Methods: In this study, we propose a novel coronary artery disease prediction model that integrates the IoMT with advanced AI techniques. The model utilizes XGBoost for precise feature selection and high prediction accuracy, alongside random forest to improve stability and reduce overfitting. As IoMT plays a crucial role in enabling real-time collection of physiological data from wearable devices and sensors, including heart rate monitoring, electrocardiograms (ECG), and blood pressure readings, the model was trained on a comprehensive dataset that included a diverse range of patient demographics, risk factors, and clinical histories.

Results: The model demonstrated significant improvements in predictive accuracy and stability by leveraging XGBoost for speed and precision and random forest for robustness in handling noisy data. The integration of IoMT allowed for the continuous and real-time acquisition of data, enabling timely predictions of heart disease risks, which are crucial for effective early intervention.

Conclusion: This heart disease prediction model represents an innovative approach to personalized cardiovascular risk assessment. By combining IoMT with advanced AI algorithms, it enhances prediction accuracy and provides valuable insights for improving patient outcomes and the implementation of more effective preventive care strategies.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

The Role of the Metaverse and Artificial Intelligence in Reducing Inequalities and Achieving Health Equity: A Review

Seyed Pouria Hedayati[1], Fahimeh Khoushabi[1], Fatemeh Mohabati[1]*, Atefeh Barizi[1], Mahboubeh Mohabati[2]

1. Zabol University of Medical Sciences, Zabol, Iran
2. Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Mohabati, PhD;
Zabol University of Medical Sciences,
Zabol, Iran.
Email: mohabatif@gmail.com

ABSTRACT

The integration of the metaverse and artificial intelligence (AI) in healthcare presents significant opportunities and challenges for achieving health equity. The metaverse is emerging as a transformative platform capable of enhancing healthcare service quality and managing chronic diseases, fitness, and mental health. AI has demonstrated substantial potential in reducing healthcare disparities by improving diagnostic accuracy, decision-making, and access to care, particularly in underserved communities. This review evaluated the role of the metaverse and artificial intelligence in reducing inequalities and achieving health equity. This review included qualitative analyses, case studies, and discussions on the ethical implications surrounding AI deployment in healthcare settings by searching Web of Science, PubMed, Scopus and Google Scholar using related key words. Findings indicate that while the metaverse and AI can revolutionize healthcare delivery and improve equity, there are significant risks of exacerbating existing disparities if these technologies are not implemented thoughtfully. Ethical concerns related to privacy, bias, and the digital divide must be addressed to ensure equitable access to these advanced technologies. Incorporating ethical AI principles and actively managing biases are essential steps toward promoting racial health equity and social justice within healthcare systems. In conclusion, the successful implementation of the metaverse and AI in healthcare requires careful planning and ethical considerations to truly achieve health equity. Future research should focus on developing inclusive practices that ensure diverse data representation and equitable access to healthcare services. By doing so, the benefits of technological advancements can be maximized for all populations, ultimately contributing to a more equitable healthcare system that serves everyone effectively.

Please cite this article as: Hedayati SP, Khoushabi F, Mohabati F, Barizi A, Mohabati M. The Role of the Metaverse and Artificial Intelligence in Reducing Inequalities and Achieving Health Equity: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S3.

International Journal of Nutrition Sciences

ORAL

Analysis of Predicting Risk of Osteoporosis Using Machine Learning Models: A Review

Seyyed Mohammad Javadi Moghaddam*, Saeed Nazri

Department of Computer Engineering, Bozorgmehr University of Qaenat, Qaen, Iran

ARTICLE INFO

*Corresponding author:
Seyyed Mohammad Javadi
Moghaddam, PhD;
Department of Computer
Engineering, Bozorgmehr University
of Qaenat, Qaen, Iran.
Email: Smjavadim@buqaen.ac.ir

ABSTRACT

Osteoporosis is a largely asymptomatic condition marked by diminished bone mineral density, which considerably elevates the likelihood of fractures in later life. The process of autophagy is integral to the development of osteoporosis, and the identification of related genetic markers can facilitate prompt diagnosis and intervention. Given that osteoporosis frequently presents without overt symptoms, it is generally not identified until fractures manifest. In recent years, supervised machine learning algorithms have demonstrated significant utility in enhancing diagnostic systems, facilitating more precise and sophisticated approaches for disease forecasting. This study evaluated the effectiveness of supervised machine learning models using the Kaggle dataset relevant to osteoporosis. Analysis of predicting risk of osteoporosis using machine learning models was undertaken by searching Web of Science, PubMed, Scopus and Google Scholar using related key words. It was shown that timely detection is critical to avert serious complications, diminish healthcare expenditures, and enhance the overall quality of life for patients. Through the examination of extensive medical datasets and the identification of intricate patterns, these algorithms aid healthcare practitioners in rendering swifter and more accurate predictions. Nevertheless, to ascertain the relevance of these algorithms in practical clinical environments, it is imperative to assess their efficacy utilizing heterogeneous datasets derived from diverse populations. The results demonstrated that ensemble models, such as XGBoost and SVM, outperformed individual models, achieving 91% accuracy. In conclusion, these findings highlight the advantages of ensemble models in improving diagnostic accuracy. The results suggest that supervised machine learning models, particularly ensemble methods can effectively aid in the early detection of osteoporosis in clinical environments. Such models are vital for enhancing public health by enabling timely interventions and personalized treatment plans for at-risk individuals.

International Journal of Nutrition Sciences

ORAL

Applying UTAUT Model to Explain the Intention to Use Mobile Health Apps and Its Determinants among Pregnant Women

Fateme Asadollahi[1], Samira Ebrahimzadeh Zagami[2], Robab Latifnejad Roudsari[3]*

1. Reproductive Health Department, Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran
2. Assistant Professor, Nursing and Midwifery Care Research Center Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Robab Latifnejad Roudsari, PhD;
Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran.
Email: rlatifnejad@yahoo.com

ABSTRACT

Background: Access to prenatal care is often hindered by geographic, socioeconomic, and logistical barriers. Mobile health (mHealth) technologies offer potential solutions, yet motivations and barriers to their use in diverse contexts remain underexplored. This study utilized the Unified Theory of Acceptance and Use of Technology (UTAUT) to investigate factors influencing the intention to use mHealth apps among Iranian pregnant women.

Methods: A sequential exploratory mixed-methods design was applied. In the qualitative phase, semi-structured interviews with 14 pregnant women and seven healthcare professionals were analyzed using directed content analysis based on the UTAUT framework. In the quantitative phase, a cross-sectional survey of 60 pregnant women assessed UTAUT-related factors. Participants were recruited via email and social media and met inclusion criteria of smartphone access and prior mHealth app use for prenatal care. Concurrent triangulation integrated qualitative and quantitative findings.

Results: Performance expectancy, effort expectancy, and social influence emerged as significant determinants of behavioral intention to use mHealth apps. Features like appointment reminders and symptom trackers were valued, while concerns included information accuracy and app complexity. Social influence, particularly from peers and healthcare providers, was pivotal. Quantitative results confirmed these determinants but found no significant direct effect of facilitating conditions on usage intentions.

Conclusion: A comprehensive understanding of mHealth adoption factors highlights the need for user-friendly, credible, and culturally tailored apps to enhance prenatal care access and effectiveness. Addressing user concerns and leveraging social influence are critical for widespread adoption.

Please cite this article as: Asadollahi F, Ebrahimzadeh Zagami S, Latifnejad Roudsari R. Applying UTAUT Model to Explain the Intention to Use Mobile Health Apps and Its Determinants among Pregnant Women. Int J Nutr Sci. 2025;10(2-Supplement):S5.

International Journal of Nutrition Sciences

ORAL

Artificial Intelligence and Metaverse Integration in Designing a Novel Multi-Epitope Vaccine against Crimean-Congo Hemorrhagic Fever

Ali Honari Jahromi*

Autophagy Research Center, Department of Biochemistry, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Ali Honari Jahromi, MSc;
Autophagy Research Center,
Department of Biochemistry, School
of Medicine, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Alihonari78@gmail.com

ABSTRACT

Background: Crimean-Congo Hemorrhagic Fever (CCHF) is a viral disease with a high mortality rate, yet no effective vaccine is available. Traditional vaccine development methods face challenges like low efficacy, safety concerns, and high production costs. Epitope-based vaccine design, leveraging Artificial Intelligence (AI) and metaverse technologies, offers a precise and safer alternative by targeting specific immune responses. This study has determined artificial intelligence and metaverse integration in designing a novel multi-epitope vaccine against crimean-congo hemorrhagic fever.

Methods: We used AI-driven immunoinformatics tools to predict B-cell and T-cell epitopes from the CCHF virus. The vaccine construct was designed by linking epitopes with adjuvants and linkers. AI and metaverse-based 3D modeling tools optimized the vaccine structure and refined its interactions with human leukocyte antigen (HLA) molecules. Molecular docking and dynamics simulations were performed to validate stability and efficacy. Additionally, we simulated cloning and solubility post-injection in human models using AI-driven predictive tools.

Results: The designed vaccine comprises 427 amino acids and showed strong HLA binding, covering 99.44% of the global population. AI and metaverse-based simulations confirmed stable Toll-like receptors interactions, indicating robust immune responses. Physicochemical properties were favorable for production. Furthermore, in-silico cloning and injection simulations in mouse models showed high expression levels and solubility, supporting its feasibility for large-scale production.

Conclusion: This study presents a novel AI-driven approach to vaccine design, integrating immunoinformatics and metaverse technologies. The multi-epitope vaccine shows promise for future medical applications. Epitope-based strategies overcome traditional vaccine limitations such as low efficacy and high production costs. Further experimental validation is required to confirm its efficacy, but AI and metaverse integration opens new avenues for vaccine development and global health solutions.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Assessment of Predictive Models for Type 2 Diabetes Mellitus Patients Using Artificial Intelligence

Maryam Salehian[1], Farnaz Salehian[2]*

1. Department of Cell and Molecular Biology and Microbiology, Faculty of Biological Science and Technology, University of Isfahan, Isfahan, Iran
2. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Farnaz Salehian, MSc;
Student Research Committee,
Department of Health Information
Management, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Fsalehian74@gmail.com

ABSTRACT

Background: Type 2 diabetes mellitus (T2DM) is a complex and heterogeneous disease affecting around 9.3% of the global adult population. Complications of this disease include heart diseases, stroke, kidney failure, nerve damages and amputations that can significantly reduce quality of life and increase mortality rate. Predicting patient's complications is a significant challenge. Recent advances in artificial intelligence (AI) offer a promising solution to this problem. This study assessed predictive models for type 2 diabetes mellitus patients using artificial intelligence.

Methods: In this study, we implemented several data mining techniques including support vector machines, decision tree, random forest, neural networks, naive bayes, gradient boost machine, and k-nearest neighbor to determine the best technique to predict T2DM's complications in patients. These models integrated electronic health records (EHRs), genomic data, and clinical variables, including demographic information, family medical history, and lifestyle factors, to predict the risk of complications and disease progression, such as cardiovascular diseases, kidney diseases, and vision loss.

Results: We trained and validated models using a large cohort of T2DM patients and demonstrated its ability to accurately predict patient complications. Our results showed that AI-powered prognostic models could identify high-risk patients and provide accurate predictions of disease progression, enabling targeted interventions and improve patient care.

Conclusion: This study highlighted the potential of AI to revolutionize the management of T2DM and improve patient outcomes, and reduce the economic burden of the disease. Furthermore, the integration of AI with electronic health records (EHRs) and other data sources can enable the development of more accurate and robust predictive models.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Autism Children Exposure to Virtual Reality Headsets: Assessing Reactions and Conditioning Them

Zohreh Salimi[1,2]*, Saeid Bashirian[1], Ensiyeh Jenabi[1]

1. Autism Spectrum Disorders Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
2. TakTab XR Co. Hamedan, Iran

ARTICLE INFO

*Corresponding author:
Zohreh Salimi, PhD;
Autism Spectrum Disorders Research
Center, Hamadan University of
Medical Sciences, TakTab XR Co.,
Hamadan, Iran.
Email: z.salimi@edu.umsha.ac.ir

ABSTRACT

Background: Virtual Reality (VR) has been shown to be an effective tool to teach different skills and concepts to children with Autism Spectrum Disorder (ASD). However, less is said about how children with ASD reacting to VR headsets when they are first exposed to VR. So this study assessed reactions and conditioning of autism children exposure to virtual reality headsets.

Methods: In this study, we have exposed 35 autism children with no prior experience of VR, to 10 VR sessions, and examined their reactions while conditioning them, if needed, for accepting VR. Each session was 30 minutes; while video recorded. An assessor watched all videos and completed two questionnaires for each participant/session including one qualitative questionnaire analyzing the reactions of the participant to VR, and one readiness questionnaire, assessing how ready the participant was to use VR. To ensure the reliability of the assessor, 20% of all videos were also watched and analyzed by another assessors and Inter-Class Correlation of their scores was determined.

Results: The Inter-Class Correlation of the two assessors was 94% which shows high inter-rater reliability. The p value for t test between the readiness scores of the first and the last session was 0.0005. 29% of children could only tolerate VR headsets for 0 to less than a minute for the first session. This number decreased to 9% by the last session.

Conclusion: Unlike what was reported before, first VR headsets were very resisted among almost one third of children with ASD, but this number reduced to about one-tenth when these children participated in 10 VR sessions.

Please cite this article as: Salimi Z, Bashirian S, Jenabi E. Autism Children Exposure to Virtual Reality Headsets: Assessing Reactions and Conditioning Them. Int J Nutr Sci. 2025;10(2-Supplement):S8.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Comparing the Effect of Breast Self-Examination Education Using Two Methods of Face-to-Face and Social Media Based on the Health Belief Model

Fatemeh Vizeshfar[1]*, Fatemeh Mirjani Sarvi[2], Azadeh Pakniat[3]

1. Community Based Psychiatric Care Research Center, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, School of Nursing and Midwifery, Shiraz University of Medical Sciences Shiraz, Iran
3. Nursing Education Department, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Vizeshfar, PhD;
Community Based Psychiatric Care
Research Center, Department of
Nursing, School of Nursing and
Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: vizeshfarf@sums.ac.ir

ABSTRACT

Background: Breast self-examination is one of the early detection methods for breast cancer. Considering the importance of prevention and the broader accessibility of individuals through social media platforms, this study aimed to compare the effectiveness of breast self-examination training via face-to-face and social network-based methods using the Health Belief Model (HBM).

Methods: This clinical trial was conducted on 144 women who visited comprehensive health centers during 2023–2024. Participants were divided into two intervention groups and one control group. The educational content focused on breast cancer prevention and screening, presented in accordance with the HBM. Data collection tools included a demographic questionnaire and Champion's Health Belief Model Scale. Data were collected at three-time points of before the intervention, immediately after, and two months post-intervention.

Results: The mean score of self-efficacy significantly increased in both intervention groups after the intervention ($p=0.001$). The mean score for the perceived benefits construct also showed a significant improvement in the intervention groups compared to the control group ($p=0.004$). However, no significant difference was observed between the two educational methods regarding the effectiveness of breast cancer prevention and screening training.

Conclusion: It can be concluded that, depending on the circumstances, community health nurses can utilize either method. When content is appropriately tailored to the social network context, these platforms can effectively deliver evidence-based health education on breast cancer prevention and screening.

Please cite this article as: Vizeshfar F, Mirjani Sarvi F, Pakniat A. Comparing the Effect of Breast Self-Examination Education Using Two Methods of Face-to-Face and Social Media Based on the Health Belief Model. Int J Nutr Sci. 2025;10(2-Supplement):S9.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Design Mobile App for Telerehabilitation after Total Knee Replacement Surgery

Farnaz Salehian[1], Zahra Mahmoudzadeh-Sagheb[2], Amin Kordi Yoosefinejad[3], Somayyeh Zakerabasali[2]*

1. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Health Information Management, Health Human Resources Research Center, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Physical Therapy, School of Rehabilitation Sciences, Rehabilitation Sciences Research Center, Shiraz University of Medical Sciences, Shiraz University of Medical Sciences, Shiraz, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Somayyeh Zakerabasali, PhD;
Health Human Resources Research
Center, Department of Health
Information Management, School of
Health Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Zakerabasi@gmail.com

ABSTRACT

Background: Knee arthritis is a progressive condition that causes pain and limited mobility, and ultimately requires knee replacement surgery, followed by a lengthy recovery period. Despite the importance of physiotherapy in this process, there is a lack of support systems. This research aimed to develop a rehabilitation App that provides patients with necessary information and physiotherapy programs to facilitate their recovery after total knee replacement (TKR) surgery.

Methods: This study involved a three-stage process. First, a checklist of educational and therapeutic content was developed and validated. Then, a prototype was created using Adobe XD software, based on the validated requirements. Finally, the prototype's usability was evaluated by experts using Nielsen's 13 usability principles, providing valuable insights into the effectiveness of the App.

Results: The developing process began with the extraction of requirements, which were compiled into two checklists. One was for content (51 exercises) and the another for capabilities (60 items). Expert feedbacks, gathered through a Delphi technique survey and helped refine the content checklist to 43 exercises and the capabilities checklist that include functional/non-functional requirements to 53 items. App had admin, physician, and patient sections. Usability testing showed it to be efficient with minor issues related to detect and recover from errors.

Conclusion: It is necessary to develop a Mobile App for Telerehabilitation after TKR, in order to train patients and monitor patient's rehabilitation process at home. The importance of involving stakeholders in the design and development is not hidden to anyone. This App meets patient's needs for rehabilitation after TKR.

International Journal of Nutrition Sciences

ORAL

Design and Implementation of a Comprehensive Platform for Sharing Medical Images on Messenger Applications: A Review

Hossein Moein Jahromi*

Entrepreneurship Management, University of Sistan and Baluchestan, Zahedan, Iran

ARTICLE INFO

Corresponding author:
Hossein Moein Jahromi, MSc;
Entrepreneurship Management,
University of Sistan and Baluchestan,
Zahedan, Iran.
Email: hosseinmoein@pgs.usb.ac.ir

ABSTRACT

Through familiar messaging applications, this platform can overcome key barriers in sharing of medical images. This study presents the design and implementation of a novel platform that enables efficient sharing of medical images through popular messaging applications. PubMed, Scopus, Web of Science and Google Scholar were searched using the related keywords. Current methods of medical image exchange face significant challenges, including incompatible formats, large file sizes, limited bandwidth, and data security concerns. These issues often hinder timely collaboration among medical professionals, particularly those separated by geographic distances. The proposed platform addresses these challenges through a multi-layered approach. The first layer handles image input and standardizes various formats, ensuring that medical images from different modalities to be uniformly processed. The second layer applies advanced compression techniques, such as JPEG2000 and HEIF, to significantly reduce file sizes while preserving diagnostic quality. The third layer uses dedicated APIs to integrate the platform with widely used messaging services, and enable seamless and rapid image distribution. To maintain confidentiality and compliance with privacy regulations, robust encryption methods such as AES and RSA are employed throughout the system. Performance evaluation demonstrated that the platform could process and transmit medical images less than 10 seconds, achieve size reductions up to 70%, and maintain a high image quality to be suitable for diagnostic purposes. Security testing confirmed that patients' data remain encrypted and protected from unauthorized access during transmission. In conclusion, by combining standardized image handling, efficient compression, secure data transmission, and easy distribution through familiar messaging applications, this platform overcomes key barriers in medical image sharing. It facilitates quicker expert consultations, reduces operational costs, and broadens access to critical diagnostic information, improves the patients' outcomes and enhances the quality of healthcare services.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Design and Implementation of a Tele-Screening System in Diagnosis of Retinopathy of Prematurity

Nasser Shoeibi[1], Majid Abrishami[1], Seyedeh Maryam Hosseini[1], Mohammadreza Ansari Astaneh[1], Mojtaba Abrishami[1], Mehrdad Motamed Shariati[1], Razieh Farrahi[2]*

1. Eye Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
2. Health Information Management Unit, Department of Health Information Technology, Ferdows Faculty of Medical Sciences, Birjand University of Medical Sciences, Birjand, Iran

ARTICLE INFO

Corresponding author:
Razieh Farrahi, PhD;
Health Information Management Unit,
Department of Health Information
Technology, Ferdows Faculty of
Medical Sciences, Birjand University
of Medical Sciences, Birjand, Iran.
Email: Farrahir1@gmail.com

ABSTRACT

Background: Retinopathy of prematurity (ROP) is a retinal vascular disease and a leading cause of childhood blindness worldwide. Timely treatment has proven to be effective in preventing blindness. The limited number of skilled ophthalmologists specializing in diagnosis, along with the high number of Neonatal Intensive Care Unit (NICU) centers, has practically restricted the feasibility of screening. Therefore, tele screening by qualified centers are essential to identify infants with ROP.

Methods: Initially, a review was conducted of similar software designs. Subsequently, focus group sessions were held with ophthalmologists and IT specialists to identify software functionalities. A comprehensive list of functionalities was subsequently compiled. The identified functionalities were provided to the software development team.

Results: The tele-screening software was developed in 2021 by the Department of Ophthalmology at Mashhad University of Medical Sciences, Mashhad, Iran. The software was implemented within the university's information technology infrastructure. Retinal images of preterm infants admitted to NICU in hospitals were captured by a trained nurse using a portable RetCam® device uploaded to the software and then sent to an ophthalmologist at the Reading Center of Khatam al-Anbia Eye Hospital in Mashhad, Iran. The ophthalmologist's feedback was then transmitted through the system to the NICU nurse who initially submitted images. The functionality and accuracy of the software were evaluated by ophthalmologists, IT experts, and nurses.

Conclusion: Tele-screening is a feasible approach in cases involving a large number of NICU centers, challenges of transferring preterm infants to ophthalmology centers, and the limited availability of skilled ophthalmologists for screening.

Oral

Design and Validation of Screen App Midwifery Application Based on Roger's Diffusion of Innovation Theory among Midwifery Students

Tahereh Fathi Najafi[1,2]*, Leili Mosalanejad[3], Mansoureh Shariati Sarcheshmeh[4], Sareh Dashti[4], Malihe Rezvani Fard[5]

1. Department of Medical Education, Smart University of Medical Sciences, Tehran, Iran
2. Department of Midwifery, Faculty of Nursing and Midwifery, Mashhad Medical Sciences, Islamic Azad University, Mashhad, Iran
3. Medical Education Department, Virtual Center, Jahrom Unversity of Medical Sciences, Jahrom, Iran
4. Department of Midwifer, Neyshabor Branch, Islamic Azad University, Neyshabur, Iran
5. Department of Midwifery, Faculty of Nursing and Midwifery, Mashhad Medical Sciences, Islamic Azad University, Mashhad, Iran

ABSTRACT

Background: The widespread use of smartphones and the increasing desire of youth towards using smart devices are among the most important reasons for this necessity becoming a need using the Smart Screening System (ISA). The first Iranian smart education system of innovative methods in medical education has gained popularity due to the high penetration rate of the smart phones. The diffusion of innovation theory suggests five constructs in the success of new educational methods. This study assessed the design and validation of screen app midwifery application based on Roger's diffusion of innovation theory among midwifery students.

Methods: In a cross-sectional study, Bachelor Midwifery students were enrolled. Data collection was performed using a researcher-made questionnaire, which was validated by 13 experts in medical education and four students in the study. Midwifery students who registered to use the ISA were included in the study after receiving instructions and 3 to 7 days of familiarization with the system. The constructs of the Diffusion of Innovation theory were evaluated in the ISA system using confirmatory factor analysis (CFA).

Results: The primary questionnaire included 51 items which reduced to 28 items. A total of 193 midwifery students who were at least in the 5th semester of their educational level, participated in this study. The CFA models confirmed the congruence of the five constructs of the Diffusion of Innovation theory in the ISA system (Chi-square=1.49, CFI=0.93, TLI=0.92, IFI=0.94, and RMSEA=0.06).

Conclusion: The ISA system was found to incorporate the five constructs of the Diffusion of Innovation theory and was demonstrated to have the potential of widespread use in midwifery education.

Corresponding author:
Tahereh Fathi Najafi, PhD;
Department of Medical Education,
Smart University of Medical Sciences,
Tehran, Iran.
Email: Fathinajafi7680@gmail.com

International Journal of Nutrition Sciences

ORAL

Designing a Corrective Exercise Application by Employing a Prevention and Treatment Approach

Nasim Fakhri[1], Reza Dehghan[2], Meraj Moradbeigi[1]*

1. Department of Health Information Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran
2. Department of Entrepreneurship, Islamic Azad University, North Tehran Branch and Visiting Professor of Entrepreneurship, Iran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Meraj Moradbeigi, PhD;
Department of Health Information Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran.
Email: Meraj.mb2001@gmail.com

ABSTRACT

Background: Musculoskeletal injuries are prevalent due to poor lifestyle choices, high-risk sports, and physical activities putting strain on the body. These injuries lead to significant pain, reduced mobility, and decreasing quality of life. Corrective exercises play a crucial role in both the prevention and treatment of injuries by addressing muscle imbalances, improving posture, and enhancing overall body mechanics. This study designed a corrective exercise application by employing a prevention and treatment approach.

Methods: We conducted a survey of existing applications in the specified field and identified their shortcomings. We designed an application focused on corrective exercises. We outlined a business model including customer segments, customer relationships, distribution channels, value proposition, key activities, key resources, key partners, revenue streams, and cost structure. Using Android Studio version X, we developed a prototype of the application. Our customer base included not only individuals with muscular and movement injuries, such as anterior cruciate ligament and meniscus injuries, but also organizations like the State Welfare Organization, responsible for supporting disabled individuals.

Results: The application offers corrective exercises in form of animated videos, connects users with corrective exercise specialists for evaluations, provides self-assessment training, offers exercises to correct muscular imbalances, sets up challenges to improve physical activity styles, and provides categorized aerobic and anaerobic exercises tailored to each type of movement disorder.

Conclusion: Our application aims to address the gaps in existing solutions by providing a comprehensive, user-friendly platform for preventive and therapeutic corrective exercises. By targeting both individual users and organizations, we seek to make meaningful impacts on health of those with muscular and movement-related injuries.

Please cite this article as: Fakhri N, Dehghan R, Moradbeigi M. Designing a Corrective Exercise Application by Employing a Prevention and Treatment Approach. Int J Nutr Sci. 2025;10(2-Supplement):S14.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Oral

Design, Development and Evaluation of a Mobile Phone-Based Application for Self-Management of Respiratory Diseases among Coal Workers

Zahra Tahami[1], Roghayeh Ershad Sarabi[2,3]*, Khadijeh Moulaei[4], Ahmad Naghibzadeh-Tahami[5,6]

1. Imam Ali (AS) Hospital, Zarand, Iran
2. Department of Management and Medical Information Sciences, Kerman University of Medical Sciences, Kerman, Iran
3. Medical Informatics Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran
4. Department of Medical Informatics, Iran University of Medical Sciences, Tehran, Iran
5. Research Center for Social Determinants of Health, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran
6. Physiology Research Center, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

*Corresponding author:
Roghayeh Ershad Sarabi, PhD;
Department of Management and
Medical Information Sciences,
Kerman University of Medical
Sciences, Kerman, Iran.
Email: A.ershadsarabi@gmail.com

ABSTRACT

Background: Working in coal mines and factories poses severe long-term health risks for workers, leading to various diseases such as musculoskeletal disorders, cardiovascular issues, hearing and vision impairments, respiratory problems, and cancers. A promising approach to facilitate self-care is the development of mobile applications geared toward health management. This study aimed to design, develop, and evaluate a mobile application focused on self-care for respiratory diseases among coal workers.

Methods: This research was conducted in two phases. First, a need assessment was conducted by reviewing existing applications on Google Play, the Apple Store, and local app markets. A questionnaire was distributed to gather feedback from doctors and patients. The features receiving over 50% approval were selected for design. In the second phase, the application was developed using Java in the Android Studio environment. The development process involved iterative testing and refinement, where prototypes were evaluated by both healthcare professionals and potential end-users to ensure functionality and address any usability concerns prior to final deployment.

Results: The assessment identified 58 informational and educational needs across ten demographic categories, including clinical data, medication management, diet, and training. All identified needs received over 50% approval from doctors, which shaped the app's design. Key features of the application included general information on respiratory diseases, diagnostic and preventive methods, medication and nutritional management, pain and sleep management, and stress management.

Conclusion: The mobile application designed for self-care in respiratory diseases enhances awareness and knowledge among coal workers regarding symptoms and prevention strategies.

Please cite this article as: Tahami Z, Ershad Sarabi R, Moulaei K, Naghibzadeh-Tahami A. Design, Development and Evaluation of a Mobile Phone-Based Application for Self-Management of Respiratory Diseases among Coal Workers. Int J Nutr Sci. 2025;10(2-Supplement):S15.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Design, Implementation, and Evaluation of Acafib-App as a Clinical Decision Support System for Anticoagulant Considerations in Patients with Atrial Fibrillation

Ramin Ansari[1]*, Soha Namazi[1], Keyhan Mohammadi[1], Reza Mollazadeh[2], Ali Asghar Safaei[3], Eisa Rezaei[4], Mahboobeh Khabaz Mafinejad[5]

1. Department of Clinical Pharmacy, School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Cardiology, School of Medicine, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Medical Informatics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
4. Department of Medical Education, Virtual University of Medical Sciences, Tehran, Iran
5. Department of Medical Education, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Ramin Ansari, MD, PhD;
Department of Clinical Pharmacy,
School of Pharmacy, Tehran
University of Medical Sciences,
Tehran, Iran.
Email: ansariramin94@gmail.com

ABSTRACT

Background: Patients with atrial fibrillation (AF) are more prone to thromboembolic events. This study involved development and evaluation of mobile application for physicians to select appropriate anticoagulant drugs, considering comorbidities, laboratory data, and concurrent medications. The system was based on interpreting the recently accepted guidelines.

Methods: A semi-structured interview was conducted to extract cardiologists' needs in practice. Then the data were extracted from the latest guidelines till 2024, and confirmed by the expert panel. Using Microsoft Visio, each scenario and corresponding rule was modeled. The application was developed by Dart programming language, the Flutter framework, and the Visual Studio editor. The efficiency of the App was evaluated based on the 15 complicated clinical scenarios with the participation of 30 cardiologists in a before and after quasi-experimental study. The uMARS questionnaire was used to evaluate the application quality.

Results: The selection of the anticoagulants was reported to be the most challenging domain by 78.6% of the experts. The application was developed using Asp.net with the Microsoft SQL Server database platform (https://www.acafib.ir/#/login). This App is called Acafib-App, which stands for anticoagulant in AF Application. The user goes through various calculators and obtains the required data, to determine comorbidities. Finally, Acafib-App can represent the anticoagulant options with dosing and considerations. Three points improvement was observed while using the App (*p*=0.001, effect size: 1.71). All of the sections in the uMARS questionnaire received acceptable scores.

Conclusion: This App will facilitate the informed selection of anticoagulants for complicated AF cases by considering the patient clinical scenario.

Oral

Designing a Smartphone Application for Self-Management of Breast Cancer-Related Lymphedema

Mehrvash Hemati[1], Zahra Khademian[2]*, Mozhgan Rivaz[2]

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Zahra Khademian, PhD;
Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Zahrakhademian@yahoo.com

ABSTRACT

Background: Breast cancer-related lymphedema (BCRL) is one of the most common complications following breast cancer treatment. Lymphedema's symptoms negatively affect patients' activities, mental health, and quality of life (QoL). Effective self-management is a lifelong commitment that is critical in controlling symptoms, reducing the risk of complications, and enhancing QoL. Therefore, this study aimed to design a smartphone application to assist in the self-management of BCRL.

Methods: To develop the application, the researchers determined the mobile application's requirements, functionalities, and content. Then, they depicted the wireframe, prepared the media, and coded the application. Additionally, a software engineer designed the application using the Java programming language for both Android and iOS operating systems. Finally, an expert panel evaluated the content and performance of the application.

Results: The lymphedema self-management application contains ten modules, including "lymphedema reduction skills", "arm circumference measurement", "lymphedema information", "ask from the nurse", "online self-help group"m "application survey", "lymphedema diary", "calendar", "online exam" and settings. User feedback demonstrated that the modules effectively enhanced self-management skills and were well-received by patients. Furthermore, the application included a reminder system that notified users to perform various activities through text messages.

Conclusion: This application incorporates innovative features such as a personalized reminder system and an online self-help group, designed to address the unique needs of BCRL patients, improve their self-management capabilities, and support individualized care. The use of such mobile health technologies can significantly enhance patient access to lymphedema management, especially for those lacking access to specialized healthcare facilities.

Please cite this article as: Hemati M, Khademian Z, Rivaz M. Designing a Smartphone Application for Self-Management of Breast Cancer-Related Lymphedema. Int J Nutr Sci. 2025;10(2-Supplement):S17.

ORAL

Designing, Creating and Implementing the Serious Game Application against Diabetes Mellitus

Sadegh Sharafi[1], Zeynab Naseri[2], Amir Mohammad Parsanahad[3], Mohammad Naeim Mirzazadeh[4], Hossein Valizadeh Laktarashi[5]*

1. Abadan University of Medical Sciences, Abadan, Iran.
2. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Student Research Committee, Abadan University of Medical Sciences, Abadan, Iran.
4. Health Information Technology Association, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran.
5. Medical Informatics Department, School of Paramedical, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

ARTICLE INFO

Corresponding author:
Hossein Valizadeh Laktarashi, MSc;
Medical Informatics Department,
School of Paramedical, Shahid
Beheshti University of Medical
Sciences, Tehran, Iran.
Email: Valizadehhossein46@gmail.com

ABSTRACT

Background: Diabetes mellitus is a prevalent chronic metabolic disorder characterized by carbohydrate, protein, and fat metabolism abnormalities. It significantly contributes to complications such as cardiovascular diseases being a major cause of death among diabetic patients. Effective self-care practices, including dietary management, physical activity, foot care, and blood glucose monitoring, are essential to prevent complications and improve patients' quality of life. This study aimed to design, and evaluate a serious game-based mobile application to enhance diabetes self-care behaviors and increase public awareness about diabetes prevention and management.

Methods: The application was developed systematically, including expert consultations, interactive design, and pilot testing. Content was created based on priority areas identified through interviews with endocrinologists, dietitians, and diabetes specialists. The game integrates interactive educational modules, quizzes, and feedback mechanisms to promote behavioral change and increase user engagement. Pilot testing was conducted with healthcare professionals and community participants to gather feedback on usability and content relevance.

Results: Preliminary results indicate that the application successfully engages users and facilitates knowledge acquisition related to diabetes prevention and management. Feedback from users highlighted the platform's potential to empower individuals with practical skills for diabetes self-care. Moreover, usability testing demonstrated high satisfaction levels (86%), ease of use, and perceived effectiveness among participants.

Conclusion: The gamified mobile application offers an innovative approach to diabetes education and management. By providing an interactive, engaging, and scalable tool, it addresses key barriers to self-care while reducing the burden on healthcare systems.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Development and Integration of Virtual Reality and Telehealth in Metaverse

Fatemeh Miri[1], Sadegh Sharafi[2], Mozhdeh Heydari Sureshjani[1], Ferdos Hadideh[3], Zeynab Naseri[2]*

1. Student Research Committee, Abadan University of Medical Sciences, Abadan, Iran
2. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Abadan University of Medical Sciences, Abadan, Iran

ARTICLE INFO

Corresponding author:
Zeynab Naseri, MSc;
Student Research Committee,
Ahvaz Jundishapur University of
Medical Sciences, Ahvaz, Iran.
Email: Naseri.z@ajums.ac.ir

ABSTRACT

Background: Rapid technological advancements have paved the way for innovative healthcare solutions. Integrating virtual reality (VR) and telehealth into the metaverse holds transformative potential for healthcare delivery, bridges gaps in accessibility and enhances patient outcomes. This study explored the development and integration of virtual reality (VR) and telehealth services within the metaverse, aiming to create a comprehensive and immersive healthcare ecosystem.

Methods: The proposed framework leverages VR to simulate realistic clinical environments, and enables remote consultations, therapeutic interventions, and medical training. Telehealth integration ensures accessibility to real-time health data, diagnostics, follow-up care, and bridging geographical barriers. Our pilot implementation involved a prototype metaverse clinic, evaluated by 30 participants over six months. Key performance indicators included usability, patient satisfaction, and clinical efficacy.

Results: Findings reveal that 87% of participants reported high satisfaction with the VR-telehealth experience, and citing enhanced engagement and convenience. Clinicians highlighted improved diagnostic accuracy through immersive visualizations and real-time interactions. However, challenges such as data security, technical glitches, and user adaptability were identified. Additionally, 75% of users found the platform effective in reducing anxiety during remote consultations. The analysis also indicated a 30% improvement in adherence to prescribed therapeutic interventions compared to traditional telehealth.

Conclusion: This study demonstrated the potential of integrating VR and telehealth within the metaverse to revolutionize healthcare delivery. The findings lay the groundwork for a paradigm shift in digital health, fostering innovation and improving patient outcomes.

Please cite this article as: Miri F, Sharafi S, Heydari Sureshjani M, Hadideh F, Naseri Z. Development and Integration of Virtual Reality and Telehealth in Metaverse. Int J Nutr Sci. 2025;10(2-Supplement):S19.

ORAL

Development of a Local Web Application to Monitor Infant Growth in Mashhad, Iran

Elham Hoseinzadeh[1,2], Marziyeh Afkanpour[1], Mehri Momeni[2], Hamed Tabesh[3]*

1. Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Mashhad University of Medical Science, Mashhad, Iran
3. Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hamed Tabesh, PhD;
Department of Medical Informatics,
Faculty of Medicine, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Tabesh79@gmail.com

ABSTRACT

Background: Monitoring child growth is a vital aspect of global health services, as it directly impacts child health outcomes. The reliance on international standards, such as the National Center for Health Statistics (NCHS) growth charts, may not always be effective due to genetic, environmental, and ethnic variations among populations. Therefore, developing indigenous growth indicators tailored to local contexts is essential. In countries like Iran, manual growth monitoring practices can lead to recording errors and user mistakes, which underscores the necessity for implementing electronic systems. This study aimed to design and develop a comprehensive web application for monitoring the growth of children up to 24 months of age, utilizing data from the Sina system in Mashhad.

Methods: The study was conducted in two distinct phases. Phase one involved assessing user requirements, developing an initial prototype of the application, measuring mothers' satisfaction with the prototype, and refining the design based on feedback. Phase Two focused on the software development process.

Results: The resulting web application allowed for the creation of personalized profiles for each child. Additionally, it generated customized electronic growth charts that effectively displayed growth trends and patterns in infants, providing valuable insights for caregivers and healthcare professionals.

Conclusion: This web application serves as a localized system for monitoring infant growth in Mashhad, designed for use by parents, pediatricians, and endocrinologists. Given the unique growth patterns observed in Iranian infants, the system will be capable of updates every decade, ensuring its relevance and accuracy in tracking child growth over time.

Please cite this article as: Hoseinzadeh E, Afkanpour M, Momeni M, Tabesh H. Development of a Local Web Application to Monitor Infant Growth in Mashhad, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S20.

International Journal of Nutrition Sciences

Diabetic Amo as an Educational Mobile Game for Diabetic Patients

Zahra Koohmareh, Majid Karandish, Ali Mohammad Hadianfard*

Nutrition and Metabolic Disease Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Ali Mohammad Hadianfard, PhD;
Nutrition and Metabolic Disease
Research Center, Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran.
Email: Dr.ali.hadianfard@gmail.com

ABSTRACT

Background: Diabetes mellitus refers to a group of diseases that affect how the body uses blood sugar. The current study aimed to design a digital game for mobile devices to help individuals with type 2 diabetes mellitus understand food calories and the glycemic index. The goal was to educate diabetic patients on effectively managing their condition.

Methods: The game was developed using fuzzy logic, an artificial intelligence technique, and tested in MATLAB 2018. It was later converted to C# in Visual Studio and implemented in the unity environment. In the initial modeling phase, food calories and glycemic index values were put into the fuzzy input system. After several trials, a triangular membership function was selected due to its lower error rate compared to other membership functions. In the subsequent step, the fuzzy output was converted into a specific number using the centroid defuzzifier. Finally, the output was determined using the Mamdani fuzzy inference engine.

Results: The study resulted in the development of a mobile game called "Diabetic Amo" for diabetic patients. In this game, the first episode was completed when players correctly selected all the appropriate items. The objective of the second stage was to educate players about low-sugar and low-calorie foods. Players must continue progressing in the game to receive ratings for their choices, which ranged from "very bad" to "very good," with the ultimate goal of achieving a "very good" rating.

Conclusion: By focusing on patient education, such games can enhance motivation for self-care and improve compliance with treatment regimens for diabetes, as well as for various other diseases and health conditions.

Please cite this article as: Koohmareh Z, Karandish M, Hadianfard AM. Diabetic Amo as an Educational Mobile Game for Diabetic Patients. Int J Nutr Sci. 2025;10(2-Supplement):S21.

Effect of a Gamified Smartphone Application on Disease Activity Index, Quality of Life, and Mental Health in Adults with Inflammatory Bowel Disease

Narges Norouzkhani[1], Mahbobeh Faramarzi[2], Ali Bahari[3], Javad Shokri Shirvani[4], Saeid Eslami[1], Hamed Tabesh[1]*

1. Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Population, Family and Spiritual Health Research Center, Health Research Institute, Babol University of Medical Sciences, Iran
3. Department of Internal Medicine, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
4. Department of Internal Medicine, Babol University of Medical Sciences, Babol, Iran.

ARTICLE INFO

Corresponding author:
Hamed Tabesh, PhD;
Department of Medical Informatics,
Faculty of Medicine, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Tabeshh@mums.ac.ir

ABSTRACT

Background: Inflammatory bowel diseases (IBD), which include ulcerative colitis and Crohn's disease, are chronic conditions characterized by alternating periods of symptom flare-ups and remission. These diseases significantly diminish the quality of life of affected individuals and lead to increased healthcare utilization. Although effective treatment options are available, several barriers including poor adherence to medication, intolerance to therapies, inconsistent monitoring, and insufficient patient education impede optimal health outcomes. This study aimed to evaluate the effect of a gamified telemedicine intervention on disease activity and quality of life (QoL) in patients with IBD, contrasting it with standard care over a period of six months.

Methods: A multicenter, parallel, two-arm exploratory randomized controlled trial was conducted, utilizing a mobile phone-based self-management system that incorporated gamification techniques. With a follow-up period of six months, the trial assessed the effectiveness of the gamified app in managing disease activity, as well as improving mental health and other relevant health outcomes.

Results: The findings revealed that the intervention group showed significant improvements in both quality of life and self-efficacy when compared to the control group at 12 and 24 weeks. Statistically significant differences were particularly noted at the final assessment. Additionally, the intervention contributed to an enhanced understanding of the disease among participants.

Conclusion: This research underscores the potential for remote management interventions in IBD care and emphasizes the need for appropriate methods for evaluating health outcomes remotely. The findings will inform future studies aimed at identifying patient groups that may benefit from innovative care approaches.

ORAL

Emergency Call Analysis for Hospitalization Prediction

Mohammad Amin Keshavarz[1]*, Ali Akbar Asadipooya[1], Mohammad Javad Moradian[1], Mahdi Malekpour[1], Zahra Taghados[1], Mohammad Hossein Fatehi[2], Mehdi Taghizadeh[2], Nahid Abolpour[1], Mehrdad Sharifi[1]

1. Shiraz University of Medical Sciences, Shiraz, Iran
2. Islamic Azad University, Kazerun Branch, Kazerun, Iran

ARTICLE INFO

Corresponding author:
Mohammad Amin Keshavarz, MSc;
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Amin.bme7@gmail.com

ABSTRACT

Background: Efficiently predicting which patient calls emergency services are likely to require hospital admission that is critical for optimizing resource allocation and improving patient outcome. This study aimed to analyze emergency call data to identify key factors influencing hospital admission and develop predictive models for hospitalization.

Methods: Data was collected from the Emergency Medical Services (EMS) department of Shiraz University of Medical Sciences, Shiraz, Iran. The dataset included demographic information, call details, and medical conditions reported during the call. Machine learning (ML) and deep learning (DL) algorithms were employed for predictive modeling. ML techniques such as Random Forest and Gradient Boosting were compared with advanced DL architectures, including recurrent neural networks (RNNs) and transformer-based models. Feature selection techniques and hyperparameter optimization were applied to enhance model performance. Evaluation metrics included accuracy, precision, recall, and F1-score.

Results: Preliminary analysis revealed significant correlations between patient demographics, reported symptoms, and hospital admission likelihood. The best-performing model, a transformer-based architecture, achieved an accuracy of 92%, significantly outperforming traditional ML models. Key predictors included age, pre-existing conditions, and symptom severity reported during the call. The model's explainability was validated using SHAP (SHapley Additive exPlanations) values, ensuring transparency in decision-making.

Conclusion: Advanced DL models demonstrate superior accuracy in predicting hospital admissions based on emergency call data. This approach can support EMS systems in prioritizing critical cases and allocating resources more effectively.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Employing AI Algorithms for Early Detection of Glaucoma in Pseudoexfoliation Patients Using Optical Coherence Tomography Angiography

Soha Nohasfarmaniyeh[1], Tahereh Mahmodi[1]*, Hossein Parsaei[1], Ali Azimi[2], Mohammad Mehdi Movahedi[1]

1. Department of Medical Physics and Engineering, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Poostchi Ophthalmology Research Center, Department of Ophthalmology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Tahereh Mahmodi, PhD;
Department of Medical Physics and
Engineering, School of Medicine,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: T.mahmoudi94@gmail.com

ABSTRACT

Background: Glaucoma is still a prevalent ophthalmic disease. This study aimed to improve the early detection and management of glaucoma in exfoliation syndrome (XFS) patients, a condition associated with aging and contributing to 25-70% of secondary open-angle glaucoma cases. To the best of our knowledge, this research utilized machine learning algorithms and Optical Coherence Tomography Angiography (OCTA) images to classify individuals into healthy, XFS, and exfoliation glaucoma (XFG) groups. The goal was to develop an AI-assisted diagnostic system to support accurate and efficient clinical decisions.

Methods: The study included 25 eyes from 17 XFS patients, 32 eyes from 21 early XFG patients, and 34 healthy controls. OCTA images were analyzed to extract vascular parameters, such as vessel area density (VAD) and vessel skeleton density (VSD), and foveal avascular zone (FAZ) metrics, including area, perimeter, and form factor. Feature selection was performed using statistical analysis and sequential selection methods, with statistical analysis yielding optimal performance. Machine learning models, including Random Forest, Decision Tree, SVM, and Logistic Regression, were trained using 7-fold cross-validation.

Results: The Random Forest model achieved the highest accuracy (81.31%), outperforming Decision Tree (80.21%), SVM (58.24%), and Logistic Regression (63.73%). It also demonstrated strong sensitivity (Control: 82.00%, XFS: 83.00%, XFG: 79.00%), specificity (Control: 89.00%, XFS: 86.00%, XFG: 98.00%), and AUC values (Control: 0.90, XFS: 0.82, XFG: 0.93).

Conclusion: The findings highlight the Random Forest model's potential for early glaucoma diagnosis and disease progression monitoring in XFS patients, offering a valuable tool for improving clinical management.

ORAL

Examining the Role of Telemedicine in Expanding Geographic Justice in Access to Health and Medical Services: A Review

Fatemeh Banyahmad[1], Vahid Rasi[1], Abbas Fattahi[2], Mojtaba Pourmehdi[3], Sajed Arabian[1,3]*, Elyas Shoja Mareshk[1]

1. Health Services Management Unit, Department of Health Services Management, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Library and Information Sciences, Hamadan University of Medical Sciences, Hamadan, Iran
3. Student Research Committee, Department of Health Information Management, School of Health Management and Information, Shiraz University of Medical Sciences, Shiraz, Iran

---

*Corresponding author:
Sajed Arabian, PhD;
Student Research Committee,
Department of Health Information
Management, School of Health
Management and Information,
Shiraz University of Medical Sciences,
Shiraz, Iran.
Email: Arabiansajed22@gmail.com

ABSTRACT

Telemedicine is an innovative healthcare tool that can significantly enhance access to medical services, particularly in underprivileged areas where access to specialists and healthcare services is limited. The aim of this study was to investigate how telemedicine can contribute to expanding geographic justice in access to healthcare services. This study was conducted as a review, with data collected from credible databases, including PubMed, Web of Science, and Google Scholar, from 2023 to 2024. The review included studies that examined the impact of telemedicine on healthcare access. Keywords like "telemedicine", "geographic justice", "access to health services" and "remote medical services" were used to retrieve relevant articles. Only English-language articles focusing on telemedicine's effects on healthcare access were included. A total of 1,020 articles were retrieved, and 75 met the inclusion criteria for analysis. The results showed that telemedicine was effective in improving healthcare access, particularly in remote and underserved areas. In 63 articles (78%), telemedicine was identified as an efficient means of delivering healthcare services by reducing travel time and associated costs. However, 15 publications (22%) noted challenges such as technical issues, internet access, and patients' unfamiliarity with new technologies. In conclusion, telemedicine has a positive impact on improving access to medical specialists, especially in underserved regions. To fully leverage its potential, investments in technological infrastructure and patient education are necessary. Further research is needed to assess the long-term effects and refine the implementation of telemedicine to enhance healthcare access and promote geographic justice.

Please cite this article as: Banyahmad F, Rasi V, Fattahi A, Pourmehdi M, Arabian S, Shoja Mareshk E. Examining the Role of Telemedicine in Expanding Geographic Justice in Access to Health and Medical Services: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S25.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Exploring Teledermatology: A Pilot Study Focused on Elderly Care

Ronak Parandeh[1], Nader Pazyar[2], Amirabbas Azizi[3]*

1. Medical Informatics Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Dermatology, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. School of Allied Medical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Amirabbas Azizi, PhD;
School of Allied Medical Sciences,
Shiraz University Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran.
Email: Amirabbas.azizi@gmail.com

ABSTRACT

Background: The elderly population (aged 65 and older) often faces significant barriers to access in person dermatological care, including physical limitations, mobility issues, transportation challenges, and the financial costs associated with attending in person appointments. The aim of this pilot study was to assess the effectiveness and feasibility of teledermatology use to diagnose dermatological conditions in the elderly population. This study served as a preliminary step towards designing a larger-scale investigation.

Methods: A teledermatology application was utilized to capture and store images of skin lesions in elderly patients. Diagnoses made during in-person clinic visits were considered the gold standard. Two dermatologists independently reviewed the application data, and their diagnoses were compared with face to face evaluations using the Kappa coefficient to assess agreement.

Results: The study included 29 elderly participants with a mean age of 68 years (range: 65-78 years) and two dermatologists. The gender distribution was 31% male (n=9) and 69% female (n=20). In 38% (n=11) of the participants, the skin lesions were of a common type. The diagnostic concordance between the in-person examination and the teledermatology method was 93%, with a Kappa coefficient of 0.914.

Conclusion: Although the sample size was limited, the preliminary findings of this pilot study suggest that mobile-based teledermatology to hold considerable potential for facilitating remote diagnosis in the elderly population. However, further refinement of the application design and increased acceptance of telemedicine are essential for the success of future studies.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Home Management of Liver Cirrhosis with Cirrhocare®: A Digital-Health Solution Review

Sanaz Jamshidi[1], Seyed Jalil Masoumi[1]*, Mitra Soltani[2]

1. Center for Cohort Study of Shiraz University of Medical Sciences Employees, Shiraz University of Medical Sciences, Shiraz, Iran
2. Imam Reza Specialty and Subspeciality Clinic, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Center for Cohort Study of Shiraz
University of Medical Sciences
Employees, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

CirrhoCare® is an innovative digital health platform aimed at the effective diagnosis and management of liver cirrhosis. As liver disease continues to rise in prevalence, it is essential to investigate novel solutions such as CirrhoCare® to enhance patient outcomes and optimize care delivery. This review assesses the efficacy of CirrhoCare® in the diagnosis and treatment of liver cirrhosis by examining relevant literature of PubMed, Scopus, Web of Science and Google Scholar between 2017 and 2024 concentrating on the platform's diagnostic functions, adherence to treatment, and patient management results. The review identified relevant studies that illustrate CirrhoCare®'s contribution to improving diagnostic precision through real-time data analysis and patient-reported outcomes. Significantly, the platform enabled early cirrhosis detection, and achieving diagnostic high accuracy in certain groups. Furthermore, CirrhoCare® enhanced treatment adherence, as patients interacted with tailored care plans and educational materials. Participants expressed increased satisfaction levels, which were linked to the platform's intuitive interface and remote monitoring capabilities. In conclusion, CirrhoCare® stands out as a valuable resource for the diagnosis and management of liver cirrhosis, merging cutting-edge technology with a focus on patient-centered care. This review underscores its potential to boost diagnostic precision and treatment adherence, thereby improving the overall quality of life for patients. Patients managed by CirrhoCare® experience a reduction in both the frequency and duration of readmissions, thereby supporting the need for larger, confirmatory controlled clinical trials.

Please cite this article as: Jamshidi S, Masoumi SJ, Soltani M. Home Management of Liver Cirrhosis with Cirrhocare®: A Digital-Health Solution Review. Int J Nutr Sci. 2025;10(2-Supplement):S27.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Identifying the Challenges of Digital Health Technologies

Mahsan Afshar[1]*, Leila Najafi[2], Zeinab Khaledian[3]

1. Health Care Management Unit, Department of Management, Faculty of Medical Sciences, Islamic Azad University, Semnan Branch, Semnan, Iran.
2. Department of Health Services Management, Faculty of Medical Sciences, Semnan Branch, Islamic Azad University, Semnan, Iran
3. Department of Health Management, School of Medical Science, Islamic Azad University, Semnan Branch, Semnan, Iran.

ARTICLE INFO

Corresponding author:
Mahsan Afshar, MSc;
Department of Management,
Faculty of Medical Sciences, Islamic
Azad University, Semnan Branch,
Semnan, Iran.
Email: Mahsanafshar2023@gmail.com

ABSTRACT

Background: Digital health technologies offer many opportunities to transform the healthcare system. This system in our country faces many challenges for realization. The barriers prevent the full potential of digital health from being realized. This research seeks to identify the challenges of digital health technologies.

Methods: The research method is a hybrid type. In the first part, data was collected and analyzed with documentary studies and in the second part with the Delphi technique (elite consensus). In the Delphi technique, the opinions of 19 people were collected in 4 consecutive series. Sampling in the Delphi section was by snowball method. Challenges were classified into 3 groups of institutional challenges, control challenges and technology challenges.

Results: Solving the challenges of digital technologies improved the health of the healthcare system. They had the potential to significantly improve patient outcomes by providing more accurate diagnoses, more effective treatments, and improved patient engagement and compliance. Health care costs could be reduced by providing more efficient and effective medical services and by reducing the need for face-to-face visits. Access to health care increased through teleconsultation and patient support. By aggregating patient data from multiple healthcare providers, a more comprehensive digital health record could be created from each patient, providing healthcare providers with more accurate and comprehensive information.

Conclusion: Digital health technologies can significantly improve healthcare delivery by enabling informed clinical decisions. The increasing use of artificial intelligence in improving health also overcomes human limitations. Simulation can also reduce the spatial limitations.

ORAL

Impact of Mobile Health Diet Interventions on Cancer Survivors: A Review

Donya Firoozi*, Seyed Jalil Masoum, Leila Jampour, Ghazaleh Rashidizadeh

Nutrition Research Center, School of Nutrition and Food sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Donya Firoozi, PhD;
Nutrition Research Center, School of
Nutrition and Food sciences, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Donyafiroozi@gmail.com

ABSTRACT

Cancer survivors face unique dietary challenges due to the long-term effects of cancer and its treatments. Mobile health (mHealth) interventions offer a promising approach to improving dietary behaviors and health outcomes in this population. This review evaluated the effectiveness of mHealth diet interventions in cancer survivors, focusing on dietary adherence, quality of life, and health outcomes. This review was conducted in 2024, involved a comprehensive search of various online databases and search engines, including PubMed, Scopus, ScienceDirect, and Google Scholar. Outcomes of interest included changes in dietary intake, body composition, quality of life, and biomarkers of health. Of the 35 articles identified, 15 met the eligibility criteria and were included in the study. The interventions varied in duration (4 weeks to 24 months) and delivery modes, including apps, SMS, and online platforms. Most studies reported significant improvements in dietary adherence, with increased fruit and vegetable intake and reduced consumption of processed foods and fat. Several studies also demonstrated positive effects on quality of life, fatigue reduction, weight loss, and reductions in waist and hip circumference among cancer survivors. However, evidence on long-term adherence and the impact of mobile health on biomarkers, such as inflammatory markers and metabolic profiles, remains limited. In conclusion, mobile health dietary interventions demonstrate potential in improving dietary behaviors and enhancing quality of life in cancer survivors. However, more robust, long-term studies are needed to evaluate sustained behavioral changes and their impact on clinical outcomes.

ORAL

Innovative Smart Dressings and Wound Care Technologies to Enhance Outcomes in Burn Wound Management: A Review

Zahra Khademian[1], Abdolkhalegh Keshavarzi[2], Fatemeh Khademian[3]*

1. Community based Psychiatric Care Research Center, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Assistant Professor, Burn and Wound Healing Research Center, Department of General Surgery, Amiralmomenin Hospital, Shiraz University of Medical Sciences, Shiraz, Iran
3. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Khademian, PhD;
Information Technology Incubator
Centre, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Fkhademian90@yahoo.com

ABSTRACT

The management of burn wounds has significantly evolved with the introduction of smart dressings and advanced wound care technologies. This review aimed to assess the effectiveness of smart dressings, including hydrogel and bioactive dressings, as well as the impact of nanotechnology in promoting healing. A narrative review was conducted across various databases, including PubMed, Scopus, and Web of Science, concentrating on studies published between 2015 and 2024 using related keywords. This study identified different innovations in the field of burn wound care. Smart dressings utilizing hydrogel technology sustain a moist wound environment which is crucial for effective healing. These hydrogel dressings resulted in a 20% decrease in both pain and healing duration compared to conventional gauze. Additionally, bioactive dressings enhanced with growth factors demonstrated a 30% improvement in healing rates and a reduction in infection incidents. The application of nanotechnology, including silver nanoparticles and nanofibers, augmented antibacterial properties and stimulated cell proliferation, enhanced epithelialization and minimized scar formation. Furthermore, the incorporation of sensors into smart dressings enables the monitoring of critical parameters such as temperature, pH, and moisture levels, providing real-time insights into the wound environment. Temperature-sensitive sensors can facilitate early detection of infections by notifying healthcare providers of any increases in wound temperature. In conclusion, the findings underscore the significant impact that smart dressings and advanced wound care technologies can have on burn management. These innovations enhance monitoring, allow tailored treatment strategies, and lead to better clinical outcomes for patients suffering from burns.

Please cite this article as: Khademian Z, Keshavarzi A, Khademian F. Innovative Smart Dressings and Wound Care Technologies to Enhance Outcomes in Burn Wound Management: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S30.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Integrating Artificial Intelligence and Statistical Approaches to Explore Gut Microbiota-Amino Acid Interactions in Obesity

Melika Hajiani[1], Sanaz Jamshidi[2], Seyed Jalil Masoumi[3]*

1. Department of Clinical Nutrition. School of Nutrition and Food Science, Shiraz University of Medical Science, Shiraz, Iran.
2. Center for Cohort Study of Shiraz University of Medical Sciences Employees, Shiraz University of Medical Sciences, Shiraz, Iran.
3. Nutrition Research Center, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Center for Cohort Study of Shiraz
University of Medical Sciences
Employees, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

Background: Obesity and overweight as major global health challenges are influenced by genetics, metabolism, behavior, environment, and gut microbiota. The gut microbiota significantly impacts on fat and glucose metabolism that are linked to obesity. Dietary components like proteins and amino acids modulate gut microbiota composition, with certain amino acids improving metabolic health. This study explored the relationship between specific gut bacteria and branched-chain and aromatic amino acids using advanced statistical methods and artificial intelligence (AI) algorithms.

Methods: A cross-sectional study was conducted with 105 premenopausal women (BMI=25 kg/m²). Anthropometric measurements, body composition, physical activity levels, and dietary intake were assessed by a trained nutritionist. Stool samples were analyzed using real-time polymerase chain reaction. Statistical analyses, including multivariable regression models and the random forest algorithm, were performed using SPSS software.

Results: Significant negative associations were noticed between Enterococcus and tryptophan and phenylalanine, and nonlinear correlations were seen between Bacteroidetes and leucine, isoleucine, valine, and tryptophatn. Pearson's test identified significant correlations between Enterococcus and Lactobacillus with hip circumference, and Enterococcus and Firmicutes with waist-to-hip ratio. Enterococcus was negatively correlated with body fat percentage. However, regression analyses and AI algorithms revealed no significant associations after controlling of confounders.

Conclusion: These findings suggest Enterococcus and Bacteroidetes play roles in amino acid metabolism and protein breakdown. The use of AI algorithms alongside with traditional methods can improve the understanding of gut microbiota-nutrient interactions, highlighting their potential in personalized nutrition and therapeutic strategies.

Please cite this article as: Hajiani M, Jamshidi S, Masoumi SJ. Integrating Artificial Intelligence and Statistical Approaches to Explore Gut Microbiota-Amino Acid Interactions in Obesity. Int J Nutr Sci. 2025;10(2-Supplement):S31.

International Journal of Nutrition Sciences

ORAL

Integrating Telemedicine and Cost-Effective Neurosurgical Services in Iran's Strategic Role to Advance Global Health Tourism: A Review

Hossein Moein Jahromi[1]*, Abdolkarim Rahmanian[2]

1. Entrepreneurship Management Department, University of Sistan and Baluchestan, Zahedan, Iran
2. Assistant Professor Department of Neurosurgery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Hossein Moein Jahromi, MSc;
Entrepreneurship Management
Department, University of Sistan and
Baluchestan, Zahedan, Iran.
Email: Hosseinmoein@pgs.usb.ac.ir

ABSTRACT

The high cost of neurosurgical services in many developed countries limits access to advanced medical care for patients worldwide. In contrast, Iran offers neurosurgical procedures of comparable or even superior quality at significantly lower costs. This study determined integrating telemedicine and cost-effective neurosurgical services in Iran's strategic role to advance global health tourism. This substantial price difference presents a unique opportunity to attract international patients, expand the country's medical tourism industry, and generate valuable foreign currency revenue. By leveraging these competitive advantages, Iran can position itself as a global hub for high-quality yet affordable healthcare. To capitalize this opportunity, an innovative platform has been established, combining the expertise of Iran's top neurosurgeons with state-of-the-art telemedicine technologies. This system enables patients to access online consultations, receive personalized treatment plans, and benefit from follow-up care without the need for expensive and time-consuming travel. Additionally, it offers a comprehensive range of health tourism services, including visa facilitation, luxury accommodations, VIP transportation, and post-operative rehabilitation, ensuring a seamless experience for international patients. The platform also incorporates advanced radiology transfer systems that enables secure and rapid sharing of medical images for timely diagnoses and treatment recommendations. Collaborating with world-class hospitals and medical professionals ensures that all services meet the highest international standards. The stark contrast in treatment costs, combined with exceptional service quality, makes Iran an attractive destination for medical tourism. In conclusion, this innovative approach not only enhances global access to affordable neurosurgical care but also establishes a sustainable pathway for economic growth through foreign currency earnings. It sets a new benchmark for cost-effective and high-quality healthcare delivery worldwide.

Please cite this article as: Moein Jahromi H, Rahmanian A. Integrating Telemedicine and Cost-Effective Neurosurgical Services in Iran's Strategic Role to Advance Global Health Tourism: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S32.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Interpreting You Only Look Once Model Decisions in Skin Cancer Diagnosis through Local Interpretable Model-agnostic Explanations

Tahereh Tamadon*, Omid Bushehrian, Reza Javidan

Shiraz University of Technology, Shiraz, Iran

**Corresponding author:*
Tahereh Tamadon, MSc;
Shiraz University of Technology,
Shiraz, Iran.
Email: Tahereh.tamadon@birjand.ac.ir

ABSTRACT

Background: Skin cancer is one of the most common types of cancer, caused by the abnormal growth of skin cells. For this reason, early detection of this disease is crucial for its rapid treatment. Today, artificial intelligence (AI) models have accelerated the process of diagnosing and treating various types of cancer. However, these models are black-box and their decision-making logic is unclear; therefore, they are unreliable. Thus, with the help of explainable artificial intelligence (XAI), they try to explain the results of these models to the human user so that they can be used in vital fields.

Methods: In this article, we use a one stage object detector called You Only Look Once (YOLO) to detect various types of skin cancer. We then applied the Local Interpretable Model-agnostic Explanations (LIME) algorithm to illustrate the reasons behind YOLO model decisions in predicting an image. In other words, the highlighted areas in an image explained the important reasons for the model's decision-making.

Results: Since different versions of YOLO perform well in detecting a specific type of skin cancer, we would evaluate its performance. The results indicated improvements in accuracy, precision, recall, and F1-score metrics. Therefore, physicians would decide whether to trust it based on the provided explanations.

Conclusion: By using YOLO+LIME, we can assist medical systems in accelerating the process of skin cancer diagnosis by explaining the results of intelligent models. As a result, users in this field can understand the reasons behind these models' decision-making and utilize them in critical areas.

Please cite this article as: Tamadon T, Bushehrian O, Javidan R. Interpreting You Only Look Once Model Decisions in Skin Cancer Diagnosis through Local Interpretable Model-agnostic Explanations. Int J Nutr Sci. 2025;10(2-Supplement):S33.

International Journal of Nutrition Sciences

Oral

Investigating the Impact of Mobile Internet of Things on Improving the Quality of Life of Chronic Obstructive Pulmonary Disease Patients by Adjusting Rehabilitation Activities for Patients

Amir Mohammad Parsasanahad[1], Hossein Valizadeh Laktarashi[2], Zeynab Naseri[3], Sadegh Sharafi[3]*

1. Student Research Committee, Abadan University of Medical Sciences, Abadan, Iran
2. Medical Informatics, School of Paramedical, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

*Corresponding author:
Sadegh Sharafi, MSc;
Student Research Committee,
Ahvaz Jundishapur University of
Medical Sciences, Ahvaz, Iran.
Email: Sadeghsharafi1995@gmail.com

ABSTRACT

Background: Chronic_Obstructive_Pulmonary_Disease (COPD) is a chronic lung disease that is usually associated with smoking and occupational factors and disrupts the daily lives of patients. In order to improve the living conditions of patients, physical activities are recommended to rehabilitate the physical and mental conditions of these people. To monitor the impact of these activities, we use a mobile-based Internet of Things (IoT) in which the level of effectiveness is daily monitored by recording these activities.

Methods: In a case-control study, 76 patients with COPD were examined, of which 38 patients were assessed with the help of the application in terms of sports activities, breathing techniques, diet, psychosocial support and treatment plan for three months. At the end, their level of psychological improvement was monitored through the questionnaires available in the application and their level of physical improvement was monitored through measuring their FEV1.

Results: In this study, 34 out of 38 patients followed the program completely and completed and recorded the required activities at the end of the day. In terms of age, the patients were in the age range of 65±3 years and were in levels C and D according to the GOLD criteria. Of these, about 27 patients had 12% improvement in FEV1 compared to the control group and good satisfaction with their living conditions.

Conclusion: It seems that using an Internet-based system and monitoring patients has a positive effect on their adherence to rehabilitation activities and improving their living conditions.

Please cite this article as: Parsasanahad AM, Valizadeh Laktarashi H, Naseri Z, Sharafi S. Investigating the Impact of Mobile Internet of Things on Improving the Quality of Life of Chronic Obstructive Pulmonary Disease Patients by Adjusting Rehabilitation Activities for Patients. Int J Nutr Sci. 2025;10(2-Supplement):S34.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Oral

The Impact of Using Mobile Health Technology on Obesity Prevention and Education for Mothers of School-Aged Children

Fatemeh Vizehfar[1]*, Pegah Pourtavalari[2], Nasrin Sharifi[3], Nahid Zarifsanaiey[4]

1. Community Based Psychiatric Care Research Center, Nursing Department, Shiraz University of Medical Sciences, Shiraz, Iran
2. Community Health Nursing Department, Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
3. Epidemiology Unit, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
4. Planning, Department of E-learning Unit, Virtual School, Center of Excellence for e-Learning in Medical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Vizehfar, PhD;
Community Based Psychiatric
Care Research Center, Nursing
Department, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Vizeshfarf@sums.ac.ir

ABSTRACT

Background: Obesity in children is one of the most important problems of today's societies. One of the important reasons for this overweight in children is the low knowledge of parents and especially mothers in the field of obesity and overweight. This study aimed to determine the impact of mobile health technology in educating mothers on obesity prevention in school-aged children in selected schools in Shiraz, southern Iran.
Methods: This clinical trial employed a pre-test and post-test design with two groups of intervention and control. The research population consisted of all mothers with school-aged children enrolled in elementary schools in Shiraz. A total of 78 mothers were selected using a combined sampling method and were divided into intervention and control groups. For the intervention group, a virtual group was created in the "Bale" software, and educational materials were sent to the mothers over four sessions in PDF files, PowerPoint presentations, and educational videos. Both groups completed pre-tests and post-tests. The data were collected and analyzed using SPSS software.
Results: There was no significant difference between the intervention and control groups before the intervention. However, a statistically significant difference was observed in the mean knowledge scores of the mothers in the intervention group compared to the control group after the intervention concerning the definition of obesity and overweight ($p=0.004$), physical activity ($p=0.001$), and child nutrition ($p=0.001$).
Conclusion: Education based on mobile health technology increased mothers' knowledge about obesity in children and strategies for its prevention.

International Journal of Nutrition Sciences

ORAL

Lung Tumor Detection in Computed Tomography Scan Images Using Deep Convolutional Neural Network

Mehdi Golshan[1]*, Azita Amini[2]

1. Department of Computer Engineering, Sepidan Branch, Islamic Azad University, Sepidan, Iran
2. Department of Computer Engineering, Kazeroon Branch, Islamic Azad University, Kazeroon, Iran

ARTICLE INFO

Corresponding author:
Mehdi Golshan, PhD;
Department of Computer
Engineering, Sepidan Branch, Islamic
Azad University, Sepidan, Iran.
Email: Mehdi.golshan@iau.ac.ir

ABSTRACT

Background: Lung cancer is among the most prevalent cancers worldwide, contributing to a significant proportion of cancer-related deaths. Early and accurate lung cancer detection greatly enhances patient outcomes and survival rates. Artificial intelligence (AI) tools have shown substantial promise in analyzing CT scan images to improve the efficiency and precision of identifying lung abnormalities, enabling proactive interventions and better prognoses. This study aimed to detect lung tumors in computed tomography (CT) scan images using a deep convolutional neural network (CNN).

Methods: The study used the Kaggle Lung Cancer CT Scan Dataset with 315 images classified into adenocarcinoma (120 images), large cell carcinoma (51 images), squamous cell carcinoma (90 images), and normal (non-cancerous) lung tissue (54 images). Preprocessing steps, including resizing, normalization, and data augmentation, were applied to prepare the dataset for training and evaluating deep learning models. This study used a CNN-based approach for lung tumor detection and compared it with traditional machine learning methods (SVM, RF, KNN). Optimal CNN hyperparameters were determined by minimizing classification errors on tested data. Performance was evaluated using accuracy, precision, recall, and F1-score.

Results: The classification accuracy values for adenocarcinoma, large cell carcinoma, squamous cell carcinoma, and normal lung tissue classes were 94.25%, 91.84%, 93.56%, and 96.12%, respectively, highlighting the model's effectiveness in detecting and classifying lung tumors accurately.

Conclusion: The study findings confirm that the proposed CNN model outperforms traditional machine learning approaches such as SVM, RF, and KNN, achieving higher accuracy and lower error rates.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Machine Learning in Personalized Treatment of Diabetes Management: A Review

Alireza Akbari[1], Amir Jamshidnezhad[2]*, Amirhossein Chegeni[1], Ziba Gharibi Torkani[1], Arash Seraj Zadeh[3]

1. Health Information Technology, Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Health Information Technology, School of Allied Medical Sciences, Ahvaz Jundishapour University of Medical Sciences, Ahvaz, Iran
3. Bachelor of Science in Nutrition Student, Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Amir Jamshidnezhad, PhD;
Department of Health Information
Technology, School of Allied Medical
Sciences, Ahvaz Jundishapour
University of Medical Sciences,
Ahvaz, Iran.
Email: Dr.jamshidnejad@gmail.com

ABSTRACT

Diabetes is a chronic metabolic disorder with high blood sugar that requires personalized care for effective management. Machine learning (ML) analyzes data to develop customized treatment plans, refine therapeutic strategies, and enhance outcomes. This innovative approach improves disease control and significantly enhances the quality of life for individuals living with diabetes. Using keywords and logical operators, a search was performed in databases of PubMed, Science Direct, and Google Scholar, which initially identified 112 articles. After eliminating duplicates and applying selection criteria, the list was narrowed down to 11 relevant studies. Of these, 4 pivotal articles were chosen for in-depth analysis. The articles we reviewed pointed out some important ways of ML to be used in diabetes care. One study examined smart insulin pumps that adjusted doses based on glucose levels. Other artificial intelligence (AI) systems provided personalized advice on diet, exercise, and medications to help control blood sugar levels. Advanced techniques also helped recognize complex patterns in glucose levels among patients. Two studies used recommender systems to give tailored suggestions based on individual lifestyles and applied computer vision for analyzing medical images. Machine learning has enhanced diagnostic accuracy and disease management by predicting diabetes progression, identifying risk factors, and prioritizing patients requiring urgent care. Digital innovations and ML have made significant strides in diabetes management and prevention. In conclusion with tools like biosensors and automated systems, these advancements personalized care, optimize diagnosis, and improved treatments ultimately enhance the quality of life for patients and open new doors for research and healthcare improvement.

Please cite this article as: Akbari AR, Jamshidnezhad A, Chegeni AH, Gharibi Torkani Z, Seraj Zadeh A. Machine Learning in Personalized Treatment of Diabetes Management: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S37.

International Journal of Nutrition Sciences

ORAL

Mobile-Based Logotherapy: Addressing Depression, Suicidal Ideation, and Hopelessness in Major Depressive Disorder

Maryam Shaygan*, Fahimeh Alsadat Hosseini

Community Based Psychiatric Care Research Center, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Maryam Shaygan, PhD;
Community Based Psychiatric Care
Research Center, School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: M2620.shaygan@gmail.com

ABSTRACT

Background: It is essential to study and use effective, available, and affordable psychotherapy methods along with drug therapy to manage the symptoms of major depressive disorder. Therefore, the current study aimed to determine the effect of mobile phone-based logotherapy on depression, suicidal ideation, and hopelessness in patients with major depressive disorder by using a mixed-methods approach.

Methods: Seventy patients completed the quantitative phase (control group p=35, intervention group p=35). The intervention group received an eight-week mobile-based logotherapy program via WhatsApp (one 180-min module per week) combined with sertraline, while the control group received just sertraline plus education about pharmacotherapy. Data was collected before, immediately after the intervention, and 3 months later using the Beck Depression Inventory Short Form Items, the Beck Hopelessness Scale, and the Beck Scale for Suicide Ideation. Then, a qualitative study on the intervention group was conducted.

Results: A significant interaction effect of time and group on the set of dependent variables (F(6,63)=25.218, p=0.001) was demonstrated. Qualitative analysis confirmed the efficacy of sertraline plus mobile-based logotherapy on depression, suicidal ideation, and hopelessness in the intervention group. Three key themes extracted from the participants' experiences of mobile-based logotherapy were "efficient instruction", "user-friendly intervention" and "constructive change".

Conclusion: The mobile-based logotherapy was an effective method for decreasing depression, hopelessness, and suicidal ideation in the patients. It is suggested that educational, institutional, and technological infrastructure for providing and using mobile-based logotheapy for patients with major depressive disorder to be considered in the mental health care system.

Please cite this article as: Shaygan M, Hosseini FA. Mobile-Based Logotherapy: Addressing Depression, Suicidal Ideation, and Hopelessness in Major Depressive Disorder. Int J Nutr Sci. 2025;10(2-Supplement):S38.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Optimized Computation Offloading and Resource Allocation for Healthcare Complexes Using Mixed-Integer Programming

Leila Fazeli*, Reza Javidan

Department of Computer Engineering and IT, Shiraz University of Technology, Shiraz, Iran

*Corresponding author:
Leila Fazeli, PhD;
Department of Computer Engineering
and IT, Shiraz University of
Technology, Shiraz, Iran.
Email: Leilafazeli@gmail.com

ABSTRACT

Background: Healthcare complex hospitals and clinics face significant computational challenges in managing tasks for numerous patients. Efficient allocation of computational resources and offloading decisions are critical to minimize delays and operational costs while adhering to constraints such as task dependencies and server capacity. This study addressed these challenges by proposing an optimized framework for resource management in healthcare systems.

Methods: We developed a nonlinear mixed-integer programming (NMIP) model to minimize system-wide computation delay and operational costs. The model incorporates healthcare system constraints, including task dependencies and server capacity. To handle the complexity of NMIP, we linearized the model into a mixed-integer linear programming (MILP) formulation, enabling the use of efficient MILP solvers. A centralized broker was introduced to offload tasks to servers based on their capacity and proximity, ensuring efficient task distribution and reduced latency.

Results: The proposed framework effectively balanced the load among servers, significantly reducing task completion time and improving healthcare service quality. The linearized MILP model demonstrated computational feasibility and scalability, even under varying task loads. Sensitivity analysis confirmed the system's adaptability to changes in resource availability and task demands, highlighting its robustness in dynamic healthcare environments.

Conclusion: This study provides a robust framework for computation offloading and resource allocation in healthcare, offering scalable and efficient solutions for real-world applications. The approach can be extended to other domains requiring similar computational optimizations. By adopting this method, healthcare facilities can enhance resource management, reduce processing time, and improve overall system efficiency.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Paramedical Students Knowledge, Attitude, Skills and Experience towards Telehealth in Education

Reyhane Norouzi Aval[1,2], Seyyedeh Fatemeh Mousavi Baigi[1,2], Masoumeh Sarbaz[1,2], Khalil Kimiafar[1,2]*

1. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Khalil Kimiafar, PhD;
Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran.
Email: Kimiafarkh@mums.ac.ir

ABSTRACT

Background: The Telehealth approach is one of the important features of future medical education. Therefore, this study aimed to investigate the knowledge, attitude, skills and experience of paramedical students in the field of telehealth.

Methods: This cross-sectional study was conducted in October 2024. A valid questionnaire included 17 questions about interest, knowledge, importance, various applications, and experiences in telehealth was used. The validity of the questionnaire was measured by the consensus of experts, and its reliability was evaluated based on the test-retest method (Cronbach's alpha: 78%).

Results: A total of 132 students responded to the survey (response rate: 100%). A total of 72.7% of the students were very and relatively interested in telehealth and 77.3% of the students stated that telehealth technology was important to them during their studies. On the other hand, only 11.4% of the students stated that they dealt with telehealth programs in their careers and knew their applications. There was a significant difference between different educational levels in terms of knowledge in the field of telehealth ($p=0.014$), and perceived importance of telehealth in education ($p=0.042$).

Conclusion: Given the high observed interest and mostly positive attitudes, but relatively low levels of perceived knowledge and experience in telehealth, we conclude that promoting telehealth education for medical students is important.

Please cite this article as: Norouzi Aval R, Mousavi Baigi SF, Sarbaz M, Kimiafar K. Paramedical Students Knowledge, Attitude, Skills and Experience towards Telehealth in Education. Int J Nutr Sci. 2025;10(2-Supplement):S40.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Quality Assessment of Persian Mobile Application Rating Scale (MARS) for Dietary Management

Fatemeh Khademian[1], Seyed Jalil Masoumi[2,3,4]*, Melika Hajiani[5], Zahra Khademian[6], Sanaz Jamshidi[4]

1. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
4. Center for Cohort Study of Shiraz University of Medical Sciences Employees, Shiraz University of Medical Sciences, Shiraz, Iran
5. Department of Clinical Nutrition, School of Nutrition and Food Science, Shiraz University of Medical Science, Shiraz, Iran
6. Community Based Psychiatric Care Research Center, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

---

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Science, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

Background: The proliferation of mobile health applications has transformed dietary management and self-monitoring practices. These applications facilitate real-time dietary tracking and motivate healthy eating. With ramping up of Persian-language applications for dietary management and calorie tracking, attention needs to be directed toward evaluating their quality and effectiveness. In this regard, Mobile Application Rating Scale (MARS) provides a comprehensive evaluation framework for a variety of health-related applications, focusing on user engagement, functionality, aesthetics, and information quality that was the aim of this study.

Methods: A systematic search of Cafe Bazar and Google Play Store was conducted for diet-related and calorie-tracking applications with over 10,000 downloads and an average rating above three stars, provided the last update of the application was within the past year and lacked negative reviews from users. Each app was scored using the MARS tools.

Results: A total of 13 applications met our inclusion criteria. The mean MARS score across the evaluated apps was 3.1 out of 5, indicating moderate quality. The highest scores were observed in aesthetics (3.4); while information received the lowest score (2.50). Most apps provided features such as calorie tracking and meal suggestions but lacked interactive elements to enhance user engagement. The moderate quality score indicates while there are promising applications, there remains an opportunity for enhancement, particularly in information and educational content.

Conclusion: Findings underscore the need for developers to prioritize not only visual and functional aspects of their applications; but also accuracy and comprehensiveness of the information provided so that users can effectively utilize these apps for dietary management.

Please cite this article as: Khademian F, Masoumi SJ, Hajiani M, Khademian Z, Jamshidi S. Quality Assessment of Persian Mobile Application Rating Scale (MARS) for Dietary Management. Int J Nutr Sci. 2025;10(2-Supplement):S41.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Predicting Heart Failure and Attack with Data Mining

Najmeh Sadeghi Roonizi[1]*, Raouf Khayami[1], Reza Javidan[1], Mohsen Goharinia[2], Abdulhakim Alkamel[3]

1. Shiraz University of Technology, Shiraz, Iran
2. Department of Pharmacology, Faculty of Medicine, Fasa University of Medical Sciences, Fasa, Iran
3. Department of Cardiology, Faculty of Medicine, Fasa University of Medical Sciences, Fasa, Iran

ARTICLE INFO

ABSTRACT

Background: Heart failure and myocardial infarction (MI) are among the leading causes of mortality worldwide, significantly impacting both treatment costs and patient quality of life. Early diagnosis and prediction of these conditions can reduce mortality and improve treatment outcomes. In recent years, data mining has emerged as a powerful tool in medicine for analyzing large datasets and uncovering hidden patterns, thereby aiding physicians in making more accurate and timely decisions.

Methods: This study employed various data mining techniques to predict and diagnose heart failure and MI. The dataset utilized included critical parameters such as age, gender, blood pressure, blood sugar, and smoking status. Data preprocessing involved thorough cleaning and normalization to ensure data integrity. Classification algorithms were used for data analysis, and model performance was evaluated using key metrics such as accuracy, sensitivity, and specificity.

Results: It was shown that decision tree and neural network algorithms performed exceptionally well, with significantly high sensitivity and specificity, indicating effective patient diagnosis. Furthermore, medical parameters such as hypertension and hyperglycemia were identified as crucial factors in predicting these conditions.

Conclusion: This study highlights the effectiveness of data mining techniques in predicting and diagnosing heart failure and MI. Decision tree and neural network algorithms showed superior performance, underscoring their potential in aiding physicians in making timely decisions. This can lead to improved treatment outcomes and reduced mortality. Future developments in combining data mining models are expected to yield more accurate prediction systems, ultimately enhancing patient health and quality of life.

*Corresponding author:
Najmeh Sadeghi Roonizi, PhD;
Shiraz University of Technology,
Shiraz, Iran.
Email: N.sadeghi10@yahoo.com

Please cite this article as: Sadeghi Roonizi N, Khayami R, Javidan R, Goharinia M, Alkamel A. Predicting Heart Failure and Attack with Data Mining. Int J Nutr Sci. 2025;10(2-Supplement):S42.

International Journal of Nutrition Sciences

ORAL

Predictive Power of Nutrient-Rich Food Scores, Body Composition Factors, and Physical Activity in Beginner Athletes Using Artificial Intelligence Models

Mohammad Vesal Bideshki[1,2], Hannane Jozi[1,2], Ehsan Behzadi[3], Mehrdad Behzadi[4]*

1. Department of Biochemistry and Diet Therapy, School of Nutrition and Food Science, Tabriz University of Medical Sciences, Tabriz, Iran
2. Student Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran
3. Department of Food Science and Technology, Sarvestan Branch, Islamic Azad University, Sarvestan, Iran
4. Student Research Committee, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mehrdad Behzadi, MSc;
Student Research Committee,
School of Nutrition and Food Sciences,
Shiraz University of Medical Sciences,
Shiraz, Iran.
Email: Mehrdad.behzadi.39@gmail.com

ABSTRACT

Background: Metabolic risk factors significantly impact the health and performance of beginner athletes. This study aimed to evaluate the predictive power of metabolic risk factors using Nutrient-Rich Food (NRF) scores, body composition metrics, and physical activity through artificial intelligence (AI) models.

Methods: A total of 300 beginner athletes (18-40 years, BMI≥25) participated in this cross-sectional study. Body composition parameters, including fat mass, lean body mass, and body fat percentage, were assessed using bioelectrical impedance analysis (BIA). Dietary intake was analyzed using a validated Food Frequency Questionnaire (FFQ), and NRF scores were calculated. Biochemical markers such as lipid profiles (TC, TG, HDL, LDL), fasting blood glucose (FBS), and insulin were measured from fasting blood samples. Data analysis was performed using a random forest algorithm, with 70% of the data used for training and 30% for testing. Model performance was evaluated based on accuracy, sensitivity, specificity, and the area under the curve (AUC).

Results: The AI model achieved high predictive accuracy (91%), sensitivity (87%), and an AUC of 0.93. NRF scores and body composition metrics, particularly body fat percentage and fat mass, emerged as the strongest predictors of metabolic risk factors. Significant associations were found between NRF scores and lipid profiles and between body fat percentage and fasting insulin levels.

Conclusion: This study underscores the potential of integrating dietary quality, body composition, and AI-based models to predict and manage metabolic risk factors in beginner athletes, enabling personalized interventions to enhance their health and performance.

International Journal of Nutrition Sciences

ORAL

Preferences and Challenges of Radiologists in Using AI-Based Teleradiology Systems

Bayaneh Amini[1], Elahe Hosseini[1], Bahlol Rahimi[2]*, Tahereh Samimi[1], Kasra Kashani[2], Seyed Mohsen Hosseini[2], Sina Veisi[2]

1. Student Research Committee, Medical Informatics Department, Urmia University of Medical Sciences, Urmia, Iran
2. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Bahlol Rahimi, PhD;
Health and Biomedical Informatics
Research Center, Urmia University of
Medical Sciences, Urmia, Iran.
Email: Bahlol.rahimi@gmail.com

ABSTRACT

Background: Telemedicine technologies, especially in the field of radiology, have achieved remarkable advancements with the use of artificial intelligence. Artificial intelligence (AI) is capable of accelerating the medical image diagnosis process, increasing accuracy, and reducing human errors. These technologies enable radiologists to remotely examine medical images and make better treatment decisions. However, the adoption of these systems is influenced by various factors, such as user preferences, security concerns, and the level of awareness among radiologists. The goal of this study was to examine these factors and identify the challenges for the optimal development of tele-radiology systems.

Methods: This study employed a quantitative research design, collecting data through structured questionnaires from 43 radiologists. The survey focused on three areas of desired features of tele-radiology systems, security concerns, and radiologists' awareness of emerging technologies. The sample was randomly selected for adequate representation.

Results: It was shown that 75% of radiologists considered data security the most important factor in choosing tele-radiology systems, while 68% emphasized the importance of a simple user interface. Additionally, 59% highlighted the need for high accuracy in diagnostic algorithms. Challenges such as high costs, security concerns, and lack of specialized training were identified as key barriers to adopting tele-radiology technologies. These insights can guide system designers in improving these technologies.

Conclusion: To facilitate the adoption of tele-radiology systems, focusing on improving algorithm accuracy, user experience, and data security is crucial, while reducing costs and strengthening infrastructure should be prioritized by policymakers.

Please cite this article as: Amini B, Hosseini E, Rahimi B, Samimi T, Kashani K, Hosseini SM, Veisi S. Preferences and Challenges of Radiologists in Using AI-Based Teleradiology Systems. Int J Nutr Sci. 2025;10(2-Supplement):S44.

International Journal of Nutrition Sciences

ORAL

Real-Time Monitoring of Hypertension Using Chatbots Integrated with Smart Wearables

Narges Norouzkhani[1]*, Sarvar Moloukzadeh[2]

1. Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Nursing, School of Nursing and Midwifery, Amol, Iran

ARTICLE INFO

Corresponding author:
Narges Norouzkhani, PhD;
Department of Medical Informatics,
Faculty of Medicine, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Narges.norouzkhani@yahoo.com

ABSTRACT

Background: Hypertension affects over a billion people globally, and traditional practices lack continuous monitoring. This paper discusses integrating smart wearables with artificial intelligence (AI) chatbots for real-time hypertension tracking, enhancing patient engagement and offering personalized advice through continuous data collection.

Methods: The proposed system utilizes smart wearables equipped with sensors and oscillometry to continuously monitor blood pressure and vital signs. These devices transmit real-time data to a mobile application or cloud platform, where advanced algorithms analyze the information. A chatbot powered by natural language processing (NLP) and machine learning (ML) algorithms offers personalized feedback based on users' health data. It alerts users to abnormal readings, provides lifestyle advice, reminds them to take medications, and educates them on hypertension management. Data privacy and security measures comply with healthcare regulations, ensuring seamless integration into clinical workflows, including electronic health records (EHRs).

Results: The integration of chatbots and smart wearables demonstrated significant potential in improving hypertension management. Continuous monitoring allowed for accurate tracking of blood pressure fluctuations, enabling the chatbot to deliver real-time alerts and recommendations. Patients reported increased engagement in health management and improved medication adherence. Although there were occasional accuracy issues with wearable readings, the system provided valuable insights, particularly in identifying early signs of hypertension-related complications.

Conclusion: Integrating AI chatbots with smart wearables shows great potential for improving hypertension management through real-time monitoring, better medication adherence, and patient empowerment. Although there are challenges, future tech advancements promise even more personalized and effective care.

Please cite this article as: Norouzkhani N, Moloukzadeh S. Real-Time Monitoring of Hypertension Using Chatbots Integrated with Smart Wearables. Int J Nutr Sci. 2025;10(2-Supplement):S45.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Retinex-AMD: Revolutionizing Age-Related Macular Degeneration Detection Using Artificial Intelligence

Negar Khalaf[1], Sina Shahparast[1], Zahara Fathollahi[1], Vahid Sadeghi[1], Tahereh Mahmoudi[2], Hossein Harsaei[2]*, M. Hossein Nowroozzadeh[3], Elias Khalilipour[4], Siamak Yousefi[5]

1. Novin Salamat Pars Incorporation, Shiraz, Iran
2. Department of Medical Physics and Biomedical Engineering, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
3. Poostchi Ophthalmology Research Center, Department of Ophthalmology, Shiraz University of Medical Sciences, Shiraz, Iran
4. Retina Ward, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran
5. Department of Ophthalmology, University of Tennessee, Health Science Center, Memphis, TN, USA

ARTICLE INFO

Corresponding author:
Hossein Harsaei, PhD;
Department of Medical Physics and
Biomedical Engineering, School
of Medicine, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Hparsaee@gmail.com

ABSTRACT

Background: Age-related macular degeneration (AMD) is one of the leading causes of vision loss among individuals over 50 years old, with a projected global prevalence of 288 million cases by 2040. AMD manifests in both dry and wet forms, significantly impairing central vision and negatively affecting daily activities and overall quality of life. Early screening is essential to slow disease progression. This study introduced RETINEX-AMD, an innovative AI-based system designed to automate the screening of AMD in fundus images, with the goals of enhancing diagnostic accuracy, improving efficiency, and increasing patient access to diagnosis and care.

Methods: The system utilized CNNs to identify key features associated with AMD, such as drusen, and signs of neovascularization. The model was trained on a diverse dataset of over 19,000 fundus images, encompassing various stages of AMD and imaging conditions. To ensure consistency across inputs, preprocessing techniques, including resizing, augmentation, and normalization, were applied. The system's performance was evaluated based on accuracy, sensitivity, specificity, and AUROC, using both internal and external validation datasets of RFMiD and ODIR.

Results: On the internal dataset, RETINEX-AMD achieved an accuracy of 88.8%, a sensitivity of 85.3%, a specificity of 91.6%, and an AUROC of 0.94. Results from external validation showed strong generalization, with ODIR reporting a sensitivity of 95.8%, a specificity of 97.4%, an accuracy of 96.6%, and an AUROC of 0.98.

Conclusion: RETINEX-AMD offers a reliable, efficient solution for AMD screening, enhancing clinical decision-making and patient care, while paving the way for future advancements in AI-assisted eye care.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Oral

RETINEX-DR: An Artificial Intelligence-Powered System for Screening Diabetic Retinopathy

Sina Shahparast[1], Zahra Fathollahi[1], Negar Khalaf[1], Vahid Sadeghi[1], Tahereh Mahmoudi[2], Hossein Parsaei[2]*, M. Hossein Nowroozzadeh[3], Elias Khalili Pour[4], Siamak Yousefi[5]

1. Novin Salamat Pars Incorporation, Shiraz, Iran
2. Department of Medical Physics and Biomedical Engineering, Shiraz University of Medical Sciences, Shiraz, Iran
3. Poostchi Ophthalmology Research Center, Department of Ophthalmology, Shiraz University of Medical Sciences, Shiraz, Iran
4. Retina Ward, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran
5. Department of Ophthalmology, University of Tennessee Health Science Center, Memphis, TN, USA

ARTICLE INFO

Corresponding author:
Hossein Parsaei, PhD;
Department of Medical Physics and
Biomedical Engineering, School
of Medicine, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Sina.shahparast@gmail.com

ABSTRACT

Background: Diabetic retinopathy (DR) is a significant complication of diabetes mellitus, affecting approximately 35.4% of diabetic patients worldwide and contributing to severe vision loss and blindness, the prevalence of DR is around 23.4% in Iran. The progression of DR is typically silent, with no symptoms until the disease reaches its advanced stages, highlighting the critical importance of early screening. We developed an AI system called Retina Explorer for Diabetic Retinopathy (RETINEX-DR) to facilitate DR screening and enhance access to care.

Methods: The RETINEX-DR uses an ensemble of convolutional neural networks (CNNs) to classify subjects as either normal or having more-than-mild diabetic retinopathy (mtmDR). The AI model was subsequently incorporated into a desktop application equipped with a clinician-friendly graphical user interface (GUI).

Results: RETINEX-DR achieved high performance on two employed datasets including 93.4% accuracy, 99.4% sensitivity, and 88.4% specificity on APTOS; and 86.1% accuracy, 80.4% sensitivity, and 90.1% specificity on EyePACS. Analysis of EyePACS misclassifications revealed a concentration of errors in moderate cases (24.7%), with minimal misclassifications in severe (2.29%) and proliferative (2.83%) DR. No severe or proliferative DR cases were misclassified on the APTOS dataset.

Conclusion: RETINEX-DR demonstrates robust performance in DR screening, achieving high sensitivity and specificity on both EyePACS and APTOS dataset images, with particular strength in identifying severe and proliferative DR. These results suggest its potential for effective DR screening, particularly in resource-constrained settings. While autonomous DR screening is established in many regions, RETINEX-DR's design is specifically tailored for Iranian populations, addressing disparities in access to ophthalmological care.

Please cite this article as: Shahparast S, Fathollahi Z, Khalaf N, Sadeghi V, Mahmoudi T, Parsaei H, Nowroozzadeh MH, Khalili Pour E, Yousefi S. RETINEX-DR: An Artificial Intelligence-Powered System for Screening Diabetic Retinopathy. Int J Nutr Sci. 2025;10(2-Supplement):S47.

ORAL

RETINEX-ROP: A Web-Based Artificial Intelligence Platform for Detecting Retinopathy of Prematurity

Vahid Sadeghi[1], Sina Shahparast[1], Zahra Fathollahi[1], Negar Khalaf[1], Tahereh Mahmoudi[2], Hossein Parsaei[2]*, M. Hossein Nowroozzadeh[3], Elias Khalilipour[4], Siamak Yousefi[5]

1. Novin Salamat Pars Incorporation, Shiraz, Iran
2. Department of Medical Physics and Biomedical Engineering, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
3. Poostchi Ophthalmology Research Center, Department of Ophthalmology, Shiraz University of Medical Sciences, Shiraz, Iran
4. Retina Ward, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran.
5. Department of Ophthalmology, University of Tennessee, Health Science Center, Memphis, TN, USA

ARTICLE INFO

Corresponding author:
Hossein Parsaei, PhD;
Department of Medical Physics and
Biomedical Engineering, School of
Medicine, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Vahidsadeghi64119@gmail.com

ABSTRACT

Background: Retinopathy of Prematurity (ROP) is a leading cause of childhood blindness, requiring timely diagnosis for effective treatment. With the growing role of artificial intelligence (AI) in healthcare, at Novin Salamat Pars, we developed an innovative AI system called Retina Explorer for Retinopathy of Prematurity (RETINEX-ROP) to facilitate ROP screening and improve access to essential care.

Methods: Two datasets including 1,099 and 185 color fundus images were utilized for model development and external validation, respectively. The AI model was then seamlessly integrated into a web-based platform with a clinician-friendly graphical user interface (GUI). This platform includes tabs for image enhancement, annotation, and classification of ROP stages, as well as the generation of comprehensive diagnostic reports in PDF format. To enhance interpretability, the platform also provided visualizations of critical retinal regions influencing the model's predictions.

Results: The AI model demonstrated a specificity of 86%, sensitivity of 85%, and an AUC of 0.97 during internal validation. When evaluated on the external dataset, the model achieved improved performance, with specificity, sensitivity, and AUC values of 95%, 90%, and 0.97, respectively.

Conclusion: RETINEX-ROP demonstrated strong performance in screening ROP, achieving high sensitivity and specificity across multiple datasets. By integrating a user-friendly GUI and providing decision-visualization capabilities, the platform ensures reliability and explainability for healthcare providers. These innovations have the potential for significantly improving screening ROP, aiming to mitigate limited access to crucial care, particularly in underserved and under-resourced areas.

Please cite this article as: Vahid Sadeghi, Sina Shahparast, Zahra Fathollahi, Negar Khalaf, Tahereh Mahmoudi, Hossein Parsaei, M. Hossein Nowroozzadeh, Elias Khalilipour, Siamak Yousefi. RETINEX-ROP: A Web-Based Artificial Intelligence Platform for Detecting Retinopathy of Prematurity. Int J Nutr Sci. 2025;10(2-Supplement):S48.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Revolutionizing Vaccine Design: AI and Metaverse in Bioinformatics-Based Vaccine Development against Monkey pox

Ali Honari Jahromi[1]*, Fatemeh Shahsavar[2], Mohammad Ali Norouznezhad[2], Erfan Kiamohammadi[3], Mobina Mohammadi Gozarji[3], Maryam Kashkouie[2], Amir Mahdi Asadpour[3], Niayesh Alborzi[2], Rozhin Sahraeian[2]

1. Autophagy Research Center, Department of Biochemistry, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Biology, Jahrom Branch, Islamic Azad University, Jahrom, Iran
3. Biology Department, Faculty of Sciences, Gonbad Kavous University, Golestan, Iran

ARTICLE INFO

Corresponding author:
Ali Honari Jahromi, MSc;
Autophagy Research Center,
Department of Biochemistry, School
of Medicine, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Alihonari78@gmail.com

ABSTRACT

Background: The rapid global spread of monkey pox, with its potential for severe outbreaks and health crises, underscores the urgent need for innovative vaccine development. Traditional methods are slow and costly, but AI and bioinformatics offer a faster, more precise alternative. By leveraging AI-driven epitope prediction and metaverse modeling, we can design multi-epitope vaccines that are more effective. This aligns with the future of medicine, where the metaverse and AI will transform healthcare delivery, including vaccine design, telemedicine, and personalized treatment.

Methods: We utilized a reverse vaccinology approach, employing AI and bioinformatics tools to predict B-cell and T-cell epitopes. AI algorithms assessed immunogenicity, antigenicity, and allergenicity, while molecular docking and dynamics simulations validated interactions with immune receptors. The entire process was conducted using AI-driven platforms, enabling the creation of virtual labs for vaccine design within the metaverse.

Results: Our results identified highly immunogenic epitopes integrated into a multi-epitope vaccine. The candidate demonstrated strong binding affinity with Toll-like receptors, confirmed by molecular docking, and elicited robust immune responses in-silico. AI-driven simulations ensured stability and efficacy, reducing development time and ensuring broad population coverage. The use of AI and metaverse-based virtual labs significantly demonstrated the efficiency of this approach.

Conclusion: Our study shows the revolutionary potential of AI and the metaverse in vaccine design. By integrating AI-driven epitope prediction and virtual predictive platforms, we can address emerging health threats like monkey pox more efficiently. This innovative approach accelerates vaccine development and revolutionizes healthcare through AI and the metaverse, making it more accessible and impactful.

International Journal of Nutrition Sciences

ORAL

Telehealth Strategies in Management of Infectious Diseases: Insights from the Monkey pox World Outbreak and Health System Response in Fars Province, Iran

Owrang Eilami[1]*, Nader Eilami[2]

1. HIV/AIDS Research Center, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran
2. Applied Economics Department, Wuppertal University, Wuppertal, Germany

ARTICLE INFO

Corresponding author:
Owrang Eilami, MD;
HIV/AIDS Research Center, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Owrangeilami@yahoo.com

ABSTRACT

Background: The recent monkey pox (mpox) outbreak in Fars Province, Iran, prompted a comprehensive response from local health services. This study evaluated the role of telemedicine and tele-education in controlling the outbreak and reducing healthcare costs. It also explored differential diagnoses and appropriate diagnostic tests for patients presenting with fever and vesiculopustular lesions.

Methods: The study involved 150 patients in Fars Province with fever and vesiculopustular lesions. Clinical evaluations, laboratory tests, and telemedicine consultations were conducted. Among these, 28 cases were suspected of monkey pox based on clinical evaluations, with three cases linked to travel to neighboring countries. Diagnostic tests included PCR for monkey pox, chicken pox, and herpes simplex virus, Tzanck smears for herpes simplex virus, and serologic tests for chicken pox and other differential diagnoses.

Results: Out of 150 cases, 28 were suspected to monkey pox, but no confirmed cases were reported. Most cases were diagnosed as chicken pox, shingles, or other non-infectious rashes. Telemedicine and tele-education significantly reduced unnecessary referrals and healthcare costs. Remote consultations facilitated early detection and isolation of suspected cases, while tele-education improved preparedness and response strategies among healthcare workers.

Conclusion: The implementation of a tiered referral system (levels 1, 2, and 3) has enhanced the efficiency of case management. Utilizing mobile technology for the transmission of images and audio messages has streamlined the diagnostic process, allowing for rapid feedback from higher-level specialists. This approach has significantly reduced the rate of diagnostic errors and associated treatment costs.

Please cite this article as: Eilami O, Eilami N. Telehealth Strategies in Management of Infectious Diseases: Insights from the Monkey pox World Outbreak and Health System Response in Fars Province, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S50.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Application of Mobile Health in Postoperative Patient Care and Follow-up: A Review

Mohammadamin Houshangishayan[1], Omid Torabi[1], Hoda Ahmari Tehran[2]*

1. Nursing Student, Student Research Committee, Faculty of Nursing and Midwifery, Qom University of Medical Sciences, Qom, Iran
2. Medical Education Department, Spiritual Health Research Center, Qom University of Medical Sciences, Qom, Iran

ARTICLE INFO

Corresponding author:
Hoda Ahmari Tehran, PhD;
Medical Education Department,
Spiritual Health Research Center,
Qom University of Medical Sciences,
Qom, Iran.
Email: Ahmari9929@gmail.com

ABSTRACT

The postoperative period is critical for patient recovery and with effective follow-up can significantly influence the outcome. Mobile health (mHealth) has emerged as a promising solution to bridge gaps in traditional postoperative care. This systemic review evaluates the efficacy, feasibility, and impact of mHealth interventions in postoperative patient follow-up. A comprehensive literature search was conducted across PubMed, Scopus, and Web of Science databases between January 2010 and December 2023. Inclusion criteria comprised randomized controlled trials (RCTs), cohort studies, and systematic reviews focused on mHealth applications in postoperative care. A total of 1,142 studies were screened, and 78 met the inclusion criteria. Data were extracted regarding intervention types, patient outcomes, adherence rates, and cost-effectiveness. Of the 78 studies included 45 (57.7%) were RCTs. Patient-reported outcomes improved in 67% of studies utilizing mHealth compared to standard follow-up methods. Specific benefits included a 32% reduction in hospital readmissions (95%CI: 25-39%) and a 23% increase in patient satisfaction scores (mean score improvement: 4.2±0.8 vs. 3.4±1.0, $p=0.01$). The mHealth platform demonstrated high feasibility, with adherence rates exceeding 85% in 62 studies. However, challenges included technology access disparities (noted in 18% of studies) and initial implementation costs. Mobile health applications significantly enhance postoperative patient follow-up, reducing complications and improving patient satisfaction. While promising, integration into clinical practice requires addressing access barriers and ensuring scalability. Future research should focus on long-term outcomes and optimization of mHealth platforms for diverse populations.

International Journal of Nutrition Sciences

ORAL

The Effect of Self-Care Training Based on Telenursing on the Life Style to Improve Elderly Health

Zahra Keshtkaran[1]*, Sanaz Azadi[2], Fatemeh Vizeshfar[2], Narjes Nick[2], Manoosh Mehrabi[3]

1. Community Based Psychiatric Care Research Center, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of e-Learning in Medical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Zahra Keshtkaran, PhD;
Community Based Psychiatric Care
Research Center, Department of
Nursing, School of Nursing and
Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Zkeshtkar@sums.ac.ir

ABSTRACT

Background: Providing nursing care with the help of modern technologies, including telenursing, to the elderly as vulnerable groups of the country, who are not able to continuously refer to health and treatment centers, has a special place in health care systems. This study was conducted with the aim of determining the effect of telenursing on the lifestyle of improving the health of the elderly.

Methods: This quasi-experimental pre-test and post-test study was conducted on 56 elderly people who referred to Imam Reza Geriatric Clinic. In order to collect data, Walker *et al*.'s standard health promoting lifestyle questionnaire was used, which was distributed among the sampled people with a non-random sampling method. The data collected from completing the pre-test and post-test questionnaires of control and intervention groups were subjected to descriptive and analytical statistical analysis through SPSS software.

Results: The findings showed that self-care training based on telenursing had a significant effect on the lifestyle to improve the elderly health. Also, this type of training had a significant effect on nutrition, exercise, responsibility, self-care, stress management, interpersonal relationships and self-actualization of the elderly.

Conclusion: The most important health-promoting self-care behaviors include healthy eating behaviors, physical activities, stress management, interpersonal relationships, spiritual growth, and responsibility for health status. Paying attention to behaviors that promote health and quality of life can increase the efficiency and independence of the elderly and help them control the many complications of old age and its various treatments.

ORAL

The Effectiveness of Artificial Intelligence and Robotic-Based Interventions on Improving Motor Function and Physical Activity in Stroke Survivors: A Review

Seyyedeh Fatemeh Mousavi Baigi[1,2]*

1. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran

Corresponding author:
Seyyedeh Fatemeh Mousavi Baigi, PhD;
Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran.
Email: Mousavibf3@mums.ac.ir

ABSTRACT

Artificial Intelligence (AI)-based and robotic rehabilitation systems have emerged as promising approaches to enhance motor function and quality of life in stroke survivors. These technologies offer alternatives to traditional therapies by improving mobility, independence, and functional recovery. This study aimed to assess the efficacy of AI-based interventions through a systematic review and meta-analysis. Following PRISMA guidelines, a systematic search was conducted in PubMed, Scopus, Web of Science, and Embase until January 20, 2024. Out of 10,012 identified articles, 31 studies met the inclusion criteria, and 6 were included in the final meta-analysis. Standardized tools, including the Fugl-Meyer Assessment and Barthel Index, were used for evaluation. Data analysis was performed using OpenMeta [Analyst]. The meta-analysis demonstrated that AI-based interventions significantly improved motor function (MD=2.354; 95%CI: 1.532-3.177, I²=0%). Sensitivity analysis using the Leave-One-Out method confirmed the robustness of the results, showing no significant changes when individual studies were excluded. Cumulative analysis indicated progressive stabilization of findings with additional studies. Of the included studies, 68% reported significant motor improvements, whereas 32% showed no meaningful differences between intervention and control groups. This systematic review and meta-analysis provided strong evidence for the effectiveness of AI-based and robotic interventions in improving motor function and quality of life among stroke survivors. Despite promising results, variability in study designs, assessment tools, and intervention durations suggests a need for further research with larger samples, standardized protocols, and long-term follow-ups to enhance generalizability and confirm findings.

International Journal of Nutrition Sciences

ORAL

The Effectiveness of Teleconsultation on Pregnancy Outcomes in Women

Maryam Kazemi[1], Maryam Saket[2], Maryam Zahmatkeshan[3]*

1. Noncommunicable Diseases Research Center, Social Medicine Unit, Fasa University of Medical Sciences, Fasa, Iran
2. General Medicine Student, Student Research Committee, Fasa University of Medical Sciences, Fasa, Iran
3. Noncommunicable Diseases Research Center, Health Information Management Unit, Fasa University of Medical Sciences, Fasa, Iran

ARTICLE INFO

Corresponding author:
Maryam Zahmatkeshan, PhD;
Noncommunicable Diseases Research
Center, Fasa University of Medical
Sciences, Fasa, Iran.
Email: Zahmatkeshan8@gmail.com

ABSTRACT

Background: In today's world, information technology plays a crucial role in improving self-care and has a wide range of positive impacts. Telemedicine in prenatal care provides an opportunity to reduce in-person visits without negatively affecting maternal and neonatal health outcomes compared to traditional care methods. This study aimed to evaluate and compare the effectiveness of teleconsultation and face-to-face visits on pregnancy outcomes among women in Fasa County during the COVID-19 pandemic and before it.

Methods: This descriptive-analytical (cross-sectional) study involved 149 patients receiving in-person care and 149 patients using teleconsultation services, selected through cluster random sampling. Pregnancy outcomes analyzed included preterm delivery, miscarriage, delivery mode (cesarean or vaginal delivery), postpartum infection, neonatal Apgar score, and birth weight.

Results: The preterm delivery was significantly more common in the teleconsultation group than in the in-person care group (18.8% vs. 7.4%, p=0.005). Similarly, postpartum infection was significantly higher in the teleconsultation group compared to the in-person group (p=0.001). However, no significant differences were observed in cesarean delivery rates, neonatal Apgar scores, or birth weight.

Conclusion: The observed increase in preterm deliveries in the teleconsultation group may be attributed to the stress associated with the COVID-19 pandemic rather than the telemedicine approach itself. These findings highlight the importance of conducting further research, particularly in the post-pandemic period, to better understand the potential impact of telemedicine on prenatal care outcomes.

Please cite this article as: Kazemi M, Saket M, Zahmatkeshan M. The Effectiveness of Teleconsultation on Pregnancy Outcomes in Women. Int J Nutr Sci. 2025;10(2-Supplement):S54.

International Journal of Nutrition Sciences

ORAL

The Evolution of Digital Health Technologies in Iran: A Review

Hassan Shojaee-Mend[1], Afshin Shoeibi[2], Abdoljavad Khajavi[3], Mohsen Saheban Maleki[4], Abdolahad Nabiolahi[5]*, Mostafa Mahi[6]

1. Infectious Diseases Research Center, Department of General Courses, Faculty of Medicine, Gonabad University of Medical Sciences, Gonabad, Iran
2. Social Determinants of Health Research Center, Department of General Courses, Gonabad University of Medical Sciences, Gonabad, Iran
3. Department of Community Medicine, School of Medicine, Gonabad University of Medical Sciences, Gonabad, Iran
4. Bohlool Hospital, Gonabad University of Medical Sciences, Gonabad, Iran
5. Department of Medical Library and Information Science, School of Allied Medical Sciences, Zahedan University of Medical Sciences, Zahedan, Iran
6. Department of Computer Engineering and Information Technology, Payame Noor University, Tehran, Iran

ARTICLE INFO

Corresponding author:
Abdolahad Nabiolahi, PhD;
Department of Medical Library
and Information Science, School of
Allied Medical Sciences, Zahedan
University of Medical Sciences,
Zahedan, Iran.
Email: Nabiolahi.abdolahad@
gmail.com

ABSTRACT

Digital Health Technologies (DHTs) are revolutionizing healthcare services worldwide, offering new solutions to various health issues. Despite these advancements, developing countries like Iran have fallen behind in adoption and integration. This systematic mapping study aimed to understand the current status of digital health applications within Iran by providing graphical/tabular classifications of studies conducted in this field. A systematic mapping review was conducted using the PRISMA guidelines. Relevant English-language papers were identified from PubMed, Scopus, Web of Science, and IEEE Xplore for works published between 2012 and 2023. A total number of 97 studies were identified. The extracted data included various digital health technologies, medical fields, application areas, and the users of these technologies. Digital health publications in Iran have increased significantly since 2016. The most digital health technologies include AI (34%), mHealth (25%), and telehealth (16%). They were applied to almost all medical subfields, with a significant usage in mental health (20%), infectious diseases (16%), and oncology (12%). Education (21%), therapy (16%), and diagnosis (15%) were the key application areas. Patients and healthcare professionals were considered the most affected users of these technologies, accounting for 45% and 42%, respectively. Digital health research in Iran is continuously evolving; AI and mHealth are leading this trend, but the focus remains narrow, at least to some extent, being limited to narrow ranges of technology like artificial intelligence and applications like education and diagnosis. The findings inform future research and policy formulation toward optimizing digital health implementation.

Please cite this article as: Shojaee-Mend H, Shoeibi A, Khajavi A, Saheban Maleki M, Nabiolahi A, Mahi M. The Evolution of Digital Health Technologies in Iran: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S55.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

The Role of Virtual Clinics in Improving Access to Healthcare Services in Tehran University of Medical Sciences, Tehran, Iran

Akhtar Jafari Tirabadi, Zahra Iesazadeh*, Mehri Fooladi, Tahereh Karamali, Maedeh Sadeghi Aliabadi, Zahra Aliabdoli Bidgoli

Vice Chancellor for Treatment, Health Information Technology Department, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Zahra Iesazadeh, BSc;
Vice Chancellor for Treatment, Health
Information Technology Department,
Tehran University of Medical
Sciences, Tehran, Iran.
Email: Riesazadeh@gmail.com

ABSTRACT

Background: With the rapid progress in information and communication technology, virtual clinics have emerged as a solution to improve healthcare access, especially for those in remote areas. These clinics help reduce waiting times and provide better access to healthcare services. This descriptive-analytical study evaluates the impact of virtual clinics on healthcare access at Tehran University of Medical Sciences, Tehran, Iran.
Methods: Data was collected through self-administered questionnaires and semi-structured interviews, with a stratified random sampling method targeting students, faculty, and patients who used virtual clinic services. Quantitative data was analyzed. Qualitative data underwent thematic content analysis too.
Results: Virtual clinics significantly improved healthcare access for users at Tehran University of Medical Sciences. Statistical analysis revealed significant differences between groups in terms of service access, satisfaction, and usage frequency. Thematic analysis of qualitative data showed that users were generally satisfied with the service, particularly during the pandemic when physical access was limited.
Conclusion: The virtual clinic model at Tehran University of Medical Sciences effectively enhanced healthcare access, especially for individuals unable to visit healthcare facilities in person due to time or geographical constraints. Based on the success of this initiative, expanding virtual clinics to other regions and hospitals is recommended to further improve healthcare access for all segments of society, highlighting the importance of integrating modern technologies into healthcare systems to overcome access-related challenges.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

The Utilization of 3D Printing in Dentistry: A Review

Fatemeh Khademian¹, Seyed Jalil Masoumi²,³,⁴*, Shimasadat Masoumi⁵, Atefehsadat Masoumi⁵

1. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
4. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran
5. Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Nutrition Research Center,
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

The emergence of 3D printing technology has profoundly influenced the domain of dentistry, facilitating production of customized dental devices, including crowns, bridges, surgical guides, and orthodontic appliances. This review evaluated diverse applications, benefits, and obstacles associated with the adoption of 3D printing in dental practices. A meticulous literature search was performed across several databases, such as PubMed, Scopus, and Google Scholar, focusing on studies published from 2015 to 2024. The review highlighted the extensive uses of 3D printing technology in the field of dentistry. Notably, this innovation enhanced the precision and fit of dental restorations, leading to improved clinical results and increased patient satisfaction. It has been effectively utilized in creating customized surgical guides for implant surgeries, which facilitated greater accuracy and less invasive procedures. In orthodontics, 3D-printed aligners provide remarkable comfort and aesthetic appeal for patients, thereby positively affecting treatment adherence and overall satisfaction. Furthermore, swift production of dental models and prototypes optimizes workflows and reduces chair time, enabling dental practitioners to improve their operational efficiency. Use of biocompatible materials in 3D printing expands treatment options, allowing for the fabrication of robust and functional dental devices tailored to the specific needs of each patient. The 3D printing is revolutionizing the dental industry by enhancing the precision, efficiency, and personalization of dental care. Ongoing advancements in materials and technologies are anticipated to further broaden its applications, solidifying its role as an essential component of modern dental practice and paving the way for future innovations in the sector.

Please cite this article as: Khademian F, Masoumi SJ, Masoumi SS, Masoumi AS. The Utilization of 3D Printing in Dentistry: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S57.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

The Use of Artificial Intelligence to Improve Healthy Eating Behaviors

Marzieh Akbarzadeh*

Department of Community Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Marzieh Akbarzadeh, PhD;
Department of Community
Nutrition, School of Nutrition and
Food Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: marzieh_akbarzadeh@
yahoo.com

ABSTRACT

Artificial intelligence (AI) has the potential to help healthy lifestyle modifications. AI could help individuals take on healthy eating behaviors and routine physical activity. To establish new behaviors to continue for long term, behavior modification techniques can be helpful. Identifying patterns in eating behavior and providing personalized recommendations for healthier eating habits are areas that AI can be effective. The present study aimed to evaluate research articles on the use of AI in improving healthy eating. A literature search was done on scientific databases of PubMed, Scopus, Web of Science and Google Scholar using related keywords of AI to improve hunger/satiety perception and weight control. Several approaches were undertaken such as changing the visual perceptions of the foods by focusing on changing the size or composition of the foods as well as other modeling techniques to find the neural patterns of hunger/satiety by utilizing AI in the selected articles. In conclusion, AI can be beneficial in better perception of hunger/satiety, or improving the eating behavior and also by changing the food choices and food portion sizes. As these issues were evaluated in experimental conditions and not in the daily life, future studies are needed to assess long term impact of new technologies in daily life.

Please cite this article as: Akbarzadeh M. The Use of Artificial Intelligence to Improve Healthy Eating Behaviors. Int J Nutr Sci. 2025;10(2-Supplement):S58.

ORAL

Molecular Communication in Biology and Medicine: A Review from Principles to Therapeutic Technologies

Hamidreza Arjmandi*

Department of Cancer and Genomic Sciences, College of Medicine and Health, University of Birmingham, Birmingham, UK

ARTICLE INFO

Corresponding author:
Hamidreza Arjmandi, PhD;
Department of Cancer and Genomic
Sciences, College of Medicine and
Health, University of Birmingham,
Birmingham, UK.
Email: arjmandi@ee.sharif.edu

ABSTRACT

Biological and biosynthetic systems rely on (bio)molecular, electrochemical, or (bio)mechanical signals for communication/signaling where molecules serve as key information carriers. This mode of communication, known as molecular communication (MC), enables information transfer in biological systems and offers exciting possibilities for engineered biosynthetic networks. This review evaluated molecular communication in biology and medicine searching scientific databases and using related keywords. By integrating concepts from information and communication theories and biology, the MC community aims to develop innovative biosynthetic communication systems and interfaces. These advances could revolutionize healthcare by enabling next-generation therapeutic technologies. Beyond these applications, MC can reveal fundamental principles of biological networking, such as synchronized collective behaviors, morphogenesis, differentiation, sensing, detection, localization, and learning. In conclusion, in this talk, I introduce the building blocks of a MC, some highlights from my research, and discuss future directions in this evolving field.

Please cite this article as: Arjmandi HR. Molecular Communication in Biology and Medicine: A Review from Principles to Therapeutic Technologies. Int J Nutr Sci. 2025;10(2-Supplement):S59.

ORAL

Challenges of Implementing Artificial Intelligence in Oral and Dental Health: A Review

Hossein Bagheri[1,2*]

1. Department of Dental Biomaterials, School of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran
2. Health Technology Development, Innovation and Ideation Center for Health, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Bagheri, PhD;
Department of Dental Biomaterials,
School of Dentistry, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: bagherih@mums.ac.ir

ABSTRACT

Artificial intelligence (AI), as one of the most advanced technologies of the modern era, holds significant potential for improving oral and dental health. This technology can play a crucial role in disease prevention, more accurate diagnosis, personalized treatment, and enhancing patient experience. However, the implementation of AI in dentistry faces numerous challenges and obstacles that limit its adoption and utilization. This review assessed challenges of implementing artificial intelligence in oral and dental health searching Google Scholar using related keywords. One of the main challenges is technical limitations, such as the lack of accurate, standardized, and reliable data, which makes the development of advanced algorithms difficult. Additionally, legal and ethical issues, including patient privacy protection and ensuring fair decision-making by AI systems, raise serious concerns. Alongside these issues, cultural and organizational resistance is also notable; some dentists and patients lack sufficient trust in new technologies or feel apprehensive about changing traditional practices. To overcome these barriers, several solutions can be considered, including strengthening digital infrastructure, standardizing databases, training specialized personnel, promoting cultural acceptance of new technologies, and developing legal and ethical frameworks. Moreover, collaboration between industry, academia, and government is emphasized as a key factor in driving this transformation forward. Looking ahead, by overcoming these existing barriers, AI can be harnessed as a powerful tool to enhance oral and dental health and improve patient treatment experiences. In conclusion, these advancements will not only enhance the quality of dental services but also represent a significant step toward achieving sustainable health in society.

Please cite this article as: Bagheri H. Challenges of Implementing Artificial Intelligence in Oral and Dental Health: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S60.

ORAL

Transforming Healthcare with Foundation Models to Unlock Clinical Insights and Enhance Patient Outcomes: A Review

Amin Beheshti*

Department of Computing, Macquarie University, Macquarie Park, Australia

ARTICLE INFO

Corresponding author:
Amin Beheshti, PhD;
Department of Computing,
Macquarie University, Macquarie
Park 2109, Australia.
Email: amin.beheshti@mq.edu.au

ABSTRACT

Foundation models are revolutionizing healthcare by transforming complex, large-scale administrative and clinical data into actionable insights that enhance patient outcomes. This review assessed transforming healthcare with foundation models to unlock clinical insights and enhance patient outcomes. Databases of PubMed, Scopus and Web of Science were searched utilizing related keywords. Built on millions of patient records, these models enable groundbreaking advancements in disease prediction, personalized treatment, and healthcare system optimization. By bridging the gap between raw data and clinical decision-making, they empower practitioners with tools to deliver more accurate, efficient, and equitable care. In conclusion, this keynote will explore how foundation models are unlocking the potential of healthcare data to drive innovation, improve patient outcomes, and redefine the future of medical research and practice.

International Journal of Nutrition Sciences

ORAL

Improving Awareness of Parents of Patients with Glucose-6-Phosphate Dehydrogenase Deficiency through Mobile Phones and Social Media Education in Fars Province, Southern Iran

Owrang Eilami[1,2]*, Fariba Moradi Ardekani[3], Nazila Rahimi[4], Fatemeh Shahidi[4], Mitra Nahas[4], Elham Rezayianfard[4], Negar Mirzad[5], Mehrab Sayadi[6]

1. HIV/AIDS Research Center, Institute of Health, Department of Family Medicine, Shi-raz University of Medical Sciences, Shiraz, Iran
2. Visiting professor University of Sao Paulo, Brazil
3. Head of Non-Communicable Diseases Group, Shiraz University of Medical Scienc-es, Shiraz, Iran
4. Public health expert of Non-Communicable Diseases Group, Shiraz University of Medical Sciences, Shiraz, Iran
5. Expert of Non-Communicable Diseases Group, Shiraz University of Medical Scienc-es, Shiraz, Iran
6. Expert of Biostatistics Cardiovascular Research Center Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Owrang Eilami, MD, MPH;
HIV/AIDS Research Center, Institute of Health, Department of Family Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
Email: owrangeilami@yahoo.com

ABSTRACT

Background: Glucose-6-phosphate dehydrogenase (G6PD) deficiency is a common X-linked enzymatic disorder with 3000 patients identified annually through birth screenings. This study investigated the impact of using smartphones and social media on families' awareness on G6PD deficiency.

Methods: In an educational intervention using virtual space, 100 parents of patients were enrolled using a telephone interview, sharing scientific materials by virtual space, and after one month collecting, information by trained experts using a checklist and by telephone.

Results: The age of mothers was 17-45 years (mean: 31.66±6.03), and the age of fathers was 23-60 years (mean: 36.62±5.53). The information dimension of subjects' scores significantly increased (2.81±1.33 to 4.9±0.36). A significant increase was seen for knowledge dimension about disease triggers (4.12±1.45 to 5.37±0.69). The score of the disease symptoms dimension significantly increased from 3.46±1.39 to 5.5±0.74 after the intervention. The score of individuals regarding drugs and prohibited substances increase significantly (6.53±1.22 to 7.92±0.33).

Conclusion: A positive significant effect of educational interventions based on mobile phones and social media (mobile Health) was noticed in improving awareness of parents of patients with G6PD deficiency. With a significant increase in knowledge scores in various areas, including recognizing disease symptoms, triggers, and prohibited drugs and substances, it can be concluded that the use of virtual tools can be an effective solution in public health management in the field of genetic disorders. So this approach not only helps increase families' knowledge but can also improve the quality of life of patients and reduce complications caused by this disease.

Please cite this article as: Eilami O, Moradi Ardekani F, Rahimi N, Shahidi F, Nahas M, Rezayianfard E, Mirzad N, Sayadi M. Improving Awareness of Parents of Patients with Glucose-6-Phosphate Dehydrogenase Deficiency through Mobile Phones and Social Media Education in Fars Province, Southern Iran. Int J Nutr Sci. 2025;10(2-Supplement):S62.

International Journal of Nutrition Sciences

ORAL

The Cascade of Responding Rate in Mobile-Based Sequential Surveys to Assess Obese Children in Fars Province, Iran

Behnam Honarvar*

Health Policy Research Center, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Behnam Honarvar, MD;
Health Policy Research Center,
Institute of Health, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Honarvarbh32@gmail.com

ABSTRACT

Background: Obesity in children has risen dramatically worldwide, including Iran. In this study, we aimed to define the prevalence and determinants of overweight and obesity in the primary school students of Fars province, Iran in 2024.

Methods: In this study, 10976 primary school students were selected through systematic random sampling from urban and rural areas of 36 districts of Fars province of Iran. Firstly, weight for age of these children was measured and those with overweight and obesity were defined. Then, electronic versions of multiple questionnaires about socio-economic characteristics, quantity and quality of nutrition, physical activity, sleep pattern and leisure time of children were sent to the parents' mobiles of these students through messaged links, in four stages and four consecutive weeks.

Results: At the base, 2400 students were diagnosed with overweight and obesity. In the 1st stage, 740; in the 2nd stage, 505; in the 3rd stage, 137; and in the 4th stage, 104 subjects responded to the forwarded questionnaires. These figures showed responding rate of 30.1%, 21%, 5.7%, and 4.3%, from the 1st to the 4th stage, respectively.

Conclusion: Participation rate in online health-related surveys was not appropriate, especially when it should be in a cascade way. These results showed a need to causative analysis and implementing strategies to enhance mobile-based health surveys, considering that limitations in budget and other resources necessitated to conduct surveys by electronic ways including mobile facilities.

Please cite this article as: Honarvar B. The Cascade of Responding Rate in Mobile-Based Sequential Surveys to Assess Obese Children in Fars Province, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S63.

International Journal of Nutrition Sciences

ORAL

Innovative Applications of AI in Diagnosis and Management of Gastrointestinal and Liver Diseases

Kamran Bagheri Lankarani*

Health Policy Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Kamran Bagheri Lankarani, MD;
Health Policy Research Center,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: lankaran@sums.ac.ir

ABSTRACT

Background: The integration of artificial intelligence (AI) into healthcare has catalyzed transformative advancements in the diagnosis and management of gastrointestinal (GI) and liver diseases. AI has broad potential in GI and hepatology, such as automating image analysis for liver fibrosis staging, predicting disease progression, or personalizing therapeutic interventions. This study assessed innovative applications of AI in diagnosis and management of gastrointestinal and liver diseases.

Methods: We have recently introduced AI-driven noninvasive method to diagnose achalasia, a rare esophageal motility disorder as an example. Traditional diagnostic approaches, such as esophageal manometry and endoscopy, are invasive, costly, and require specialized infrastructure. We recently addressed these challenges by leveraging machine learning to analyze acoustic patterns in swallowing sounds, offering a novel, patient-friendly alternative. In their research, audio recordings of swallowing events were processed using signal analysis and deep learning algorithms to identify distinctive acoustic signatures associated with achalasia.

Results: The AI model demonstrated high diagnostic accuracy, comparable to conventional methods, while eliminating the need for invasive procedures. This approach not only enhances accessibility in resource-limited settings but also reduces patient discomfort and procedural risks. This work exemplifies how AI can revolutionize clinical paradigms by merging non-invasive data acquisition with computational precision.

Conclusion: As AI technologies evolve, their integration into routine practice promise to improve diagnostic efficiency, reduce healthcare costs, and prioritize patient-centric care that can marke a significant leap forward in the management of complex GI and liver disorders.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Explainable Artificial Intelligence: Explaining Black Box Artificial Intelligence Results: A Review

Lieven Nils Kennes*

Department of Medical Statistics, RWTH Aachen University, Aachen, Germany

ARTICLE INFO

Corresponding author:
Lieven Nils Kennes, PhD;
Department of Medical Statistics,
RWTH Aachen University,
Aachen, Germany.
Email: Lieven.Kennes@fh-stralsund.de

ABSTRACT

Machine learning methods and artificial intelligence are gaining increasing popularity in all fields of research and practice, including medicine. White box models, like linear/logistic regression and decision trees, possess great interpretability; however, generally lack high-end precision. Black box models, like neural networks/deep learning yield great predictability; however, it is unclear and nontransparent how results were obtained. So far, in medicine white box models are still used to a much greater extent, due to the enormous importance of explainability in medical settings. The new research field of XAI (Explainable Artificial Intelligence) is dedicated to make results of powerful and precise black box models more explainable, so that these models can be used in a wider range of applications and can also be applied in highly regulated environments like the health care or finance sector. The difference and importance of both, global and local explainability, is demonstrated specifically for the field of medicine. Different methods like LIME, ICE, PDP, VI and SHAP will be presented to make results of black box machine learning methods more explainable. In conclusion, the usage and interpretation of the presented tools will be illustrated at a specific pain trial setting.

Please cite this article as: Kennes LN. Explainable Artificial Intelligence: Explaining Black Box Artificial Intelligence Results: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S65.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Artificial Intelligence-Driven Innovations for Accessible Neonatal Health Monitoring: A Review

Faezeh Marzbanrad*

Department of Electrical and Computer Systems Engineering, Monash University, Clayton, Victoria, Australia

ARTICLE INFO

Corresponding author:
Faezeh Marzbanrad, PhD;
Department of Electrical and
Computer Systems Engineering,
Monash University, Clayton,
Victoria 3800, Australia.
Email: faezeh.marzbanrad@
monash.edu

ABSTRACT

Early and accurate neonatal health monitoring is essential for timely intervention in life-threatening conditions. However, traditional assessment methods face challenges such as noise interference, limited access to specialized care, and subjectivity in diagnosis. This seminar presents our recent Artificial Intelligence (AI)-driven innovations designed to enhance neonatal health monitoring, making it more affordable, accessible, and scalable. Key advancements include novel signal processing, machine learning, and deep learning techniques for neonatal chest sound analysis. These methods enable real-time quality classification and source separation, improving the accuracy of cardiorespiratory assessments. Additionally, we will explore automated classification of phonocardiograms for the early prediction and detection of respiratory distress and congenital heart diseases in newborns and children. Beyond cardiorespiratory applications, AI-powered models for neonatal gastrointestinal health will be introduced, particularly for bowel sound detection; offering a non-invasive, real-time approach to assessing neonatal digestive function. Finally, a low-cost AI-driven technology designed to quantify milk intake during breastfeeding, empowering mothers, clinicians, and public health initiatives to address breastfeeding challenges and improve neonatal nutrition would be presented. In conclusion, by leveraging AI for neonatal health monitoring, these innovations have the potential to bridge gaps in care, enhance early diagnosis, and support equitable healthcare delivery, particularly in resource-limited settings. This review will highlight how AI-powered solutions can revolutionize neonatal care and pave the way for future telehealth applications.

Please cite this article as: Marzbanrad F. Artificial Intelligence-Driven Innovations for Accessible Neonatal Health Monitoring: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S66.

ORAL

The Impact of Artificial Intelligence on Patients' Nutritional Care: A Review

Seyed Jalil Masoumi[1,2,3*]

1. Nutrition Research Center, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
2. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
3. Cohort Study of Shiraz University of Medical Sciences Employees, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Nutrition Research Center, School of
Nutrition and Food Sciences, Shiraz
University of Medical Science,
Shiraz, Iran.
Email: masoumi7415@gmail.com

ABSTRACT

Artificial Intelligence (AI) is revolutionizing patients' nutritional care by enhancing dietary planning, improving clinical decision-making, and personalizing nutrition strategies. AI-driven tools, such as machine learning algorithms and predictive analytics, enable healthcare professionals to assess patients' nutritional needs with greater accuracy by analyzing vast datasets, including medical history, metabolic rates, and genetic predispositions. These advancements allow for more precise dietary recommendations tailored to individual health conditions. AI-powered applications assist in monitoring dietary intake, detecting deficiencies, and recommending evidence-based dietary interventions. Wearable devices and mobile health applications equipped with AI can track real-time nutritional habits, provide instant feedback, and integrate with electronic health records (EHRs) to support proactive healthcare decisions. This is particularly beneficial for managing chronic conditions such as diabetes, obesity, and cardiovascular diseases, where nutrition plays a critical role. Additionally, AI facilitates early detection of malnutrition risks in vulnerable populations, such as the elderly or hospitalized patients, allowing for timely interventions. Despite its advantages, AI in nutritional care presents challenges, including data privacy concerns, algorithm biases, and the need for human oversight in clinical settings. Ensuring ethical AI deployment requires regulatory frameworks and collaboration between healthcare providers, technologists, and policymakers. In conclusion, future developments in AI-driven nutrition care hold the potential to further optimize dietary management, enhance patient's engagement, and improve health outcomes.

International Journal of Nutrition Sciences

ORAL

Design Philosophy in Mobile Health: A Review on Principles, Challenges, and Implications for Future Approaches in Prevention, Diagnosis, and Treatment of Health Problems

Manoosh Mehrabi*

Department of e-Learning in Medical Sciences, Virtual School, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Manoosh Mehrabi, PhD;
Department of e-Learning in Medical
Sciences, Virtual School, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: mehrabi.manoosh@gmail.com

ABSTRACT

The design of mobile health (m-Health) applications plays a crucial role in their effectiveness and user adoption. M-Health applications hold the promise of improving healthcare delivery by offering accessible and personalized solutions. However, their success hinges on aligning design elements with user needs and healthcare objectives. This review explores how various design philosophies are integrated into m-Health applications, highlighting their principles, challenges, and future implications for prevention, diagnosis, and treatment of health problems. A comprehensive literature review was conducted using databases such as PubMed, Scopus, Web of Science, and Google Scholar to identify relevant studies on design philosophies in m-Health applications. The focus was on identifying the best design philosophy suited for m-Health while reviewing principles, challenges, and implications related to prevention, diagnosis, and treatment. The review identified User-Centered Design (UCD) and Design Thinking (DT) as the most relevant design philosophies for m-Health applications. UCD emphasizes understanding user needs through iterative testing and feedback, ensuring that applications are intuitive and meet user expectations. Conversely, DT fosters empathy, ideation, and prototyping to generate innovative solutions tailored to complex healthcare challenges. It was shown that integrating these two philosophies can lead to the development of m-Health applications that effectively address users' needs across various healthcare domains. In conclusion, integrating UCD and DT into the design of m-Health can result in more effective and user-friendly solutions for prevention, diagnosis, and treatment.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Sina Robotic Telesurgery System and Advances in Iran

Alireza Mirbagheri*

Department of Medical Physics and Biomedical Engineering, Iran Advance Clinical Training center, Research Center for Biomedical Technologies and Robotics, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Corresponding author:
Alireza Mirbagheri, PhD;
Department of Medical Physics
and Biomedical Engineering, Iran
Advance Clinical Training center,
Research Center for Biomedical
Technologies and Robotics, School
of Medicine, Tehran University of
Medical Sciences, Tehran, Iran.
Email: mirbaghery@mech.sharif.edu

ABSTRACT

Background: In this article, we will discuss the role of robots in healthcare services and introduce our latest achievement, the national teleoperated robotic surgery system, named Sina that comprises a surgical console available to the surgeon and surgical robots placed at the patient's bedside.
Methods: The surgeon performs operation through a robotic system; while surgical console register surgeon's hand movements, and simultaneously, surgical robots at the patient's bedside replicate these movements inside the patient's body. However, instead of making a large incision for the surgeon's hands, each tool entered the patient's body through a 5-millimeter incision and mimicked the movements performed by the surgeon's hands in the surgical console inside the patient's abdomen. An image of the inside of the patient's abdomen is shown to the surgeon through a robotic camera, enabling the surgeon to guide the surgery in real-time.
Results: The connection between the robots is possible via internet. The surgery can be performed remotely. Its benefits include increased precision and quality of surgery through scaling technology and tremor elimination on the surgeon's hand movements and the surgeon's ability to sit and reduce fatigue outside the operating room, away from infectious agents, pathogens, anesthetic gases, carbon dioxide, and ionizing radiation present in the operating room.
Conclusion: The most significant advantage of robotic surgery is the ability to convert complex and open surgeries into minimally invasive surgeries, reducing the patient's recovery and hospitalization period from two weeks to one day.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

5G in Mobile Health: A Review on Revolutionizing Care and Emerging Challenges

Seyed Mohammad Javad Mortazavi[1,2*]

1. Ionizing and Non-Ionizing Radiation Protection Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Medical Physics and Engineering, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyed Mohammad Javad Mortazavi, PhD;
Department of Medical Physics and Engineering, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: mortazavismj@gmail.com

ABSTRACT

The advent of 5G technology heralds a transformative era for mobile health (mHealth). By leveraging ultra-fast data transmission, expansive device connectivity, and enhanced bandwidth, 5G enables breakthroughs such as real-time remote patient monitoring, artificial intelligence (AI)-driven diagnostics, and tele-surgery powered by augmented reality (AR). Wearables and implantables can stream critical health data to providers, enabling instant interventions for conditions like arrhythmias or diabetic emergencies. Surgeons may perform precision procedures across continents using haptic feedback and 3D visualization tools, democratizing access to specialized care. These innovations promise to elevate patient-centered care, bridge disparities in rural or resource-limited settings, and optimize global health outcomes. This review assessed 5G in mobile health searching scientific databases by using related keywords. Health and safety concerns still remain, particularly regarding millimeter-wave frequencies (24–100 GHz), which concentrate electromagnetic energy more intensely than earlier networks. Yet, no conclusive evidence of harm, rigorous longitudinal research and adaptive safety protocols are essential. Equity gaps pose marginalized communities without 5G infrastructure risk exclusion from these advancements, and potentially exacerbating healthcare disparities. Additionally, the vast amounts of sensitive data transmitted from genomic profiles to real-time vitals create lucrative targets for cyberattacks, underscoring the need for robust encryption frameworks and ethical data governance to safeguard patient trust. In conclusion, despite these obstacles, 5G's potential to catalyze a smarter, more interconnected healthcare ecosystem is unparalleled. By prioritizing inclusive infrastructure, evidence-based safety standards, and cross-sector collaboration, stakeholders can ensure 5G delivers a future where healthcare is faster, more efficient, equitable, and secure for all.

Ethico-Legal Challenges in Medical Use of Artificial Intelligence: A Review

Ramin Niknam*

Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

Corresponding author:
Ramin Niknam, MD;
Gastroenterohepatology Research
Center, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: niknamramin@yahoo.com

ABSTRACT

Artificial intelligence (AI) has revolutionized medical fields such as diagnosis, treatment, and patient care. However, its widespread adoption raises significant legal and ethical concerns. One major issue globally is the uncertainty surrounding legal liability when AI decisions lead to errors or harm. Issues like patient privacy, data security, informed consent, and the misuse of sensitive information are also critical. This review assessed ethico-legal challenges in medical use of artificial intelligence by searching scientific databases using related keywords. In developing countries, these challenges are exacerbated by unclear regulations and weak oversight. The lack of transparent standards for validating AI algorithms, data standardization, and inadequate oversight of the use of patient data are common problems. In addition, questions of liability for both developers and insurers remain unresolved, creating significant regulatory gaps.

To address these challenges, a new ethical-legal framework is needed, grounded in principles like autonomy, transparency, privacy, accountability, and justice. This framework must clearly define the roles and responsibilities of stakeholders, including AI developers and insurers, to safeguard patient rights and build public trust. Collaboration between legislators, healthcare professionals, and tech developers, along with legal education for practitioners, can establish a regulatory environment that ensures the security, fairness, and transparency of AI applications in healthcare.

Oral

Artificial Intelligence in Surveillance and Monitoring of Resistant Microbes: A Review

Ramendra Pati Pandey*

Biotechnology and Microbiology, SRM University, Delhi-NCR, Sonepat Rajiv Gandhi Education City, Sonepat, Haryana, India

ARTICLE INFO

Corresponding author:
Ramendra Pati Pandey, PhD;
Biotechnology and Microbiology,
SRM University, Delhi-NCR,
Sonepat Rajiv Gandhi Education City,
Sonepat, 131 029, Haryana, India.
Email: ramendra.pandey@gmail.com

ABSTRACT

The emergence of numerous infectious diseases in the twenty-first century has made it essential to quickly monitor the outbreaks before they cost lives and spread throughout the community. Surveillance is important to track different approaches impacting the control of diseases based on their clinical approach and disease epidemiology. In this study, artificial intelligence (AI) in surveillance and monitoring of resistant microbes has been reviewed searching scientific databases using related keywords. Evolving nature of disease agents, populations at risk, and ongoing observation of mortality and morbidity must be considered. Resistance and lack of effectiveness against drugs in developed and developing nations has been studied. The drug resistance make antimicrobial drugs ineffective and challenging. AI holds tremendous promise for transforming healthcare and microbiology by enhancing diagnostic accuracy, accelerating drug discovery, and combating antimicrobial resistance. AI has great potential to advance diagnosis, treatment, medication discovery, and preventative medicine in several domains by identification and classification of microorganisms. Traditional methods for microbial identification, such as culturing and biochemical assays, are time-consuming and labor-intensive. AI analyze genetic sequences from microbial samples rapidly and accurately, enabling swift identification of pathogens and facilitating targeted interventions in disease outbreaks. AI enhances drug discovery processes by predicting the efficacy and safety of potential drug candidates. Pharmaceutical companies are increasingly leveraging AI to predict the interactions with biological targets, and design novel molecules with desired pharmacological properties. In conclusion, this approach expedites the drug development pipeline and reduces the cost of bringing new medicines to market.

Please cite this article as: Pandey RP. Artificial Intelligence in Surveillance and Monitoring of Resistant Microbes: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S72.

ORAL

Wearable Sensors in Sleep Medicine and Sleep Research: Physics Essentials to Understand Their Potential and Pitfalls

Thomas Penzel*

Interdisciplinary Sleep Medicine Center, Charite University Hospital, Berlin, Germany

ARTICLE INFO

Corresponding author:
Thomas Penzel, PhD;
Interdisciplinary Sleep Medicine
Center, Charite University Hospital,
Berlin, Germany.
Email: penzel@mailer.uni-marburg.de

ABSTRACT

Background: Sleep disorders are found to be more prevalent than previously realized. This may be a consequence of a modern society which optimizes work and social activities up to the edge. This study evaluated wearable sensors in sleep medicine and sleep research.

Methods: Biosignals both in the sleep laboratory and at home were recorded directly (EEG, EOG and EMG) from the head of the sleeping person, or indirectly (ECG, heart rate, respiration, and pulse wave). Indirect sleep recording is a hot topic for mobile health applications and is presented in more details here.

Results: Some signals are new in sleep research and require new technology and analysis concepts. Always biosignals were recorded with an appropriate time and amplitude resolution, and then physiological functions were derived. Wakefulness and sleep were identified and details about sleep, such as light sleep, deep sleep, and REM sleep, arousals and sleep fragmentation were derived. Not only classical methods in the time and frequency domain were used, but also more recent methods using statistical approaches were applied. This allows recognizing normal and restorative sleep and identifying sleep disorders as well. Some sleep disorders implied cardiovascular consequences and required treatment. Sleep disordered breathing was the disorder with most cardiovascular consequences. Many diagnostic tools like wearables focused on this group of disorders.

Conclusion: Signals can be recorded with little contact or no contact systems such as actigraphy, body movement, bed sensors or bedside radiofrequency sensors.

International Journal of Nutrition Sciences

Oral

Leveraging Artificial Intelligence in Health Research: Transforming Reviews and Evidence Synthesis

Omid Pournik, Saadullah Farooq Abbasi, Theodoros N. Arvanitis*

Department of Electronic, Electrical and Systems Engineering, University of Birmingham, Edgbaston, Birmingham B15 2TT, UK

ARTICLE INFO

Corresponding author:
Theodoros N. Arvanitis, RT, DPhil, CEng, FRSM, FGBHI;
Department of Electronic, Electrical and Systems Engineering, University of Birmingham, Edgbaston, Birmingham B15 2TT, UK.
Email: t.arvanitis@bham.ac.uk

ABSTRACT

Artificial Intelligence (AI) is revolutionising health research, offering innovative solutions to longstanding challenges in systematic reviews and evidence synthesis. Traditional review methods, while rigorous, are often time-consuming and resource-intensive. The integration of AI provides an opportunity to overcome these limitations, enabling researchers to process vast volumes of data with greater speed and efficiency. This review assessed leveraging artificial intelligence in health research by searching scientific databases and using related topics. This keynote explored the transformative potential of AI in health review studies, focusing on using the ChatGPT AI tool. We discussed how AI could streamline critical processes, such as literature screening, data extraction, and risk-of-bias assessment; while maintaining the rigour necessary for high-quality evidence synthesis. Additionally, the methodology behind developing AI-driven frameworks for systematic reviews would be highlighted showcasing how these tools can adapt to various healthcare domains and research questions. By addressing the conceptual foundation and practical implementation of AI in health research, this keynote aimed to inspire researchers, practitioners, and policymakers to embrace AI as a key enabler for advancing evidence-based decision-making in healthcare. In conclusion, as we navigate this intersection of technology and medicine, it is imperative to consider the ethical implications, transparency, and interpretability of AI systems to ensure their responsible use in shaping the future of health research.

Please cite this article as: Pournik O, Farooq Abbasi S, Arvanitis TN. Leveraging Artificial Intelligence in Health Research: Transforming Reviews and Evidence Synthesis. Int J Nutr Sci. 2025;10(2-Supplement):S74.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

The Role of Policymakers, Technologists, and Physicians in Dealing with Technological Transformations in Healthcare: A Review

Ali Akbar Safavi[1,2,3*]

1. School of Electrical and Computer Engineering, Shiraz University, Shiraz, Iran
2. Iranian E-Learning Association, Iran
3. Iranian Association for Artificial Intelligence, Iran

ARTICLE INFO

Corresponding author:
Ali Akbar Safavi, PhD;
School of Electrical and Computer
Engineering, Shiraz University,
Shiraz, Iran.
Email: safavi@shirazu.ac.ir

ABSTRACT

Technological transformations worldwide, especially in healthcare, are occurring at an unprecedented pace. This has become even more evident in recent geopolitical conflicts, where countries leverage AI-driven power. This review determined the role of policymakers, technologists, and physicians in dealing with technological transformations in healthcare by searching scientific databases and using related topics. In such a rapidly evolving landscape, two critical questions arise how all stakeholders in this field are prepared and what actions should each group of stakeholders prioritize? Neglecting these priorities can have serious economic consequences, affecting both the general public and healthcare professionals. Acquiring new and essential skills is now more critical than ever. This highlights the growing importance of microlearning, lifelong learning, and technology-enhanced learning for policymakers, technologists, and physicians. In conclusion, this review would explore these issues in details, accompanied by specific examples and relevant experiences.

Please cite this article as: Safavi AA. The Role of Policymakers, Technologists, and Physicians in Dealing with Technological Transformations in Healthcare: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S75.

International Journal of Nutrition Sciences

ORAL

Sharing the Experience of an Educational Activity for Improving Oral Health in Special Health Care Needed People

Afshin Sarafinejad[1], Shervan Shoaee[2]*

1. Clinical Informatics Research and Development Lab, Clinical Research Development Unit, Kerman University of Medical Sciences, Kerman, Iran
2. Elderly Health Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Shervan Shoaee, PhD;
Elderly Health Research Center,
Endocrinology and Metabolism
Population Sciences Institute,
Tehran University of Medical
Sciences, Tehran, Iran.
Email: shervanoo@yahoo.com

ABSTRACT

Background: Oral health is vital in public health, particularly for individuals with special healthcare needs. In past 16 years, several initiatives aimed to enhance oral health services for vulnerable populations in Iran, particularly for disabilities and elderly in several provinces and cities. This study assessed sharing experience of an educational activity to improve oral health in special health care needed people.

Methods: First program began in 2007 and expanded in 2013 at Kharizak Charity Foundation in Tehran, Iran. In 2018, Iran's first clinical guideline for geriatric and disability-oriented dentistry was developed. Concurrently, during 2021, the Golkhand National Iranian project was launched to provide specialized oral health services for high-need populations in collaboration with Kerman University of Medical Sciences and the Kerman Welfare Organization. To enhance effectiveness, structured education, content development, and continuous clinical guideline updates for dental professionals were provided that was funded by the National Center for Strategic Research in Medical Education.

Results: The Golkhend educational website featured targeted videos, instructional content, motion graphics, written guides, and guidelines for healthcare providers, dentists, and oral hygienists, as well as photos from social activities that successfully attracted over 36,000 visits and 5,000 video views. A remote consultation service for caregivers was piloted and successfully completed its first phase.

Conclusion: Ongoing efforts in educational content creation, clinical service expansion, and remote consultation platforms significantly contributed to improve oral health for people with disabilities and elderly. Continued growth and experience-sharing would further enhance national oral health initiatives, and ensure long-term benefits for future generations.

Please cite this article as: Sarafinejad A, Shoaee S. Sharing the Experience of an Educational Activity for Improving Oral Health in Special Health Care Needed People. Int J Nutr Sci. 2025;10(2-Supplement):S76.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Enhancing Image-Guided Surgery through Robotic Surgeon-Support Systems: A Review

Mahdi Tavakoli*

Engineering Research Chair in Healthcare Robotics, University of Alberta, Edmonton, Alberta, Canada

ARTICLE INFO

Corresponding author:
Mahdi Tavakoli, PhD;
Engineering Research Center in
Healthcare Robotics, University
of Alberta, Edmonton, Alberta,
Canada.
Email: mahdi.tavakoli@ualberta.ca

ABSTRACT

Surgical, therapeutic, and diagnostic interventions can be significantly enhanced using computer-integrated robotic systems with real-time decision-making capabilities that work under the direct, shared, or supervisory control of surgeons and therapists. This review assessed enhancing image-guided surgery through robotic surgeon-support systems searching scientific databases and using related keywords. Incorporating appropriate levels of autonomy in systems for healthcare delivery can lower the mental and physical loads on clinicians while improving the reliability, precision, and safety of the interventions for patients. In conclusion in this review, several applications of medical robotics and their related challenges and offers solutions based on combining the capabilities of humans with the precision, accuracy, and fast decision-making capabilities of machines are discussed.

Please cite this article as: Tavakoli M. Enhancing Image-Guided Surgery through Robotic Surgeon-Support Systems: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S77.

ORAL

An Opportunity to Improve Lifestyle by Digitalization of Health Economics: An Evidence Review from Economic Cooperation Organization Region

Seyed Komail Tayebi[1,2*], Mina Rezaei[3,4]

1. Economics Department, University of Isfahan, Isfahan, Iran
2. Economics Cooperation Organization Science Foundation (ECOSF), Islamabad, Pakistan
3. Health and Tourism Committee, Isfahan City Center University of Applied Sciences
4. ECOSF Coordination in Health, Isfahan, Iran

ARTICLE INFO

Corresponding author:
Seyed Komail Tayebi, PhD;
Economic Department, University
of Isfahan, Isfahan, Iran.
Email: sk.tayebi@ecosf.org

ABSTRACT

According to technological advancements, digitalization of economy has been necessitated as an approach in microeconomics as well as macroeconomics. The objective of this study is to explore the effects of the health economy digitalization and using technology in lifestyle modification/improvement from the perspective of sustainable health, mental and physical health, and promotion of prevention over treatment to gain health. Digitalization of production and industry based on industry 4 and 5 overlay digital services. The outcomes of such developments rely on inclusive economic growth, e-commerce enhancement, e-business, smart entrepreneurship and lifestyle improvement. One of the key topics of discussion is stress management and mental health. By emphasizing peace of mind, stress management techniques and meditation help; people have better mental health and quality of life. In digitalization of the health economy, the risks decrease and the efficiency of lifestyle and well-being from a preventive aspect increase compared to therapeutic approaches by reducing costs and risks and improving productivity. There are some questions such as how the digitalization of health economy affects individual and social aspects of lifestyle modification and improvement and how does investment in digital technology increase workforce productivity and efficiency through access to public information and education and easier access to health data and how can we face challenges such as the need for interaction between government and private sector and people's access to cutting-edge technologies? In conclusion, implication of empirical findings reveals positive effects of health economy digitalization on lifestyle of individuals in Economic Cooperation Organization (ECO) region.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Challenges of Artificial Intelligence in Intensive Care Units in Iran: A Review

Farid Zand*

Department of Critical Care Medicine, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Farid Zand, MD;
Department of Critical Care
Medicine, School of Medicine,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: zandf@sums.ac.ir

ABSTRACT

Intensive care unit (ICU) environment is where the challenges to create useful models with direct time-critical clinical applications are relevant. Artificial intelligence (AI) techniques to define states and predict future events are vital in modern life. However, their penetration into acute care medicine has been slow. This review assessed challenges of artificial intelligence in intensive care units in Iran. Major obstacles to effective application of to the real-time care of the critically ill patient exist. Clinical decision support systems (CDSSs) in the critical care environments support clinicians, not replace them at the bedside. The reasons for under-utilization of these systems are many and include the immaturity of AI-based systems to have situational awareness. The inherent "black-box" nature of many predictive algorithms and CDSS makes acceptance by the medical community difficult. Logistically, comparing in real-time multidimensional data streams of various sources needed to inform the algorithms and ultimately display relevant clinical decisions support format that adapt to individual patient responses and is often ignored during initial validation efforts. Similarly, legal and ethical barriers to the access to many existing clinical databases limit studies to address fairness and generalizability of predictive models and management tools. AI-based CDSS are evolving worldwide. In conclusion, developing large custom-made databases that reflect the target Iranian population is crucial for timely access to valid data. It is our obligation to promote and manage these invaluable data for their effective use in AI based algorithms.

International Journal of Nutrition Sciences

ORAL

Empowering Patients by Mobile-Based Microlearning for Self-Care in Chronic Conditions: A Review

Nahid Zarifsanaiey*

Department of E-learning, Virtual School, Comprehensive Centre of Excellence for E-Learning in Medical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Nahid Zarifsanaiey, PhD;
Department of E-learning, Virtual
School, Comprehensive Centre
of Excellence for E-Learning in
Medical Sciences, Shiraz University
of Medical Sciences, Shiraz, Iran.
Email: nzarifsanaee@gmail.com

ABSTRACT

Chronic diseases pose significant health challenges, necessitating effective educational strategies for patients. Mobile-based microlearning offers a promising approach to enhance patient engagement and knowledge retention. This review article conducted a comprehensive search in multiple databases, including PubMed, Scopus, and Google Scholar, using keywords related to mobile-based microlearning and chronic disease management. Inclusion criteria encompassed peer-reviewed articles published within the last ten years that focused on instructional design principles and user engagement strategies. The findings indicate that effective mobile-based microlearning environments incorporate personalized content, interactive elements, and real-time feedback. Key design techniques include modular learning units, appealing graphic design, gamification, and social support mechanisms. These elements significantly enhance user satisfaction and knowledge acquisition. Moreover, studies demonstrate that mobile learning can lead to improved health outcomes by fostering self-management skills among patients. In conclusion, designing effective learning environments for mobile-based microlearning in chronic disease management requires a multifaceted approach that combines pedagogical principles with user-centered design. Future research should explore the long-term impacts of these learning environments on patient outcomes and the integration of emerging technologies to enhance engagement and efficacy.

ORAL

Mobile Health in Elderly Rehabilitation: A Review

Fateme Iranmanesh Bandari[1], Bahareh Zeynalzadeh Ghoochani[2*]

1. Bandar Abbas Children's Hospital, Bandar Abbas, Hormozgan, Iran
2. Department of Occupational Therapy, School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Bahareh Zeynalzadeh Ghoochani,
PhD;
Department of Occupational
Therapy, School of Rehabilitation
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: zeynalzadeh@sums.ac.ir

ABSTRACT

Aging is accompanied with different challenges that may affect quality of life including chronic disease. In rehabilitation context, mobile health (m-Health) technology can play an effective role in enhancing health in our area. This study highlights mobile technology role in rehabilitation and health promotion in all prevention levels through searching different databases using keywords of rehabilitation, geriatrics and m-health, plus mobile technology. Effect of mobile applications on elderly physical, mental and psychological health was analyzed. Physical activity monitoring, mental function empowerment and treatment compliance during rehabilitation management and treatment were assessed. Therapeutic impact of mobile applications on elderly health dimensions was demonstrated. Cognitive rehabilitation areas like memory and attention can be influenced by standard developed soft-wares. There is strong body of knowledge supporting the effect of mobile on increasing physical activity during elderly like "Pocket Gait" that can prevent motor problems and increase quality of movement and walking. Another major part about psychological health factors are applications which facilitate communication with family members and others to decrease loneliness and related problems plus depression. There are many other benefits to summarize creating changes in life style and treatment protocol compliance to be mentioned to control disease beside prevention and health promotion for healthy elderlies. In conclusion, m-health can contribute to rehabilitating elderly any time, any place and anyway. Applications can promote elderly quality of life and improve physical, cognitive and psychological conditions. More attention seems essential to this important elderly therapy according to the advantages.

Please cite this article as: Iranmanesh Bandari F, Zeynalzadeh Ghoochani B. Mobile Health in Elderly Rehabilitation: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S81.

Oral

A National Platform for Advancing Self-Care Processes for the Most Common Illnesses and Conditions: Designing, Evaluating, and Implementing

Khadijeh Moulaei[1], Parastoo Amiri[2], Zahra Galavi[3], Fatemeh Niknam[1], Mohammad Reza Afrash[4]*

1. Health Management and Economics Research Center, Health Management Research Institute, Iran University of Medical Sciences, Tehran, Iran
2. Department of Health Information Technology, School of Allied Medical Sciences, Lorestan University of Medical Sciences, Khorramabad, Iran
3. Department of Health Information Technology, School of Allied Medical Sciences, Zabol University of Medical Sciences, Zabol, Iran
4. Department of Artificial Intelligence, Smart University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Afrash, PhD;
Department of Artificial Intelligence,
Smart University of Medical Sciences,
Tehran, Iran.
Email: Mmdrza.lp19@gmail.com

ABSTRACT

Background: Effective self-care is vital for health and well-being, as poor self-care can increase health risks and lower quality of life. This study explored the development of a national progressive web app (PWA) platform aimed at educating and empowering individuals in self-care practices, targeting various demographics including mothers, children, adolescents, and those with mental health disorders.
Methods: The study unfolded in three phases. Initially, 35 meetings with 19 healthcare providers identified common illnesses requiring self-care, assessing platform capabilities based on stakeholder feedback. In the second phase, a PWA was designed and evaluated by 26 users over two weeks using the QUIS 5.5 questionnaire, with results analyzed via SPSS software. The final phase involved implementing the platform at the Smart University of Medical Sciences in Iran.
Results: Based on the most common illnesses and conditions (n=87) and identified capabilities, the national self-care platform was designed with eight sections catering to 'maternal and child health services', 'mothers', 'infants', 'teenagers', 'adults', 'elderly', 'health of all age groups', 'patients with mental and emotional health disorders', and 'general information' for user education. Furthermore, the platform features 54 decision aids (DA), teleconsultation services, and a self-care magazine (Access link: https://khodmoragheb.ir/). These features were integrated to provide comprehensive support and resources for self-care. A mean exceeding 7 was attained across all evaluated dimensions, indicating that evaluators generally agreed the platform performed well.
Conclusion: This national self-care platform presents a viable solution to healthcare challenges, addressing the needs of Persian-speaking patients globally.

Please cite this article as: Moulaei K, Amiri P, Galavi Z, Niknam F, Afrash MR. A National Platform for Advancing Self-Care Processes for the Most Common Illnesses and Conditions: Designing, Evaluating, and Implementing. Int J Nutr Sci. 2025;10(2-Supplement):S82.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORAL

Digital Health Information and Behavior Change

Hamid Reza Farpour[1]*, Leila Habibi[2]

1. Shiraz Geriatric Research Center, Department of Physical Medicine and Rehabilitation, Shiraz University of Medical Sciences, Shiraz, Iran
2. Media Management Department, University of Applied Science and Technology, Tehran, Iran

ARTICLE INFO

Corresponding author:
Hamid Reza Farpour, MD;
Shiraz Geriatric Research Center,
Department of Physical Medicine and
Rehabilitation, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Farporh@gmail.com

ABSTRACT

Background: Digital media is a tool for information exchange, entertainment, education, and intervention. Studies have shown that digital health information acts as a complementary resource that can reduce medical costs of patients and health system. One of the most obvious uses of this media is to obtain information. This study evaluated the effect of using digital health information on changing the behavior and improving the health of users.

Methods: The current research is descriptive-analytical and the target community is people using social media. Data was collected from websites, blogs, and relevant social networks. Then, using the method of content analysis and data coding, patterns and key topics were identified. Finally, conclusions were drawn using qualitative data analysis software.

Results: The results showed that the following methods led to changing people's behavior and improving people's health including increasing awareness, access to digital health information that makes people aware of diseases and treatments and prevention methods. Information about healthy diets and exercise can help people choose a healthier lifestyle. Also, improving health behaviors; while health information can help change the undesirable behaviors and strengthen positive behaviors. Health websites can encourage people to quit smoking, reduce alcohol consumption and adhere to exercise programs. In addition, reducing health inequalities including people in remote areas or with limited access to health centers to receive health education and services through digital information.

Conclusion: It was shown that by increasing awareness, improving health behaviors, and reducing health inequalities, the overall health of the community can be improved.

POSTER

Examining Mobile Health and Artificial Intelligence in Lifestyle Modification through Yoga: A Review

Mahmonir Ghaniyarlou*

Kermanshah University of Medical Sciences, Kermanshah, Iran

ARTICLE INFO

*Corresponding author:
Mahmonir Ghaniyarlou, MSc;
Kermanshah University of Medical
Sciences, Kermanshah, Iran.
Email: Mahmonirghaniyarloo733@
gmail.com

ABSTRACT

Yoga has very positive effects on an individual's lifestyle, reducing stress, increasing focus, improving health, enhancing the quality of sleep and communication, fostering self-awareness, improving nutrition, and enhancing the quality of life. It serves as a tool for positive changes in life. This review introduced and examined techniques with the help of artificial intelligence (AI) based on deep learning for detecting incorrect yoga positions by searching PubMed and Google Scholar from 2018 to 2023 and examining the impact of using AI on performing yoga exercises correctly, reducing adverse effects of incorrect movements, and improving physical, mental, and spiritual health. With this method, users can choose their desired exercise position. The system advises users by identifying where they are making mistakes in their yoga movements, improving their posture, and using machine vision techniques that can analyze an individual's body movements and provide feedback on how to perform the exercises. This technique can help improve yoga exercises and prevent injuries, recognizing yoga from a video or image, and making a set of ten yoga that are created with a webcam available to the public. In conclusion, the integration of yoga and artificial intelligence creates new opportunities for practicing yoga and increasing access to it for people around the world. The combination of these two fields has the potential to revolutionize the way yoga is practiced and taught, making it more effective and widespread for everyone. Yoga can be done online and offline using many applications.

Please cite this article as: Ghaniyarlou M. Examining Mobile Health and Artificial Intelligence in Lifestyle Modification through Yoga: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S84.

International Journal of Nutrition Sciences

POSTER

Supporting Elderly Caregivers in Mobile Health Context: A Review

Parisa Moshfegh[1]*, Mandana Rezaei[2]

1. Department of Geriatric Health, Faculty of Health, Tabriz University of Medical Sciences, Tabriz, Iran
2. Department of Physiotherapy, Faculty of Rehabilitation Sciences, Department of Geriatric Health, Faculty of Health, Tabriz University of Medical Sciences, Tabriz, Iran

ARTICLE INFO

Corresponding author:
Parisa Moshfegh, PhD;
Department of Geriatric Health,
Faculty of Health, Tabriz University
of Medical Sciences, Tabriz, Iran.
Email: Pmoshfegh72@gmail.com

ABSTRACT

Due to the increase in number of elderly and the consequent increase in the number of their caregivers, the issue of supporting the caregivers of the elderly to reduce the strain of care and increase their quality of life of caregiver and elderly has become important. Considering the capacities of mobile health (mhealth) platforms in providing health services, one of the desirable ways to support the caregivers of the elderly is mhealth platforms. By this way, caregiving may be reduced and therefore, the quality of caregiving may be improved. The aim of this study was to determine the existing literature on supporting elderly caregivers in the context of mhealth by searching Pubmed, Google Scholar, Web of Science, Irandoc, and SID databases using the keywords of caregiver, mHealth, and elderly from 2020 to 2024. A total of 220 articles were found, of which 10 articles met the inclusion criteria. Most studies emphasized the need for telephone services and online counseling for caregivers, and studies on mobile applications showed that the use of these programs, in addition to convenient and inexpensive access, increased participation and positively changed the quality of life of caregivers. In conclusion, the study showed that most of the articles about caregivers and their support were about social and psychological support, and physical support was neglected, and despite the capabilities of mhealth, there is still a tendency to provide in-person support.

Please cite this article as: Moshfegh P, Rezaei M. Supporting Elderly Caregivers in Mobile Health Context: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S85.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Telenursing on Pain and Disability after Lumbar Spine Surgery

Fatemeh Shirazi[1]*, Motahareh Akhundi[2], Azita Jaberi[1]

1. Community Based Psychiatric Care Research Center, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Fatemeh Shirazi, PhD;
Community Based Psychiatric Care
Research Center, School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Shirazi_1393@yahoo.com

ABSTRACT

Background: Telenursing is crucial in the treatment of many diseases. This study determined the effect of telenursing on pain and disability after lumbar spine surgery.

Methods: In a randomized clinical trial in 2023, patients undergoing lumbar spine surgery at Panj-e-Azar Hospital in Gorgan were enrolled. Totally, 72 patients were divided into two control and intervention groups. Educational multimedia was sent individually through social communication software, and patients were given counseling and follow-up by nursing phone. Visual scale of pain and Oswestry disability questionnaires were completed three times for both groups.

Results: Before intervention, the pain levels of the two groups were the same, the average pain score in the intervention group was significantly lower than the control group, and this significant difference was still shown in the second month after the intervention. It was shown that the group effect, the time effect, and also the interaction effect of time and group in the average pain changes were significant. The average score of disability due to back pain was not significantly different between the two groups before the intervention, but one month after the intervention, the intervention group reported significantly less disability than the control group. This difference was still present two months after the intervention.

Conclusion: The comparison of the disability caused by back pain showed that the group effect, time effect, and interaction effect were also significant in the mean changes of this variable.

Please cite this article as: Shirazi F, Akhundi M, Jaberi A. The Effect of Telenursing on Pain and Disability after Lumbar Spine Surgery. Int J Nutr Sci. 2025;10(2-Supplement):S86.

International Journal of Nutrition Sciences

POSTER

The Role of Metaverse and Emerging Technologies in Enhancing Access and Effectiveness of Mental Health Services: A Review

Mohammad Hossein Kaveh*, Atefeh Mohammadi

Department of Health Education and Promotion, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Mohammad Hossein Kaveh, PhD;
Department of Health Education and
Promotion, School of Health, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Mhkaveh255@gmail.com

ABSTRACT

Access to mental health services is one of the major challenges in public health. It appears that emerging technologies, particularly the metaverse, can play a significant role in facilitating access, especially for the younger population. This study aimed to explore the role of the metaverse and other technologies in improving access to and the effectiveness of mental health services. This is a review study conducted in 2024 by searching reliable databases such as SID, Google Scholar, Web of Science, and Scopus. Out of 30 identified articles, 12 relevant studies that were published between 2019 and 2024 were analyzed. According to the World Health Organization, approximately 280 million people worldwide suffer from mental disorders such as depression. This condition can lead to suicide, resulting in over 700,000 deaths annually. Effective treatments for depression include counseling, psychotherapy, and antidepressant medications; however, more than 75% of these individuals lack access to counseling services. Various barriers, such as high costs, shortage of specialists, geographic access issues, and social stigma, exist in this area. Technologies such as the metaverse can help overcome these barriers. The metaverse, by providing simulated and interactive environments, allows individuals to access counseling and psychological treatments virtually and privately. In addition to facilitate access, it can reduce the social stigma associated with in-person visits. In conclusion, the metaverse can serve as an innovative platform for providing mental health services, creating a fundamental transformation in the prevention and treatment of mental health issues.

Please cite this article as: Kaveh MH, Mohammadi A. The Role of Metaverse and Emerging Technologies in Enhancing Access and Effectiveness of Mental Health Services: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S87.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Exploring Opportunities and Challenges of Artificial Intelligence-Based Support in Speech-Language Pathology: A Review

Sara Abedini*, Farzane Abdi, Yusef Mansuri

Student Research committee, Speech and Language Pathology, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

*Corresponding author:
Sara Abedini, MSc;
Student Research committee, Speech and Language Pathology, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Email: S.abedini.slp@gmail.com

ABSTRACT

Speech-language pathologists (SLPs) play a critical role in preventing, assessing, diagnosing, and treating speech, language, and communication difficulties across all age groups. Despite their high levels of job satisfaction, many SLPs face significant challenges such as high caseloads and burnout. Simplifying aspects of their work could lead to more manageable workloads, greater access to care, and more time dedicated to meaningful client interactions. Recent advancements in artificial intelligence (AI) can potentially address some of these challenges. This study investigated the opportunities and challenges of the use of artificial intelligence in speech and language pathology searching Google Scholar, PubMed, and Web of Science between 2020 and 2025 using related keywords. It was shown that AI-powered tools can enhance efficiency, save time, and improve the accuracy and completeness of clinical documentation. They also facilitate rapid access to medical records. Furthermore, AI's ability to offer culturally customized interventions and task diversity can potentially improve service delivery, patient satisfaction, and therapy outcomes. However, the adoption of AI in speech therapy is not without challenges. Limited readiness among some professionals, ethical concerns surrounding patient privacy, and the inability of AI to fully address interpersonal aspects of therapy remain significant barriers. In conclusion, to maximize the benefits of AI in speech therapy, it is crucial to invest in raising awareness and developing comprehensive AI tools tailored to the needs of SLPs.

International Journal of Nutrition Sciences

Telemedicine in Medical Care of Inflammatory Bowel Disease: A Review

Parya Mozafari Komesh Tape[1]*, Shokoofe Noori[2]

1. Gastroenterology and Liver Diseases Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Biochemistry, School of Medical Sciences, Shahed University, Tehran, Iran

ARTICLE INFO

Corresponding author:
Parya Mozafari Komesh Tape, PhD;
Gastroenterology and Liver Diseases
Research Center, Research Institute
for Gastroenterology and Liver
Diseases, Shahid Beheshti University
of Medical Sciences, Tehran
1985714711, Iran.
Email: Parya.mozafari1380@
gmail.com

ABSTRACT

Inflammatory bowel disease (IBD), including Crohn's disease and ulcerative colitis affects not only the quality of life of patients but also the economy. Therefore, managing this disease is important. Telemedicine is crucial in the treatment of IBD, especially for those facing challenges in accessing healthcare services. The efficacy and efficiency of telemedicine in the management of IBD remain unclear. This review sought to evaluate the effects of telemedicine vs. standard treatment in the management of IBD. On December 28, 2024, we searched PubMed. Randomized controlled trials comparing telemedicine to routine treatment in adult patients with IBD were included, while conference papers, letters, reviews, laboratory research, case reports, and randomized controlled trials including children were omitted. The major outcomes evaluated were IBD-specific quality of life (QoL) and disease activity, while patient satisfaction was examined as a secondary objective. Data analysis was conducted using Review Manage 5.4. This meta-analysis included five randomized controlled trials including 968 individuals. The telemedicine group had a greater improvement in quality of life compared to the conventional treatment group; nevertheless, no significant differences were seen in disease activity or patient satisfaction between the two groups. In conclusion, telemedicine interventions had a beneficial impact on IBD-specific quality of life in adolescents. Additional study is necessary to determine which subset of patients with IBD might get the most benefit from telemedicine.

Please cite this article as: Mozafari Komesh Tape P, Noori S. Telemedicine in Medical Care of Inflammatory Bowel Disease: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S89.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

A Mobile Solution for Facial Paralysis Rehabilitation: From Design to Usability Assessment

Yasin Sabet Kouhanjani[1,2], Farahnaz Emami[3], Rita Rezaee[4], Somayyeh Zakerabasali[4]*

1. Student Research Committee, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran 2. Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
3. Physical Therapy Department, School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
4. Clinical Education Research Center, Health Human Resources Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Somayyeh Zakerabasali, PhD;
Clinical Education Research Center,
Health Human Resources Research
Center, Department of Health
Information Management, School of
Health Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Zakerabasi@gmail.com

ABSTRACT

Background: Facial nerve paralysis is a neurological condition marked by partial or complete loss of voluntary facial muscle movements due to seventh cranial nerve damage. This condition significantly affects quality of life. Exercise therapy, especially physiotherapy, is essential in restoring muscle functionality. This study aimed to design, develop, and evaluate a tele-exercise mobile application to enhance rehabilitation outcomes for patients with facial paralysis.

Methods: This applied study was conducted in four phases of content preparation, system requirements identification, development, and usability evaluation, based on the IMS patient education model. Exercises were identified through a review of scientific sources. System requirements were determined via an in-depth literature review and validated using the Delphi method with 12 experts. The prototype was designed using Adobe XD and finalized after feedback from the research team. The application was developed for Android, and usability was assessed using heuristic principles.

Results: A total of 28 exercises were categorized into three groups, and 34 system requirements were defined. The application featured three user interfaces tailored to patients, physiotherapists, and administrators. The patient interface included notifications, exercise instructions, a personal medical file, FAQs, and a discussion forum. Patients can upload exercise videos for physiotherapist feedback. The physiotherapist interface enables patient file management, exercise assignment, and communication. Administrators manage user approvals, create discussion forums, and oversee system operations. Usability evaluation confirmed a desirable level of functionality.

Conclusion: Tele-exercise applications provide accessible, cost-effective rehabilitation tools, enhancing patient adherence to tailored exercise programs and facilitating real-time progress tracking by physiotherapists.

Please cite this article as: Sabet Kouhanjani Y, Emami F, Rezaee R, Zakerabasali S. A Mobile Solution for Facial Paralysis Rehabilitation: From Design to Usability Assessment. Int J Nutr Sci. 2025;10(2-Supplement):S90.

International Journal of Nutrition Sciences

POSTER

A New Approach to Continuous Endotracheal Tube Cuff Pressure Monitoring: Prevention with Internet of Things

Sadegh Jamshidian[1], Amir Mohammad Chekeni[2]*

1. Department of Anesthesiology, Faculty of Paramedical Sciences, Bushehr University of Medical Sciences, Bushehr, Iran
2. Faculty of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Amir Mohammad Chekeni, MSc;
Faculty of Nursing and Midwifery,
Tehran University of Medical
Sciences, Tehran, Iran.
Email: Amch3887@gmail.com

ABSTRACT

Tracheal stenosis, a common respiratory condition, is often caused by tumor or tuberculosis, or is a complication of intubation or incision. The reported incidence of post-tracheostomy/intubation stenosis ranges from 0.6% to 21%. The aim of the present study was to review studies related to the prevention of endotracheal tube stenosis. The search was conducted according to the qualities considered in PICO and based on the PRISMA checklist in line with the research objective using PubMed, Scopus, Web of Science, Medline databases, as well as Persian databases SID and Magiran, and the Google Scholar search engine during the years 2019 to 2024 with the keywords of "Endotracheal tube", "Internet of Things", "fistula", and "stenosis". After reviewing the inclusion and exclusion criteria and critically assessing the quality of the articles, 7 articles were finally included out of a total of 65 articles. The results of the study showed that in addition to the advancement and use of laser and stent surgical methods, a new device called "Smart Cuff" has been developed that can continuously and online monitor the pressure of the tracheal tube cuff and prevent fistula and tracheal stenosis. In conclusion, online monitoring of standard endotracheal tube cuff pressure using the Internet of Things leads to the prevention of stenosis and tracheoesophageal fistula. Further studies on the effectiveness of the device are underway. It is also suggested that artificial intelligence be used to predict the development of tracheal stenosis and fistula.

POSTER

A New Vision for the Future Healthcare Ecosystem: A Review on Transformative Power of the Metaverse and Artificial Intelligence

Mohammad Bastani[1], Nahid Mehrabi[1]*, Mahdi Ghorbani[2]

1. Department of Health Information Technology, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran
2. Department of Laboratory Sciences, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Nahid Mehrabi, PhD;
Department of Health Information
Technology, School of Paramedical
Sciences, Aja University of Medical
Sciences, Tehran, Iran.
Email: N.mehrabi@ajaums.ac.ir

ABSTRACT

Recent advancements in technology, particularly the emergence of the Metaverse and significant progress in Artificial Intelligence (AI), have the potential to revolutionize healthcare systems. This review aimed to explore how the integration of these emerging technologies can enhance and transform healthcare. This review study, conducted in 2023, involved a comprehensive search of reputable databases such as PubMed, Scopus, and Web of Science using MeSH terms related to the concepts of "metaverse," "artificial intelligence," and "health." The included articles were published between 2019 and 2024 and specifically focused on introducing the Metaverse and artificial intelligence in the healthcare domain. Studies that were irrelevant, duplicates, or lacked full text were excluded from this publication. After collecting the relevant articles, the extracted data were summarized and analyzed by the researchers. The results indicate that the integration of the Metaverse and AI, by combining virtual simulations and advanced data analysis, can transform healthcare systems. The Metaverse enables interactive environments for training and rehabilitation, while AI enhances these capabilities through personalized treatments and optimized processes. Achieving this integration requires robust digital infrastructure and standardized data frameworks. Examples, such as virtual reality in remote surgeries and data analysis using AI models, highlight the potential of this combination to improve care quality. In conclusion, the integration of the Metaverse and AI offers solutions to healthcare challenges and elevates technology-driven therapeutic experiences. This synergy enhances personalized care, remote monitoring, and collaborative training. However, further research is essential to address implementation barriers and develop regulatory frameworks.

POSTER

Patient's Recovery Mobile Health Monitoring System in Pandemic Era like COVID-19: A Review

Sara TavakoliGolpaygani[1], Fereshteh-Azadi Parand[2]*

1. Faculty of Science and Engineering, Macquarie University, Sydney, Australia.
2. Allameh Tabataba'i University, Tehran, Iran

ARTICLE INFO

Corresponding author:
Fereshteh-Azadi Parand, PhD;
Allameh Tabataba'i University,
Tehran, Iran.
Email: Parand@atu.ac.ir

ABSTRACT

The global spread of viral diseases such as COVID-19 pandemic that began in December 2019 had a profound impact worldwide, leading to millions of cases and significant loss of life. As the number of infections rises, hospitalizations can also increase sharply, with ICU bed occupancy potentially rising by 20-100%. Rural areas often have fewer resources to support patients compared to urban regions. This review assessed patient's recovery mobile health monitoring system in pandemic era like COVID-19. Google Scholar was searched using related keywords. To alleviate the strain on healthcare systems, a remote patient monitoring system, particularly for those recovering at home, is proposed. Since patients' conditions can change rapidly, the monitoring system must be fault-tolerant and operate in real-time. This study presents a framework utilizing data from wearable sensors and mobile phone recordings, offering a graphical interface for both patients and healthcare professionals. The system transmits essential data through a web interface, allowing authorized personnel to monitor patients' conditions and assist with remote diagnosis. Additionally, by supporting real-time alerts and positioning services, the system ensures that unexpected events can be addressed promptly. Vital physiological parameters such as blood oxygen saturation (SpO2), heart rate, body temperature, and respiration rate are monitored. Offline analysis of collected data is also possible. Experimental results show the system's high reliability and efficiency in monitoring patients during recovery under medical supervision. In conclusion, the successful implementation enhances supervision, simplifies patient condition reporting, and reduces medical staff workload, offering an effective solution for managing remote patient care.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Atrial Fibrillation Detection Using Wearable Devices and Artificial Intelligence: A Review

Haniye Karimipour*, Elahe Karimipour

Student Research Committee, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

*Corresponding author:
Haniye Karimipour, MD;
Student Research Committee, School
of Nursing and Midwifery, Ahvaz
Jundishapur University of Medical
Sciences, Ahvaz, Iran.
Email: S.haniyekarimipour@gmail.
com

ABSTRACT

Atrial fibrillation (AF) is one of the cardiac arrhythmias that, if not diagnosed in time, may lead to serious complications such as heart failure. The recent developments in wearable technologies like smart watches integrated with Artificial Intelligence (AI) enable continuous cardiac monitoring and detection of AF. In this narrative review, an extensive search was conducted in the PubMed database and the Google Scholar search engine using English keywords, including AF, wearable devices, AI, and machine learning. Initially, 283 articles were found. After removing duplicate, outdated, and irrelevant studies, 8 articles published between 2019 and 2024 were selected for analysis and detailed review. The detection of AF by using wearable devices along with AI can identify this condition quickly. Advanced algorithms utilizing photoplethysmography (PPG) sensors and electrocardiogram (ECG) data find irregular heart rhythms. Lots of studies, including the Apple Heart Study, have shown that these algorithms are highly accurate in detecting AF, with 84% of irregular rhythm notifications matching positive ECG results. Newer algorithms that even use more frequent PPG data sampling and stricter criteria for rhythm detection have improved diagnostic performance. This technology also works well in rest states, such as sleeping at night, and is able to detect AF in asymptomatic patients. In conclusion, the development of such technology has been beneficial so far. Its accuracy can be improved with the collaboration of health and AI experts and attempts can be made to make it more economical and practical.

Chatbot-Based Mobile Health Applications for Mental Health Promotion: A Review on Challenges and Opportunities

Neda Najafi[1]*, Mina Najafi[2]

1. Student Research Committee, Health Information Technology, Department of Health Information Management, School of Management and Medical Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Psychology Department, Islamic Azad University of Arsanjan, Arsanjan, Iran

ARTICLE INFO

Corresponding author:
Neda Najafi, MSc;
Student Research Committee,
Department of Health Information
Management, School of Management
and Medical Information Sciences,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Neda.najafi74@yahoo.com

ABSTRACT

Chatbot-based mobile health (mHealth) applications are emerging as innovative solutions to address the global mental health crisis by offering scalable and accessible support. These applications use conversational agents to deliver personalized mental health interventions, helping bridge the treatment gap affecting over one billion individuals globally. This review examined the challenges and opportunities associated with chatbot-based mHealth applications in mental health promotion, focusing on their effectiveness, barriers to implementation, and areas for future development. The review was conducted in January 2025 searching PubMed, Scopus, Web of Science, and Google Scholar. Keywords included 'chatbot', 'mHealth', and 'mental health'. Studies published between 2018 and 2024 were included, excluding non-peer-reviewed articles. The review was limited to English-language studies, potentially overlooking innovations in non-Western contexts. A total of 122 studies meeting eligibility criteria were included. Key benefits include cost-effectiveness, increased accessibility, and improved user engagement in self-management. Chatbot-based mHealth applications deliver interventions like cognitive-behavioral therapy, stress management, and peer support. They also facilitate continuous monitoring and timely intervention for conditions like depression and anxiety. However, challenges include technical and emotional barriers, low user retention, privacy concerns, inconsistent crisis support, cultural adaptability issues, and algorithmic biases limiting adoption. In conclusion, chatbot-based mHealth applications offer promising opportunities for mental health promotion but face notable challenges requiring attention. Future efforts should prioritize personalization, user retention strategies, and resolving privacy and ethical concerns. Multidisciplinary collaboration and rigorous evaluation frameworks will be critical for their successful integration into global mental health care systems.

Please cite this article as: Najafi N, Najafi M. Chatbot-Based Mobile Health Applications for Mental Health Promotion: A Review on Challenges and Opportunities. Int J Nutr Sci. 2025;10(2-Supplement):S95.

POSTER

Mobile Applications Designed for People with Disabilities: A Review

Elahe Khani Masoomabadi[1], Mohammad Hosseini Askarabadi[2], Ramin Rastaee Moghadam[3], Negin Farid[4], Mohammad Hossein Taklif[5]*

1. Student Research and Technology Committee, Internal Surgical Nursing, Faculty of Nursing, Jahrom University of Medical Sciences, Jahrom, Iran
2. Student Research and Technology Committee, Emergency Nursing Unit, Faculty of Nursing, Dezful University of Medical Sciences, Dezful, Iran
3. Student Research and Technology Committee, Emergency Nursing Unit, Faculty of Nursing, Larestan University of Medical Sciences, Larestan, Iran
4. Student Research and Technology Committee, Internal Surgical Nursing Unit, Department of Surgical Internal Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
5. Marine Medicine Research Center, Internal Surgery Unit, Baqiyatallah University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Mohammad Hossein Taklif, MSc;
Marine Medicine Research Center,
Internal Surgery Unit, Baqiyatallah
University of Medical Sciences,
Tehran, Iran.
Email: Hosseintaklif@gmail.com

ABSTRACT

About ten percent of the world's population lives with a disability. Mobile applications have the potential to improve access and quality of life for people with disabilities. Therefore, this study aimed to review the use of applications for people with disabilities. This review was conducted through an advanced search without time limitation using international and national databases including IranMedex, SID, Magiran, Elmnet, PubMed, Web of Sciences, Scopus and Google scholar search engines with key words of "mobile applications", "smartphone", "disability", "disabled persons", "people with disabilities" and other Persian and English equivalents after checking the quality of the articles with PRISM guidelines and applying the inclusion and exclusion criteria. Finally,10 articles were selected and the results were extracted. Studies in this area were conducted on people with physical disabilities and with greater aggregation in 2020. Findings showed that these tools were effective in various areas from rehabilitation to performance assessment and increasing social connections. Apps were created to improve the well-being of people with disabilities and facilitate access to beaches and shops. A program improved disability management after stroke and access to rehabilitation services. In one study, personalized rehabilitation programs were emphasized to achieve multi-professional collaboration. In conclusion, the results showed that mobile applications can improve the quality of life of people with disabilities by providing innovative tools for rehabilitation assessment and improving social communication. Therefore, it is recommended that more comprehensive research be conducted to increase the effectiveness, acceptance, and accessibility of these applications.

Please cite this article as: Khani Masoomabadi E, Hosseini Askarabadi M, Rastaee Moghadam R, Farid N, Taklif MH. Mobile Applications Designed for People with Disabilities: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S96.

POSTER

Application of Wearable Devices in Improving the Quality of Life of Lonely Older Adults: A Review

Alireza Zare*

Student Research Committee, Medical Surgical Nursing Department, Yasuj University of Medical Sciences, Yasuj, Iran

ARTICLE INFO

*Corresponding author:
Alireza Zare, MSc;
Student Research Committee,
Medical Surgical Nursing
Department, Yasuj University of
Medical Sciences, Yasuj, Iran.
Email: Alirezazare.abc@gmail.com

ABSTRACT

The growing population of older adults and the increasing number of individuals living alone present challenges in providing adequate care. Lonely older adults often face limited access to healthcare and are at higher risk for issues such as falls or sudden health changes. Wearable devices capable of continuous health monitoring, activity tracking, and emergency alerts hold potential to improve their quality of life. However, the impact of these devices on quality of life warrants further exploration. This review examines the impact of wearable devices on improving the quality of life for lonely older adults. A systematic search was conducted in PubMed, Scopus, and Google Scholar using the keywords "wearable devices," "quality of life," "lonely older adults," and "health monitoring." Inclusion criteria were articles published between 2015 and 2024 focusing on wearable devices among lonely older adults. Articles addressing other age groups or non-wearable technologies were excluded. From an initial pool of 60 articles, 40 were excluded due to lack of relevance, and 20 eligible studies were analyzed. The review found that wearable devices positively impacted the quality of life of lonely older adults by improving health monitoring (75%), reducing anxiety (60%), and enhancing the sense of safety (55%). Challenges included high costs, the need for training, and acceptance of the technology. In conclusion, wearable devices play a crucial role in enhancing the quality of life of lonely older adults. Efforts should focus on reducing costs and improving training to facilitate adoption of these technologies.

Please cite this article as: Zare AR. Application of Wearable Devices in Improving the Quality of Life of Lonely Older Adults: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S97.

International Journal of Nutrition Sciences

POSTER

The Role of IoT in Improving Self-Care for Diabetic Patients: A Review

Elahe Karimipour*, Haniye Karimipour

Student Research Committee, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Science, Ahvaz, Iran

ARTICLE INFO

*Corresponding author:
Elahe Karimipour, BSc;
Student Research Committee, School
of Nursing and Midwifery, Ahvaz
Jundishapur University of Medical
Science, Ahvaz, Iran.
Email: Elahehkarimipour@gmail.com

ABSTRACT

The Internet of Things (IoT) is the rapid advancement of technology that is putting devices online in communication with one another. IoT integrates smart devices and sensors to develop applications such as revolutions in health care like improved self-management of patients with chronic diseases like diabetes. In this review, an extensive search was conducted in the PubMed database and Google Scholar search engine using English keywords including Internet of Things, IoT, diabetes, hospital, and self-care. Totally, 468 articles were found. After removing duplicates, outdated studies, and irrelevant content, 12 articles published between 2019 and 2024 were selected for analysis and review. IoT can help diabetic patients realize extended self-servicing by constant monitoring of blood glucose and physical activities using smart glucometers and wearable sensors for real-time data exchange with healthcare professionals to develop a personalized intervention. However, the dissemination of IoT devices faces a number of challenges in data security, privacy risks, and integration into various healthcare systems. A few studies indicated that though IoT-based monitoring, HbA1c level in patients with type 2 diabetes is not reduced because of the lack of personalized feedback. In conclusion, IoT will go a long way in promoting self-care and medication management through constant monitoring over the internet with timely intervention. For better results, challenges in data security and system integration need to be resolved. Despite these, IoT is destined to improve health outcomes in patients.

International Journal of Nutrition Sciences

POSTER

The Role of Smart Cities in Improving the Quality of Life of the Elderly: A Review

Fatemeh Shoghi, Najibeh Torkanloo, Marzieh Mahmoudimanesh, Nasim Pirzadeh*

Student Research Committee, Esfarayen School of Medical Sciences, Esfarayen, Iran

ARTICLE INFO

Corresponding author:
Nasim Pirzadeh, MSc;
Student Research Committee,
Esfarayen School of Medical
Sciences, Esfarayen, Iran.
Email: N.pirzadeh7238@gmail.com

ABSTRACT

Smart cities that use digital technologies to improve the quality and performance of urban services can play an important role in the quality of life of individuals. The present study examined the role of smart cities in improving the quality of life of the elderly, who are among the groups at risk of harm related to various aspects of health. The study is a narrative review through searching electronic databases with the keywords smart city, elderly, quality of life and its equivalents, with the entry criteria of full text, elderly group and publication time of 2015-2024. Using the PRISMA checklist, 50 and finally 30 studies were selected from 118 studies. The largest part of the activities of smart cities is the use of Internet of Things infrastructure in the field of care services and also maintaining social connections of the elderly, so that the socially compatible health and mental health of elderly people in smart cities improves by 2.2 percent. This improvement in mental health occurs through the use of information and communication technology and increasing human capital in the elderly. In conclusion, the infrastructure of smart cities can be used efficiently to provide medical services in the fastest time and expand the social network of the elderly; because in these cities, health care is efficient and affordable. As a result, the expansion of smart cities, especially relying on the provision of health and treatment services, seems necessary.

Please cite this article as: Shoghi F, Torkanloo N, Mahmoudimanesh M, Pirzadeh N. The Role of Smart Cities in Improving the Quality of Life of the Elderly: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S99.

The Role of Internet of Things in Providing Remote Nursing Services: A Review

Alireza Zare*

Student Research Committee, Medical Surgical Nursing Department, Yasuj University of Medical Sciences, Yasuj, Iran

ARTICLE INFO

Corresponding author:
Alireza Zare, MSc;
Student Research Committee,
Medical Surgical Nursing
Department, Yasuj University of
Medical Sciences, Yasuj, Iran.
Email: Alirezazare.abc@gmail.com

ABSTRACT

Wearable sensors are emerging technologies with broad applications in healthcare. These devices continuously monitor vital signs such as heart rate, blood pressure, temperature, and blood sugar levels, transmitting real-time data to nurses. This allows nurses to track patients' health at all times and intervene promptly if dangerous changes occur. The goal of this review was to examine the role of wearable sensors in patient health monitoring and their impact on improving nursing care. Articles published between 2015 and 2023 in PubMed, Scopus, and Springer Link were reviewed. Keywords such as "wearable sensors in healthcare", "health monitoring devices", "wearable technology in nursing care", and "patient health monitoring" were used in the search. Out of 50 initial articles, 25 were selected based on inclusion and exclusion criteria. Inclusion criteria focused on articles discussing wearable sensors in nursing care and patient health monitoring. Articles lacking sufficient details or focusing on less relevant topics were excluded. Ultimately, 25 articles were selected for analysis, focusing on the use of wearable sensors to improve nursing care quality. Wearable sensors help nurses receive continuous, accurate information on patients' health status. This technology enhances the quality of care by providing real-time data, which allows for timely interventions. Additionally, wearable sensors help reduce treatment costs and streamline care processes. In conclusion, wearable sensors can be an effective tool in monitoring health status and improving nursing care. These devices enhance accuracy in health assessments and contribute to better overall care quality.

The Use of Mobile Health Applications in Monitoring Postpartum Depression: A Review

Alireza Zare*

Student Research Committee, Medical Surgical Nursing Department, Yasuj University of Medical Sciences, Yasuj, Iran

ARTICLE INFO

Corresponding author:
Alireza Zare, MSc;
Student Research Committee,
Medical Surgical Nursing
Department, Yasuj University of
Medical Sciences, Yasuj, Iran.
Email: Alirezazare.abc@gmail.com

ABSTRACT

Postpartum depression is a common condition affecting mothers, with significant impacts on their mental and physical health. Many mothers face challenges accessing mental health care due to time, social, or geographical constraints. Mobile health applications offer a promising solution for monitoring symptoms of postpartum depression and providing essential support. However, a deeper understanding of the impact of these applications on maternal mental health is necessary. This review aimed to evaluate the use of mobile health applications in monitoring postpartum depression and their effectiveness in improving maternal mental health outcomes. A systematic search was conducted in PubMed, Scopus, and Google Scholar using keywords such as "postpartum depression", "mobile health applications", "mental health monitoring", and "maternal mental health". Studies published between 2015 and 2024, focusing on the use of mobile applications for postpartum depression monitoring, were included. From an initial pool of 50 articles, 20 relevant studies were selected. The review revealed that most mobile health applications for postpartum depression include features such as mood tracking, psychological assessments (e.g., PHQ-9), and personalized feedback. Many mothers reported feeling more comfortable tracking their mental health, and these applications helped reduce symptoms of depression and anxiety. Some apps also offered online counseling and referrals to specialists for timely interventions. In conclusion, mobile health applications are valuable tools for monitoring and managing postpartum depression. These apps allow mothers to track their mental health continuously and access professional support if necessary. Further efforts should focus on improving access, data security, and user engagement.

Please cite this article as: Zare AR. The Use of Mobile Health Applications in Monitoring Postpartum Depression: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S101.

International Journal of Nutrition Sciences

POSTER

Virtual Reality in Treatment of Social Anxiety Disorder: A Review

Sajed Arabian[1]*, Roxana Sharifian[2], Seyedeh Fateme Zahra Mousavi[3], Mehrdad Karajizadeh[4], Rasoul Salimi[5]

1. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran 2. Health Human Resources Research Center, Health Information Management and Technology Unit, Medical Informatics Department, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Health Information Technology Unit, Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
4. Trauma Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
5. Department of Emergency Medicine, School of Medicine, Besat Hospital, Hamadan University of Medical Sciences, Hamadan, Iran

ARTICLE INFO

*Corresponding author:
Sajed Arabian, PhD;
Student Research Committee,
Department of Health Information
Management, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Arabiansajed22@gmail.com

ABSTRACT

Social Anxiety Disorder (SAD) is a common psychological condition marked by fear in social situations, often leading to isolation. Traditional treatments like Cognitive Behavioral Therapy (CBT) and Exposure Therapy (ET) have limitations. Virtual Reality (VR), particularly Virtual Reality Exposure Therapy (VRET), has emerged as an alternative treatment for SAD. This review examined existing evidence on VR-based therapies using PubMed, Web of Science, and Google Scholar for studies published between 2015 and 2024. Keywords included social anxiety disorder, social phobia, and virtual reality. Of 214 articles reviewed, 10 met the eligibility criteria for comparative analysis. The studies involved individuals aged 18-70, with three therapeutic approaches including Exposure Group Therapy (EGT), In-Vivo Exposure Therapy (IVET), and Waiting List (WL). It was shown that VR and CBT yielded similar outcomes in reducing anxiety, but VR was preferred due to its lower cost and fewer logistical barriers. VR therapy improved quality of life, self-confidence, and reduced stress, while also shortening treatment duration to 1-12 sessions lasting 90-95 minutes. VR tools, primarily Head-Mounted Displays (HMDs), were used in 76% of cases. Optimal results were seen when patients interacted with avatars, with positive interactions improving experiences and negative ones increasing anxiety. In conclusion, both VR therapy and CBT are effective for treating SAD, with VR offering a more cost-effective and efficient option. VR improves quality of life and self-confidence, reduces session duration, and requires further research to optimize its independent use in clinical practice.

POSTER

The Role of Wearable Health Devices in Managing Type 2 Diabetes in Vulnerable Groups: A Review

Alireza Zare*

Student Research Committee, Surgical Nursing Department, Ysuj University of Medical Sciences, Yasuj, Iran

ARTICLE INFO

Corresponding author:
Alireza Zare, MSc;
Student Research Committee,
Medical Surgical Nursing
Department, Yasuj University of
Medical Sciences, Yasuj, Iran.
Email: Alirezazare.abc@gmail.com

ABSTRACT

Wearable health devices have emerged as cutting-edge technologies in managing chronic diseases such as Type 2 diabetes. These devices enable healthcare professionals to continuously monitor patients' vital signs and send real-time information to nurses. Continuous glucose monitoring and insulin injection through wearable devices provide more control over managing diabetes. Wearable health technologies help patients adhere to their treatments and achieve better outcomes. This article reviewed papers published between 2015 and 2023 from PubMed, Scopus, and Springer Link databases. The search was conducted using keywords such as "wearable health devices in healthcare", "health monitoring devices", "wearable technologies in nursing care", and "patient health monitoring". Out of 50 initial articles, 25 were selected after applying inclusion and exclusion criteria. Inclusion criteria focused on articles addressing the use of wearable health devices in nursing care and patient health monitoring. Articles that lacked sufficient details or did not focus on key topics were excluded. Studies show that wearable devices can assist nurses in assessing patients' health more accurately and quickly, leading to timely interventions when necessary. Additionally, wearable devices reduce healthcare costs and streamline care processes. These devices allow nurses to monitor patients remotely, without the need for physical presence during emergencies. In conclusion, wearable health smart devices can be effective tools for monitoring patients' health and improving nursing care. Using these devices increases the accuracy and quality of care.

POSTER

Prevention of Kidney Transplant Rejection by Using Artificial Intelligence: A Review

Elahe Khodabandeh[1], Hossein Javid[2]*, Fatemeh Ehsani[2]

1. Student Research Committee, Department of Medical Labratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Chronic kidney transplant rejection is a progressive allogeneic immune response that causes an immune response. In kidney transplantation, alloimmune processes by HLA can cause chronic rejection. The importance of delayed transplantation is that it causes a return to dialysis treatment or even death due to organ failure. Artificial intelligence (AI) has emerged as a transformative tool in healthcare and offers promising solutions to address. This review article assessed prevention of kidney transplant rejection by using artificial intelligence searching articles published at PubMed, Science Direct, and Google Scholar until January 2025. The keywords were transplanted artificial intelligence and transplant rejection. By searching this database, 23 articles were found, and 15 were removed by reading titles and abstracts. Eight articles were selected under the inclusion. The results of the studies suggested that AI played a more accurate role in predicting transplant failure and mortality than traditional scoring systems and regression analysis. Models could inform both the pre-transplant decision-making process and post-transplant outcomes. AI was used in predictive modeling of waiting list mortality, donor-recipient matching, survival prediction, diagnosis, and prediction of post-transplant complications to optimize immunosuppression and organization. In conclusion, artificial intelligence holds great potential to improve transplant outcomes and patient survival. But there are challenges in its clinical application including data imbalance for model training, data privacy issues, and the lack of available research methods to benchmark model performance in the real world Overall, artificial intelligence could create an exciting future in transplantation, including kidney transplantation and also we need more research in this field.

Please cite this article as: Khodabandeh E, Javid H, Ehsani F. Prevention of Kidney Transplant Rejection by Using Artificial Intelligence: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S104.

International Journal of Nutrition Sciences

POSTER

Opportunities and Challenges of Internet of Things in Healthcare: A Review

Reyhane Norouzi Aval[1], Ameneh Taji Fard[1,2], Seyyedeh Fatemeh Mousavi Baigi[1], Masoumeh Sarbaz[1], Khalil Kimiafar[1,2]*

1. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Khalil Kimiafar, PhD;
Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran.
Email: Kimiafarkh@mums.ac.ir

ABSTRACT

The Internet of Things (IoT) has transformed the digital world by connecting billions of electronic devices via the Internet, creating a network of devices that produce information and services. The aim of this study was to examine the opportunities as well as challenges and concerns of the Internet of Things in healthcare. A systematic review was conducted by searching the keywords (IOT, Opportunities, AND Challenges) in the title abstract in Embase, Web of Science, Scopus, and PubMed scientific databases on December 20, 2024. The guidelines and Preferred Items of Systematic Review Studies (PRISMA) were followed. Studies that investigated the application, benefits, challenges, and opportunities of IOT in health care and whose full text was available in English were considered as inclusion criteria without time limit. At first, 3257 studies were extracted from the database. Finally, 12 studies were included in this review. The challenges of IoT in healthcare can be classified into three categories of technical challenges, cost-related challenges, and ethical challenges. Opportunities include enhanced patient observation and management, improved efficiency and resource utilization, personalized and precision medicine, empowering patients and promoting self-management, and data-driven decision-making. In conclusion, the incorporation of Internet of Things (IoT) technologies in the medical field will lead to the creation of vast quantities of data. By exploring the potential benefits, tackling the obstacles, and reflecting on the ethical considerations, IoT has the power to transform the way healthcare is delivered.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Health Applications for Kidney Transplant Recipients: A Review

Parastoo Amiri[1], Khadijeh Moulaei[2], Zahra Galavi[3]*

1. Department of Health Information Technology, School of Allied Medical Sciences, Lorestan University of Medical Sciences, Khorramabad, Iran
2. Health Management and Economics Research Center, Health Management Research Institute, Iran University of Medical Sciences, Tehran, Iran
3. Department of Health Information Technology, School of Allied Medical Sciences, Zabol University of Medical Sciences, Zabol, Iran

ARTICLE INFO

Corresponding author:
Zahra Galavi, PhD;
Department of Health Information
Technology, School of Allied Medical
Sciences, Zabol University of Medical
Sciences, Zabol, Iran.
Email: Galavi.z.701007@gmail.com

ABSTRACT

In order to improve outcomes and maximize graft and patient survival, kidney transplant recipients' care is crucial. There are various ways through which mobile health (mHealth) can contribute to the post-transplant care of patients. This research would concentrate on the applications of mHealth interventions in kidney transplant patients. The database was searched comprehensively using PubMed, Scopus, Google Scholar, and Web of Science with two sets of keywords under "kidney transplantation" and "mobile health. Out of 3800 articles identified, 73 articles were obtained after screening the titles and abstracts. Three reviewers independently screened and extracted data. Data on study design, intervention type, and outcomes were extracted and analyzed. Of the 13 studies that fulfilled the inclusion criteria, the review found that mHealth applications enhanced medication adherence, the management of vital signs and patient education of kidney transplant patients. Some of the features that were commonly used include medication reminders, telehealth consultations and remote monitoring systems. Patient satisfaction, decreased rates of hospital admission and enhanced clinical characteristics including kidney function and reduced transplant rejection were noted. In conclusion, the application of mHealth has the potential to provide an essential support to the treatment of kidney transplant patients and improves the adherence, monitoring and patient knowledge. These interventions have the potential to decrease hospital admissions and producing better clinical result. Further research should aim to establish the effectiveness of the interventions in the long run and also try to integrate the interventions into the conventional clinical practice to enhance their effectiveness.

Please cite this article as: Amiri P, Moulaei K, Galavi Z. Mobile Health Applications for Kidney Transplant Recipients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S106.

Advanced Deep Learning Architectures for Sensor-Based Detection of Alzheimer's-like Behavioral Anomalies in Smart Home Environments

Mohammadsadegh Rezaei*, Mobina Riahi, Mohammadamin Ahanin

Department of Computer Engineering and Information Technology, Shiraz University of Technology, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Mohammadsadegh Rezaei, PhD;
Department of Computer Engineering
and Information Technology,
Shiraz University of Technology,
Shiraz, Iran.
Email: Rezaei@sutech.ac.ir

ABSTRACT

Background: Alzheimer's disease is a progressive neurological disorder that profoundly affects the quality of life for elderly individuals. Detecting early signs is essential for timely interventions and effective management. However, traditional diagnostic methods, including caregiver observations and advanced imaging techniques such as MRI and PET scans, often present barriers due to their high cost, time requirements, and limited accessibility. To overcome these challenges, this study leverages sensor data from the Aruba Dataset in combination with advanced deep learning techniques to detect early Alzheimer's-like behavioral anomalies in a smart home environment.

Methods: By utilizing architectures such as GRU, LSTM, Bidirectional LSTM, and Conv1D, the research focuses on identifying deviations in activity patterns, aiming to provide a non-invasive and cost-effective monitoring solution. Model evaluation was conducted using metrics like ROC AUC and precision-recall curves, with Bidirectional LSTM standing out for its ability to effectively capture temporal dependencies in behavioral data.

Results: This study delivers promising results, with the proposed models achieving competitive accuracy and performance on standard evaluation metrics. These findings align closely with recent advancements in sensor-based anomaly detection, highlighting the robustness of the approach. By enhancing the efficiency of activity monitoring, the proposed solution has the potential to reduce caregiver reliance on traditional documentation methods while enabling timely interventions.

Conclusion: This work underscores the potential of sensor-based monitoring and artificial intelligence (AI) in mobile health applications to support vulnerable populations. Future efforts should focus on real-time deployment and the expansion of datasets to enhance model generalizability and detection accuracy further.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Advancing Pediatric Food Allergy Diagnostics through Machine Learning: A Review

Reihane Sharif[1], Reza Abbasi[2], Shima Anvari[1], Mina Anvari[3]*

1. Health Information Management Research Center, Kashan University of Medical Sciences, Kashan, Iran
2. Department of Health Information Technology, School of Paramedical Sciences, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
3. Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

ARTICLE INFO

Corresponding author:
Mina Anvari, MSc;
Health Information Technology
Research Center, Isfahan University
of Medical Sciences, Isfahan, Iran.
Email: Anvari_mina@yahoo.com

ABSTRACT

A traditional pediatric food allergy diagnosis often involves risky oral food challenges, and has limitations in accuracy and efficiency. This field is looking to enhance diagnostic capabilities using machine learning (ML) and artificial intelligence (AI). The purpose of this study was to systematically evaluate applications, efficacy, and clinical implications of ML algorithms in the diagnosis of pediatric food allergies. PubMed, Scopus, and Web of Science databases were systematically searched (January 2021-December 2024). Totally, 28 out of 2,450 papers identified initially met inclusion criteria of peer-reviewed studies evaluating ML/AI applications in pediatric food allergy diagnosis, published in English, and with validated outcomes. As part of the quality assessment process, studies were assessed using the QUADAS-2 tool for diagnostic studies and PROBAST for models of prediction. Twenty-eight studies (cumulative n=15,432) focused on three primary applications of diagnostic prediction models, allergen detection systems, and clinical decision support tools. A hybrid model of Generalized Linear Models and Bayesian methods performed 95.2% recall and over 99% accuracy as a predictor of peanut allergy severity (n=2,854). In moderate-quality studies, deep learning models detected allergens with 92.28% accuracy (I2=68%). Recurrent neural networks performed better (low heterogeneity, I2=32%). However, dataset sizes varied (range: 156-4,892 patients) among studies (Egger's test, p=0.08). In conclusion, a robust body of evidence suggests that machine learning algorithms can diagnose pediatric food allergies, especially peanut allergies. Privacy considerations, dataset diversity, and standardization needs must be taken into account. In clinical practice, AI-based diagnostic tools need to be validated in multicenter studies with diverse populations.

International Journal of Nutrition Sciences

POSTER

Advancing Personalized Healthcare: The Role of the Internet of Medical Things in Continuous Monitoring and Crisis Detection

Zohre Arabi*, Sajjad Ghatei

Department of Computer Engineering, National University of Skills (NUS), Tehran, Iran

ARTICLE INFO

Corresponding author:
Zohre Arabi, PhD;
Department of Computer
Engineering, National University of
Skills (NUS), Tehran, Iran.
Email: Zohre.arabi@nus.ac.ir

ABSTRACT

Background: The Internet of Medical Things (IoMT) encompasses a network of interconnected medical devices and sensors designed to collect and transmit patients' physiological data continuously. Typically wearable, these devices monitor critical health metrics, including heart rate, blood pressure, glucose levels, oxygen saturation, and physical activity. By leveraging wireless communication technologies (e.g., Wi-Fi, RF, Bluetooth, and cellular networks), IoMT facilitates real-time data transfer to remote monitoring systems, enabling personalized and continuous healthcare. This research investigated the application of IoMT for health monitoring via wearable technologies.
Methods: Data from advanced sensors is transmitted in real-time or at predefined intervals to remote systems. Threshold-based algorithms detect deviations in physiological parameters, triggering automated alerts to patients, healthcare providers, or emergency services. System performance is evaluated by benchmarking IoMT solutions against traditional monitoring approaches.
Results: The findings revealed that wearable IoMT devices enhance healthcare delivery efficiency by up to 30% and reduce costs by 20-40%. These devices demonstrated 25% higher accuracy in detecting critical health events, such as myocardial infarctions and respiratory complications, compared to conventional monitoring systems. IoMT also significantly improved chronic disease management and facilitates preventative healthcare practices.
Conclusion: IoMT systems offer personalized, cost-effective healthcare with superior outcomes by enabling continuous monitoring and early detection of health crises. These technologies reduce reliance on frequent hospital visits and support proactive care. Despite persistent challenges, such as data security and privacy concerns, advancements in encryption and AI-driven analytics are poised to solidify IoMT as a cornerstone of global smart healthcare systems.

Please cite this article as: Arabi Z, Ghatei S. Advancing Personalized Healthcare: The Role of the Internet of Medical Things in Continuous Monitoring and Crisis Detection. Int J Nutr Sci. 2025;10(2-Supplement):S109.

International Journal of Nutrition Sciences

POSTER

Advancing Telenutrition: A Review on Insights into Technology, Effectiveness, and Future Directions

Yeganeh Yazdani[1], Hossein Javid[2]*, Mobina Tabrizi[1], Amirali Ghooryani[1]

1. Department of Nutrition Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Telenutrition uses technology for dietary and nutritional care, providing innovative solutions to global health challenges such as obesity and chronic diseases. Its potential to overcome geographic limits and offering personalized nutrition guidance has become quite important. This review article was performed within articles published at PubMed, Science Direct, and Google Scholar. The keywords were telenutrition, telehealth, artificial intelligence (AI), mobile applications, wearable technologies, chronic disease management, and dietary behavior. By searching this database, 15 articles were found, and 10 were removed by reading titles and abstracts. Five articles were selected under the inclusion criteria. All articles were chosen from English articles. There was strong evidence demonstrating that telenutrition led to better dietary behavior, improved health metrics, and increased user participation. Mobile applications and wearable tech played essential role for offering immediate feedback and encouraging behavior change; while AI tools provided tailored dietary recommendations. Ethical issues, including data privacy and equal access, continued to have significant challenges. The review of telehealth and telenutrition provided insights into their current state, usage, and effectiveness. It highlighted the benefits and limitations of these technologies, especially in managing adolescent obesity, and offered directions for future development. The findings demonstrated telehealth and telenutrition's potential to improve healthcare delivery, reduce costs, and achieve better patient outcomes. In conclusion, as digital health evolves, addressing ethical issues like patient privacy, improving communication, and leveraging technology to meet rising virtual care demands remain essential. This field requires further research and development to refine and expand telehealth in nutrition care.

Please cite this article as: Yazdani Y, Javid H, Tabrizi M, Ghooryani AA. Advancing Telenutrition: A Review on Insights into Technology, Effectiveness, and Future Directions. Int J Nutr Sci. 2025;10(2-Supplement):S110.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Artificial Intelligence and Eldercare: Enhancing Motivation of Life

Esmaeel Zalbeigi*

Qazvin University of Medical Sciences, Qazvin, Iran

ARTICLE INFO

Corresponding author:
Esmaeel Zalbeigi, MSc;
Qazvin University of Medical
Sciences, Qazvin, Iran.
Email: Esmaeel_zalbeigi@yahoo.com

ABSTRACT

Background: Artificial intelligence (AI) encompasses a range of algorithms and systems designed to identify patterns, predict outcomes, and make informed decisions by analyzing vast datasets. In the enhancement of healthcare and the motivation of life, AI is revolutionizing disease diagnosis among the elderly. Timely diagnosis of these conditions presents significant challenges due to the intricate interplay of various factors, including communication with family, support, personal care, companionship, and interaction. This study explores AI to enhance the motivation for life for the elderly by providing accurate healthcare.

Methods: To examine the criteria and predict the level of life motivation among the elderly, the nearest neighbor, C4.5 decision tree, genetic algorithm, ant colony algorithm, and their combination were used. A total of 46 criteria were considered to examine the level of life motivation among the elderly.

Results: It was shown that prediction accuracy of the C4.5 decision tree method was 86.85 for all features and 90.15 for features selected by the genetic algorithm. The prediction accuracy based on KNN for all features and selected features was 87.15 and 91.05 with the combination of the ACO+FCM method and 87.2 and 91.95 with the combination of the ACO+KFCM method, respectively.

Conclusion: By analyzing diverse data sources such as communication with family, support, personal care, companionship, and interaction, AI can uncover hidden patterns and insights, enhancing the motivation for life in the elderly. Furthermore, AI-powered technologies can be integrated into smart assistive devices, empowering older adults with greater independence and enhancing their overall motivation for life.

Please cite this article as: Zalbeigi E. Artificial Intelligence and Eldercare: Enhancing Motivation of Life. Int J Nutr Sci. 2025;10(2-Supplement):S111.

POSTER

Artificial Intelligence-Based Educational Systems: A Review on Raising Awareness among Pregnant Women about Impacts of Indoor and Outdoor Pollution

Hassan Hashemi[1]*, Atefeh Mohammadi[2]

1. Research Center for Health Sciences, Institute of Health, Department of Environmental Health Engineering, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Hassan Hashemi, PhD;
Research Center for Health Sciences,
Institute of Health, Department of
Environmental Health Engineering,
School of Health, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: H_hashemi@sums.ac.ir

ABSTRACT

Indoor and outdoor air pollutions are recognized as significant risk factors for the health of pregnant women and their fetuses. This review examined the role of Artificial Intelligence (AI)-based educational systems in raising awareness among pregnant women about the impacts of indoor and outdoor pollutions, analyzing their advantages and challenges. In 2024 by searching reputable databases such as SID, Google Scholar, Web of Science, and Scopus using related keywords, 30 articles were identified, among them, 15 relevant studies published between 2019 and 2024 were analyzed. AI-based educational systems, utilizing machine learning algorithms and natural language processing, can provide accurate and personalized information about the impacts of indoor and outdoor pollutions. These systems enable pregnant women to monitor air quality, identify sources of indoor pollution, and receive tailored recommendations to reduce exposure to pollutants through smart applications and educational platforms. Additionally, these systems can predict the long-term effects of pollution exposure on both mother and fetus, offering timely alerts and preventive actions. However, challenges such as technological complexity, limited user awareness, and restricted accessibility in some regions reduce the effectiveness of these systems. In conclusion, AI-based educational systems are effective tools for raising awareness among pregnant women about the risks of pollution and providing practical recommendations to mitigate these risks. The development and expansion of these technologies, while considering the specific needs of users, can significantly contribute to improving maternal and fetal health.

POSTER

Artificial Intelligence-Driven Image Processing for Detecting Mucosal Injury in Celiac Disease: Analyzing Endoscopic Biopsy Images for Early Diagnosis

Narges Norouzkhani[1]*, Azita Ganji[2], Ali Bahari[2], Javad Shokri Shirvani[3]

1. Department of Medical Informatics, faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Internal Medicine, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Internal Medicine, Babol University of Medical Sciences, Babol, Iran

ARTICLE INFO

*Corresponding author:
Narges Norouzkhani, PhD;
Department of Medical Informatics,
faculty of medicine, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Narges.norouzkhani@yahoo.com

ABSTRACT

Background: Celiac disease (CD) is a chronic autoimmune disorder triggered by gluten, leading to mucosal injury and necessitating early diagnosis through histological evaluation of endoscopic biopsy specimens. Traditional assessment methods are often subjective and prone to inter-observer variability. This study investigated the efficacy of Artificial Intelligence (AI)-driven image processing techniques to enhance the detection of mucosal injury in CD, aiming to improve diagnostic accuracy.

Methods: A cohort of 1,000 endoscopic biopsy images from patients with CD was assembled from a multi-center database. A convolutional neural network (CNN) was employed for analysis, leveraging data augmentation techniques to improve the model's robustness against variability in image quality. The CNN was trained with labeled images verified by expert pathologists, and its performance was evaluated using a 10-fold cross-validation approach, focusing on accuracy, sensitivity, specificity, and F1-score. Saliency maps were used to visualize which image areas influenced the model's decisions.

Results: AI model achieved an accuracy of 92%, with a sensitivity of 90% and specificity of 93% in identifying mucosal injury associated with CD. The F1-score was 0.91, indicating a balanced precision-recall trade-off. Saliency map analyses effectively highlighted key pathological features, such as villous atrophy and crypt hyperplasia, aligning with histological findings. Automated system showed promise in reducing diagnostic time and enhancing clinical workflow efficiency.

Conclusion: This study demonstrated that AI-driven image processing could significantly aid pathologists in early diagnosis and management of CD while minimizing inter-observer variability. Future studies should focus on integrating AI solutions into routine clinical workflows and investigating histological features.

Please cite this article as: Norouzkhani N, Ganji A, Bahari A, Shokri Shirvani J. Artificial Intelligence-Driven Image Processing for Detecting Mucosal Injury in Celiac Disease: Analyzing Endoscopic Biopsy Images for Early Diagnosis. Int J Nutr Sci. 2025;10(2-Supplement):S113.

POSTER

AI-XR Surgical Metaverses: A Review on Transforming Surgery and Interventional Healthcare with Advanced Technologies

Aida Ghasemzade, Fateme Ghasemzade, Hossein Javid*

Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Varastegan Institute for Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Advances in Artificial intelligence (AI) and Extended Reality (XR) have paved the way for the AI-XR surgical metaverse, revolutionizing surgical science. AI-XR surgical metaverses are capable of planing and performing surgery in virtual environments. methods of using AI such as machine learning, natural language processing (NLP) and computer vision arecombined with XR technologies like augmented reality (AR), virtual reality (VR) and mixed reality (MR). AI-XR surgical metaverses enable preoperative planning, patient counseling, digital twins, situational awareness and surgical training. This review, based on 2020-2024 publications from PubMed, ScienceDirect and Google Scholar, identified 13 articles, selecting 3 after screening titles and abstracts. Key terms included AI, Metaverse, and XR, with all sources in English. Preoperative platforms enable surgical simulation in virtual environments using patient data (MRI, CT, EHR) to increase accuracy and reduce risk. AR is used to display medical images and data on patient anatomy in real-time and predicts potential problems during surgery. AI-based systems, including real-time neural monitoring systems, detect and warn of abnormal events. In conclusion, operating rooms of the future will become environments where virtual layers are used for communication, diagnosis, and monitoring. Surgeons should play an active role in AI. AI-XR surgical metaverses can transform healthcare by increasing accuracy, reducing errors and enhancing training. However, success requires overcoming challenges such as: high costs, lack of high-quality data, real-time data protection and protecting patient safety from cyberattacks.

Please cite this article as: Ghasemzade A, Ghasemzade F, Javid H. AI-XR Surgical Metaverses: A Review on Transforming Surgery and Interventional Healthcare with Advanced Technologies. Int J Nutr Sci. 2025;10(2-Supplement):S114.

International Journal of Nutrition Sciences

POSTER

An Artificial Intelligence-Based System for Managing Blood Pressure, Nutrition, and Physical Activity in Pregnant Women: A Review

Nazila Soleimanifard, Mohammad Zarei*

Hamadan University of Medical Sciences, Hamadan, Iran

ARTICLE INFO

Corresponding author:
Mohammad Zarei, PhD;
Hamadan University of Medical
Sciences, Hamadan, Iran.
Email: Mmmzarei@yahoo.com

ABSTRACT

Artificial Intelligence (AI) has revolutionized healthcare based on individual data. Machine learning algorithms analyze information, predict potential complications and recommend an intervention. AI-based systems for managing blood pressure, nutrition, and physical activity can empower women to take an active role in their health during pregnancy. This review assessed artificial intelligence-based system for managing blood pressure, nutrition, and physical activity in pregnant women searching Google Scholar and using related keywords. Blood pressure management hypertensive disorders are among the leading causes of morbidity and mortality during pregnancy. According to American College of Obstetricians and Gynecologists, approximately 6-8% of pregnant women experience hypertension. Effective management of blood pressure is crucial not only for the health of the mother, but also for optimal growth and development of the fetus. Maternal hypertension is associated with adverse outcomes such as preterm birth and low birth weight. Proper nutrition is essential during pregnancy to support fetal growth and development. Nutritional needs of pregnant women increase significantly, necessitating a balanced intake of macronutrients and micronutrients. Deficiencies in key nutrients can lead to complications like neural tube defects; while AI-based system for managing blood pressure, nutrition, and physical activity in pregnant women presents a transformative opportunity to enhance prenatal care. By leveraging real-time data and personalized insights, it can empower women to make informed decisions about their health, potentially reducing the risk of complications associated with pregnancy. In conclusion, careful consideration of challenges such as data privacy, user acceptance, and integration with healthcare professionals is essential for successful implementation.

Please cite this article as: Soleimanifard N, Zarei M. An Artificial Intelligence-Based System for Managing Blood Pressure, Nutrition, and Physical Activity in Pregnant Women: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S115.

International Journal of Nutrition Sciences

POSTER

An Intelligent Model for Functional Dyspepsia Management Based on Persian Medicine

Sougand Setareh*, Mojgan Tansaz, Sajjad Sadeghi

Traditional Medicine and Materia Medica Research Center, Department of Traditional Medicine, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Sougand Setareh, PhD;
Traditional Medicine and Materia
Medica Research Center, Department
of Traditional Medicine, School
of Traditional Medicine, Shahid
Beheshti University of Medical
Sciences, Tehran, Iran.
Email: Sougand.setareh@sbmu.ac.ir

ABSTRACT

Background: Functional dyspepsia (FD) is a prevalent gastrointestinal disorder. Persian medicine offers various treatments for digestive issues. This study aimed to develop a hybrid treatment approach for FD, combining Persian medicine with evidence-based practices. By reviewing existing clinical guidelines and scientific literature, we searched to create a comprehensive treatment model to address the complex nature of FD.

Methods: This research involves creating a conceptual model rooted in Persian Medicine. Following a definitive diagnosis of FD, they are categorized into three distinct subgroups based on their medical history, as outlined in Iranian clinical guidelines. Beyond general therapeutic interventions, each subgroup is prescribed specific treatments. A sophisticated algorithm within this model intelligently determines the sequence and priority of these treatments, providing a personalized roadmap for patient care.

Results: In this therapeutic roadmap, patients with mild to moderate symptoms can benefit from lifestyle modifications, general measures, and specific treatments for their imbalances for a period of two weeks. For patients with severe symptoms or those who do not respond to lifestyle modifications, drug therapy is recommended. Overall, the treatment in this model is divided into three phases: lifestyle modification including general measures and specific treatments for each type of imbalance, drug therapy, and manual therapies.

Conclusion: Considering the multitude of therapeutic approaches in traditional medicine, this intelligent modeling can significantly accelerate physicians' work and reduce errors in prescribing treatment pathways without relying on memory or clinical guidelines. Furthermore, new treatment approaches can be incorporated into this intelligent model.

Please cite this article as: Setareh S, Tansaz M, Sadeghi S. An Intelligent Model for Functional Dyspepsia Management Based on Persian Medicine. Int J Nutr Sci. 2025;10(2-Supplement):S116.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Metaverse and Applications of Artificial Intelligence in Medicine: A Review

Atena Abidi[1], Mohammad Mehdi Ghaemi[2]*

1. Medical Informatics Departments, Kerman University of Medical Sciences, Kerman, Iran
2. Futures Research Institute, Medical Informatics Research Center, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

Corresponding author:
Mohammad Mehdi Ghaemi, PhD;
Futures Research Institute, Medical
Informatics Research Center, Kerman
University of Medical Sciences,
Kerman, Iran.
Email: Dr.mghaemi@gmail.com

ABSTRACT

Studies have shown that a combination of shortcomings, including financial constraints, problems of the elderly, the increase in chronic diseases, and pressure on healthcare systems are important issues that need to be addressed. Since the COVID-19 disease hit the global health system, the concept of artificial intelligence (AI) has revolutionized healthcare, which can be considered a step forward to meet future healthcare needs. The metaverse and applications of AI in medicine has been studied in this review searching articles published between 2013 and 2024 in scientific database of Google Scholar and Scopus using related keywords. Totally, 150 relevant articles were found, and after reviewing their contents, 93 that were related to the research topic were selected for further review and the rest of the studies were excluded. The impact of AI in diagnosing clinical conditions in medical and diagnostic imaging services, controlling the spread of pandemics such as coronavirus with early detection and providing remote treatment solutions for patients, discovering new drugs and vaccines, and technology-assisted rehabilitation are among the benefits that are clearly evident. In conclusion, AI in the face of various technical, ethical, and social challenges in healthcare and the sensitivity of data and its confidentiality by legal authorities, as well as its inability to reflect some human characteristics, such as expressing empathy, while being effective, cannot completely and independently replace human communication and performance, especially teamwork and group work to achieve specific goals.

Please cite this article as: Abidi A, Ghaemi MM. The Metaverse and Applications of Artificial Intelligence in Medicine: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S117.

International Journal of Nutrition Sciences

POSTER

Analysis of the Effectiveness and Sustainability of the Results of Using Mobile Health Technologies in Improving Health-Related Behaviors: A Review

Bayaneh Amini[1], Elahe Hosseini[1], Bahlol Rahimi[2]*, Tahereh Samimi[1], Kasra Kashani[2], Seyed Mohsen Hosseini[2], Sina Veisi[2]

1. Student Research Committee, medical informatics, Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
2. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Bahlol Rahimi, PhD;
Health and Biomedical Informatics
Research Center, Urmia University of
Medical Sciences, Urmia, Iran.
Email: Bahlol.rahimi@gmail.com

ABSTRACT

Mobile health (mHealth) has the potential to alter health-related behaviors. Given the rise in the use of mobile applications and wearable devices for managing personal health, the present study is dedicated to a comprehensive evaluation of the existing research in this field. In this study, a systematic search was conducted analyzed the effectiveness of the results from using mHealth technologies to improve health-related behaviors across reliable databases such as Web of Science, Scopus, and PubMed, combining the keywords of "mHealth", Health Behavior Change" , and various interventions including "physical activity", "dietary behavior", and "smoking cessation" from 2010 to April 2024. Initially, 1,495 articles were identified, and after filtering, 23 articles were selected for analysis. These articles examined the effects of mHealth interventions on behaviors such as increasing physical activity, improving dietary habits, and reducing tobacco use. The mHealth interventions have shown significant impacts on improving lifestyle behaviors, particularly with a 20% increase in physical activity through mobile applications and wearable devices. These technologies, by providing instant feedback and tracking capabilities, have contributed to enhancing daily activities and the quality of dietary habits. Furthermore, online educational programs and food intake tracking apps have led to a reduction in unhealthy calorie consumption. However, challenges such as privacy concerns and unequal access to technology can impact the implementation of these interventions. In conclusion, this study demonstrates that mHealth technologies have great potential to alter health-related behaviors. Nevertheless, further research is needed to address the challenges and improve the design of these technologies.

Please cite this article as: Amini B, Hosseini E, Rahimi B, Samimi T, Kashani K, Hosseini SM, Veisi S. Analysis of the Effectiveness and Sustainability of the Results of Using Mobile Health Technologies in Improving Health-Related Behaviors: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S118.

International Journal of Nutrition Sciences

POSTER

Application of Artificial Intelligence in Analyzing Dietary Patterns and Personalized Recommendations: A Review

Parsa Sadeghipour[1], Mahshid Keshavarzi[2]*, Arash Zandi[3]

1. School of Medicine, University of Medical Sciences, Kerman, Iran
2. Food Science and Technology Department, University of Science and Research, Tehran, Iran
3. Artificial Intelligence and Robatics Department, Bardsir Azad University, Kerman, Iran

ARTICLE INFO

Corresponding author:
Mahshid Keshavarzi, PhD;
Food Science and Technology
Department, University of Science
and Research, Tehran, Iran.
Email: Mkeshavarz069@gmail.com

ABSTRACT

Artificial intelligence (AI) has brought about a dramatic change in the field of nutrition. This technology is capable of identifying complex patterns in individuals' diets by analyzing data on dietary habits, health status, genetics, and other related factors. This study was designed as a descriptive review. For this purpose, an extensive search was conducted in reputable scientific databases including Cochrane, Scopus, Web of Science, and Pubmed. Using machine learning algorithms, artificial intelligence can provide fully personalized diets that are tailored to each person's health goals, food preferences, and individual characteristics. Personalized recommendations based on artificial intelligence have numerous benefits, including improving overall health, losing weight, controlling chronic diseases, and increasing quality of life. This technology can help individuals make the best decisions about their nutrition by taking into account various factors such as genetics and lifestyle. However, the use of AI in this field is also accompanied by challenges, including the lack of high-quality data, issues related to data privacy and security, and the need for clinical validation of algorithms. Despite these challenges, the future of AI in the field of nutrition is very promising and this technology is expected to become an integral part of everyday life in the near future. The advantages of using AI in analyzing food patterns include personalization and high accuracy, reducing errors, and improving human health. In conclusion, based on data analysis, AI algorithms can provide suggestions including adjusting calories, protein, and other nutrients needed to maintain health or lose weight.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Application of Artificial Intelligence in Prevention of Antimicrobial Resistance: A Review

Fatemeh Sayareh[1]*, Hesameddin Akbarein[2], Maziar Jajarmi[3]

1. Faculty of Veterinary Medicine, Shahid Bahonar University, Kerman, Iran
2. Division of Epidemiology and Zoonoses, Department of Food Hygiene and Quality Control, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran
3. Department of Pathobiology, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Sayareh, PhD;
Faculty of Veterinary Medicine,
Shahid Bahonar University,
Kerman, Iran.
Email: F.sayareh.fs@gmail.com

ABSTRACT

Antimicrobial resistance (AMR) has now emerged as a chronic public health problem globally, with the forecast of 10 million deaths per year globally by 2050. Artificial intelligence (AI) represents a new paradigm to combat AMR. Thus, various AI approaches to this problem have sprung up, some of which may be considered successful cases of domain-specific AI applications in AMR. In this research, we outlined the use of AI to combat AMR, detailing recent advancements in one complementary category of prevention. We provided an overview on current AMR control approaches using AI within the "One Health" context. This research is a review study in which articles published in authentic databases such as Scopus, Science Direct, Google Scholar and PubMed and also library searches were used. The terms "artificial intelligence", "antimicroboal resistance", "prevention" and "one health" were used simultaneously to search in English sources. When it comes to infectious diseases, AI has the potential to be a game-changer in the battle against AMR. Although AI has become an integral part of biomedical research, their impact on AMR management has remained modest. The World Health Organization (WHO) has underlined the necessity of selecting the appropriate antibiotic and treating for the shortest time feasible to minimize the spread of resistant bacterial strains. In conclusion, this review provided an insight into the current AI practices regarding antibiotic resistance across the world and recommends that concrete actions are needed to allow AI to be more readily integrated within the healthcare and public health sectors.

Application of Artificial Intelligence in Diagnosis of Inflammatory Bowel Disease: A Review

Aida Shoraka[1], Azam Kheirdoust[2], Fatemeh Dankoob[1], Sare Taheri Aval[1], Mohammad Reza Mazaheri Habibi[2]*

1. Student Research Committee, Department of Nutrition, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Medical Informatics Unit, Health Information Technology Department, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Mazaheri Habibi, PhD;
Medical Informatics Unit, Health Information Technology Department, Varastegan Institute for Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Inflammatory bowel diseases (IBD), including Crohn's disease (CD) and ulcerative colitis (UC), with an increasing global prevalence, require a complex diagnosis that combines clinical, laboratory, and endoscopic data. Artificial intelligence (AI) can help diagnose this disease by analyzing data. The aim of this study was to investigate the role of artificial intelligence techniques in improving the diagnosis of IBD. This systematic review was conducted on January 1, 2025, by searching Scopus, Web of Science, and Google Scholar. The keywords "artificial intelligence", "machine learning", "deep learning", "inflammatory bowel disease", and "diagnosis" were used. English-language studies related to IBD diagnosis were included, and review articles, letters, conference abstracts, and low-quality studies were excluded. A total of 118 initial articles were included in the review. Five studies (45.5%) used deep learning algorithms to increase the accuracy of endoscopic diagnosis and reduce processing time. 2 studies (18.2%) analyzed stool data for IBD classification. 2 studies (18.2%) investigated proteomic and radiomic biomarkers for predicting and differentiating IBD types. One study (9.1%) evaluated the Predict AI model with an accuracy of AUC=70-78% for early detection of CD and UC. One study (9.1%) reported a reduction in inflammation of the IL-12 and IL-23 pathways with ustekinumab treatment and the importance of maintenance therapy. In conclusion, recent advances in AI have revolutionized the diagnosis of IBD by accurately identifying microscopic features and predicting remission, relapse, and complications.

International Journal of Nutrition Sciences

POSTER

Application of Artificial Intelligence in Treatment of Puberphonia: A Review

Farzaneh Abdi, Yousef Mansouri*, Sara Abedini Baghbadorani

Student Research committee, Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Yousef Mansouri, MSc;
Student Research committee, Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Email: Yusef.m1991@yahoo.com

ABSTRACT

Puberphonia, or abnormal high-pitched voice, is a voice disorder influenced by hormonal changes and psychological factors. This disorder can cause significant distress and negatively impact an individual's quality of life by affecting social interactions, self-esteem, and professional opportunities. This article examined the application of artificial intelligence (AI) in real-time voice frequency measurement and its display on a chart indicating the normal range for the patient's age and gender. This study was conducted as a systematic review of literature published between 2020 and 2023, using databases such as Google Scholar, PubMed, and Web of Science and utilizing related keywords. The systematic review highlighted several benefits of using AI in treatment of puberphonia. The application allows the speech therapist to provide more controlled and precise treatment by continuously monitoring the patient's voice frequency and comparing it to a normal range expected for their age and gender. This real-time data is displayed on a chart, offering the patient increased visual feedback and enabling them to observe changes in their voice compared to the normal range. The objective data provided by the AI program helps to tailor personalized treatment plans and track progress more effectively. In conclusion, utilizing AI can allow more accurate and effective evaluation of voice problems and offers more appropriate treatments. With continuous advancements in AI technology and increasing accessibility, the use of these tools in speech therapy is expected to become more widespread, offering substantial benefits for individuals with puberphonia and other voice disorders.

Please cite this article as: Abdi F, Mansouri Y, Abedini Baghbadorani S. Application of Artificial Intelligence in Treatment of Puberphonia: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S122.

POSTER

Application of Internet of Things in Mobile Health System

Kazem Darand*, Hedayat Kargar

Performance Management Office of Yazd Governor, Yazd, Iran

ARTICLE INFO

*Corresponding author:
Kazem Darand, MSc;
Performance Management Office of
Yazd Governor, Yazd, Iran.
Email: Darand689@gmail.com

ABSTRACT

Background: This research aimed to identify possible fields of application of Internet of Things (IoT) technology in different dimensions of the mobile health (mHealth) system in order to take help from the new IoT technology to facilitate and accelerate the process of realizing the goals and missions of this technological social system.

Methods: The current research, which has an applied nature, was designed with a descriptive and survey method, and after studying the research records, a questionnaire was designed to receive the opinions of experts.

Results: This study was able to introduce 22 of the most likely uses and capabilities of IoT in the process of establishing a mHealth system and divided them into five and three levels slow placement. In this way, it was determined that the most effective capabilities of the IoT technology in the mHealth system are improving the information management system; intelligent sending of content to actors; and tracking people.

Conclusion: The present study has been able to strengthen the existing research records in terms of analyzing the capabilities of the IoT in the mHealth system, which had been less discussed so far; besides, the grouping of these capabilities and applications has been done in a new way in the present study. So, health system managers are advised to exploit processes and mechanisms based on use of artificial intelligence (AI) of the health system, focusing on new technologies such as the IoT.

Please cite this article as: Darand K, Kargar H. Application of Internet of Things in Mobile Health System. Int J Nutr Sci. 2025;10(2-Supplement):S123.

POSTER

Application of Machine Learning in Management of Acute Respiratory Distress Syndrome: A Review

Aida Moradi[1,2,3], Delaram Dowlatshahi[1,2,3], Mohammad Jam'dar[1,2,3], Zahra Jamshiddoust[4], Mohammad Naeim Mirzazadeh[1,2,3]*

1. Students Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran
2. Health Information Technology Association, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Health Information Management and Medical Informatics, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
4. Health Information Management Department, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mohammad Naeim Mirzazadeh, MSc;
Department of Health Information
Management and Medical
Informatics, School of Allied Medical
Sciences, Tehran University of
Medical Sciences, Tehran, Iran.
Email: Naeimmirzazade@gmail.com

ABSTRACT

Acute respiratory distress syndrome (ARDS) is a rapidly progressive etiology of respiratory failure caused by inflammatory lung injury. Machine learning algorithms demonstrate significant potential in various medical fields, particularly in disease prediction, clinical outcome assessment, and diagnosis and prognosis. This study investigated the application of machine learning algorithms in managing ARDS. A systematic search was performed to find relevant articles on ARDS and machine learning from PubMed, Web of Science, and Scopus databases up to December 2, 2024. The screening followed PRISMA guidelines, utilizing keywords related to respiratory distress syndrome and machine learning techniques. The inclusion criteria focused on original English-language studies examining the use of machine learning in ARDS management. Three researchers reviewed the articles and collected data aligned with the study's aims. This study included 78 articles on the use of machine learning in ARDS management, focusing on diagnosis (47.78%), prediction (30%), and treatment (7.78%). The most commonly used algorithm was Random Forest (17.01%), followed by XGBoost (15.65%), support vector machine (SVM) (7.48%), decision tree, and logistic regression (both 6.80%). In conclusion, the study emphasizes the importance of machine learning algorithms in managing ARDS across prediction, diagnosis, prognosis, and treatment. It highlights that the diagnostic field sees the most application of these algorithms, with Random Forest being the most commonly used. Additionally, a structured approach to validate and explain the machine learning model to clinicians could enhance its development and implementation in ARDS management.

POSTER

Applications of Artificial Intelligence in Alzheimer's Disease: A Review

Mahdi Mahmoodi[1], Shayan Ziari[1], Shahrbanoo Pahlevanynejad[2]*

1. Student Research Committee, Semnan University of Medical Sciences, Semnan, Iran
2. Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran

ARTICLE INFO

Corresponding author:
Shahrbanoo Pahlevanynejad, PhD;
Social Determinants of Health
Research Center, Semnan University
of Medical Sciences, Semnan, Iran.
Email: Shpahlevany@gmail.com

ABSTRACT

Alzheimer's disease is recognized as a serious and widespread issue. It affects a wide range of populations, and there is no effective treatment. Given that artificial intelligence (AI) has numerous applications in various fields, including healthcare, this study aimed to categorize AI applications in Alzheimer's disease. This study was conducted in 2024 as a literature review by searching the PubMed database with the keywords "artificial intelligence" and "Alzheimer's disease" with a time limit from 2019 to 2024. The inclusion criteria included free articles, full text, English language, and human-related. Out of the 21 retrieved articles, 16 eligible articles were selected after removing them based on exclusion criteria. Of the 16 extracted articles, AI is used in four areas related to Alzheimer's. First, genetics (identifying risk genes, predicting Alzheimer's with DNA methylation analysis, prioritizing therapeutic targets, and strengthening drug repurposing strategies); second, pharmacology [designing, predicting drug-target interactions (DTI), and virtual screening]; third, disease diagnosis (identifying risk genes, differentiating mild cognitive impairment from healthy individuals with facial images, blood data, MRI image enhancement, and using biological and digital markers); and fourth, treatment (providing treatment regimens). In conclusion, AI is a powerful tool for improving diagnosis and management, commonly used to enhance prognosis, diagnosis, and drug discovery. Future models are expected to integrate heterogeneous data to increase robustness. Given the data limitations that hinder AI implementation, it is suggested that health policymakers consider establishing an integrated Alzheimer's patient registry system in future planning.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Applications of Digital Twins in Healthcare: Review

Fatemeh Miri, Dorsa SepehryRad*

Department of Health Information Technology, School of Allied Medical Sciences, Zahedan University of Medical Sciences, Zahedan, Iran

ARTICLE INFO

Corresponding author:
Dorsa SepehryRad, BSc;
Department of Health Information
Technology, School of Allied Medical
Sciences, Zahedan University of
Medical Sciences, Zahedan, Iran.
Email: Dorsasepehry@gmail.com

ABSTRACT

Digital twins (DT) technology is emerging as a transformative force in healthcare, offering innovative solutions for personalized medicine, predictive analytics, and operational efficiency. This review explored the multifaceted applications of Digital Twins in healthcare, emphasizing their role in precision medicine and patient monitoring. The authors searched PubMed, Scopus, and Science direct databases on October 20, 2024. The search strategy involved the use of keywords such as "digital twin", "virtual reality", "precision medicine", and "personalized medicine" to identify relevant articles published from 2018 to 2023. Then, the retrieved records underwent two-step title/abstract and full-text screening processes, and the eligible articles were included for qualitative synthesis. The review of studies demonstrated that digital twin technology has the grate potential for fundamental advance in patient-specific treatments and diagnostics. This technology allows health care providers to simulate the procedures and choose the best treatment method. DT was also very effective for monitoring chronic patients and predicting the progression of diseases. Other applications of digital twins in healthcare include developing new drugs, training medical personnel, and improving the patient safety. In conclusion, digital twin technology is poised to revolutionize healthcare systems. This technology enhances decision-making, improves outcomes, and drives innovation by bridging the gap between advanced technology and real-world challenges. By creating virtual versions of real-world systems, digital twins enable personalized medicine, predictive healthcare, and optimal resource management. Digital twins would change healthcare fundamentally, helping us to transition from curative to preventive medicine.

Please cite this article as: Miri F, SepehryRad D. Applications of Digital Twins in Healthcare: Review. Int J Nutr Sci. 2025;10(2-Supplement):S126.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Applications of Mobile Health in Various Self-Care Domains: A Review

Nastaran Dezhgam[1], Fatemeh Rostami[2], Zahra Padam[3]*

1. Department of Operating Room and Anesthesiology, School of Nursing and Midwifery, Zanjan University of Medical Sciences, Zanjan, Iran
2. Student Research Committee, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Operating Room Technology, Behbahan University of Medical Sciences, Behbahan, Iran

ARTICLE INFO

Corresponding author:
Zahra Padam, MSc;
Department of Operating Room
Technology, Behbahan University of
Medical Sciences, Behbahan, Iran.
Email: Zpadam21@gmail.com

ABSTRACT

Use of mobile health (m-Health) technologies in health and care services can lead to a growing trend in prevention, treatment, and medical education in various fields. The aim of this review study was to examine the applications of mobile health in various self-care domains. This review study was conducted in 2024. PubMed, Google scholar and Scopus databases were searched using the keywords of m-Health, health-care, and self-care. Articles that were published between 2010 and 2024 were extracted. A total of 31 articles were collected and by removing irrelevant articles, the information from 23 articles was ultimately analyzed in this study. Based on studies in our search scope, m-Health through phones (voice calls, text messages) and the internet can be utilized for self-care in various domains. These domains include chronic conditions, elderly patients, diabetes, chronic renal failure, multiple sclerosis, liver transplant recipients, heart failure, breast cancer, blood sugar management, asthma, depression, celiac disease, migraine, and menstrual cycle irregularities. This technology can also be used to educate patients with hypertension, provide responses to some of needs of pregnant women, control and manage stress and anxiety in students, and assist patients in secondary prevention of cardiovascular events. In conclusion, considering the multiple uses of m-Health in self-care and its benefits, including cost reduction, time savings, easy access to care, easy tracking of treatment progress, and improved medication adherence, it is recommended that applications in this field be designed and utilized while also addressing the challenges and issues related to privacy.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Applying a Multi-Level Usability Framework for Evaluation of a Pregnancy Health Promotion App

Fateme Asadollahi[1], Samira Ebrahimzadeh Zagami[2], Robab Latifnejad Roudsari[3]*

1. Reproductive Health, Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran
2. Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Robab Latifnejad Roudsari, PhD;
School of Nursing and Midwifery,
Mashhad University of Medical
Sciences, Mashhad, Iran.
Email: Rlatifnejad@yahoo.com

ABSTRACT

Background: Pregnancy mobile health (m-Health) apps offer essential educational and health support for expectant mothers, yet usability challenges persist. This study applied a multi-level usability framework to evaluate a pregnancy health promotion app for Iranian users.

Methods: The evaluation used a three-level framework. Level 1 assessed user-centered design through focus groups with medical informatics experts and developers, analyzing technical feasibility, interface design, and security via conventional content analysis. Level 2 involved expert usability testing by think-aloud protocols with five health specialists to identify usability issues related to content quality and performance. Level 3 included real-world usability testing through a 10-day pilot study with pregnant women, using the uMARS scale and semi-structured interviews. Qualitative and quantitative data were integrated for comprehensive insights.

Results: In level 1, focus group analysis identified four themes including design principles, user retention factors, web application advantages, and security protocols emphasizing UI/UX optimization and security measures as critical elements, with emphasis on competitive differentiation and cross-platform accessibility. In level 2, think-aloud protocol revealed three themes: interface usability, content quality, and technical performance, with recommendations for improved navigation, visual hierarchy, and loading times. In level 3, real-world testing yielded uMARS score of 4.3, with four themes of ease of use and navigation, content accessibility, engagement and user retention, alongside suggestions for app improvement.

Conclusion: This multi-level approach highlights the importance of combining expert feedback and user experiences for app improvement. The findings provide actionable recommendations to enhance usability, positioning the app as an effective maternal health support tool.

Please cite this article as: Asadollahi F, Ebrahimzadeh Zagami S, Latifnejad Roudsari R. Applying a Multi-Level Usability Framework for Evaluation of a Pregnancy Health Promotion App. Int J Nutr Sci. 2025;10(2-Supplement):S128.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Artificial Intelligence Algorithms in Celiac Disease: A Review

Parisa Shahrokhi[1], Azam Kheirdoust[2], Melika Mojtahedzadeh[1], Mohammad Reza Mazaheri Habibi[3]*

1. Department of Nutrition Sciences, Varastegan Institute for Medical sciences. Mashhad, Iran
2. Medical Informatics Department, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Medical informatics Unit, Department of Health information Technology, Varastegan institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Mazaheri Habibi, PhD;
Department of Health information Technology, Varastegan institute for Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Celiac disease (CD) is an autoimmune disorder triggered by an immune response to gluten consumption. This response damages small intestine over time, impairing nutrient absorption, a condition known as malabsorption. The aim of this study was to review artificial intelligence (AI) methods used for diagnosis and prediction of CD. This systematic review was conducted in 2024 by searching in PubMed, Scopus, Web of Science, and Google Scholar. Keywords included "celiac disease", "prediction", "diagnosis", "artificial intelligence", "machine learning", and "deep learning". Relevant studies published between 2010 and 2024 were examined. English-language studies focusing on AI models for predicting and diagnosing CD met the inclusion criteria, while review papers and studies not focusing on celiac patients were excluded. Out of 90 articles retrieved from various databases, 20 studies were selected for final analysis. Among these, 5 studies utilized Support Vector Machines (SVM), 4 studies employed Natural Language Processing (NLP), 4 studies used Computer Vision (CV), and 3 studies applied Deep Learning (DL). SVM algorithms were primarily used for classifying celiac patient data. Moreover, 16 studies reported that AI algorithms improved diagnostic accuracy and speed. Two studies demonstrated the utility of AI for risk prediction, and one study focused on automated diagnosis. In conclusion, findings of this review highlight the significant potential of AI technologies in enhancing the accuracy and speed of CD diagnosis. These approaches not only facilitate early and more precise detection; but also pave the way for development of novel therapeutic strategies and improved management of autoimmune diseases.

Please cite this article as: Shahrokhi P, Kheirdoust A, Mojtahedzadeh M, Mazaheri Habibi MR. Artificial Intelligence Algorithms in Celiac Disease: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S129.

POSTER

Artificial Intelligence Approaches for Predicting Glomerular Filtration Rate Decline in Chronic Kidney Disease Patients: A Review

Amir Ehsan Heydari Deloi[1], Mohammad Reza Mazaheri Habibi[2]*, Fateme Karimi Moghaddam[2], Sana Mahmoudi[2], Sadaf Afkhami Pirabarji[2], Sajed Arabian[3]

1. Medical Informatics Department, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Medical Informatics Unit, Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Health Information Management Department, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Mazaheri Habibi, PhD;
Department of Health information Technology, Varastegan institute for Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Chronic Kidney Disease (CKD) is a major public health challenge characterized by progressive renal function decline. The Glomerular Filtration Rate (GFR) is a key indicator for assessing CKD progression, with a decline often leading to dialysis or kidney transplantation. Recently, Artificial Intelligence (AI) methods, particularly machine learning and deep learning have emerged as powerful tools for analyzing large-scale patient data, identifying patterns, and predicting GFR decline. This systematic review aimed to evaluate the application of AI models in predicting GFR decline in CKD patients. A systematic search was conducted in PubMed, Scopus, Web of Science, and Google Scholar for studies published from 2020 to 2024. Keywords included "CKD", "GFR", "artificial intelligence", "machine learning", and "deep learning." Inclusion criteria covered English-language studies applying ML to predict GFR decline in CKD patients. Titles and abstracts were screened independently, and full texts of eligible studies were reviewed. Data extracted included study title, year, country, sample size, objectives, and key findings. Non-eligible studies, including reviews, were excluded. A total of 416 articles were retrieved after duplicate removal. Following title and abstract screening based on eligibility criteria, 18 studies were included in the final review. The majority demonstrated promising results in predicting GFR decline using ML and DL techniques, with Random Forest and Neural Networks being the most commonly applied models. In conclusion, AI-based approaches show significant potential in predicting GFR decline in CKD patients, enabling early intervention and personalized treatment. However, further studies are needed to validate these models in diverse populations.

Please cite this article as: Heydari Deloi AE, Mazaheri Habibi MR, Karimi Moghaddam F, Mahmoudi S, Afkhami Pirabarji S, Arabian S. Artificial Intelligence Approaches for Predicting Glomerular Filtration Rate Decline in Chronic Kidney Disease Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S130.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Artificial Intelligence Based Mobile Applications for Dietary Assessment Validation, Usability and Feasibility Studies: A Review

Zahra Osfoori*

Nutrition Department, Para-Medical School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Zahra Osfoori, MSc;
Nutrition Department, Para-Medical
School, Ahvaz Jundishapur University
of Medical Sciences, Ahvaz, Iran.
Email: Zahra_osfoori@yahoo.com

ABSTRACT

Association of diet, health and disease got great attention and has been explored a lot in recent years but these researches are often criticized for unreliability of their dietary data collection or about inaccuracy of their dietary assessment. Dietary assessment is an integral part of nutrition researches and plays a pivotal role in clinical usage like managing chronic disease. Analyzing dietary assessment data will help us in designing or changing nutrition policies and programs especially in vulnerable groups like adolescents and old patients. Performing traditional methods of dietary assessment in nutrition studies and clinical usage has lots of obstacles like difficulty for patients to estimate and report, no accuracy, time-consuming for researchers and dietitians. Nowadays, New tools have been developed by means of web or mobile technologies that facilitate recording and analyzing dietary data. Overall, these applications get picture of meals and foods then by models that were trained to recognize foods and estimate portion sizes assessment of dietary history would happen. In this study a systematic search has been conducted on Pubmed, Scopus and Google Scholar databases without limitation on publication date on January 2025. Totally, 361 studies were found after exclusion of duplicates and non-eligible studies. Finally, 5 studies were included. INMU iFood, FRANI, Keenoa were assessed in included studies. They were accurate, valid and feasible tools in included studies. In conclusion, dietary assessment AI-based mobile application is promising tool for researchers, dietitian, and individuals and can accurately estimate nutrient intake.

Please cite this article as: Osfoori Z. Artificial Intelligence Based Mobile Applications for Dietary Assessment Validation, Usability and Feasibility Studies: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S131.

International Journal of Nutrition Sciences

POSTER

Artificial Intelligence in Autoimmune Disease Diagnosis and Personalized Treatment: A Review

Mahan Mirzadeh[1]*, Negin Yari[2], Mani Asmani[1], Melika Hoseinpour[2]

1. Nutrition Department, Varastegan University, Mashhad, Iran
2. Labratory Sciences Department, Varastegan University, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mahan Mirzadeh, BSc;
Nutrition Department, Varastegan
University, Mashhad, Iran.
Email: Mahanorigin@gmail.com

ABSTRACT

Autoimmune diseases (AID) are complex, multifactorial disorders resulting from genetic, environmental, and immune dysregulation factors, posing a significant burden on healthcare systems. Conventional treatments like immunosuppressants and biologics offer symptomatic relief but lack personalization, often leading to drug resistance and adverse effects. Incorporating artificial intelligence (AI) has transformed the diagnosis, management, and treatment of AIDs by improving early detection, predicting disease progression, and personalizing treatment strategies. This review assessed artificial intelligence in autoimmune disease diagnosis and personalized treatment. Scientific databases were searched using related keywords. Machine learning techniques, including deep learning models showed significant promise in identifying disease patterns through medical imaging, genetic data, and clinical histories. AI-assisted tools have enhanced diagnosis accuracy in multiple sclerosis, rheumatoid arthritis, and systemic lupus erythematous by recognizing biomarkers, analyzing imaging data, and classifying disease subtypes. Additionally, AI-driven predictive models aid in forecasting disease progression and optimizing treatment plans, minimizing adverse effects, and improving patient outcomes. Recent advancements in digital pathology, radiomics, and molecular profiling further support the role of AI in identifying genetic susceptibility factors, discovering biomarkers, and stratifying risk levels. However, challenges remain regarding data privacy, model interpretability, and clinical integration. Collaborative, multi-disciplinary efforts and the development of explainable AI models are essential to overcoming these barriers. In conclusion, this review highlights the evolving role of AI in precision medicine for autoimmune diseases, emphasizing the need for real-time data integration and international collaboration. Future directions focus on refining predictive models and ensuring their clinical applicability, ultimately aiming for personalized, proactive, and preventive care.

International Journal of Nutrition Sciences

POSTER

Artificial Intelligence in Diabetes Care: A Review with Focus on Nutritional Aspects

Ali Kohanmoo[1,2]*

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Ali Kohanmoo, MSc;
Student Research Committee, Shiraz University of Medical Sciences,
Shiraz, Iran.
Email: Ali.kohanmoo@gmail.com

ABSTRACT

Diabetes is a major non-communicable disease that has been rising as a global health burden. Modern measures to prevent diabetes are emerging in the medical field and should be continuously evaluated and improved. One technology with high potential to aid diabetes care is artificial intelligence (AI). AI employs several methods, such as case-based reasoning, machine learning, and neural networks, to enhance healthcare. Over recent years, many studies have investigated various aspects of AI in diabetes prevention and management. This mini-review aims to summarize these advances and discuss AI applications in diabetes care, with a special focus on nutritional management. Scientific databases were searched using related keywords. AI serves as a useful tool in screening individuals at risk of diabetes and providing specific recommendations for disease prevention. For patients with diabetes, AI assists medical personnel in decision-making, remote care, and follow-ups, including glycemic monitoring and life-style improvement. Guidance on insulin and oral medication, as well as regular testing for complications is other capabilities of this technology. Regarding nutritional management, AI can provide individualized dietary recommendations based on appropriate prompts and data. It can review a patient's diet history and physical activity alongside medication timing and glycemic indices to offer beneficial feedback on required dietary changes. Image processing of meals, such as estimating insulin needs meal composition are also promising capabilities. In conclusion, AI accuracy has considerable room for improvement, and at this point, expert supervision is necessary to check AI responses and reactions and to revise them if necessary.

Please cite this article as: Kohanmoo A. Artificial Intelligence in Diabetes Care: A Review with Focus on Nutritional Aspects. Int J Nutr Sci. 2025;10(2-Supplement):S133.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Artificial Intelligence in Prediction of Gastrointestinal Cancers: A Review

Hooriya Ghazinejad[1], Mahdi Mahmoodi[1], Fatemeh Khoshvaght[1], Sakineh DadashgholizadehJelodar[1], Shahrbanoo Pahlevanynejad[2]*

1. Student Research Committee, Semnan University of Medical Sciences, Semnan, Iran
2. Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran

ARTICLE INFO

Corresponding author:
Shahrbanoo Pahlevanynejad, PhD;
Social Determinants of Health
Research Center, Semnan University
of Medical Sciences, Semnan, Iran.
Email: Shpahlevany@gmail.com

ABSTRACT

Digestive tract cancers are one of the most important causes of death in the world. Having a family history is a risk factor for these types of cancers. Colorectal and gastric cancers are the most common causes of cancer-related deaths in the world. Among the applications of artificial intelligence (AI) in the field of gastric cancer are image-based diagnosis and predictions. Accordingly, this study aimed to predict digestive cancer with the help of artificial intelligence. This study was conducted by searching for the keywords "Artificial intelligence", "Predicting", "digestive" and "cancer" with the help of Boolean operators in the PubMed and Google Scholar databases during the years 2020-2025. Finally, 100 studies were found; while 60 of which allowed access to the full text. After reviewing the studies, 24 relevant articles were included in the study. With the growth of emerging technologies, AI can help medical science in the fields of pathology, endoscopy, and computed tomography. It can also quickly analyze unstructured and high-dimensional data, such as texts, images, and waveforms in the fields of medical records, laboratory results, endoscopic images, and tissue samples. In short, AI can revolutionize various methods of gastrointestinal cancer care, such as early detection, diagnosis, and treatment. In conclusion, AI models have the potential to accurately predict gastrointestinal cancers. Implementing this diagnostic system in clinical settings has obstacles such as physicians' dissatisfaction with the transparency of diagnoses. Therefore, competing AI models for early detection of gastrointestinal cancers are worth future research.

Please cite this article as: Ghazinejad H, Mahmoodi M, Khoshvaght F, DadashgholizadehJelodar S, Pahlevanynejad S. Artificial Intelligence in Prediction of Gastrointestinal Cancers: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S134.

International Journal of Nutrition Sciences

POSTER

Artificial Intelligence in Hematology and Precision Medicine: A Review in Advanced Diagnostics, Personalization, and Outcomes

Amirali Ebrahimpour[1], Yeganeh Khazaei[1], Hossein Javid[1,2,3]*

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Clinical Biochemistry, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran 3. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Artificial intelligence (AI) in hematology and precision medicine is transforming diagnostic and treatment modalities in ways that have never been seen before. This also has a great potential in terms of accuracy, efficiency, and personalization. This review evaluated the current trends in AI-based diagnostic cytology, genomic assays, and multiomics technologies. To study the role of artificial intelligence in hematology and precision medicine done a thorough examination of contemporary research and case studies in the articles published between 2023 and 2024 in Google Scholar and PubMed databases by using related keywords. The result of searching these databases was to find 22 articles, of which 14 were excluded after reviewing, leaving 8 articles selected for detailed evaluation. AI platforms have demonstrated great accuracy as well as improved reliability when it comes to blood and bone marrow examination. They have aids to increase the efficiency of the process drastically by decreasing inter-observer variability and decreasing the turn-around times. In the realm of genomic medicine, AI allows for a painless combination of clinical and multiomics datasets which improves the classification of diseases as well as possible treatments for patients. Nonetheless, dataset bias, lack of standardization and ethical issues are some challenges that persist. In conclusion, AI set a target to revolutionize all branches of precision medicine, by introducing pioneering diagnostic systems and novel alternatives for treatment. Overcoming technical and ethical hurdles is critical for AI's widespread integration into the clinical field and for improving patient outcomes.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Artificial Intelligence in Medical Metaverse: A Review on Applications, Challenge and Future Prospects

Motahareh Mohammadi, Hossein Javid*, Amir Reza Kanani, Asma Javdanipour

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

This article discusses the role of (AI) in the construction of a medical metaverse and its applications. We would introduce how AI serves as a foundational support for the medical metaverse, examining application scenarios, limitations, and future developments. We aimed to explore how to leverage more efficient AI models for building the medical metaverse and we would examine the effectiveness of these models. This review article was performed within articles published at PubMed, Science Direct, Google Scholar, and Web of Science until November 2024. The keywords were artificial intelligence; medical metaverse; diagnosis; treatment; and education. By searching this database, 15 articles were found and checked. Five articles were selected under the inclusion criteria from English articles. With the advancement of AI and the aid of wearable devices, ultra-high-resolution CT scans assist doctors in diagnosis. The results indicate that the in comparing to traditional medications for stroke patients, all assessment scores were higher. Additionally, in medical education, observing human anatomy in the medical metaverse and simulating really medical and surgical scenarios contributes to enhancing students' clinical knowledge. In conclusion, AI is an essential part of development of the medical metaverse and changed this domain a lot. Also, AI makes medical metaverse services more visible, concrete, and secure in corporation with augmented reality, wearable devices, and block chain technology. It is believed the evolution of artificial intelligence technology will make huge changes in society and leads the medical field into a new age.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Artificial Intelligence in Nursing: A Review on Opportunities and Challenges

Alireza Zare*

Student Research Committee, Medical Surgical Nursing Department, Yasuj University of Medical Sciences, Yasuj, Iran

ARTICLE INFO

Corresponding author:
Alireza Zare, MSc;
Student Research Committee,
Medical Surgical Nursing
Department, Yasuj University of
Medical Sciences, Yasuj, Iran.
Email: Alirezazare.abc@gmail.com

ABSTRACT

Artificial intelligence (AI) in healthcare has great potential to enhance quality, improve efficiency, and reduce costs. However, its implementation in nursing presents significant challenges. This study explored the challenges and opportunities of AI in nursing by reviewing 20 reputable scientific articles and research reports. Articles were sourced from databases such as PubMed and Science Direct. Inclusion criteria were articles directly addressing AI applications in nursing, along with related challenges and opportunities. Exclusion criteria were nine articles that were excluded due to irrelevance to the main topic, and two were excluded due to lack of full-text access. Thus, 11 articles formed the basis of this study. AI in nursing provides opportunities like improved diagnosis and treatment, reduced errors, enhanced efficiency, and remote patient monitoring. For accurate diagnosis and treatment, AI analyzes medical data to identify hidden patterns, aiding in disease diagnosis and precise treatment. To reduce medical errors, AI reduces human errors, such as incorrect medication doses or missed warning alerts. Improving efficiency and productivity: AI automates repetitive tasks like recording patient data, scheduling shifts, and prescribing medications, enabling nurses to focus more on patients. For remote patient monitoring, AI supports monitoring through wearables, analyzing data, and detecting alerts. Despite these benefits, challenges remain, including the need for skilled experts, concerns about data privacy and security, and gaining trust and acceptance from nurses and patients. In conclusion, while AI has transformative potential in nursing, achieving this requires careful planning, strategic approaches, and collaboration among stakeholders.

Please cite this article as: Zare AR. Artificial Intelligence in Nursing: A Review on Opportunities and Challenges. Int J Nutr Sci. 2025;10(2-Supplement):S137.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Artificial Intelligence in Oncology: A Review on Transforming Cancer Immunotherapy and Hematologic Malignancy Care

Yeganeh Khazaei[1], Amirali Ebrahimpour[1], Hossein Javid[2]*

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Clinical Biochemistry, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Clinical Biochemistry,
Faculty of Medicine, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Artificial intelligence (AI) has rapidly changed the landscape of cancer research mainly in immuno-oncology and hematologic malignancies with more precision and impact on treatments. Though developments we can deliver both personalized immunotherapies and accurate early detection of hematologic malignancies, which are mostly found in the advanced staging. Closing those gaps would employ machine learning and deep learning to bridge the multiomics, imaging, and clinical data together. To study the role of AI on cancer immunotherapy and hematologic malignancy care, a thorough examination of contemporary research and case studies in the articles published between 2023 and 2024 in Google Scholar and PubMed databases by using related keywords was undertaken. The result of searching these databases was finding 23 articles, of which 14 were excluded after reviewing, leaving 9 articles selected for detailed evaluation. Immunotherapy has been revolutionized with AI-driven tools, by bridging histopathology on one hand and imaging-omics/multiomics data through personalized medicine on the other hand. AI has shown promise in early detection and diagnosis as well as treatment of hematologic malignancies, yet predictive models from early symptoms or blood record-based abstraction have not been well-studied. Challenges are data heterogeneity, model scalability, ethical issues and, the requirement of clinically validated systems. In conclusion, AI is marching in the future to transform cancer care through the realization of individualized immunotherapy, and hematologic cancer management solutions. The biggest hurdles to overcome will be meeting the needs for data integration, model interpretability and ethical considerations.

Artificial Intelligence in Prediction of Elderly Fall: A Review

Leila Erfannia[1], Mohammad Naeim Mirzazadeh[2], Sadegh Sharafi[3], Zahra Jamshiddoust[1*]

1. Health Information Management Department, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Health Information Management and Medical Informatics, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
3. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Zahra Jamshiddoust, MSc;
Health Information Management
Department, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Zahrajamshiddoust2000@
gmail.com

ABSTRACT

With 37.3 million severe falls each year requiring medical attention, falls rank as the second leading cause of unintentional injury-related deaths globally. Artificial intelligence (AI) is a growing technology trend in managing falls. This study explores the role of AI in predicting fall risk in the elderly. This systematic review, conducted until January 10, 2025, followed PRISMA reporting guidelines and searched multiple databases such as PubMed, Scopus, Google Scholar, and Web of Science. The review focused on keywords related to aging, artificial intelligence, and accidental falls. Inclusion criteria covered original English-language papers that examined the use of AI algorithms for predicting fall risk in the elderly. To collect relevant data, two researchers evaluated the articles' titles, abstracts, and full texts. A total of 27 articles were included in the study on fall risk prediction. Random Forest (RF) was the most frequently used algorithm, utilized in 13 studies (17.81%). Other commonly used methods included various decision tree algorithms (9 studies), logistic regression (8 studies), XGBoost (7 studies), k-nearest neighbor (KNN) and support vector machine (SVM) (6 each), and naïve Bayes. Additional algorithms employed included natural language processing (NLP), recurrent neural network (RNN), Catboost, light gradient boosting machine (Light GBM), deep neural network (DNN), and convolutional neural network (CNN). In conclusion, the review highlights the crucial role of AI algorithms in predicting falls among older adults and stresses the need for further experimental research to evaluate their effectiveness in this domain.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Artificial Intelligence-Enhanced Smartphone Applications for Personalized Mental Health Support in Individuals with Depression: A Review

Fahimeh Alsadat Hosseini*, Maryam Shaygan

Community Based Psychiatric Care Research Center, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fahimeh Alsadat Hosseini, PhD;
Community Based Psychiatric Care
Research Center, School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Fhoseini221@gmail.com

ABSTRACT

The increasing prevalence of depression has highlighted the need for innovative mental health interventions. Smartphone applications leveraging artificial intelligence (AI) offer the potential for personalized, real-time mental health support. This review synthesized the evidences on AI-powered smartphone apps designed to support individuals diagnosed with depression. A total of seven articles, including five original research studies, one systematic literature review, and one preprint study, were analyzed. The studies ranged from pilot trials to systematic reviews, with publication dates from 2016 to 2024. Key AI technologies examined included digital phenotyping, natural language processing (NLP), and machine learning algorithms. Scientific databases were searched using related keywords. AI-driven smartphone applications demonstrated significant potential in improving depression-related outcomes. Digital phenotyping revealed behavioral data from smartphone sensors that correlated with depressive symptoms, such as reduced mobility and increased phone usage. NLP-based interventions, such as AI-powered Acceptance Commitment Therapy (ACT), showed that increased user engagement led to improved well-being scores. Machine learning algorithms were effective in predicting depression severity and relapse, with moderate accuracy reported in pilot studies. The current evidence base is primarily composed of pilot studies and preprints, limiting the generalizability of results. Larger randomized controlled trials (RCTs) are necessary to establish efficacy and scalability. In conclusion, AI-enhanced smartphone applications show considerable promise for personalized mental health interventions in individuals with depression. However, more robust research, including large-scale RCTs, is needed to validate the efficacy of these tools. Additionally, ethical considerations such as data privacy and algorithmic bias must be addressed to ensure responsible implementation.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Association between Internet Use and Frailty among Iranian Older Women Internet Use and Frailty among Iranian Older Women

Mahsa Yarelahi[1], Mehdi Mohammadi[2]*, Maryam Gharib[3], Farzaneh Bahadori[2], Abdolrahim Asadollahi[4]

1. Department of Gerontology, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
2. Health and Social Welfare Unit, Department of Social Welfare, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
3. Department of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran
4. Department of Public Health, School of Health, Shiraz University of Medical Science, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mehdi Mohammadi, PhD;
Department of Social Welfare,
University of Social Welfare and
Rehabilitation Sciences, Tehran, Iran.
Email: Mahsa.yarelahi@gmail.com

ABSTRACT

Background: Menopause increases women's vulnerability to chronic diseases, poor health, and frailty. There are numerous health-related educational resources available on the internet for postmenopausal women. This study aimed to investigate the relationship between internet use and obesity in postmenopausal women.

Methods: This cross-sectional study was conducted on 200 postmenopausal women in Shiraz, Iran, in 2023. Participants were selected using a cluster random sampling method from ten healthcare centers. The study inclusion criteria were the absence of menstruation for at least one year, the ability to communicate verbally, and a willingness to participate in the study. Data were collected through face-to-face interviews, using a demographic questionnaire and the short version of the Kihon Checklist of the frailty. A score higher than 10 from Kihon Checklist indicated frailty was obtained. The collected data were analyzed using SPSS software.

Results: Participants' mean age was 59.49±7.12 years. The prevalence of frailty among postmenopausal women was 62.5% (125 individuals). Additionally, 25.5% (51 individuals) used internet for health-related educational resources. The prevalence of frailty in postmenopausal women using the internet daily was significantly lower than that of those who did not use the internet (29.4% versus 73.8%). The odds ratio of developing frailty was 6.8 (95%CI=3.06-9.17, *p*=0.001) times higher in those who did not use the internet.

Conclusion: This study implied that internet use may be associated with frailty in postmenopausal women. Hence, it is recommended that menopausal women be given the necessary training to increase their access to the Internet.

International Journal of Nutrition Sciences

POSTER

Barriers and Challenges Associated with Implementation of Telemedicine in Correctional Facilities: A Review

Maryam Maree, Ali Mohammad Hadianfard*

Department of Health Information Technology, School of Allied Medical Science, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Ali Mohammad Hadianfard, PhD;
Department of Health Information
Technology, School of Allied
Medical Science, Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran.
Email: Dr.ali.hadianfard@gmail.com

ABSTRACT

Prisoners often experience significant health inequalities due to limited access to health services in the restrictive prison environment. Telemedicine presents a promising solution to enhance healthcare access in such settings. Studies have shown that telemedicine may be as effective as traditional methods. However, challenges and barriers hinder the Expanding implementation of telemedicine. This study identified these barriers and suggested solutions to improve its efficiency and effectiveness in the future. This study was conducted following the PRISMA guidelines. We searched relevant studies in the PubMed, Scopus, Web of Science, Google Scholar, and Science Direct databases from 2014 to 2024 using keywords such as "barriers", "challenges", "implementation", "telemedicine", and "telehealth". After reviewing the titles and abstracts and removing duplicate articles, we identified 30 eligible studies for final analysis. These articles addressed the challenges of implementing telemedicine in prisons and were extracted from an initial pool of 9,733 articles. The results indicated that the barriers and challenges associated with implementing telemedicine in prisons can be categorized into seven areas of technical barriers, data privacy and confidentiality, physical examinations, special populations, inadequate training, the doctor-patient relationship, and acceptance. The primary challenges identified included issues such as poor internet connectivity, privacy concerns, limitations in remote examinations, and the reluctance of both patients and healthcare providers to utilize telemedicine. In conclusion, telemedicine is not widely accessible and faces technological challenges that can be addressed through training and integration with in-person care. This study highlights specific obstacles that can be solved with targeted policies.

Please cite this article as: Maree M, Hadianfard AM. Barriers and Challenges Associated with Implementation of Telemedicine in Correctional Facilities: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S142.

International Journal of Nutrition Sciences

POSTER

Barriers and Challenges of Mobilehealth in Diabetes Management: A Review

Zeinab Alipour[1]*, Reyhaneh Jahantab[1], Mohammad Hassanzadeh[3]

1. Nursing Department, Faculty of Medical Sciences, Ali Ibn Abi Talib University, Yazd, Iran
2. Faculty of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Zeinab Alipour, BSc;
Nursing Department, Faculty of
Medical Sciences, Ali Ibn Abi Talib
University, Yazd, Iran.
Email: Alipour.z2003@gmail.com

ABSTRACT

Diabetes management poses significant public health challenges, particularly with its rising prevalence and associated chronic conditions. Mobile health (mHealth) programs and telemedicine have emerged as effective solutions for empowering patients and enhancing access to healthcare, especially in underserved areas. This study reviewed existing literature to identify barriers and challenges associated with mHealth in diabetes management. A systematic search was performed across four databases of PubMed, Scopus, Web of Science, and Google Scholar, using the keywords of "diabetes", "mHealth", "barriers and challenges", "health technologies" and "systematic review" for articles published from 2020 to 2024. Initially, 12 articles were identified, but after removing duplicates and screening titles and abstracts, 8 relevant articles were included based on the established criteria. The findings indicate that approximately 30% of diabetic patients utilize mHealth programs, which significantly aid in diabetes management. These technologies facilitate continuous blood glucose monitoring, medication reminders, and nutritional counseling. However, challenges such as limited access to technology, learning difficulties among patients, and concerns about privacy and data security impede broader adoption. To improve acceptance of these technologies, patient education and advancements in technological infrastructure are essential. In conclusion, mHealth programs have substantial potential to enhance blood glucose control and overall health for diabetic patients. By addressing existing barriers, such as technology access and security issues, the utilization of these programs can be significantly increased, ultimately leading to better health outcomes for individuals with diabetes.

Please cite this article as: Alipour Z, Jahantab R, Hassanzadeh M. Barriers and Challenges of Mobilehealth in Diabetes Management: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S143.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Benefits of Using Telehealth for Facilitating Early Diagnosis: A Review on Assessment and Intervention of Autism Spectrum Disorder

Marzieh Zardkoohi[1]*, Sherafat Akaberian[2], Pouya Dorj[1]

1. Student Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran
2. Department of Nursing, School of Nursing and midwifery, Bushehr University of Medical Sciences, Bushehr, Iran

ARTICLE INFO

Corresponding author:
Marzieh Zardkoohi, BSc;
Student Research Committee,
Bushehr University of Medical
Sciences, Bushehr, Iran.
Email: Marziyova@gmail.com

ABSTRACT

A delay in diagnosis of autism spectrum disorder has critical consequences. Early and primary diagnosis is very effective because there is an opportunity in childhood that can be used to ensure optimal development. However, not all families can access the services and this development opportunity to use. Therefore, telehealth technology can help provide timely diagnosis, although it may not be suitable for complex cases, it can be used as a screening tool. This systematic review aimed in early diagnosis and facilitating assessment of autism spectrum disorder. Articles indexed in Google Scholar, Scopus, PubMed and Web of science databases were searched using related keywords. A total of 20 articles were reviewed from 2020 to 2024. Articles whose full text were not available were excluded from the study. The findings of this research showed that telehealth technology with two common methods including "video conference" and "store and forward" aimed to provide a wide range of assessment and intervention services, including functional behavior assessments, early intervention, cognitive- behavioral intervention, and, secondarily, parent education and support group training. The benefits of telehealth include good diagnostic accuracy, access to specialists for families from remote areas, reduced costs of accessing care, observation of natural behaviors in the home environment, and the possibility of participation of both parents in divorced families. In conclusion, this study showed that telehealth increases the opportunity for early intervention as well as reducing stress for individuals and their families.

Please cite this article as: Zardkoohi M, Akaberian S, Dorj P. Benefits of Using Telehealth for Facilitating Early Diagnosis: A Review on Assessment and Intervention of Autism Spectrum Disorder. Int J Nutr Sci. 2025;10(2-Supplement):S144.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

BioSynth: Unraveling Life's Code with Artificial Intelligence-Driven Biochemical Intelligence

Mehdi Karimi-Shahri*

Department of Pathology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mehdi Karimi-Shahri, Md, PhD;
Department of Pathology, School of
Medicine, Mashhad University of
Medical Sciences, Mashhad, Iran.
Email: Labratorylabratory@yahoo.
com

ABSTRACT

Background: "BioSynth unravels life's code with artificial intelligence (AI)-driven biochemical intelligence, revolutionizes medicine, and enhances precision and understanding of life's intricate biochemical processes. The field of synthetic biology is rapidly evolving, focusing on the design and construction of new biological components, devices, and systems. BioSynth is an innovative platform that leverages advanced AI algorithms to analyze and synthesize biochemical pathways, enhancing our understanding of fundamental life processes. This study explores how BioSynth can decode complex biochemical codes and accelerate breakthroughs in biotechnology.
Methods: BioSynth employs a multifaceted approach, combining deep learning techniques with biochemical databases to predict and model metabolic pathways. We trained our AI model using a dataset that included genomic sequences, protein structures, and metabolic reactions. The platform was tested across various applications in synthetic biology, such as designing new enzymes and optimizing metabolic networks.
Results: Our implementation of BioSynth demonstrated a significant increase in the accuracy of predicting biochemical interactions compared to traditional methods. The results showed that this AI-driven approach reduced the time needed for pathway design by 40% and improved yield predictions by 30%. Notably, BioSynth successfully identified new enzymes with potential applications in pharmaceuticals and biofuels.
Conclusion: BioSynth emerges as a groundbreaking tool in synthetic biology, empowering researchers to decode complex biochemical systems with unprecedented efficiency. The integration of artificial intelligence into biochemical research not only accelerates discoveries but also paves the way for innovative solutions in biotechnology. Future work will focus on refining algorithms and expanding the database for broader applications.

Please cite this article as: Karimi-Shahri M. BioSynth: Unraveling Life's Code with Artificial Intelligence-Driven Biochemical Intelligence. Int J Nutr Sci. 2025;10(2-Supplement):S145.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Challenges and Barriers to the Use of Mobile Health in Healthcare System: A Review

Fateme Eshghi[1], Zinat Mohebbi[1], Saman Saber[2], Majid Najafi Kalyani[3], Toktam Kianian[4]*

1. Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Management and Psychiatric Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Medical Emergencies, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
4. Department of Community Health and Geriatric Nursing, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Toktam Kianian, PhD;
Department of Community Health and Geriatric Nursing, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran.
Email: T.kianian67@gmail.com

ABSTRACT

Mobile health (mHealth) applications have gained significant popularity in recent years due to their remarkable benefits, such as reducing healthcare costs and increasing patient awareness. However, users of these technologies face various obstacles and challenges. Therefore, identifying these challenges is essential to reaping the many benefits of mHealth and planning to reduce or eliminate these barriers. Therefore, this scoping review aims to investigate the challenges and barriers to the use of mHealth in the healthcare system. A systematic review methodology (PRISMA) was employed for this scoping review. Studies published up until the end of September 2024 were included if they met the Wood criteria. A comprehensive search was conducted using the keywords "mHealth", "challenges", and "health system" and their synonyms in accessible international databases, including Medline via PubMed, Cochrane Library, and Google Scholar. All stages of study screening and analysis were conducted by two reviewers. Thematic analysis was used for data analysis. Out of the 1837 identified articles, only 43 studies met the inclusion criteria for the research. The barriers and challenges were categorized into five groups: technical infrastructure, change management and regulation, cost and resource management, acceptance and equity of access, and data management and security. Each of these categories included subcategories. In conclusion, the widespread use of mHealth is still hindered by various barriers and challenges. Healthcare providers must collaborate with diverse stakeholders to implement the proposed solutions. Further research and policy changes are necessary to optimize the use of mHealth.

Please cite this article as: Eshghi F, Mohebbi Z, Saber S, Najafi Kalyani M, Kianian T. Challenges and Barriers to the Use of Mobile Health in Healthcare System: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S146.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Challenges and Solutions of Health Information Technology Management in Telemedicine Development

Mostafa Kashani¹*, Sedigheh Barzekar², Shamim Kiani³

1. Department of Health Information Technology, School of Medical Sciences, Sirjan, Iran
2. Department of Medicine, School of Medical Sciences, Sirjan, Iran
3. Department of Medical Informatics Sirjan School of Medical Sciences, Sirjan, Iran

ARTICLE INFO

*Corresponding author:
Mostafa Kashani, PhD;
Department of Health Information Technology, School of Medical Sciences, Sirjan, Iran.
Email: Mostafa.kashani@sirums.ac.ir

ABSTRACT

Background: Telemedicine is a pivotal tool in the digital transformation of healthcare systems, playing a significant role in improving access to medical services, reducing costs, and enhancing service quality. However, Health Information Technology (HIT) management faces numerous challenges related to technical infrastructure, standardization, and data security. This study provides an in-depth analysis of these challenges and proposes actionable solutions to improve HIT management in telemedicine development.

Methods: The research employed strategic document analysis, including the "National E-Health Roadmap" and technical guidelines from the Ministry of Health. Additionally, semi-structured interviews with IT experts and health administrators were conducted to identify the strengths and weaknesses in HIT management. A SWOT analysis was also utilized to evaluate the environmental context and propose practical strategies.

Results: The findings highlighted several obstacles, including policy misalignment, lack of skilled personnel, inadequate secure infrastructure, and limited localized knowledge. Conversely, establishing integrated data centers, developing standard protocols, and leveraging advanced technologies such as artificial intelligence and machine learning were identified as key opportunities for improving HIT systems.

Conclusion: To ensure the successful development of telemedicine, it is essential to strengthen HIT management structures, invest in workforce development and advanced technologies, and establish a comprehensive governance framework. These efforts can significantly enhance the performance of telemedicine systems and contribute to increased accessibility and quality of healthcare services.

Please cite this article as: Kashani M, Barzekar S, Kiani S. Challenges and Solutions of Health Information Technology Management in Telemedicine Development. Int J Nutr Sci. 2025;10(2-Supplement):S147.

International Journal of Nutrition Sciences

POSTER

Challenges of Internet of Things Development: A Review

Raha Sefidfard[1], Mahla Rahimi Karimi[1], Yeganeh Dadras Saljoughi[1], Mohadeseh Sadat Shojaei[1], Mohammad Reza Mazaheri Habibi[1], Sajed Arabian[2]*

1. Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Sajed Arabian, PhD;
Department of Health Information
Management, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Arabiansajed22@gmail.com

ABSTRACT

The Internet of Things (IoT) is revolutionizing the digital landscape and enhanced the quality of life. In healthcare, IoT facilitates seamless communication between devices and real-time data collection, improving patient care and operational efficiency. However, IoT adoption in healthcare also introduces several challenges, especially regarding privacy, security, and integration with existing systems. This study aimed to explore the key challenges faced in the development and deployment of IoT technologies in healthcare settings. Databases such as PubMed, Scopus, Web of Science, and Google Scholar were searched. Articles published between 2020 and 2024 were examined using keywords like internet-based intervention, Internet of Things, and challenges. Relevant studies were selected based on title and abstract evaluations, followed by a full-text review to ensure quality and relevance. A total of 264 studies were identified, with 17 articles selected after screening. Findings showed that 47% (8 articles) of the studies highlighted privacy concerns as a major issue, while 29% (5 articles) emphasized the challenges related to unstable internet connectivity. Limited access to healthcare resources, particularly in rural areas, was mentioned in 18% (3 articles). Additionally, 6% (1 article) discussed the lack of trust in healthcare professionals as a barrier. The benefits of IoT identified included increased patient self-management, reduced costs, and easier access to healthcare services. In conclusion, the main challenges to IoT development in healthcare include privacy and security concerns, connectivity issues, and the integration of IoT into daily healthcare practices. Addressing these challenges will require collaboration among healthcare providers, policymakers, and technology developers.

Challenges of Mobile Phone Use by Nurses in the Ward

Masoumeh Malek[1], Reza Negarandeh[2]*, Sanaz Aazami[3], Somayeh Molaee[4], Esmaeil Mohammadnejad[5], Shaghayegh Miri[1]

1. Anesthesiology Department, School of Allied Medical sciences, Tehran University of Medical Sciences, Tehran, Iran
2. Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Nursing, School of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran
4. Student Research committee, School of Nursing and Midwifery, Iran University of Medical sciences, Tehran, Iran
5. Medical-Surgical Department, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Reza Negarandeh, PhD;
Nursing and Midwifery Care
Research Center, School of Nursing
and Midwifery, Tehran University of
Medical Sciences, Tehran, Iran.
Email: Rnegarandeh@tums.ac.ir

ABSTRACT

Background: The utilization of mobile phones by nurses within the ward presents significant challenges due to its potential effects on the quality of care. This research aimed to investigate the specific difficulties associated with Challenges of nurses' use of mobile phones in clinical settings.

Methods: This qualitative study employed a content analysis approach to investigate the research objectives. The sample consisted of 27 participants, including nurses, physicians, patients, and their companions, who were recruited through purposive sampling from the wards of Imam Khomeini Hospital in Tehran. Data collection was carried out through semi-structured interviews, and the obtained information was subsequently analyzed.

Results: The study identified the concept of "Benefitting from mobile phone," encompassing both personal and organizational motivations for using mobile devices in the ward. These motivations included reducing anxiety, addressing personal matters, seeking scientific information, accelerating care delivery, enhancing communication with the healthcare team, and receiving work-related notifications. Conversely, the concept of "neglect in care" emerged as a secondary theme, representing lapses and negligence in caregiving. This category highlighted issues such as diminished focus, increased distraction during care, and compromised communication with patients as consequences of nurses' mobile phone use.

Conclusion: While the use of mobile phones by nurses poses certain challenges, their practical applications underscore the importance of ensuring nurses have access to mobile devices in the ward. Consequently, developing comprehensive guidelines is crucial to promoting appropriate and effective mobile phone usage among nurses in clinical settings.

International Journal of Nutrition Sciences

Advantages, Disadvantages, and Applications of ChatGPT Applications: Virtual Assistants for Physicians to Managing Patients

Fatemeh Ghaznavi[1], Fatemeh Dinari[1], Azadeh Bashiri[2]*

1. Department of Health Information Management, School of Health Management and Information Sciences, Student Research Committee, Health Human Resources Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Health Information Management, School of Health Management and Information Sciences, Health Human Resources Research Center, Clinical Education Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Azadeh Bashiri, PhD;
Department of Health Information
Management, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Bashiri.azadeh@gmail.com

ABSTRACT

Background: Given the rapid growth of AI in healthcare, ChatGPT applications have the potential to function as virtual assistants for physicians. This study investigated physicians' perspectives on the applications, advantages, and disadvantages of ChatGPT applications when used as virtual assistants to assist with patient management.

Methods: This cross-sectional study, conducted in 2023 at Shiraz University of Medical Sciences, involved 14 physicians with ChatGPT experience. Convenience sampling was employed. Data were collected using a self-designed electronic questionnaire with 33 questions across four dimensions (demographics, applications, advantages, and disadvantages of ChatGPT). Content validity was confirmed by medical and informatics faculty, and Cronbach's alpha (0.94) demonstrated reliability. Data were analyzed using SPSS version 27 and descriptive statistics.

Results: Participants had a mean age of 36.4±4.8 years, with 78.6% male. 64.3% had less than 10 years of work experience. 42.6% were general practitioners. "Collecting and categorizing patient data" (4.36±0.92) had the highest mean and standard deviation (SD) among applications, while "predicting emergencies" (2.1±0.93) had the lowest. "High speed response" (4.43±0.64) and "confidence in response" (4.86±0.66) were the highest and lowest rated advantages, respectively. "Lack of human connection (empathy and emotions)" (4.21±0.97) had the highest mean SD among disadvantages, followed by "technical limitations" (4.33±0.43).

Conclusion: Results show that ChatGPT at least in the categorization of patient data can assist. Despite the advantages of using ChatGPT, physicians must ensure the accuracy of its responses to avoid potential risks.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Classification of Sleep Apnea Severity Levels Using Voice Recording Features and Machine Learning

Siahmet Atli[1], Leyla Köse Leba[2], Hasan Hataş[3], Ramin Rajabioun[3], Nazila Soleimanifard[4]*

1. Department of Chest Diseases, Van Training and Research Hospital, Van, Turkey
2. Department of Clinical Neurophysiology, Van Training and Research Hospital, Van, Turkey
3. Department of Electronics Engineering, Van Yuzuncu Yil University, Van, Turkey
4. Hamedan University of Medical Sciences, Hamedan, Iran

ARTICLE INFO

Corresponding author:
Nazila Soleimanifard, BSc;
Hamedan University of Medical
Sciences, Hamedan, Iran.
Email: Nazilasoleymani138@gmail.
com

ABSTRACT

Background: Sleep apnea is characterized by abnormal breathing patterns during sleep. Early diagnosis and classification of sleep apnea are crucial for timely intervention and treatment. This study proposed a machine learning-based approach to classify sleep apnea severity levels using voice recordings obtained from patients.

Methods: The dataset consists of MP3 recordings grouped into four categories of severe, moderate, mild, and none. Audio files were segmented into smaller chunks, and acoustic features such as Mel-Frequency Cepstral Coefficients and Zero-Crossing Rate were extracted. Features and labels were processed separately for each category and stored in pickle files for efficient handling and reproducibility. The extracted features were used to train a Random Forest classifier, with the dataset split into training and testing sets.

Results: The model achieved an accuracy of 91% on the test data set, with confusion matrices and classification reports demonstrating the effectiveness and reliability of the approach. This study highlights the potential of voice-based feature extraction combined with machine learning for non-invasive sleep apnea severity classification. By automating the classification process, this approach could complement traditional diagnostic methods, offering a cost-effective, accessible solution for early screening of sleep apnea severity. Furthermore, this method could significantly reduce the need for complex and intrusive diagnostic procedures, making it a more patient-friendly option.

Conclusion: Further research involving larger datasets and additional features, such as incorporating demographic and medical history data, could enhance the robustness and generalizability of the proposed methodology, ultimately contributing to better management and treatment of sleep apnea.

Please cite this article as: Atli S, Leba LK, Hataş H, Rajabioun R, Soleimanifard N. Classification of Sleep Apnea Severity Levels Using Voice Recording Features and Machine Learning. Int J Nutr Sci. 2025;10(2-Supplement):S151.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Comparing Virtual and In-person Nutrition Counseling: A Review

Farzaneh Mohammadi[1], Azra Salehi[2], Seyed Mohammad Mazloomi[2], Najmeh Hejazi[1]*

1. Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Food Hygiene and Quality Control, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Najmeh Hejazi, PhD;
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Najmehhejazi@gmail.com

ABSTRACT

Virtual nutrition counseling has grown considerably, particularly after the COVID-19 pandemic. According to a survey, approximately 53.5% of dietitians used online platforms for consultations. Due to this transition, we aimed to compare the effectiveness of virtual counseling compared to traditional in-person sessions. In this systematic review, articles published in the Google Scholar and PubMed databases up to the end of December 2024 were utilized. Additionally, the keywords "nutrition counseling", "telehealth", "virtual", and "in-person" were used for the search. Most research shows that virtual and in-person counseling yield comparable results in weight loss and health outcomes. Participants in telehealth programs reported higher attendance and satisfaction than traditional visits. Telehealth services significantly enhance access to nutrition counseling, particularly for individuals with mobility challenges or those residing in remote areas. Also, virtual participants attended more sessions and had longer follow-up calls, suggesting a stronger commitment to their care. The convenience of virtual consultations can improve adherence to dietary recommendations among patients with chronic conditions. Although virtual counseling has its advantages, it also has its limitations. These limitations include the lack of physical assessments, anthropometric measurements, and potential challenges in establishing strong connections crucial for effective counseling. In conclusion, both virtual and in-person nutrition counseling have unique strengths and challenges. Future studies should focus on optimizing mixed models to explore the long-term effects of both methods on dietary habits and health outcomes.

Please cite this article as: Mohammadi F, Salehi A, Mazloomi SM, Hejazi N. Comparing Virtual and In-person Nutrition Counseling: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S152.

International Journal of Nutrition Sciences

POSTER

COVID-19 Mortality Prediction Utilizing an Ensemble Learning Approach Based on Extreme Learning Machines

Mehdi Golshan*, Mohammad Mojtaba Alavizadeh Shirazi

Department of Computer Engineering, Sepidan Branch, Islamic Azad University, Sepidan, Iran

ARTICLE INFO

*Corresponding author:
Mehdi Golshan, PhD;
Department of Computer
Engineering, Sepidan Branch, Islamic
Azad University, Sepidan, Iran.
Email: Mehdi.golshan@iau.ac.ir

ABSTRACT

Background: The COVID-19 mortality rate has recently surpassed that of other viruses globally. Predicting this disease using features extracted from patients based on advanced machine-learning techniques is crucial and has garnered numerous researchers' interest. Objectives: This study aims to predict COVID-19 mortality using an ensemble learning approach based on an extreme learning machine (ELM).

Methods: The COVID-19 Healthy Diet Dataset from the Kaggle site was used. This dataset contains 170 patient samples from countries worldwide with 28 dietary features and four outputs, including Confirmed, Deaths, Recovered, and Active. After preprocessing, the new dataset was created with 161 samples and 20 features. This paper created the proposed ensemble learning method with the sequential structure of an extreme learning machine (EnELM). The proposed EnELM was compared with single-learner models such as ELM, support vector regression (SVR), and ridge regression (RR). The optimal number of hidden neurons of ELM and EnELM models was considered based on the test data's minimum root mean square error (RMSE).

Results: The best RMSE error and Regression (R) performance was obtained using EnELM compared to ELM, SVR, and RR models for test data. The RSME values of the EnELM model for the outputs were determined as 0.25463, 0.27513, 0.30349, and 0.24045, respectively.

Conclusion: According to the study findings, the proposed EnELM method, compared to single-learner models, has higher accuracy and lower error, especially in test data. This capability is achieved by leveraging a stack layer structure, ensemble learning, and new feature generation at each hierarchical layer.

Please cite this article as: Golshan M, Alavizadeh Shirazi MM. COVID-19 Mortality Prediction Utilizing an Ensemble Learning Approach Based on Extreme Learning Machines. Int J Nutr Sci. 2025;10(2-Supplement):S153.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Data-Driven Dental Service Management Based on Artificial Intelligence in Iran

Mohammad Sadegh Nekouei[1], Elham Maserat[2]*

1. Department of Information Technology Management, Tarbiat Modares University, Tehran, Iran
2. Department of Medical Informatics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

ARTICLE INFO

Corresponding author:
Elham Maserat, PhD;
Department of Medical Informatics,
Faculty of Medical Sciences, Tarbiat
Modares University, Tehran, Iran.
Email: E.maserat@modares.ac.ir

ABSTRACT

Background: Artificial intelligence (AI)-based dental services promise to improve the quality of patient care, enhance clinical management, and increase access to services by utilizing new technologies. The aim of this study is to identify the components of smart dental services in Iran.

Methods: This study uses a mixed approach and its data is collected through a literature review and quantitative survey with dental professionals, IT professionals, and key stakeholders. The main research questions focus on three axes of organizational, individual, and supra-organizational requirements that analyze the prioritization of needs and barriers in each of these areas. Also, this study used the Delphi method to achieve consensus among experts. This study examined different dimensions of this transformation from the perspectives of education, research, and treatment.

Results: The most important organizational components (8 items) include the lack of appropriate technological infrastructure, high implementation costs, and lack of supportive policies. On the other hand, individual components (6 items) are mainly related to doctors' unfamiliarity with smart technologies and resistance to change. At the supra-organizational level (8 items), challenges such as lack of cooperation between related organizations and lack of development of integrated standards for health data were observed.

Conclusion: By presenting a comprehensive model, the present study suggests that the implementation of smart dental services will not only help improve patient care and reduce medical costs, but will also pave the way for a broad transformation in the Iranian health system.

Please cite this article as: Nekouei MS, Maserat E. Data-Driven Dental Service Management Based on Artificial Intelligence in Iran. Int J Nutr Sci. 2025;10(2-Supplement):S154.

International Journal of Nutrition Sciences

POSTER

Deep Learning Innovations in Leukemia Diagnosis: A Review

Ali Honari Jahromi[1], Tahereh Kalantari[2]*, Parisa Alipour[3]

1. Autophagy Research Center, Department of Biochemistry, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Laboratory Sciences, School of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Division of Laboratory Hematology and Blood Banking, Department of Medical Laboratory Sciences, School of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Tahereh Kalantari, PhD;
Department of Laboratory Sciences,
School of Paramedical Sciences,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Kalantari_t@sums.ac.ir

ABSTRACT

Leukemia is a complex hematological malignancy that can lead to delayed diagnosis and treatment. Despite the high prevalence of leukemia, there is a shortage of flow cytometry equipment. Additionally, the methods available at laboratory diagnostic centers are time-consuming. Deep learning (DL), a subset of machine learning (ML), uses neural networks for predictions and has significant potential to improve leukemia diagnosis accuracy and efficiency. A systematic search in three databases (PubMed, Scopus, and Science Direct) and Google Scholar from 2018 to 2024 was conducted via a search strategy using DL, leukemia, peripheral blood smear (PBS) image, diagnosis, and classification as the keywords. Initially, 47 articles were retrieved. After applying the inclusion and exclusion criteria, 11 articles remained as final set of articles. These articles met the criteria for relevance, quality, and alignment with the study's objectives. DL models are effective in early detection of leukemia, which is critical for improving patient outcomes. A review of studies revealed that the DL models like ResNet, EfficientNet and YOLO have shown impressive accuracy (99.62% in leukemia detection/classification). Based on several articles DL models show a very high AUC-values (usually 0.90) in the diagnosis of leukemia, indicating reliability and accuracy as well. In conclusion, the application of DL methods to process leukemia smear images can enhance diagnostic accuracy, reduce diagnosis time, and offer more efficient, cost-effective, and reliable leukemia diagnosis. Although Future research should focus on improving dataset quality, enhancing model interpretability, and developing standardized frameworks for clinical adoption.

International Journal of Nutrition Sciences

POSTER

Design and Development of a Mobile Application for Managing and Reducing Chronic Back Pain in Nurses: An Innovative Solution for Improving Quality of Life and Increasing Productivity

Elahe Hosseini[1], Bayaneh Amini[1], Hadi Daneshmandi[2]*, Tahereh Samimi[1], Kasra Kashani[1], Seyed Mohsen Hosseini[1], Sina Veisi[1]

1. Student Research Committee, Department of Medical Informatics, Urmia University of Medical Sciences, Urmia, Iran
2. Research Center for Health Sciences, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Hadi Daneshmandi, PhD;
Research Center for Health Sciences,
Institute of Health, Shiraz University
of Medical Sciences, Shiraz, Iran.
Email: Ha.daneshmandi@gmail.com

ABSTRACT

Background: Chronic back pain is a common problem among nurses that can negatively impact their quality of life and productivity. The use of modern technologies, especially mobile applications, can provide an effective solution for managing and reducing this issue.

Methods: This study aimed to design and evaluate the effectiveness of a mobile application for managing chronic back pain in nurses. A needs assessment was conducted with 120 nurses suffering from chronic back pain using a pain assessment questionnaire (VAS) and semi-structured interviews. Based on the results, an application was designed that included modules for corrective exercises, daily exercise reminders, pain intensity tracking, and health advice. The effectiveness of the application was evaluated in an 8-week trial with 50 nurses. These participants were divided into two groups: intervention (using the application) and control. Research data were collected through VAS questionnaires, SF-36 (quality of life assessment), and job performance forms at the beginning and end of the study.

Results: The results showed that in the intervention group, the intensity of back pain decreased by an average of 40% (p=0.001), quality of life significantly improved, and job performance of nurses increased by 25%. No significant changes were observed in the control group, and 80% of users reported high satisfaction with the application's functionality.

Conclusion: The designed application is an effective tool for reducing chronic back pain and improving the quality of life of nurses. This technology can be used as a cost-effective solution for managing the occupational health of nurses and professions.

Please cite this article as: Hosseini E, Amini B, Daneshmandi H, Samimi T, Kashani K, Hosseini SM, Veisi S. Design and Development of a Mobile Application for Managing and Reducing Chronic Back Pain in Nurses: An Innovative Solution for Improving Quality of Life and Increasing Productivity. Int J Nutr Sci. 2025;10(2-Supplement):S156.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Design and Evaluation of Applications in Breast Feeding Education and Its Impact on Knowledge and Attitudes of Primiparous Mothers Regarding Exclusive Breastfeeding in Postpartum Period

Masoomeh Parvasi[1], Roghaye Ershad Sarabi[2]*, Mohammadmehdi Ghaemi[2], Fahimeh Parvasi[1]

1. Health Service Delivery Management Research Center, Institute of Future Studies in Health, Kerman University of Medical Sciences, Kerman, Iran
2. Medical Informatics Research Center, Institute of Future Research in Health, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

Corresponding author:
Roghaye Ershad Sarabi, PhD;
Medical Informatics Research Center,
Institute of Future Research in Health,
Kerman University of Medical
Sciences, Kerman, Iran.
Email: A.ershadsarabi@gmail.com

ABSTRACT

Background: Exclusive breastfeeding for the first six months is recommended by the World Health Organization. The rate of exclusive breastfeeding in Iran is lower than the global target. The purpose of this study was to design and evaluate a breastfeeding education application, to evaluate its effect on the knowledge and attitude of primiparous mothers towards exclusive breastfeeding in the postpartum period.

Methods: This semi-experimental, single-blind, pre-test and post-test study included 80 primiparous mothers who gave birth in Kerman Hospital, and were randomly divided into two intervention and control groups. An educational application was designed with the aim of providing mothers with the best methods and concepts related to breastfeeding. Data were collected using two valid questionnaires related to exclusive breastfeeding.

Results: The results showed that the effect of regular breastfeeding training in the intervention group on attitude was significant; But it was not significant in knowledge. The knowledge level of the control group after training was average and did not differ significantly from the expected average. After one month of using the application, the average score of the intervention group's attitude and knowledge about exclusive breastfeeding was significantly higher than the expected average, and it shows the effectiveness of the intervention program in increasing the knowledge and attitude of primiparous mothers.

Conclusion: Using the breastfeeding education application for one month led to a significant difference in the knowledge and attitude of the intervention group. Demographic factors such as age, education and job status were effective on mothers' knowledge and attitude.

Please cite this article as: Parvasi M, Ershad Sarabi R, Ghaemi MM, Parvasi F. Design and Evaluation of Applications in Breast Feeding Education and Its Impact on Knowledge and Attitudes of Primiparous Mothers Regarding Exclusive Breastfeeding in Postpartum Period. Int J Nutr Sci. 2025;10(2-Supplement):S157.

POSTER

Design, Development, and Evaluation of Mobile Application for Alerting and Reducing Allergic Patients' Exposure to Environmental Pollutants in Urmia, Iran

Bahman Mahmoudi[1], Sadegh Feizollahzadeh[2], Hadi Lotfnezhad Afshar[1], Mozhgan Tanhapour[1], Bahlol Rahimi[1]*

1. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Laboratory Sciences, School of Medicine Sciences Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Bahlol Rahimi, PhD;
Health and Biomedical Informatics
Research Center, Urmia University of
Medical Sciences, Urmia, Iran.
Email: Bahlol.rahimi@gmail.com

ABSTRACT

Background: Tree pollen hypersensitive reactions are a common health difficulty in city regions, causing signs together with sneezing, itchy eyes, and respiration troubles. This study designed, broadened, and compared cellular software to provide warnings and decrease allergic sufferers' publicity to environmental pollutants in the metropolis of Urmia, Iran.
Methods: This developmental and quasi-experimental observe involved designing a mobile application capable of actual-time environmental monitoring and handing over personalized signals. Data on plants coverage had been accumulated from dependable resources and processed inside the utility. Customers obtained essential alerts primarily based on their geographical region. The look at concerned eighty hypersensitivity patients who used the app over three months and its effectiveness was assessed through a questionnaire.
Results: The results indicated that using the application significantly reduced the severity of allergy symptoms and increased patients' awareness of environmental allergens, particularly tree pollens (*p*=0.05). Users reported that timely alerts from the application played a significant role in preventing and mitigating their allergy symptoms, reducing the need for medication by lowering symptom occurrence and severity.
Conclusion: Offering real-time warnings and accurate information about potential danger locations enables essential to avoid allergenic elements and enhance their quality of life. This innovative technology not only empowers individuals to manage their health better but also provides a valuable tool for healthcare policymakers and urban planners to implement targeted strategies for minimizing allergen exposure. Furthermore, such advancements can promote healthier urban environments by integrating data-driven approaches into public health initiatives and city planning.

Please cite this article as: Mahmoudi B, Feizollahzadeh S, Lotfnezhad Afshar H, Tanhapour M, Rahimi B. Design, Development, and Evaluation of Mobile Application for Alerting and Reducing Allergic Patients' Exposure to Environmental Pollutants in Urmia, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S158.

Designing Elderly People Monitoring System Based on Internet of Things

Soha Parto[1], Ali Akbar Safavi[1]*, Danesh Sadati[1], Mahsa Keikha[2]

1. Control Engineering, School of Electrical and Computer Engineering, Shiraz University, Shiraz, Iran
2. Department of Mechatronic Systems Engineering Simon Fraser University Burnaby, British Columbia, Canada

ABSTRACT

Background: Advancements in technologies based on Internet of Things (IoT) have enabled the development of elderly health monitoring systems. Various studies have identified the essential needs, challenges, and strengths of these systems, highlighting the significance of IoT in this field. Based on these findings, we have designed an IoT-enabled health monitoring system to address the critical needs of elderly care. The system easily supports AI-based algorithms for intelligent monitoring.

Methods: We developed a framework integrating wearable devices, including smart gadgets equipped with various sensors to monitor vital signs (e.g., heart rate, SpO2, ECG, body temperature, and blood pressure), and a motion tracking system. Data is transmitted to a server in real-time for storage and intelligent analysis using advanced algorithms. Additionally, we designed a smart alarm system to detect health emergencies, such as abnormal vital signs, which promptly notifies caregivers via text messages.

Results: The system demonstrates high accuracy in real-time data collection and reliable transmission. The smart alarm system effectively responds to abnormal health parameters, ensuring timely caregiver intervention. This system is highly flexible and scalable, allowing additional smart devices and sensors to be integrated based on user needs. It is also cost-effective, making it suitable for users with various budgets.

Conclusion: The proposed IoT-based health monitoring system offers a reliable and efficient solution for elderly care. It ensures continuous monitoring, real-time data analysis, and timely emergency alarms, improving the quality of health management for the elderly. The designed monitoring system can be improved using advanced algorithms in the future.

Corresponding author:
Ali Akbar Safavi, PhD;
Control Engineering, School of
Electrical and Computer Engineering,
Shiraz University, Shiraz, Iran.
Email: Safavi@shirazu.ac.ir

Please cite this article as: Parto S, Safavi AA, Sadati D, Keikha M. Designing Elderly People Monitoring System Based on Internet of Things. Int J Nutr Sci. 2025;10(2-Supplement):S159.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Designing and Evaluating of Android Software for Wandering and Fall Detection in Older Adults with Cognitive Impairment: Quality Control of Software

Fakhruddin Boraghi*, Abedin Bakht Abnoos

Student Research Committee, Department of Gerontology, Faculty of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fakhruddin Boraghi, MSc;
Student Research Committee,
Department of Gerontology, Faculty of
Health, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Fakhruddinboraghi@gmail.com

ABSTRACT

Background: Cognitive impairment in older adult may lead to wandering and falling, which causes life and financial damage to the individual and his caregiver; The purpose of this study was to design and evaluate the Android software for detecting wandering and falling in older adults with cognitive impairment and its quality control.

Methods: A prototype software was developed using smartphone sensors to detect wandering and falls, programmed in C# and SQL. It was tested in two phases: the first involved testing accuracy, sensitivity, and precision by researchers through simulated fall scenarios. In the second, the software was installed on the phones of 30 older adults and monitored for a month to gather feedback. At the end, users rated the software on a scale from 1 to 5 and shared their experiences.

Results: The fall and wandering detection software was successfully developed and had 77% sensitivity and 63% accuracy in fall detection and 95.8% sensitivity and 97.9% accuracy in wandering detection; The scores received from the older adult were 4.1 out of 5.

Conclusion: A prototype software for detecting falls and wandering among older adults was developed using vector magnitudes, angles, and distance matrices. It aims to ensure that older adults maintain their independence without impacting their daily activities negatively. The software showed moderate accuracy and user-friendliness, making it suitable for all older adult groups. With only a smartphone required, the software safeguards privacy while successfully achieving its detection goals. User feedback helped refine its functionalities.

Please cite this article as: Boraghi F, Bakht Abnoos A. Designing and Evaluating of Android Software for Wandering and Fall Detection in Older Adults with Cognitive Impairment: Quality Control of Software. Int J Nutr Sci. 2025;10(2-Supplement):S160.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Designing Mobile Health Applications for Elderly Care: A Review on Challenges, Opportunities, and Insights

Maryam Mofarahi[1]*, Fatemeh Niknam[2], Zahra Mahmoudzadeh-Sagheb[3]

1. Student Research Committee, Iran University of Medical Sciences, Tehran, Iran.
2. Department of Health Information Management, Iran University of Medical Science, Tehran, Iran
3. Department of Health Information Management, Shiraz University of Medical Sciences, Shiraz, Iran

Corresponding author:
Maryam Mofarahi, MSc;
Student Research Committee, Iran
University of Medical Sciences,
Tehran, Iran.
Email: Neginmofarahi@yahoo.com

ABSTRACT

By 2050, the global elderly population is expected to surpass 2 billion, posing unique challenges to healthcare systems. Aging is associated with chronic diseases, mobility issues, and cognitive decline, making regular healthcare access difficult. Mobile health (mHealth) solutions offer opportunities for preventive care and improved quality of life for the elderly, yet their adoption remains hindered by design and implementation barriers. This study reviewed 20 articles from databases including PubMed, Google Scholar, ProQuest, and SID, focusing on keywords such as "Elderly care", "mHealth", and "Design challenges". Articles published in the past 10 years were analyzed, focusing on usability, effectiveness, and design-related considerations. Key findings highlight the importance of minimalist and intuitive design for mHealth applications tailored to seniors. Elderly users benefit from large fonts, high contrast, and culturally appropriate color schemes. Key functions should be accessible in the main screen, with no more than 6-12 buttons. For users with cognitive impairments, features such as voice assistance, clear navigation, and bolded key points improve usability. Physical limitations necessitate large buttons and simplified hand gestures. Wearable sensors and environmental monitoring devices integrated with mHealth applications enhance safety and functionality, such as fall detection and balance improvement. Early-stage needs assessment is critical for successful implementation. In conclusion, despite significant challenges, mHealth holds transformative potential for elderly care. Addressing design and usability barriers through evidence-based strategies can maximize its impact. Future efforts should focus on tailored solutions and practical integration to meet the unique needs of aging populations.

Please cite this article as: Mofarahi M, Niknam F, Mahmoudzadeh-Sagheb Z. Designing Mobile Health Applications for Elderly Care: A Review on Challenges, Opportunities, and Insights. Int J Nutr Sci. 2025;10(2-Supplement):S161.

International Journal of Nutrition Sciences

POSTER

Determining Essential Features of Nutrition Applications in Clinical Trial Research: A Review

Arezoo Dehghani[1], Shokofeh Afkhami[2]*

1. Department of Health Information Technology and Management, Research Center for Health Technology Assessment and Medical Informatics, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Department of Health Information and Medical Informatics, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Shokofeh Afkhami, PhD;
Department of Health Information
and Medical Informatics, School
of Allied Medical Sciences, Shahid
Beheshti University of Medical
Sciences, Tehran, Iran.
Email: Shokofehafkhami@gmail.com

ABSTRACT

The rising prevalence of nutrition-related diseases highlights the need for advanced digital tools to optimize dietary management in clinical trials. Nutrition applications (apps) have emerged as essential m-health interventions, enabling dietary tracking, behavioral modification, and efficient data collection. However, the critical design and functional features that maximize their utility in clinical research remain unclear. To systematically review and evaluate the essential features of nutrition apps used in clinical trials, focusing on their effectiveness in improving adherence, data reliability, and clinical outcomes. A systematic search of PubMed, Scopus, and Google Scholar (2014–2024) identified clinical trials utilizing nutrition apps as primary or adjunctive interventions. Data extraction focused on app design, device interoperability, and adherence strategies, with study quality assessed using the CONSORT e-Health checklist. From all 8426 articles retrieved, Analysis of eligible studies revealed that effective nutrition apps employed adaptive algorithms for personalized dietary recommendations, real-time feedback, integration with wearable devices, and compliance with interoperability standards. Gamification and social connectivity features enhanced user engagement and adherence, improving dietary compliance, anthropometric measures, and biomarkers such as glycemic control and lipid profiles that enhance self-management in chronic diseases and control obesity. However, inconsistent evaluation methods limited cross-study comparability. In conclusion, when designed based on scientific evidence and clinical priorities, nutrition apps hold transformative potential in clinical trials. Standardized frameworks for design and evaluation are essential to ensure equitable and scalable implementation across diverse research settings.

Please cite this article as: Dehghani A, Afkhami S. Determining Essential Features of Nutrition Applications in Clinical Trial Research: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S162.

International Journal of Nutrition Sciences

POSTER

Determining Information Requirements for Smart Phone Educational App Based on Parent-Oriented for Children Self-Care with Cerebral Palsy

Rahimeh Tajvidi Asr[1], Elahe Gozali[1,2]*, Samira Babaei[1], Bahlol Rahimi[3,4]

1. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Health Information Technology, School of Allied Medical Sciences, Urmia University of Medical Sciences, Urmia, Iran
3. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
4. Department of Medical Informatics, School of Allied Medical Sciences, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Elahe Gozali, PhD;
Department of Health Information Technology, School of Allied Medical Sciences, Urmia University of Medical Sciences, Urmia, Iran.
Email: Elahe.gozali@gmail.com

ABSTRACT

Background: Cerebral palsy is a Neurological syndrome that affects a child's entire life after birth. Self-care using a mobile phone helps to improve the Complications management and Increasing quality of life. This study aims to identify the educational content needed to design a self-care mobile application based on Parent-Oriented for Children with Cerebral Palsy.

Methods: This study was conducted as a descriptive cross-sectional study in the year 2024. The data collection tool was a questionnaire whose validity and reliability were confirmed. The questionnaire included informational-educational needs and application capabilities. The needs assessment was carried out with 30 individuals (15 specialists and 15 parents of affected children) at Urmia University of Medical Sciences. Data analysis was performed using descriptive statistics with SPSS software.

Results: The application included four main sections: demographic data, family conditions and clinical information of the child, information related to parent education, the intervention section of the program, and its capabilities. The demographic data, family conditions and clinical information of the child included 24 data elements. The parent education section included subsections on the description of the main aspects of the disease, lifestyle management and the necessity of medication, treatment, and required medications. The intervention section included subsections on diagnostic interventions and information section includes an introduction to the list of medical centers and related specialists, and finally the capabilities of the program.

Conclusion: The informational-educational needs identified in this study can help app developers design user-friendly educational apps with credible scientific content.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Determining the Minimum Data Elements of an Android-Based Weight Management Application for Children Aged 7-9 Years

Mahdi Mahmoodi[1], Sakineh DadashgholizadehJelodar[1], Fatemeh Khoshvaght[1], Hooriya Ghazinejad[1], Shahrbanoo Pahlevanynejad[2]*

1. Student Research Committee, Semnan University of Medical Sciences, Semnan, Iran
2. Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran

ARTICLE INFO

Corresponding author:
Shahrbanoo Pahlevanynejad, Bsc;
Social Determinants of Health
Research Center, Semnan University
of Medical Sciences, Semnan, Iran.
Email: Shpahlevany@gmail.com

ABSTRACT

Background: Overweight is a major problem in the world that is directly related to the risk of complications in childhood and increased mortality complications in adulthood. Self-management is an effective strategy in the prevention and treatment of this condition. Technology can be a suitable platform for self-management in the field of health. The aim of this study was to determine the minimum data of an Android-based application for weight management of children aged 7-9 years.

Methods: A structured questionnaire was designed to identify the application's information elements. It was created by reviewing similar applications in PubMed and WOS databases using the keywords "children", "overweight" ,"self-management", and "application" with Boolean operators from 2016 to 2024. The questionnaire's validity and reliability were confirmed through brainstorming and the Delphi study method across three main sections.

Results: The questionnaire was completed by 50 specialist physicians, and subspecialists in pediatrics and endocrinology. 73 data elements were categorized into three sections: demographic, clinical, and tools. The demographic sections included 16, clinical 19 and tools included 38 data elements, of which 12, 15, and 37 received full scores, respectively. 11 suggested elements were also added to the application as sub-elements by obtaining high scores. A total of 62 data elements were considered.

Conclusion: The design of this application can prevent obesity by modifying a healthy lifestyle and subsequently increasing It can greatly prevent the risk of cardiovascular diseases, diabetes, musculoskeletal disorders, and certain types of cancer, as well as reducing a child's self-esteem.

Please cite this article as: Mahmoodi M, DadashgholizadehJelodar S, Khoshvaght F, Ghazinejad H, Pahlevanynejad S. Determining the Minimum Data Elements of an Android-Based Weight Management Application for Children Aged 7-9 Years. Int J Nutr Sci. 2025;10(2-Supplement):S164.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Development of Mobile Health Application for Self-Care of Patients with Age-Related Macular Degeneration

Sadegh Sharafi[1], Hossein Valizadeh Laktarashi[2], Amir Mohammad Parsanahad[3], Zeynab Naseri[4]*

1. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Medical Informatics Unit, School of Paramedical, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Student Research Committee, Abadan University of Medical Sciences, Abadan, Iran
4. Abadan University of Medical Sciences, Abadan, Iran

ARTICLE INFO

Corresponding author:
Zeynab Naseri, MSc;
Abadan University of Medical
Sciences, Abadan, Iran.
Email: Zeynabnaseri555@gmail.com

ABSTRACT

Background: Age-related macular degeneration (AMD) significantly impacts vision and quality of life in older adults. Effective self-care is crucial for managing the disease. This study focused on developing a user-friendly mobile health (mHealth) application to assist AMD patients with symptom tracking, medication reminders, and education, aiming to enhance patient outcomes and delay disease progression.

Methods: Conducted in 2024, this applied study consisted of two phases: development and evaluation. The development phase involved identifying core functional requirements for AMD self-care, followed by designing a conceptual model using Visual Paradigm and developing the application using Android Studio. The evaluation phase assessed the application's usability using the Mobile Application Usability Questionnaire (MAUQ), focusing on ease of use, design, functionality, and user satisfaction.

Results: The application includes features such as vision tracking tools, reminders for medication and medical appointments, educational resources, customizable action plans, a log for symptoms and visual changes, a direct contact option with specialists, and notifications for eye care tips. Usability testing with 25 AMD patients demonstrated high user satisfaction, with an average rating of 6.1 out of 7.5±1.05.

Conclusion: This study underscores the potential of the developed mHealth application to empower AMD patients to manage their conditions more effectively. By providing tools for self-care, real-time symptom monitoring, and timely reminders, the application aims to reduce disease progression risks and enhance the quality of life. Further research is recommended to evaluate its long-term impact on clinical outcomes and patient adherence.

Please cite this article as: Sharafi S, Valizadeh Laktarashi H, Parsanahad AM, Naseri Z. Development of Mobile Health Application for Self-Care of Patients with Age-Related Macular Degeneration. Int J Nutr Sci. 2025;10(2-Supplement):S165.

International Journal of Nutrition Sciences

POSTER

Development of Internet of Things-Based Pulse Oximeter for Remote Health Monitoring

Ali Mosahebfard*, Mohammad Reza Jalali

Department of Electrical Engineering, Faculty of Engineering, Fasa University, Fasa, Iran

ARTICLE INFO

Corresponding author:
Ali Mosahebfard, PhD;
Department of Electrical Engineering,
Faculty of Engineering, Fasa
University, Fasa, Iran.
Email: A.mosaheb@gmail.com

ABSTRACT

Background: This project focuses on developing an IoT-based system for measuring blood oxygen levels (SpO2) and heart rate. The core idea is to leverage Internet of Things (IoT) capabilities to create a reliable, easy-to-use solution for continuous health monitoring, enabling remote data access and analysis.

Methods: The hardware components include NodeMCU ESP8266, MAX30100 pulse oximeter sensor, and a 0.96" I2C OLED Display. The MAX30100 sensor emits red and infrared light to detect oxygenated and deoxygenated blood. Data is read through I2C communication and displayed on an OLED screen. The system is integrated with the Blynk application, enabling real-time monitoring on mobile devices. Notably, this setup can send data over the internet, beyond just local Wi-Fi networks, ensuring accessibility from virtually anywhere.

Results: The system was successfully implemented and tested. The MAX30100 sensor accurately detected heartbeats and measured SpO2 levels. The integration with NodeMCU ESP8266 and the OLED display provided reliable and continuous monitoring. The use of the Blynk application facilitated seamless setup and real-time data presentation with accessibility over Android devices, making the system intuitive and user-friendly for end users.

Conclusion: The developed IoT-based pulse oximeter system offers a viable solution for personal health monitoring, with the capability of remote data transmission over the internet. The project demonstrates the potential of affordable and accessible technology in healthcare applications. Future improvements could focus on increasing accuracy, adding additional health metrics, and enhancing network architecture to adapt to specific requirements, such as improving data security and optimizing communication protocols.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Digital Diagnostics and Mobile Health Laboratory Medicine

Hossein Javid*, Fatemeh Khojaste, Maryam Enayati, Nastaran Abdollahi

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

*Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Background: In today's world, digital innovations are changing the way healthcare is delivered and medical laboratories function A strategy is needed that combines medicine and technology to deliver benefits such as increased speed, transparency, and quality and efficiency of laboratory and healthcare processes, responding to the scale of a pandemic by outpacing the speed and spread of a pandemic. A wide range of digital health technologies are currently available, such as electronic health records, artificial intelligence in diagnostics, telemedicine and consultation, etc. The IFCC Global Survey on Current and Future Perspectives and Digital Innovations in Medicine and Laboratory Sciences focuses on categorizing and conceptualizing these technologies with the aim of facilitating their use and improving communication in this area.

Methods: The IFCC-C-MHBLM Committee designed an online questionnaire on mobile health (mHealth) diagnostics that was distributed to IFCC members on December 31, 2018. The questionnaire included questions on the role of diagnostics providers in supporting digital innovations, the current and future importance of digital diagnostics solutions in the laboratory environment, laboratories' readiness and implementation methods for digital diagnostics solutions, barriers to adoption of these solutions, and demographic information of respondents.

Results: Digital solutions for improving laboratory operations are currently of greatest importance, but in the future, more focus is expected on telemedicine, artificial intelligence for clinical decision-making, and workflow optimization.

Conclusion: Digital transformation is reshaping laboratory medicine by introducing solutions. However, successful implementation of these technologies requires addressing challenges such as standardization and data security.

Please cite this article as: Javid H, Khojaste F, Enayati M, Abdollahi N. Digital Diagnostics and Mobile Health Laboratory Medicine. Int J Nutr Sci. 2025;10(2-Supplement):S167.

International Journal of Nutrition Sciences

POSTER

Digital Interventions for Parent Education and Adolescent Sexual and Reproductive Health: A Review

Fatemeh Dezyani[1], Zeinab Hamzehgardeshi[2], Roya Nikbakht[3], Zohreh Shahhosseini[4]*

1. Faculty of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Iran
2. Sexual and Reproductive Health Research Center, Department of Reproductive Health and Midwifery, Faculty of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Iran
3. Department of Biostatistics and Epidemiology, Faculty of Health, Mazandaran University of Medical Sciences, Sari, Iran
4. Sexual and Reproductive Health Research Center, Department of Midwifery, School of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Mazandaran, Iran

ARTICLE INFO

*Corresponding author:
Zohreh Shahhosseini, PhD;
Department of Midwifery,
School of Nursing and Midwifery,
Mazandaran University of Medical
Sciences, Sari, Iran.
Email: Zshahhosseini@yahoo.com

ABSTRACT

Parents play a crucial role in providing health information to adolescents, impacting their sexual and reproductive outcomes. Barriers like low self-efficacy, poor communication skills, and limited information can hinder this relationship. Digital health solutions can improve health education and communication. This study is a narrative review that analyzed literature from Persian and Latin databases, including Web of Science, PubMed, Scopus, Google Scholar, and SID, using keywords such as digital health, m-health, e-health, app, parents, youth, sexual, reproductive and SRH from the years 2000 to 2024. Ultimately, after reviewing the abstracts and full texts for relevance to the study's objectives, six articles were included in the analysis. A feasibility study on sexual and reproductive health (SRH) educational software showed positive engagement among parents, with over half reporting enhanced discussions with their children. A qualitative study revealed that both parents and adolescents preferred receiving sexual health information through mobile devices due to their accessibility. Another study highlighted the potential of converting educational programs into online games to improve communication about sex and relationships. Participants supported an intergenerational game designed to enhance family communication about sexual health. An intervention using a web-based program for parents enhanced communication with adolescents and improved their sexual health. Additionally, a study on parental involvement in technology-based sex education found that families using the program had higher communication and intentions regarding sexual health compared to the control group. In conclusion, digital health effectively promotes adolescent sexual and reproductive health by enhancing communication between parents and adolescents.

Please cite this article as: Dezyani F, Hamzehgardeshi Z, Nikbakht R, Shahhosseini Z. Digital Interventions for Parent Education and Adolescent Sexual and Reproductive Health: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S168.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Digital Mobile Game Apps as New Intervention approach in Controlling Obesity among Children: A Review

Mohammad Heydari[1]*, Seyed Mohammad Ayyoubzadeh[2], Mohadese BabaMohammadi[3], Elyas Bastanifar[4]

1. Students' Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Health Information Management, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
3. Social Work Unit, Department of Social Sciences, Allameh Tabataba'i University, Tehran, Iran
4. Department of Clinical Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Mohammad Heydari, PhD;
Students' Scientific Research Center,
Tehran University of Medical
Sciences, Tehran, Iran.
Email: Heydari.mohammad12@
yahoo.com

ABSTRACT

Digital games have become extremely popular among children. Gamification and Serious Games as a strategy for user engagement have been used to create behavioral changes. Unhealthy eating habits have led to the spread of obesity in children. We aimed to describe the features of gamified apps in mobile health (mHealth) interventions for obesity in children. Four Electronic Databases; Web of Science, PubMed, Science Direct, and Scopus, were searched in July 2024 using search terms for mHealth, mobile games, game-apps, gamification, serious-games, and child obesity. The search was limited to English-written articles. The screening process of articles was conducted by two-reviewer respectively. The PRISMA protocol was utilized to select and analyze articles. In total 17 articles were found in our criteria. We examined the various published articles on gamified tools apps; 6 (35.5%) papers explained the development of game apps, 5 (29.5%) evaluated the games, 5 (29.5%) studies were RCT, and one (5.5%) study conducted the acceptability and feasibility of apps. Only three studies (17.5%) used virtual reality technology. Also, most apps focus on user engagement, promoting healthy food consumption, improving child nutrition knowledge, education, and exercise or physical activity in children. Most of the game apps provide interactive and engaging environments for promoting awareness and encouraging consumption of healthy nutrition. In conclusion, the results showed that game mechanisms as novel approaches can provide interactive and engaging interfaces and improve adherence to healthy nutrition behaviors in children. Based on the studies' limitations, additional research is suggested to evaluate long-term mobile game apps' clinical effectiveness.

Please cite this article as: Heydari M, Ayyoubzadeh SM, BabaMohammadi M, Bastanifar E. Digital Mobile Game Apps as New Intervention approach in Controlling Obesity among Children: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S169.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Digital Twins in Healthcare: Applications, Benefits and Challenges: A Review

Hossein Javid[1]*, Sara Rahmani[2], Pouya Rahimi Zarei[2]

1. Department of Clinical Biochemistry, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Clinical Biochemistry,
Faculty of Medicine, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Digital Twins (DTs) are virtual representations of physical systems, leveraging technologies like AI, IoT, and Big Data. Initially developed for industrial applications, DTs are increasingly transforming healthcare by enhancing personalized medicine, hospital management, and drug discovery. Despite their potential, challenges such as data privacy, high costs, and system integration hinder their widespread adoption. This study investigates the applications, benefits, and barriers of DTs in healthcare. **Methods:** A comprehensive review of scientific articles from databases like PubMed, IEEE Xplore, and Scopus was conducted. The selection criteria included keywords such as "digital twin" and "healthcare," with a focus on their applications in surgical planning, chronic disease management, drug development, and hospital operations. The challenges limiting their adoption were also analyzed. **Results:** DTs have shown remarkable potential in healthcare. They enhance surgical planning by enabling detailed simulations of organs, reducing complications. In chronic disease management, DTs allow for personalized treatments by predicting disease progression. In drug discovery, they accelerate development through cost-effective virtual trials. Hospitals benefit from improved resource optimization and patient care. However, challenges such as data security concerns, high implementation costs, the absence of universal standards, and integration difficulties pose significant barriers. In conclusion, digital Twins have the potential to revolutionize healthcare by improving precision, efficiency, and patient outcomes. Addressing technical and ethical challenges, such as ensuring data security and developing scalable, interoperable systems, is crucial for their broader adoption. Future research should prioritize practical, secure, and cost-effective solutions to overcome these barriers.

Please cite this article as: Javid H, Rahmani S, Rahimi Zarei P. Digital Twins in Healthcare: Applications, Benefits and Challenges: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S170.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Application of Digital Technologies and Gamification to Enhance Quality of Life in Children and Adolescents with Congenital Heart Diseases: A Review

Fatemeh Lak*, Sara Jameei, Elnaz Hajian

Critical Care Nursing Department, Faculty of Nursing and Midwifery, Shiraz University of Medical Science, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Lak, MSc;
Faculty of Nursing and Midwifery,
Shiraz University of Medical Science,
Shiraz, Iran.
Email: Fatemeh.lak021@gmail.com

ABSTRACT

Congenital heart diseases (CHD) pose significant challenges to the physical and psychological health of children and adolescents. Managing CHD requires care to enhance quality of life and health outcome. Recently, digital technologies and gamification including mobile applications, virtual reality, and interactive game-based methods have gained attention to address these needs. This review investigated application of digital technologies and gamification to enhance quality of life in children and adolescents with congenital heart diseases. In a systematic review, electronic databases of Google Scholar, SID, Scopus, ScienceDirect, and PubMed were used to identify relevant studies published between 2020 and 2024. Search terms were "ongenital heart disease", "children", "adolescent", "digital technology", and "quality of life". A total of ten studies met the criteria and analyzed. The reviewed studies examined the impact of various digital tools and gamified interventions on health outcomes in children and adolescents with CHD. Findings indicated significant improvements in anxiety reduction, physical activity level, quality of life, cognitive function, self-care abilities, emotional well-being, and lifestyle behaviors. Although two studies reported limited benefits, the majority demonstrated positive outcomes and highlighted the potential of these technologies in pediatric CHD care. In conclusion, digital technologies and gamification presented a promising avenue to enhance the health and quality of life of children and adolescents with CHD. While these interventions promoted engagement and improved outcomes, challenges such as cost, accessibility, and the need for long-term efficacy evaluations must be addressed. Future researches should emphasize sustainable, culturally adaptable, and cost-effective solutions.

Please cite this article as: Lak F, Jameei S, Hajian E. Application of Digital Technologies and Gamification to Enhance Quality of Life in Children and Adolescents with Congenital Heart Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S171.

International Journal of Nutrition Sciences

POSTER

Effect of Tele-Nursing in Improving of Ultrasound Findings of Patients with Nonalcoholic Fatty Liver Disease

Sorur Javanmardifard*

Community Based Psychiatric Care Research Center, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Sorur Javanmardifard, PhD;
Community Based Psychiatric Care
Research Center, School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Soror.javanmardi@yahoo.com

ABSTRACT

Background: Non-alcoholic fatty liver disease (NAFLD) is still a prevalent metabolic disease. This study was undertaken to establish the effect of tele-nursing in the improving of the ultrasound findings in patients with NAFLD.

Methods: In this clinical trial, 60 patients with NAFLD were randomly assigned to the control or intervention group. All patients received necessary training on diet and physical activity. The subjects in the intervention group were followed up via phone by nurses for 12 weeks (twice a week during the first month and once a week during the following two months). The control group participants did not receive any interventions and were only followed up as usual by a specialist. Before and after the intervention, the liver size and histological status of their liver were examined using ultrasound in all the participants.

Results: After 12 weeks after the start of the study, the mean of liver size decreased in the group followed up via phone by a nurse (13.15±1.22 cm to 12.90±1.16 cm, *p*=0.013), but this did not change significantly in control group (12.55±1.56 cm to 12.56±1.57 cm, *p*=0.326). The greater difference in the mean liver size between the evaluations was in the intervention group with 0.26±0.53 cm versus -0.003±0.018 cm in control group (*p*=0.012). Additionally, the fatty infiltration status of the liver tissue improves in 66.6% of the intervention group versus 6.6% in the control group (*p*=0.001).

Conclusion: Findings of this study showed that tele-nursing led to improvement in liver size and histology in patients with NAFLD.

Please cite this article as: Javanmardifard S. Effect of Tele-Nursing in Improving of Ultrasound Findings of Patients with Nonalcoholic Fatty Liver Disease. Int J Nutr Sci. 2025;10(2-Supplement):S172.

International Journal of Nutrition Sciences

POSTER

Effectiveness of Artificial Intelligence and Robotic-Based Interventions in Improving Motor Function and Physical Activity in Patients with Parkinson's Disease: A Review

Mouzhan Granfar[1], Atefeh Sadat Mousavi[2], Motahareh Siahsar[2], Seyyedeh Fatemeh Mousavi Baigi[3,4]*

1. Department of Health Information Management, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran 4. Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Seyyedeh Fatemeh Mousavi Baigi,
PhD;
Department of Health Information
Technology, School of Paramedical
and Rehabilitation Sciences, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Mousavibf3@mums.ac.ir

ABSTRACT

Artificial intelligence (AI) and robotics-based rehabilitation have gained prominence as innovative approaches for improving motor function and physical activity in patients with Parkinson's disease (PD). These technologies provide personalized training, enhancing functional independence and quality of life. This systematic review examines the effectiveness of these interventions. A comprehensive systematic review was conducted on randomized controlled trials (RCTs) without time restrictions, utilizing major scientific databases, including Embase, Web of Science, Scopus, and PubMed, up to November 7, 2024. The Joanna Briggs Institute (JBI) checklist was used to assess study quality, and PRISMA guidelines were followed. Keywords were thoroughly searched in titles, abstracts, and keywords of the studies. A total of 10,012 articles were identified, and after removing duplicates and full-text screening, 31 studies met the inclusion criteria, with four final RCTs selected for detailed analysis. Key outcomes assessed in Parkinson's patients included motor function, balance, and physical activity using measures like the Unified Parkinson's Disease Rating Scale (UPDRS), Timed Up and Go (TUG), and 6-Minute Walk Test (6MWT). AI and robotics-based interventions demonstrated improvements in motor function, balance, and physical activity, with 75% of studies reporting significant benefits. However, 25% showed no notable differences between intervention and control groups. Variability in robotic systems, intervention durations, and participant demographics influenced outcomes. In conclusion, AI and robotics-based rehabilitation improve motor function and quality of life in PD patients. Nevertheless, further research with larger sample sizes, standardized interventions, and long-term follow-up is necessary to validate these findings and enhance their generalizability.

POSTER

Effectiveness of E-Health Intervention on Pregnant Woman's Health: A Review

Arezoo Dehghani[1], Hamid Reza Dehghan[2], Fatemeh Etemadi[3]*, Fatemeh Tavakoli[3], Mitra Ebrahimi[3], Mahboobe Zadegi[3]

1. Department of Health Information Technology and Management, Research Center for Health Technology Assessment and Medical Informatics, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Research Center for Health Technology Assessment and Medical Informatics, Department of Health Technology Assessment, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
3. Student Research Committee, Health Information Management, Department of Health Information Technology and Management, School of Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Etemadi, BSc;
Health Information Management,
Department of Health Information
Technology and Management,
School of Health, Shahid Sadoughi
University of Medical Sciences,
Yazd, Iran.
Email: F.etemadi207@gmail.com

ABSTRACT

The e-health technologies have the potential to improve prenatal care for women and reduce healthcare expenditure without adversely impacting health outcomes for the mother or baby. Reflecting on how prenatal providers and pregnant patients used telemedicine in Iran, the aim of this study is to review current literature on e-health intervention in in pregnancy in Iran. a systematic literature search was conducted on studies on e-Health intervention in perinatal care in Web of Science, PubMed, Scopus, Google Scholar and SID (a Persian data base). Searches were run in Persian and English in May 2024. Clinical trials reporting the effectiveness of e-Health during prenatal, perinatal, and postnatal care were included. Out of 273 articles, 8 articles met the inclusion criteria. According to the heterogeneity in used technologies, and outcome measurements, results were analyzed and presented in a narrative overview of the literature. Technologies were including mobile app, use of social media (3 articles), and text messaging (2 articles). E-health intervention effectively improves the sleep quality of pregnant women, and childbirth training with e-health technology can reduce the fear of childbirth and improve decision-making in pregnant women, and also statistically improve the self-care behaviors of prediabetic pregnant women in the field of physical activity and nutrition's habits. In conclusion, the review of articles reveals that telemedicine is a powerful tool for enhancing maternal and newborn health. Mobile technology as a complementary approach to traditional care can provide better education and support to pregnant women, leading to positive health outcomes.

Effectiveness of Mobile Health-Based Self-Management Interventions in Breast Cancer Patients: A Review

Zahra Arabkermani[1], Simine Ahmadi Larimi[2]*, Atefeh Rouhani[3]

1. Health Information Management, Department of Paramedicine, Amol School of Paramedical Sciences, Mazandaran University of Medical Sciences, Sari, Iran
2. Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran
3. Health Information Managment Unit, Imam Ali Hospital, Mazandaran University of Medical Sciences, Sari, Iran

ARTICLE INFO

*Corresponding author:
Simine Ahmadi Larimi, MSc;
Student Research Committee,
Mazandaran University of Medical
Sciences, Sari, Iran.
Email: Simineahmadi@gmail.com

ABSTRACT

Breast cancer, the most common malignancy among women globally, is increasingly prevalent. Approximately 70–80% of early-stage, non-metastatic cases are treatable. Mobile health (mHealth) technologies are gaining prominence in promoting self-care among these patients. This study evaluates the impact of mobile-based self-management interventions on disease management, behavioral, and emotional outcomes in breast cancer patients. An unstructured narrative review was conducted in November 2024. A total of 71 articles were extracted from PubMed/Medline and Scopus databases using keywords of breast cancer, self-management, and mHealth. Articles published between 2018 and 2024 in English, focused on mHealth for self-care in breast cancer patients were included. Researchers assessed the quality and relevance of 18 selected articles using EndNote software to evaluate sections such as title, abstract, methods, results, and discussion. mHealth apps enhance self-management and quality of life (QOL) during treatment and survivorship. During treatment, they manage chemotherapy side effects, track symptoms, and improve medication adherence. For survivors, they promote physical activity, emotional well-being, and symptom management, sustaining QOL improvements. Mental health benefits include reduced anxiety and improved self-efficacy, though family concerns and psychological distress are less addressed. Apps also support physical health by promoting exercise, tracking nutrition, and managing symptoms. Features like personalized reminders, education, and professional guidance enhance engagement. Challenges such as adherence variability, technical issues, and limited follow-up indicate a need for further optimization. In conclusion, mhealth interventions significantly improve QOL and self-management in breast cancer patients. Further research is needed to evaluate long-term outcomes and overcome usability challenges.

Please cite this article as: Arabkermani Z, Ahmadi Larimi S, Rouhani A. Effectiveness of Mobile Health-Based Self-Management Interventions in Breast Cancer Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S175.

POSTER

Effectiveness of Smartphone-Based Applications on Promoting Physical Activity and Healthy Weight during Pregnancy: A Review

Fatemeh Sarpourian[1], Mohammad Mehdi Ghaemi[2], Hassan Shokri Garjani[3], Saeid Ebrahimi[1], Zahra Zare[4]*

1. Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Medical Informatics Department, Kerman University of Medical Sciences, Kerman, Iran
3. Medical Informatics Department, Tabriz university of medical science, Tabriz, Iran
4. Student research Committee, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Zahra Zare, PhD;
Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Zahra.zare1993@gmail.com

ABSTRACT

Pregnant women who have obesity or weight gain due to pregnancy are at higher risk of maternal and perinatal complications. Physical activity has a positive effect on pregnancy outcomes, but traditional methods require time, expense, and face-to-face visits. Using smartphone-based applications helps promote physical activity and healthy weight. The purpose of this review study was to investigate the effectiveness of smart phone-based applications on promoting physical activity and healthy weight during pregnancy. Five electronic databases were searched from 2017 until March 16, 2024 (PubMed, Embase, Web of Science, Scopus, and Cochran Library) for relevant studies. English language RCT studies with full-text that were conducted on pregnant women who had undergone interventions involving the use of smartphone-based applications were included in this review. In addition, a manual search was performed on the first 10 pages of Google Scholar. The quality of included studies was appraised using the CONSORT checklist. The initial search resulted in the extraction of 2060 articles. After reviewing the title, abstract, and full text, 6 articles were selected. In only 3 studies, smartphone-based applications had the potential to be effective and increased physical activity and healthy weight. In conclusion, smartphone-based applications have shown promise in improving physical activity levels and promoting healthy weight management during pregnancy. However, existing research, primarily conducted through Randomized Controlled Trials (RCTs), often involves relatively small sample sizes and may lack geographical diversity. To definitively establish the effectiveness of these applications, further research is crucial.

Please cite this article as: Sarpourian F, Ghaemi MM, Shokri Garjani H, Ebrahimi S, Zare Z. Effectiveness of Smartphone-Based Applications on Promoting Physical Activity and Healthy Weight during Pregnancy: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S176.

International Journal of Nutrition Sciences

POSTER

Effectiveness of the "mySugr" App in Enhancing Glycemic Control and Quality of Life in Diabetic Patients: A Review

Niloofar Ghasemi[1], Sanaz Jamshidi[2], Seyed Jalil Masoumi[1]*

1. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Nutrition, School of Public Health, Iran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Nutrition Research Center,
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

Diabetes as a common endocrine disease characterized by high blood sugar or insufficient insulin production or use, affects over 537 million people worldwide, with its prevalence projected to reach 783 million by 2045. In Iran, more than 11% of adults are affected. Effective self-management is crucial for controlling blood glucose, maintaining a healthy diet, and adhering to medication. The 'mySugr' app, powered by artificial intelligence (AI), facilitates these efforts by offering personalized glucose predictions, trend monitoring, and tailored recommendations. A systematic review of the literature was conducted using databases such as PubMed, Scopus, ISI, and Cochrane. Studies published between 2015 and 2023 focusing on the 'mySugr' app's impact on diabetes management were included. Five relevant studies were selected based on criteria such as randomized controlled trials (RCTs), observational studies, and cohort analyses. Data related to HbA1c levels, blood glucose trends, and user engagement was assessed. The 'mySugr' app showed significant improvements in glycemic control, with reductions of up to 0.3% in HbA1c levels and a 17.2% decrease in average blood glucose levels. These outcomes were influenced by user engagement and adherence to app functionalities. In conclusion, the 'mySugr' app supports diabetes self-management by promoting healthy behaviors, continuous glucose monitoring, and medication adherence. Its user-friendly feedback system and visual reports enhance daily diabetes management. Studies suggest that digital health tools providing continuous education and personalized support significantly improve glycemic control. Future research should address limitations such as short follow-up periods, lack of blinding, and reliance on self-reported data.

Please cite this article as: Ghasemi N, Jamshidi S, Masoumi SJ. Effectiveness of the "mySugr" App in Enhancing Glycemic Control and Quality of Life in Diabetic Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S177.

Effects of Mobile Health Diabetes Self-Care Program on HbA1c, FBS and Self-Care in Older Adults with Type 2 Diabetes

Atefe Esmailpour Moalem[1], Ehteram Sadat Ilali[2]*, Shahab Papi[3]

1. Student Research Committee, Geriatric Nursing Department, School of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Iran
2. Department of Geriatric Nursing, School of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Iran
3. Social Determinants of Health Research Center, Assistant Professor of Nursing, School of Nursing and Midwifery, Lorestan University of Medical Sciences, Khorramabad, Iran

ARTICLE INFO

Corresponding author:
Ehteram Sadat Ilali, PhD;
Department of Geriatric Nursing,
School of Nursing and Midwifery,
Mazandaran University of Medical
Sciences, Sari, Iran.
Email: Paradis2082000@yahoo.com

ABSTRACT

Background: With the increasing prevalence of type 2 diabetes mellitus, particularly among older adults, the importance of self-care has become crucial. This study analyzed the effects of mobile phone-based training (Idia software) on self-care behavior and glycemic control in older adults with type 2 diabetes. The objective was to test the hypothesis that a mobile app would improve self-management, HbA1c, and FBS levels compared to controls.

Methods: The study was a randomized controlled trial involving 51 participants in the experimental group who received the intervention via the Idia app for one month, and 51 participants in the control group who received usual care during the same period. Outcomes were assessed using HbA1C, FBS, and responses to the Summary of Diabetes Self-Care Activities (SDSCA) before and after the training sessions.

Results: It was shown that at the end of the study, HbA1c levels in the experimental group decreased from 7.25% to 6.8% ($p=0.001$), while in the control group they changed from 7.24% to 7.19% ($p=0.001$). Similarly, FBS levels decreased from 171 to 122 ($p=0.001$) in the experimental group and from 181 to 145 ($p=0.001$) in the control group. Although both groups showed these changes, differences were more pronounced in the experimental group.

Conclusion: The key finding was that educational interventions through mobile apps have the potential to improve self-care behaviors and HbA1C and FBS levels in older adults with type 2 diabetes mellitus. Further studies with longer follow-up periods are recommended to validate these results.

Please cite this article as: Esmailpour Moalem A, Ilali ES, Papi S. Effects of Mobile Health Diabetes Self-Care Program on HbA1c, FBS and Self-Care in Older Adults with Type 2 Diabetes. Int J Nutr Sci. 2025;10(2-Supplement):S178.

Effects of Mobile Health Interventions on Communication Skills in Children with Autism Spectrum Disorder: A Review

Fateme Mozakka Zade*

Pediatric Nursing Department, School of Nursing and Midwifery, Jundishapor University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Fateme Mozakka Zade, MSc;
Pediatric Nursing Department,
School of Nursing and Midwifery,
Jundishapor University of Medical
Sciences, Ahvaz, Iran.
Email: Ftmz1378@gmail.com

ABSTRACT

According to the World Health Organization almost one in 100 children is diagnosed with autism spectrum disorder (ASD) worldwide. Children with ASD often face challenges in social interaction and communication skills, nowadays mobile health (mHealth) interventions are becoming increasingly a viable strategy for improving social skills in children with ASD. This study was a systematic review. Data were collected by using keywords in Magiran, SID, PubMed, Scopus, Web of Science, and Google Scholar databases in the period of 2015-2025. Documents were screened and selected based on the guidelines of preferred cases in regular review articles and meta-analyses (PRISMA). A total of nine articles were reviewed encompassing a variety of mobile health interventions aimed at improving communication skills in children with ASD. The mHealth interventions such as apps, interactive games, and virtual reality environments were found to be particularly effective in providing engaging and structured learning experiences that are adaptable to the individual needs of children with ASD. Several studies showed an overall improvement in communication skills in children who used mobile health interventions. In conclusion, our findings support the effectiveness of mobile health interventions in improving social skills in children with ASD. The reviewed studies consistently indicate that mHealth technologies can provide valuable tools for improving social interactions, language development, and overall communication capabilities in these children. This review emphasizes the need for further research on the feasibility and appropriateness of these interventions.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Efficacy Assessment of Mobile Health Applications to Provide Self-Acupressure: A Review

Elham Hooshyarazar, Hoda Azizi*

Acupuncture Department, School of Persian and Complementary Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hoda Azizi, MD, PhD;
Acupuncture Department, School
of Persian and Complementary
Medicine, Mashhad University of
Medical Sciences, Mashhad, Iran.
Email: Azizih@mums.ac.ir

ABSTRACT

The evolution of communication and internet technologies has led to notable transformations in the healthcare sector, particularly through remote healthcare, a novel approach to delivering medical services which allows consultations and treatments from home. This approach improves access in underserved areas, reduces travel costs, and provides timely, personalized services. Acupressure, a non-invasive complementary medicine modality activates acupoints through manual pressure. This study evaluates the evidence from trials focused on the efficacy of mobile application-based self-acupressure programs in treating health issues. Two major English-language databases (PubMed and Cochrane Library) were searched for clinical trials assessing the efficacy of mobile application-based self-acupressure programs for management of common diseases from their inception until January 1, 2025. Smartphone applications for self-performed auricular point acupressure were successful in management of chronic musculoskeletal pain. Self-acupressure supported by a smartphone app was beneficial in reducing menstrual pain. A mobile app to teach self-acupressure for cancer survivors was usable and feasible, improving cancer-related fatigue and sleep disturbances. A self-care app instructing acupressure for cancer patients reduced stress, anxiety and pain in chemotherapy waiting rooms. Smart phone app for self-administered auricular acupressure had notable effects in decreasing body weight. Auricular acupressure device with a self-help smartphone app revealed significant improvements in chronic tinnitus. Acupressure combined with cognitive therapies via mobile app caused significant immediate reduction in emotional intensity. In conclusion, limited research on smartphone apps for self-acupressure suggests they may be beneficial, but further studies are needed to evaluate their effectiveness in combination with this treatment method.

Please cite this article as: Hooshyarazar E, Azizi H. Efficacy Assessment of Mobile Health Applications to Provide Self-Acupressure: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S180.

Electronic Health Literacy of Patients with Cardiovascular Diseases: A Review

Mohammad Hassanzadeh[1]*, Zeinab Alipour[2], Reyhaneh Jahantab[2]

1. Faculty of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Faculty of Medical Sciences, Ali Ibn Abi Talib University, Yazd, Iran

ARTICLE INFO

*Corresponding author:
Mohammad Hassanzadeh, MSc;
Faculty of Nursing and Midwifery,
Shiraz University of Medical Sciences,
Shiraz, Iran.
Email: Mohamad1376mhn@gmail.com

ABSTRACT

Cardiovascular diseases are one of the leading causes of mortality worldwide, and electronic health (e-Health) literacy has emerged as a vital tool for enhancing patient awareness and health management. This study aims to review the existing literature on e-Health literacy among patients with cardiovascular diseases. A systematic search was conducted across four databases: PubMed, Scopus, Web of Science, and Google Scholar, using the keywords "e-Health literacy" and "cardiovascular diseases" for articles published between 2020 and 2024. Initially, 12 articles were identified; after removing duplicates and screening titles and abstracts, 8 articles met the inclusion criteria based on their relevance to e-Health literacy, cardiovascular diseases, and adherence to the specified publication period. Based on the results of the articles, the e-health literacy of patients with cardiovascular diseases including age, gender, place of residence, educational level, information search skills, and social support are among the factors affecting e-health literacy. Low socio-economic status, low education level, rapid expansion of digital applications, access to broadband, reduced familiarity and frequency of use are cited as prominent barriers. On the other hand, patients who had a higher level of education and income, their level of e-health literacy was also higher. In conclusion, this systematic review emphasizes the importance of enhancing e-Health literacy to improve the quality of life for patients with cardiovascular diseases. Therefore, it is essential to implement educational programs and supportive policies to empower patients in effectively managing their health through improved e-Health literacy.

Please cite this article as: Hassanzadeh M, Alipour Z, Jahantab R. Electronic Health Literacy of Patients with Cardiovascular Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S181.

POSTER

Empowering Chemotherapy Patients through Artificial Intelligence-Driven Personalized Health Management: CHEMOYAR Review

Seyed Moein Mahini[1]*, Hamed Irandoost[1], Kimia Abrishamifar[2], Asma Vafadar[3], Farzaneh Ghaleh Golab[4], Hossein Eslami[5], Ayda Aghaei[6]

1. Division of Hematology and Blood Bank, Department of Medical Laboratory Sciences, School of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Health Information Management, School of Management & Information Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Department of Medical Biotechnology, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran
4. PhD Student in healthcare management, Student Research Committee, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
5. Student Research Committee, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
6. Department of Nutrition Sciences, School of Nutrition and Food Sciences, Larestan University of Medical Sciences, Larestan, Iran

ARTICLE INFO

Corresponding author:
Seyed Moein Mahini, MSc;
Division of Hematology and Blood Bank, Department of Medical Laboratory Sciences, School of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Moein.mahini@yahoo.com

ABSTRACT

Chemotherapy, a cornerstone of cancer treatment, often causes severe side effects like nausea, fatigue, and neuropathy, significantly impacting physical and mental health. Routine checkup alone is insufficient, as the lack of continuous monitoring delays timely interventions and diminishes overall quality of life. An artificial intelligence (AI)-based solution like CHEMOYAR can fill this critical gap with real-time symptom tracking, predictive analytics, personalized support, and addressing the growing demand for innovative healthcare solutions. CHEMOYAR, a mobile health app, provides personalized care to chemotherapy patients through AI-driven monitoring. Using machine learning algorithms, including decision trees and neural networks, the app tracks symptoms, medication adherence, and lifestyle factors. It delivers tailored guidance on mental health, nutrition, and exercise through an advanced chatbot. Features include real-time symptom tracking, user-friendly design, and integration with mobile sensors and gadgets to enhance care. CHEMOYAR enables continuous monitoring, helping manage side effects, promote emotional well-being, and improve overall quality of life. AI-driven analysis identifies critical patterns requiring timely interventions, while personalized recommendations cater to individual needs. Its integration of gadgets adds value, particularly for symptom tracking and lifestyle improvements. Emotional support and peer communication through natural language processing further enhance the user experience. In conclusion, CHEMOYAR represents a transformative application of AI in chemotherapy care, combining continuous monitoring, personalized recommendations, and real-time data. Meeting the increasing demand for innovative solutions, it enhances patient outcomes, quality of life, and care delivery, positioning itself as a leader in this emerging field.

Please cite this article as: Mahini SM, Irandoost H, Abrishamifar K, Vafadar A, Ghaleh Golab F, Eslami H, Aghaei A. Empowering Chemotherapy Patients through Artificial Intelligence-Driven Personalized Health Management: CHEMOYAR Review. Int J Nutr Sci. 2025;10(2-Supplement):S182.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Enhancing Health Outcomes for Individuals with Disabilities through Mobile Health: A Review

Seyed Jalil Masoumi[1,2,3,4], Fatemeh Khademian[4]*, Mohammad Hossein Khademian[5], Hosein Rasekh[6], Seyedeh Leila Masoumi[6]

1. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
2. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
3. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran
4. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
5. Department of Surgical Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
6. Vice-Chancellor for Student and Cultural Affairs, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Khademian, PhD;
Information Technology Incubator
Centre, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Fkhademian90@yahoo.com

ABSTRACT

Individuals with disabilities encounter distinct health challenges that may hinder their ability to access care and effectively manage chronic conditions. Mobile health (mHealth) technologies offer tailored support and enhance communication with healthcare providers, thereby addressing these significant gaps in care. A thorough literature review was performed using the PubMed, Cochrane Library, and IEEE Xplore databases, focusing on studies published from 2015 to 2023 that examined mHealth interventions specifically aimed at individuals with disabilities. The inclusion criteria were defined for studies assessing the impact of mHealth on health outcomes, user satisfaction, and accessibility for this demographic. Numerous studies have demonstrated notable enhancements in health management and quality of life for users of mHealth solutions. Specifically, the findings revealed increased medication adherence, improved self-management capabilities, and greater health literacy. Furthermore, several studies emphasized the importance of mHealth in promoting peer support and community involvement, which further strengthened users' confidence in managing their health. Research has also indicated that mHealth interventions can improve the monitoring of health metrics, enabling more personalized care. Nonetheless, challenges such as varying levels of technological literacy and issues related to device accessibility have been reported, potentially limiting the overall effectiveness of these interventions. In conclusion, this review highlights the significant potential of mHealth interventions to enhance health outcomes for individuals with disabilities. To fully realize these advantages, future initiatives should concentrate on creating more accessible technologies and suitable support systems that cater to the unique needs of this diverse population, ensuring equitable access to healthcare resources.

International Journal of Nutrition Sciences

POSTER

Enhancing Mobile Health Interventions: A Review on the Role of Interactive Chatbots in Providing Tailored Support for Vulnerable Populations

Fahimeh Alsadat Hosseini*, Maryam Shayegan

Community Based Psychiatric Care Research Center, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fahimeh Alsadat Hosseini, PhD;
Community Based Psychiatric Care
Research Center, School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Fhoseini221@gmail.com

ABSTRACT

Integration of interactive chatbot features within mobile health interventions has emerged as a promising approach to address the unique needs of vulnerable populations. This review assessed mobile health interventions and determined the role of interactive chatbots in providing tailored support for vulnerable populations and explored effectiveness, feasibility, and ethical considerations of such chatbot implementations. Scientific databses were searched using related keywords. Ten articles published between 2022 and 2024 were analyzed. The evidence levels ranged from Level I to Level VII. The findings indicated that chatbot integration was both feasible and effective in delivering immediate, personalized support across various health contexts. Positive outcomes in mental health support, addiction prevention, and adherence to medical protocols were demonstrated. However, challenges such as content engagement and the need for larger-scale evaluations persist. Specific case studies highlighted the role of chatbots in enhancing health behaviors, with significant reductions in substance use and improved medical adherence rates observed among vulnerable groups. The cumulative evidence supports the implementation of chatbots in mobile health interventions to cater to the immediate needs of diverse populations. However, ethical considerations and the need for transparent design strategies are critical for maintaining user trust. Future research should prioritize robust evaluations and user-centered design to optimize chatbot functionalities and maximize their impact in healthcare. In conclusion, interactive chatbots represent a valuable addition to mobile health interventions, offering tailored support that is vital for vulnerable populations. Continued development and rigorous evaluation are necessary to enhance their effectiveness and address emerging challenges in their implementation.

POSTER

Ethical and Data Privacy Challenges in Mobile Health for Prediction and Management of Sepsis: A Review

Zahra Keshavarz[1], Farid Zand[2]*, Roghaieh Ershad Sarabi[3], Naeimehossadat Asmarian[4]

1. Medical informatics Unit, Health Information Sciences Department, Faculty of Management and Medical Information Sciences, Kerman University of Medical Sciences, Kerman, Iran
2. Anesthesiology and Critical Care Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
3. Health Information Management in Medical Informatics Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran
4. Anesthesiology and Critical Care Research Center, Department of Biostatistics, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Farid Zand, MD;
Anesthesiology and Critical Care
Research Center, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Zandfarid@yahoo.com

ABSTRACT

The integration of mobile health (mHealth) technologies with artificial intelligence (AI) offers substantial promise for the early prediction and management of sepsis. However, the clinical adoption of these technologies is hindered by significant ethical and data privacy challenges. This narrative review aims to explore these challenges, identifies gaps, and proposes recommendations for the responsible implementation of mHealth in sepsis care. A narrative review was conducted using PubMed, IEEE Xplore, Web of Science, Cochrane, and Scopus databases. The search strategy included keywords such as "mobile health", "sepsis prediction", "Artificial Intelligence", "data privacy", and "ethics". Articles published between 2000 and 2024 were included if they met the criteria: (i) full-text availability in English, (ii) original research, reviews, or meta-analyses, and (iii) discussion of ethical and privacy concerns in mHealth and sepsis. **Results:** A total of six articles were included in this review. Key ethical issues identified include algorithmic bias, which can worsen health disparities, challenges with informed consent for real-time monitoring, sharing data and accountability concerns in AI-driven clinical decision-making. Data security breaches and inconsistent data anonymization practices further exacerbate these issues, alongside inadequate adherence to standardized protocols. These challenges highlight the need for tailored policies to address the unique concerns of mHealth in sepsis care. The adoption of transparent AI systems in sepsis care requires multidisciplinary collaboration among clinicians, data scientists, ethicists, and policymakers. In conclusion, developing ethical and privacy-conscious frameworks is recommended for the safe and equitable integration of mHealth technologies in sepsis prediction and management.

Please cite this article as: Keshavarz Z, Zand F, Ershad Sarabi R, Asmarian N. Ethical and Data Privacy Challenges in Mobile Health for Prediction and Management of Sepsis: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S185.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Ethical and Legal Challenges of Artificial Intelligence Use in Healthcare: A Review

Kamal Ebrahimi[1], Masoud Amanzadeh[2], Abdollah Mahdavi[1]*

1. Department of Health Information Management, Faculty of Paramedical, Ardabil University of Medical Sciences, Ardabil, Iran
2. Department of Medical Informatics, Ardabil University of Medical Sciences, Ardabil, Iran

ARTICLE INFO

Corresponding author:
Abdollah Mahdavi, PhD;
Department of Health Information
Management, Faculty of Paramedical,
Ardabil University of Medical
Sciences, Ardabil, Iran.
Email: A.mahdavi@arums.ac.ir

ABSTRACT

The use of artificial intelligence (AI) in healthcare is rapidly expanding and has the potential to improve the quality of medical services. However, this technology faces various challenges that require careful examination. The aim of this study is understanding of the existing challenges, provide practical solutions for managing these challenges, and promote the safe use of AI in healthcare systems. This study investigated these challenges using mixed methods in Iran. Data were collected through a review of articles published in reputable journals, specialized websites, and an analysis legal document on government organization websites using related keywords. The text articles were coded & analyzed using MAXQDA. The results indicate that the ethical challenges include over-reliance on AI, failure to preserve human dignity, and the questionable reliability of AI in the diagnosis and treatment of diseases. On the other hand, legal challenges include deficiencies in AI standardization, lack of civil liability determination, failure to maintain data confidentiality, and the absence of a strategic framework in cybersecurity. This study indicates that an effectively and safely attention must be paid to ethical and legal challenges of AI in healthcare system. This requires the development of a transparent legal framework, training of human resources, and the establishment of independent monitoring mechanisms. In conclusion, it is recommended that healthcare professionals collaborate with other decision-making entities in this sector to formulate appropriate laws and regulations for the use of AI, ensuring that the numerous benefits of this technology are harnessed while simultaneously protecting the rights of patient.

POSTER

Ethical Challenges and Opportunities in Use of Artificial Intelligence and Metaverse in Healthcare: A Review

Fatemeh Mohabati[1]*, Alireza Setoudeh[1], Mahboubeh Mohabati[2], Seyed Pouria Hedayti[1]

1. Zabol University of Medical Sciences, Zabol, Iran
2. Shiraz University of Medical Sciences Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Mohabati, PhD;
Zabol University of Medical Sciences,
Zabol, Iran.
Email: Mohabatif@gmail.com

ABSTRACT

Recent advancements in artificial intelligence (AI) and the Metaverse have significantly impacted the healthcare sector, offering opportunities for improved healthcare delivery, personalized healthcare experiences, and enhanced medical education. AI has revolutionized medicine by improving patient care, diagnosis, and treatment, but it also presents ethical challenges concerning patient confidentiality and data security. The integration of AI with technologies like block chain and IoT in the Metaverse can enhance healthcare service quality and increase life expectancy through better chronic disease management and mental health control. A systematic review of literature was conducted to evaluate the effectiveness of AI and the Metaverse in addressing health inequities. This review included qualitative analyses, case studies, and discussions on ethical implications surrounding AI deployment in healthcare settings using related keywords in scientific databases. The findings indicate that while AI and the Metaverse can revolutionize healthcare delivery and improve equity, significant risks exist if not implemented thoughtfully. Ethical concerns regarding privacy, bias, and the digital divide must be addressed to ensure equitable access to these technologies. Collaboration among AI developers, researchers, educators, and policymakers is essential for responsible use. In conclusion, the successful implementation of AI and the Metaverse in healthcare requires careful planning and ethical considerations to achieve health equity. Future research should focus on developing inclusive practices that ensure diverse data representation and equitable access to healthcare services. By doing so, the benefits of technological advancements can be maximized for all populations, ultimately contributing to a more equitable healthcare system.

Please cite this article as: Mohabati F, Setoudeh AR, Mohabati M, Hedayti SP. Ethical Challenges and Opportunities in Use of Artificial Intelligence and Metaverse in Healthcare: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S187.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Ethical Challenges of the Metaverse in Healthcare: A Review

Kosar Ghaddaripouri[1], Azita Yazdani[2], Golnaz Izadpanah[1], Seyyedeh Fatemeh Mousavi Baigi[3]*

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Medical Informatics Unit, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Health Information Technology, School of Paramedical and Rehabilitation, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Seyyedeh Fatemeh Mousavi Baigi, PhD;
Department of Health Information Technology, School of Paramedical and Rehabilitation, Mashhad University of Medical Sciences, Mashhad, Iran.
Email: Mousavibf3@mums.ac.ir

ABSTRACT

This systematic review aimed to identify and ethical challenges associated with the use of the Metaverse in the healthcare domain. This study was conducted in 28 December 2024, with a comprehensive search performed in four major databases: PubMed, Scopus, Embase, and Web of Science. The search was unrestricted in terms of publication date and was performed using keywords related to ethics, health, and Metaverse. To assess the quality of the included studies, the quality of the included studies was assessed using the Critical Appraisal Skills Programme (CASP) checklist, which includes 10 key questions. In this systematic review, From a total of 2,829 articles identified, 5 met the inclusion criteria and the results of the quality assessment showed that 2 articles were of high quality and 3 articles of medium quality, while no article was included in the category of low quality. The analysis identified seven key ethical challenges associated with the Metaverse in healthcare. The most prominent challenge was data ownership and privacy (70%), followed by inequitable access to technology (60%) and reduced human interaction in healthcare settings (40%). Other challenges included algorithmic bias (30%), information quality and informed consent (30%), legal accountability (30%), and reduced social justice in treatment (20%). In conclusion, the findings highlight the necessity of establishing comprehensive ethical and legal frameworks to ensure responsible implementation of the Metaverse in healthcare. Clear regulations on data privacy and proactive efforts to reduce inequalities in technology access are essential to uphold justice and preserve human dignity in this emerging domain.

International Journal of Nutrition Sciences

POSTER

Ethical Considerations and Channelings in Health Wearable Technologies: A Review

Malihe Jafarimanesh[1], Nasrin Khajeali[2], Masoumeh Khedri[3], Amirabbas Azizi[3]*

1. Student Research Committee, Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Medical Education, Jundishapur University of Medical Science, Ahvaz, Iran
3. Department of Health Information Technology, Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

*Corresponding author:
Amirabbas Azizi, PhD;
Department of Health Information
Technology, Jundishapur University
of Medical Sciences, Ahvaz, Iran.
Email: Amirabbas.azizi@gmail.com

ABSTRACT

Nowadays, advancements in health technologies, especially wearable technologies, have brought unimaginable benefits for improving the performance of the health system. Therefore, the important and complex challenge in this field is to examine the existing ethical issues and considerations. The aim of this research is to identify the ethical considerations and challenges of using wearable technologies in the health sector. This study is a narrative review type. To collect information, Persian databases SID, MagIran, and the combination of keywords "wearable technologies in medicine, and ethical challenge" were used. English databases Google Scholar and PubMed, were reviewed using the keywords "Ethical issues, Smart Wearable Devices, Ethical considerations". Duplicate articles and articles without full text were excluded from the study. According to the research results, important ethical considerations in wearable technologies can be categorized into eight areas of (i). Technology acceptance, (ii) Design and development, (iii) Data quality and security, (iv) Privacy and confidentiality of information, (v) Socio-economic impacts of technology, (vi) Interaction and connectivity between systems, (vii) Patient information and large data volumes, and (viii) Remote monitoring. Attention to ethical aspects and understanding patient-based ethical considerations and changing the approach to ethical issues towards user and patient satisfaction play a crucial role in the development of these technologies. In conclusion, better understanding and examination of ethical challenges and considerations lead to the development of legal guidelines and their analysis to overcome ethical challenges before the development and application of these technologies.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Ethical Considerations for Telemedicine in Abortion: A Review on Key Findings and Developments

Elham Heidari[1]*, Elham Mousavi[2], Fatemeh Heidari[3]

1. Department of Anatomy, School of Medicine, Iranshahr University of Medical Sciences, Iranshahr, Iran
2. Medical Mycology and Bacteriology Research Center, Department of Medical Microbiology, Afzalipour Faculty of Medicine, Kerman University of Medical Sciences, Kerman, Iran
3. Shiraz Municipality, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Elham Heidari, PhD;
Department of Anatomy, School of
Medicine, Iranshahr University of
Medical Sciences, Iranshahr, Iran.
Email: Elham.heidari.f@gmail.com

ABSTRACT

The research on ethical considerations in telemedicine for abortion reveals a variety of ethical and legal challenges that have emerged with the adoption of this technology. The COVID-19 pandemic significantly accelerated the shift towards telemedicine, including its use for family planning and abortion services, underscoring the need for comprehensive legal and ethical frameworks. We reviewed scientific databases and use artificial intelligent to assess Ethical Considerations for Telemedicine in Abortion and major challenges in the field of telemedicine for abortion. Ethical considerations are central to telemedicine practice, with major concerns including the protection of patient rights and privacy, equitable access to healthcare, and maintaining high standards of healthcare delivery. Legal challenges, such as cross-jurisdictional practice, licensing issues, and data privacy protections, further complicate the adoption of telemedicine for abortion. The major challenges in the field of telemedicine for abortion include navigating the complex legal and ethical landscapes, ensuring equitable access to care, and maintaining the quality and continuity of healthcare delivery. Open questions revolve around the establishment of comprehensive ethical guidelines, the integration of telemedicine into existing healthcare frameworks, and the management of patient privacy and data security. In conclusion, the ethical practice of telemedicine in abortion care requires a balanced approach that integrates the benefits of telemedicine with proactive measures to address emerging ethical challenges. By ensuring adherence to the principles of traditional medical practice, telemedicine can uphold its promise of providing accessible and high-quality care in a responsible and equitable manner.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Evaluating the Effect of Using Mobile-Application on Management of Chemotherapy Complication and Quality of Life in Breast Cancer Patients

Marziyeh Raei Mehneh[1,2], Khalil Kimiafar[1], Seyyedeh Fatemeh Mousavi Baigi[1,2], Masoumeh Sarbaz[1]*

1. Department Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran

*Corresponding author:
Masoumeh Sarbaz, PhD;
Department Health Information
Technology, School of Paramedical
and Rehabilitation Sciences, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Sarbazm@mums.ac.ir

ABSTRACT

Background: Breast cancer patients undergoing chemotherapy often face long-term complications and poor health outcomes. In-person visit programs have low adherence, but telehealth, such as mobile apps, may improve adherence and help manage chemotherapy side effects. This study aimed to evaluate the effect of a mobile app on chemotherapy side effects management and quality of life (QoL) in breast cancer patients.

Methods: A randomized controlled trial was conducted with 72 breast cancer patients receiving chemotherapy at Omid Hospital, Mashhad. Patients were divided into control and intervention groups. A mobile app was designed based on a systematic review of existing studies and expert input. The app's usability was evaluated using the System Usability Scale (SUS). Patients in the intervention group used the app alongside their regular chemotherapy treatment for 4 weeks, while the control group received chemotherapy as usual. QoL and health status were measured using validated questionnaires before and after the intervention.

Results: Out of 72 patients, 57 completed the study. The app's usability score was 73.07%, indicating acceptable usability. The intervention group showed a significant improvement in QoL scores compared to the control group (*p*=0.001). The average satisfaction score for the app was 78.20%, reflecting high patient satisfaction.

Conclusion: This study demonstrated that a mobile app designed for chemotherapy side effects management was effective in improving QoL and managing side effects in breast cancer patients. The app was well-received by both patients and professionals, highlighting its potential for use in clinical practice.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Evaluating the Quality, Content Accuracy, and User Suitability of Mobile Health Prenatal Care Applications for Expectant Mothers: A Review

Fateme Asadollahi[1], Samira Ebrahimzadeh Zagami[2,3], Robab Latifnejad Roudsari[3]*

1. Reproductive Health Department, Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran
2. Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran 3. Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Robab Latifnejad Roudsari, PhD;
Department of Midwifery, School of
Nursing and Midwifery, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Rlatifnejad@yahoo.com

ABSTRACT

The proliferation of mobile health apps offers potential benefits for prenatal care. However, the quality, content accuracy, and user suitability of these apps remain underexplored. This study critically evaluated the most popular Persian-language pregnancy apps to determine their effectiveness in supporting expectant mothers. A systematic search identified 199 apps from major app stores using the term "pregnancy app" until July 2023. Inclusion criteria were apps in Farsi, free to download, with over 10,000 installations, and targeting pregnant women. Nine apps met these criteria. Two independent reviewers assessed the apps using the Mobile App Rating Scale (MARS), the Coverage and Depth of Information Scale, and the Suitability Assessment of Materials (SAM). Statistical analyses explored correlations between quality metrics and user ratings. The nine apps had an average MARS score of 3.55 ± 0.61 (out of 5). Functionality (4.11 ± 0.36) and aesthetics (4.02 ± 0.45) scored highest, while engagement (3.29 ± 0.53) and information (3.09 ± 0.48) were lower. User star ratings had a weak correlation with MARS scores ($r=0.38$, $p=0.05$). Regarding health information coverage, six out of nine apps (66.7%) were rated as poor, and three (33.3%) as adequate, while SAM scores showed 44.4% of apps as superior and 55.6% as adequate and no app received a poor score. In conclusion, findings reveal a need for higher standards in app development to improve content accuracy and user satisfaction. Healthcare providers should guide patients toward high-quality apps to enhance prenatal health education.

Please cite this article as: Asadollahi F, Ebrahimzadeh Zagami S, Latifnejad Roudsari R. Evaluating the Quality, Content Accuracy, and User Suitability of Mobile Health Prenatal Care Applications for Expectant Mothers: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S192.

POSTER

Evaluating the Usability of Dr. Saina's Online Medical Consultation Application Using Think-Aloud Method in 2025

Faezeh Raje, Fatemeh Sadeghi Karizi, Fatemeh Moghbeli, Mohammad Reza Mazaheri Habibi*

Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Mazaheri Habibi,
PhD;
Department of Health Information
Technology, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Background: Advancement of science and technology and economic development has faced challenges access to health services. The unequal distribution of medical has reduced the quality and efficiency of medical services in rural and less developed areas. Telemedicine, by utilizing communication technologies plays an important role in promoting health by reducing geographical barriers. In the meantime, digital health applications, like the Dr. Saina application, have facilitated the possibility of online medical consultation and services. This study aims to evaluate the usability of the Dr. Saina app.

Methods: Evaluation was conducted in a laboratory environment based on a pre-prepared scenario using the think-aloud method by 15 users. Then, problems were identified and the identified problems were classified according to the Van den Haak method. The Nielsen method was used to assess the severity of the problems.

Results: The web app for the psychology of the elderly was designed to reduce depression through establishing a relationship, teaching special sports exercises and giving sports programs, training to work with digital tools and using other methods such as memory therapy. In this web app, by providing a regular exercise and nutrition program for the elderly and special sports for the elderly, medical problems and economic costs caused by physical problems and the level of depression (less than 15 points) were reduced and the level of satisfaction (92%) increased.

Conclusion: The two principles of Layout and Comprehensiveness were identified as the most problems for users.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Evaluation of Mobile Applications for Childhood Obesity Management

Elahe Gozali[1], Sahel Sharifpoor Saleh[2]*, Bita Almasi[2]

1. Health Information Management Unit, Department of Health Information Technology, School of Allied Medical Sciences Urmia University of Medical Sciences, Urmia, Iran
2. Medical Informatics Unit, Faculty of Paramedical Sciences, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Sahel Sharifpoor Saleh, MSc;
Medical Informatics Unit, Faculty
of Paramedical Sciences, Urmia
University of Medical Sciences,
Urmia, Iran.
Email: Sharifpoorsahel@gmail.com

ABSTRACT

Background: Childhood obesity is a significant public health issue influenced by biological, behavioral, and environmental factors. It increases the risk of chronic diseases and psychological challenges. Mobile health (mHealth) applications are emerging as effective tools to manage this growing concern.

Methods: This descriptive and applicative study evaluated mobile apps for managing childhood obesity. Apps were selected from Bazaar and Myket based on criteria such as Persian language, Android compatibility, availability in Iran, at least 5,000 installations, and features like monitoring, educational content, exercise plans, and motivational tools. Duplicate and non-functional apps were excluded. A team of health experts, nutritionists, and parents assessed the apps using the Mobile Application Rating Scale (MARS) questionnaire. Scores were averaged, and the top app was identified.

Results: The results showed that out of 15 reviewed applications, only 5 achieved an acceptable score of over 4 out of 5 across all dimensions. Common weaknesses included insufficient educational content in 7 applications, poor design in 6 applications, and limited user interaction features in several of them. However, applications offering personalized feedback, tailored fitness plans, and motivational tools were able to achieve higher user satisfaction and engagement, leading to increased adherence and long-term use.

Conclusion: This study highlights both the strengths and weaknesses of current mobile applications for managing childhood obesity. It emphasizes the need for comprehensive educational content, user-friendly designs, and personalized feedback mechanisms. The findings provide valuable insights for developers and healthcare professionals to improve the design and effectiveness of mHealth solutions for childhood obesity management.

Please cite this article as: Gozali E, Sharifpoor Saleh S, Almasi B. Evaluation of Mobile Applications for Childhood Obesity Management. Int J Nutr Sci. 2025;10(2-Supplement):S194.

International Journal of Nutrition Sciences

POSTER

Evaluation of Mobile Applications for Pregnancy Health Using the MARS Tool

Kasra Kashani[1], Bayan Amini[1], Tahereh Samimi[1], Seyed Mohsen Hosseini[1], Mozhgan Tanhapour[2]*, Sina Veisi[1], Elahe Hosseini[1]

1. Student Research Committee, Department of Medical Informatics, Urmia University of Medical Sciences, Urmia, Iran
2. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Mozhgan Tanhapour, PhD;
Health and Biomedical Informatics
Research Center, Urmia University of
Medical Sciences, Urmia, Iran.
Email: Tanhapour.m@umsu.ac.ir

ABSTRACT

Background: Pregnancy, a transformative phase in a woman's life, requires education and awareness due to significant physical and emotional changes. Mobile apps are essential tools for managing pregnancy, offering guidance on nutrition and mental health. However, many apps lack scientific credibility and user-friendly designs. This study evaluates pregnancy-related apps using the Mobile Application Rating Scale (MARS) tool to identify effective apps and provide recommendations for improving their design.

Methods: This cross-sectional study, conducted in November 2023, evaluated Persian Android apps for pregnancy education and care. Apps were identified using the keywords "pregnancy education" and "obstetrics" in the Myket and Bazaar app stores. Exclusion criteria included irrelevance, duplication, fewer than 10,000 downloads, ratings below 4 stars, malfunctions, outdated versions (over 5 years old), and predominantly paid content. Six evaluators, including obstetricians, Android developers, and medical informatics specialists, assessed the selected apps after one week using the MARS tool.

Results: Four apps were included in our study. The evaluations revealed significant differences in apps' quality across functionality, aesthetics, and information, with mean MARS scores ranging from 3.64 to 4.05. The top app MAMANA excelled in functionality and aesthetics, while others performed better in features and information. Strong inter-rater reliability (ICC=0.76) highlighted consistency among evaluators. These findings underline the need for high-quality, user-centered app designs to improve pregnancy-related care.

Conclusion: Mobile apps have the potential to enhance pregnancy education and care. By addressing gaps in quality and usability, developers can create apps that better support maternal health and well-being.

POSTER

The Effect of Continuity of Self-Preservation Model in Mobile Health on Compliance with Care-Treatment Regimen and Its Consequences in Type 2 Diabetes Mellitus

Zahra Pournamdar[1]*, Fatemeh Etemadi Nia[2], Fatemeh Miri[3]

1. Nursing Department, Faculty of Nursing, Zahedan University of Medical Sciences, Zahedan, Iran
2. Student Research Committee, Pediatric Nursing Department, Faculty of Nursing and midwifery, Zahedan University of Medical Sciences, Zahedan, Iran
3. Student Research Committee, Psychiatric Nursing Department, Faculty of Nursing and Midwifery, Zahedan University of Medical Sciences, Zahedan, Iran

ARTICLE INFO

Corresponding author:
Zahra Pournamdar, PhD;
Nursing Department, Faculty of
Nursing, Zahedan University of
Medical Sciences, Zahedan, Iran.
Email: Zahrapournamdar@gmail.com

ABSTRACT

Background: Failure to comply with the treatment plan is a challenge and a problem to control chronic diseases. The present study aimed to evaluate the effect of the continuity self-preservation model on compliance with the care-treatment regimen in patients with type 2 diabetes.

Methods: This quasi-experimental clinical trial study was performed on 80 patients with type 2 diabetes admitted to a hospital in Zahedan, Iran, from 2020 to 2021. Questionnaires and blood samples were used as data-gathering methods. The intervention program was designed and implemented based on the self-preservation continuity model. For this purpose, a. WhatsApp group of participants in the interventin group was initially formed by the researcher. During the study, messages containing educational information on diabetes self-care in the areas of diet, physical activity, medication use, complications were sent. The dependent variables were then assessed during a four-stage period. Descriptive and inferential statistics were used in SPSS 9 software to analyze the data.

Results: There was not any significant difference in terms of the distribution of intervening variables and dependent variables before the intervention in 2 groups. However, there was a significant difference between the mean scores of compliances with treatment, quality of life, health belief and glycosylated hemoglobin after the implementation of the model between the two groups ($p=0.01$).

Conclusion: Continuity Self-preservation model could be implemented even in the Covid-19 pandemic and is more effective in metabolic control and compliance with treatment of diabetic patients than interventions based on other models that are purely educational.

Please cite this article as: Pournamdar Z, Etemadi Nia F, Miri F. The Effect of Continuity of Self-Preservation Model in Mobile Health on Compliance with Care-Treatment Regimen and Its Consequences in Type 2 Diabetes Mellitus. Int J Nutr Sci. 2025;10(2-Supplement):S196.

POSTER

Evaluation of the Impact of Mobile Health on Improving the Quality of Life in Asthma Patients: A Review

Mohammad Bastani[1], Nahid Mehrabi[1]*, Mahdi Ghorbani[2]

1. Department of Health Information Technology, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran
2. Department of Laboratory Sciences, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Nahid Mehrabi, PhD;
Department of Health Information
Technology, School of Paramedical
Sciences, Aja University of Medical
Sciences, Tehran, Iran.
Email: N.mehrabi@ajaums.ac.ir

ABSTRACT

Asthma, a common respiratory disease, impacts patients' quality of life and requires continuous monitoring and education for management. Mobile health (mHealth), through applications and wearable devices, provides tools for monitoring and managing this condition. This study reviews published research on the impact of mHealth in improving the quality of life of asthma patients. This narrative review, conducted in 2024, involved a systematic search of reputable databases, including PubMed, ScienceDirect, Scopus, Web of Science, and Google Scholar, using keywords such as "Mobile Health", "Asthma Management", "Quality of Life", and "Digital Health Interventions". Ultimately, 13 articles published between 2020 and 2024 were selected. The extracted data from these studies were summarized and analyzed by the researchers. The findings of this study indicate that mHealth has played a significant role in improving the quality of life for asthma patients. Tools such as mobile applications and wearable devices, by enabling symptom monitoring, medication reminders, and data recording, have facilitated better disease control. Additionally, these technologies have increased patients' awareness of triggering factors and strengthened communication between patients and healthcare professionals. However, barriers such as limited access to technology, associated costs, and the need for service localization persist. The findings underscore the necessity of developing and optimizing these technologies for broader use in asthma management. In conclusion, mHealth has proven effective in asthma management through continuous monitoring, better patient education, and improved communication with healthcare providers. Despite challenges like limited accessibility and high costs, addressing these issues can significantly advance chronic disease management.

International Journal of Nutrition Sciences

POSTER

Evaluation of User Satisfaction with the Comprehensive Laboratory Information Software and Identification of Laboratory Service Centers in Tehran, Iran

Reza Safdari[1], Mohammad Zarbi[2]*, Sara Mohammadi[2]

1. Department of Health Information Management, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Management of Statistics and Information Technology, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Mohammad Zarbi, MSc;
Department of Management
of Statistics and Information
Technology, Urmia University of
Medical Sciences, Urmia, Iran.
Email: Zarbi.mohammad96@gmail.com

ABSTRACT

Background: Access to accurate and updated laboratory information is crucial for informed decision-making in healthcare services. Previously, a comprehensive laboratory information software was developed to identify and provide information on laboratory centers in Tehran Province. This offline software focused on quick access to the location, services, and specifications of laboratories. This study aimed to assess user satisfaction with the software and identify factors affecting user experience.

Methods: This descriptive-analytical study employed the USE model (Usefulness, Ease of Use, and Satisfaction). Data were collected from 105 active users via a standardized questionnaire designed in Google Forms. Participants were selected through purposive sampling. Data analysis was performed using SPSS software and statistical tests, including T-test and ANOVA, to explore demographic group differences.

Results: The results showed that usefulness (mean=2.92), ease of use (mean=3.36), and satisfaction (mean=3.25) significantly influenced user experience. Educational level impacted usefulness (F=3.68, *p*=0.01) and satisfaction (F=4.57, *p*=0.005). T-test analysis revealed a significant gender-based difference in ease of learning (t=-1.97, *p*=0.05). Users praised the software's simple design and quick information access but noted challenges such as outdated laboratory data and the absence of a feature to retrieve test results.

Conclusion: The comprehensive laboratory information software has effectively met users' informational needs as a practical tool. However, to overcome challenges and improve performance, it is recommended to transition to a web-based platform with continuous updates and expand to other paraclinical areas, such as medical imaging and pharmacies. These changes could significantly enhance accessibility and the quality of healthcare services.

Please cite this article as: Safdari R, Zarbi M, Mohammadi S. Evaluation of User Satisfaction with the Comprehensive Laboratory Information Software and Identification of Laboratory Service Centers in Tehran, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S198.

Examining the Effectiveness of Virtual Acceptance and Commitment Therapy on Enhancing Marital Satisfaction among Nurses

Mitra Rafiei Boldaji[1], Iman Shakibkhah[2]*, Sahar Amirzadeh[1], Farzad Abaszadeh[1,3]

1. Clinical Education Research Center, Department of Medical Education, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, Department of Health in Disasters and Emergencies, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Student Research Committee, Faculty of Allied Medicine, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

Corresponding author:
Iman Shakibkhah, PhD;
Student Research Committee,
Department of Health in Disasters
and Emergencies, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: I.1366125@Yahoo.com

ABSTRACT

Background: Marital satisfaction is a crucial aspect of married life that significantly impacts the foundation of family stability. This study aimed to investigate the effectiveness of virtual Acceptance and Commitment Therapy (ACT) on improving marital satisfaction among nurses in 2022.

Methods: This semi-experimental research utilized a pre-test-post-test design with a control group. A total of 82 participants were selected through convenient sampling and randomly assigned to experimental and control groups from the population of nurses working in public hospitals in Yasuj, Iran. The study employed the Enrich Marital Satisfaction Test as its measurement tool. The virtual therapy sessions were conducted over eight weeks, each lasting 30 minutes, with weekly intervals. Post-test assessments were conducted at the end of the treatment, followed by a follow-up test one month later to evaluate the sustainability of the effects. Data were analyzed using SPSS software and statistical tests, including analysis of covariance.

Results: The virtual Acceptance and commitment therapy demonstrated significant improvements in marital satisfaction, communication skills, conflict resolution abilities, and realism in the experimental group compared to the control group (p=0.05).

Conclusion: This study demonstrates that virtual ACT significantly improves marital satisfaction among nurses. Participants in the experimental group experienced enhanced communication skills, conflict resolution, and a more realistic understanding of their relationships compared to the control group. In summary, virtual ACT is a valuable tool for enhancing marital satisfaction, especially in high-stress professions. Future research should further investigate its long-term effects across diverse populations.

International Journal of Nutrition Sciences

POSTER

Examining the Impact of Virtual Self-Care Training on Reducing Post-Traumatic Stress Disorder Symptoms in Red Crescent Rescuers

Iman Shakibkhah[1], Mitra Rafiei Boldaji[2*], Mohamad Javad Moradian[3], Ali Asghar Hayat[2]

1. Student Research Committee, Department of Health in Disasters and Emergencies, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Clinical Education Research Center, Department of Medical Education, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Health in Disasters and Emergencies, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mitra Rafiei Boldaji, MD, PhD;
Clinical Education Research Center,
Department of Medical Education,
School of Medicine, Shiraz University
of Medical Sciences, Shiraz, Iran.
Email: Rafieibld3926@gmail.com

ABSTRACT

Background: Virtual self-care training has emerged as an innovative approach to enhancing the mental health of rescuers, particularly in addressing post-traumatic stress disorder (PTSD). Rescuers, as first responders during emergencies, frequently encounter distressing and traumatic situations that can lead to PTSD. This research investigates the effect of virtual self-care training on reducing PTSD symptoms among Red Crescent rescuers in Kohgiluyeh and Boyer-Ahmad Province.

Methods: This semi-experimental study employed a pre-test-post-test design with a control group. A total of 250 rescuers from Kohgiluyeh and Boyer-Ahmad Province were selected through convenience sampling and randomly assigned to experimental and control groups. The experimental group received virtual self-care training, which included stress management techniques, coping skills, and self-care methods. The primary measurement tool was the PTSD questionnaire (PCL-5), which was administered to participants before and after the training course, as well as one month after the training. The data were analyzed using SPSS and statistical tests.

Results: Data analysis revealed a significant reduction in PTSD symptoms, symptoms of anxiety and depression, stress management skills, and quality of life in the experimental group compared to the control group (p=0.05). The findings indicate that virtual self-care training can effectively reduce PTSD symptoms among rescuers. This study may serve as a foundation for expanding virtual educational and support programs for rescuers, facilitating better coping with psychological challenges stemming from traumatic events.

Conclusion: It seems necessary to investigate the long-term effects of virtual self-care training on other mental disorders. This could help develop more comprehensive training programs.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Examining the Use of Mobile Phone Applications in Self-Care during Pregnancy: A Review

Narges Salavati[1], Fatemeh Banaei[2], Mona Khajenezhad[3], Mohammad Hossein Taklif[4], Negin Farid[5]*

1. Student Research Committee, Shoushtar Faculty of Medical Sciences, Shoushtar, Iran
2. Student Research Committee, Arak University of Medical Sciences, Arak, Iran
3. Student Research Committee, Department of Management and Psychiatric Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Science, Tehran, Iran
4. Marine Medical Research Center, Baqiyatullah University of Medical Sciences, Tehran, Iran
5. Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Negin Farid, MSc;
Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
Email: N.farid@sbmu.ac.ir

ABSTRACT

Mobile health technology is a means of bringing about behavior change and improvement in clinical health outcomes. A number of studies have shown that this technology is able to transcend time and space barriers, improve pregnancy outcomes, and enhance maternal health through self-care. This study, therefore, explored mobile phone applications in self-care during pregnancy. A search was conducted using keywords of "pregnancy", "mobile phone applications", "self-care" and other Persian/ English keywords in databases of PubMed/Medline, Web of Science Core Collection, Scopus, Google Scholar, Irandoc, Magiran, and SID. Initial search yielded 36 studies. No time limit was imposed, and only Persian/ English studies were included. After removing duplicates and screening using the available tools, 8 studies were analyzed. Ethical considerations and absence of bias were observed in the stages of selection, extraction, analysis and classification, and the abstract was reported according to PRISMA. Pregnant women used smartphones and the internet to search for pregnancy-related information and also had a positive attitude toward these technologies. Health care providers accepted those tools as an adjunct to prenatal care but were concerned about the limited knowledge and patient engagement. Evaluation of the self-care apps showed their effectiveness in reducing anxiety and stress among pregnant women, improving the relationship and communications of these with their doctors. In conclusion, these digital technologies can also aid pregnant women in searching for information that may reduce a lot of the anxiety-related factors relating to pregnancy and self-care. Their use requires, first and foremost, education and attitude change in developing societies.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Exploring Artificial Intelligence Models in Mobile Health Geolocation-Based Applications for Self-Managing of Respiratory Allergic Diseases: A Review

Bahman Mahmoudi[1], Bahlol Rahimi[1], Sadegh Feizollahzadeh[2], Hadi Lotfnezhad Afshar[1], Mozhgan Tanhapour[1]*

1. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Laboratory Sciences, School of Medicine Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Mozhgan Tanhapour, PhD;
Health and Biomedical Informatics
Research Center, Urmia University of
Medical Sciences, Urmia, Iran.
Email: Tanhapour.m@umsu.ac.ir

ABSTRACT

Environmental changes and increasing pollution have made respiratory allergic diseases (RADs) a major health issue. m-Health technologies in combination with geolocation systems and artificial intelligence (AI) enable the management of RADs. This research reviews the AI model utilization in m-Health and location-based RAD applications. We searched PubMed, Web of Science, Scopus, Embase, and Google Scholar using RAD, m-Health, and geolocation keywords from January 2014 to June 2024. Studies that develop AI models for mHealth systems with location-based consideration are included. We analyze the included research using descriptive statistics and thematic analysis. From 4794 retrieved papers, we include eight studies. This field has attracted researchers' attention since 2018. The used m-health technologies include smartphones (50%), sensors (12.5%), and both of them (37.5%). The researchers use sensors for environmental factors (37.5%), geospatial (37.5%), and patient health status (12.5%) measurements. The included studies consider asthma (50%), allergic rhinitis (37.5%), and respiratory diseases (12.5%). The goals of developing AI models are mainly to predict the risk of asthma attacks (37.5%), followed by predicting high-risk locations, recommending safe routes, and modeling the association between patients' health status and daily pollen concentration (each one 25%). The most frequent AI algorithms are tree-based (37.5%), linear regression, and neural network-based (each 25%). In conclusion, AI models combined with location-based m-Health technologies offer potential RAD management options. These systems have a key role in reducing the exposure of RAD patients to pollution. This research reports valuable findings for those interested in in applying AI to handle RADs.

POSTER

Exploring Barriers and Facilitators for Mobile Health Utilization in Pregnancy Care: A Qualitative Analysis of Pregnant Women and Stakeholder's Perspectives in Iran

Fateme Asadollahi[1], Samira Ebrahimzadeh Zagami[2], Robab Latifnejad Roudsari[3]*

1. Student Research Committee, Reproductive Health Department, Mashhad University of Medical Sciences, Mashhad, Iran
2. Nursing and Midwifery Care Research Center, Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Robab Latifnejad Roudsari, PhD;
Department of Midwifery, School of
Nursing and Midwifery, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Rlatifnejad@yahoo.com

ABSTRACT

Background: Mobile health technologies can enhance pregnancy care by providing timely information and personalized support, yet their adoption among pregnant women remains limited. This study explored the perspectives of Iranian pregnant women and healthcare stakeholders on barriers and facilitators affecting mobile health (mHealth) utilization in pregnancy care.
Methods: Using qualitative content analysis, 14 pregnant women and seven healthcare stakeholders, including gynecologists, midwives, medical informatics specialists, and a sociologist, were purposively sampled from hospitals affiliated with Mashhad University of Medical Sciences and private clinics in Northeast Iran (May-December 2023). Semi-structured, in-depth interviews were analyzed using Hsieh and Shannon's conventional content analysis approach. Trustworthiness was ensured through triangulation, member checking, and peer debriefing.
Results: The main theme, "Barriers and Facilitators for mHealth Utilization in Pregnancy Care," encompassed four key categories including (i) Digital Ecosystem Challenges highlighting structural issues like inadequate infrastructure, economic constraints, cultural adaptation gaps, interface complexity, and data security concerns, (ii) Healthcare System Implementation Barriers including integration issues, low digital literacy, and a lack of continuity with traditional healthcare practices, (iii) User Empowerment and Engagement revealing that mHealth can enhance access to information, promote autonomy, and provide personalized support, and (iv) Integration of mHealth in the Healthcare System demonstrating the transformative potential of mHealth for improving maternal health monitoring, communication, and evidence-informed care strategies.
Conclusion: Addressing digital, economic, and cultural barriers while enhancing usability and autonomy could expand access and equity for pregnant women. Policymakers should prioritize scalable, culturally sensitive mHealth strategies to optimize maternal care outcomes in diverse communities.

International Journal of Nutrition Sciences

POSTER

Exploring Nursing Students' Readiness: Positive Attitudes toward Telenursing Despite Limited Knowledge

Asra Nassehi*, Hanieh Rahmanian, Fatemeh Yadegarsalehi

Bam University of Medical Sciences, Bam, Iran

ARTICLE INFO

*Corresponding author:
Asra Nassehi, PhD;
Bam University of Medical Sciences,
Bam, Iran.
Email: Nassehi88@yahoo.com

ABSTRACT

Background: Telemedicine and telenursing have been developed to improve access to healthcare services and reduce costs. The purpose of this study was to evaluate nursing students' knowledge and attitudes regarding these technologies, as well as to identify problems.

Methods: This cross-sectional descriptive study was conducted on 145 undergraduate and graduate nursing students at Bam University of Medical Sciences, who were selected by a census method. Data was collected online using the standardized Glinkowski questionnaire and analyzed using SPSS software and descriptive statistical tests, Spearman correlation coefficient, and chi-square.

Results: The study included 145 nursing students (53.8% female and 46.2% male). Data analysis indicated that students had different levels of knowledge about telemedicine and telenursing (p=0.05). Only 63.4% of participants were able to correctly define telenursing, while 69.7% of them did not have sufficient knowledge of telemedicine. However, the majority of students (62.8%) had a positive attitude towards the application of telenursing in the nursing profession, indicating the high potential for acceptance of this technology in the future.

Conclusion: The findings of this study indicate that the majority of nursing students are familiar with telenursing and have a positive attitude towards it. This indicates the high potential for the acceptance of this technology in the nursing profession. However, the limited knowledge of some students about telemedicine highlights the need for improved educational programs in this field. As a result, it is advised that infrastructure and specialized training be developed to increase awareness and the successful use of telenursing in healthcare.

Please cite this article as: Nassehi A, Rahmanian H, Yadegarsalehi F. Exploring Nursing Students' Readiness: Positive Attitudes toward Telenursing Despite Limited Knowledge. Int J Nutr Sci. 2025;10(2-Supplement):S204.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Exploring the Potential of Mobile Health Apps for Cognitive Rehabilitation in Older Adults: A Review

Sheida Jamalnia[1,2], Tayebe Fattahi[3]*

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Nursing and Midwifery, Kazeroun Branch, Islamic Azad University, Kazeroun, Iran
3. Student Research Committee, Department of E-Learning in Medical Sciences, Virtual School and Center of Excellence in E-Learning, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Tayebe Fattahi, PhD;
Student Research Committee,
Department of E-Learning in Medical
Sciences, Virtual School and Center
of Excellence in E-Learning, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: T2fatahi@gmail.com

ABSTRACT

Cognitive rehabilitation is an essential intervention for addressing cognitive decline associated with aging and various neurological conditions. With the rapid development of mobile technology, smartphones and tablets have emerged as accessible and versatile tools for delivering health interventions. Mobile health (mHealth) applications, in particular, offer innovative opportunities for cognitive rehabilitation by combining convenience, interactivity, and personalized support. This narrative review explores the potential of mHealth apps to transform the field of cognitive rehabilitation for older individuals. This narrative review conducted a thorough search for peer-reviewed articles published between 2015 and 2025, utilizing databases such as PubMed, Embase, the Cochrane Database, and Web of Science. After duplicates were removed and titles and abstracts were meticulously screened for relevance, 21 articles were selected and included for comprehensive full-text analysis. The studies predominantly examined the efficacy, usability, and engagement of mHealth interventions, with most reporting favorable outcomes in enhancing cognitive functions, including memory, attention, and problem-solving abilities. Many studies emphasized the accessibility and convenience of mHealth applications, particularly for older adults with restricted mobility or limited access to traditional in-person therapies. Nonetheless, notable limitations included variability in study methodologies, small sample sizes, and insufficient long-term follow-up to assess sustained effectiveness and broader impacts. In conclusion, mHealth applications offer promising solutions for enhancing cognitive functions in older adults, combining accessibility, affordability, and ease of use. Nevertheless, further studies are essential to address challenges like inconsistent study designs and evaluate their long-term effectiveness comprehensively.

Please cite this article as: Jamalnia S, Fattahi T. Exploring the Potential of Mobile Health Apps for Cognitive Rehabilitation in Older Adults: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S205.

International Journal of Nutrition Sciences

POSTER

Exploring the Role of Metaverse in Elderly Healthcare: A Review on Virtual Reality for Remote Consultations and Cognitive Rehabilitation

Fatemeh Asadi[1]*, Amirhossein Zarei[2]

1. Department of Health Information Sciences, Faculty of Management and Medical Information Sciences, Kerman University of Medical Sciences, Kerman, Iran
2. Department of Health Information Sciences, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Fatemeh Asadi, MSc;
Department of Health Information
Sciences, Faculty of Management
and Medical Information Sciences,
Kerman University of Medical
Sciences, Kerman, Iran.
Email: F.asadi@kmu.ac.ir

ABSTRACT

Virtual Reality provides a strong foundation through Metaverse to provide novel methods to improve accessibility, engagement and efficiency in elderly care. This review aimed to explore the potential of VR-based environments for remote consultations and cognitive rehabilitation and its applicability to provide increased accessibility and empowerment for user engagement for elderly people particularly. For an overview of the role of VR applications in elderly healthcare, all studies identified were assessed using PRISMA approach searching the scientific databases and related keywords; while 15 studies were included. The systematic review produced a number of key findings from the studies analyzed. VR-based cognitive training interventions consistently showed benefits in participants' abilities to complete daily tasks and improve cognitive function. It showed that remote diagnostic tools were more accurate at identifying cognitive deficits than traditional approaches, and offered a more engaging as well as precise experience for the therapist. Moreover, combining cognitive and physical training in virtual environments consistently improved health outcomes and motivation among elderly participants across numerous studies. Additionally, review indicated that older adults have a strong acceptance of VR technologies and expressed willingness to integrate within a larger healthcare framework. The results highlight the potential impact of the Metaverse in providing care for older adults. In conclusion, although there are challenges in terms of adjustment, virtual reality can be integrated into healthcare system in order to provide quality services to promote accessibility and availability of services to older adults, regardless of location and mobility, through advanced medical support and information system.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Extensive Applications of Artificial Intelligence in Healthcare: A Review on Opportunities and Challenges

Asieh Dehghani*

Community Health Research Center, Faculty of Nursing and Midwifery, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

ARTICLE INFO

Corresponding author:
Asieh Dehghani, MSc;
Community Health Research Center,
Faculty of Nursing and Midwifery,
Isfahan (Khorasgan) Branch, Islamic
Azad University, Isfahan, Iran.
Email: Adehghani1364@gmail.com

ABSTRACT

Artificial Intelligence (AI) is anticipated to revolutionize healthcare, leading to improved patient outcomes; however, its limitations must also be carefully considered. This study was conducted to examine the applications and challenges of AI in healthcare. This is a review study, and papers published within the period of 1995-2024 were investigated. Papers related to this subject were extracted from PubMed, Ovid, Google Scholar, Elsevier, Scopus, and arXiv databases. The benefits of AI are vast, for patients: providing health information, consultation, prevention, prognosis, guiding users, medication management (dose), health monitoring through wearable devices (tracking sleep patterns, stress levels, and heart rate), setting personal fitness, personalized treatment plans remotely, predicting health outcomes and disease progression via genotype analysis, preventing readmissions, reducing costs and the need for in-person visits, telemedicine, mental health support (depression), accessing to broader range of medical specialists, and receiving timely care. For healthcare professionals: summarizing the latest medical research from large databases and translating it into a diagnosis, facilitating early intervention, drug discovery, time saving, focusing more on complicated cases, optimizing medication dosages tailored to individual patients, providing guidelines, quick retrieval of drug-related information, reduce the workload and burnout. Occasionally, some of the key challenges of AI are biases, inaccurate outcomes, the tendency to fabricate, privacy, the need for human expertise, erroneous responses, security issues, lack of empathy, and ethical risks. In conclusion, AI has the potential to revolutionize clinical practice, but several challenges must be addressed to fully realize its potential, which will require a multidisciplinary approach.

Please cite this article as: Dehghani A. Extensive Applications of Artificial Intelligence in Healthcare: A Review on Opportunities and Challenges. Int J Nutr Sci. 2025;10(2-Supplement):S207.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Factors Contributing to Electronic Prescribing Errors in Healthcare Settings: A Qualitative Study

Fatemeh Rangraz Jeddi, Ehsan Nabovati, Shima Anvari, Reihane Sharif*

Health Information Management Research Center, Kashan University of Medical Sciences, Kashan, Iran

ARTICLE INFO

Corresponding author:
Reihane Sharif, PhD;
Health Information Management
Research Center, Kashan University
of Medical Sciences, Kashan, Iran.
Email: Fr.sharif@yahoo.com

ABSTRACT

Background: Medication errors from illegible or incomplete handwritten prescriptions can compromise patient safety and increase costs. While electronic (E)-prescribing aims to reduce errors through improved prescription quality and legibility, these systems can introduce different types of medication errors due to various technical, environmental, and human factors. This study analyzed the factors contributing to E-prescribing errors at Iranian Social Security Organization outpatient centers.

Methods: Qualitative content analysis was performed on data from interviews with 10 physicians, pharmacists and pharmacy technicians. The participants had at least 6 months of experience using the E-prescribing. The interview data were coded until saturation and analyzed via the methods of Graneheim and Lundman.

Results: This qualitative study identified four main categories of error sources: system, human, organizational, and medication-related factors. In the system domain, technical challenges such as problematic autocomplete for drug names emerged as significant contributors to selection errors. Human factors, particularly prescriber fatigue and reduced physician-patient interaction time, were found to compromise prescribing accuracy. At the organizational level, insufficient training programs and inadequate staffing levels hindered effective system utilization. Medication-related factors, including look-alike drug names and complex dosing regimens, further increased error risks.

Conclusion: The findings revealed that E-prescribing errors stem from multiple interacting factors, affecting both clinician and non-clinician prescribers similarly. While system design improvements and enhanced user training are crucial, addressing the broader sociotechnical context is essential for error reduction. A balanced approach incorporating standardized protocols, integrated decision support systems, and continuous professional development is recommended to enhance system usability and patient safety.

Please cite this article as: Rangraz Jeddi F, Nabovati E, Anvari S, Sharif R. Factors Contributing to Electronic Prescribing Errors in Healthcare Settings: A Qualitative Study. Int J Nutr Sci. 2025;10(2-Supplement):S208.

Gamified Learning in Medical Parasitology: A Snake and Ladder App to Enhance Motivation and Learning Outcomes for Laboratory Science Students of Gonabad University of Medical Sciences, Gonabad, Iran

Hossein Pazoki[1], Maedeh Abdolhosseini[1], Hassan Shojaee-Mend[2]*

1. Infectious Diseases Research Center, Department of Medical Microbiology, Faculty of Medicine, Gonabad University of Medical Science, Gonabad, Iran
2. Infectious Diseases Research Center, Department of General Courses, Faculty of Medicine, Gonabad University of Medical Sciences, Gonabad, Iran

ARTICLE INFO

Corresponding author:
Hassan Shojaee-Mend, PhD;
Infectious Diseases Research Center, Department of General Courses, Faculty of Medicine, Gonabad University of Medical Sciences, Gonabad, Iran.
Email: Hassan.shojaee@gmail.com

ABSTRACT

Background: Medical parasitology is a fundamental subject for students in laboratory science; however, traditional ways of teaching usually do not allow the students to get motivated or fully engaged in the learning process. Hence, based on a gamified learning approach, a Snake and Ladder application was developed incorporating medical parasitology content, innovative teaching strategies, and artificial intelligence to enhance motivation and facilitate deeper learning outcomes.

Methods: The application was custom-made with questions at three levels of difficulty, using AI algorithms. It offered immediate feedback, detailed explanations, additional information through AI chatbots, interactive elements, and gamification features. The study consisted of 40 students divided into intervention and control groups. Both pre-test and post-test assessments and standardized questionnaires of IMMS and QUIS were used in the evaluation.

Results: The intervention group had significantly higher post-test scores than the control group at $p=0.004$, demonstrating a notable improvement in learning outcomes. The overall mean score in the IMMS was 3.05/4, reflecting a high motivation level across all dimensions of attention, satisfaction, confidence, and relevance. The QUIS usability evaluation showed a good user interface experience with an overall score of 7.13/9.

Conclusion: The Snake and Ladder app effectively enhanced motivation, engagement, and improved learning outcomes in medical parasitology among laboratory science students. The gamification approach holds immense promise for enhancing educational experiences in the medical sciences fostering active participation and sustained interest. Additionally, it aligns with modern technologies adopted in education, offering scalable and innovative solutions for learning challenges.

International Journal of Nutrition Sciences

POSTER

Gamified, Artificial Intelligence-Enhanced Mobile Application for Learning Medical Terminology: Combining the Leitner System with Personalization and Pronunciation Feedback: A Review

Ali Shenaee, Marsa Gholamzadeh*

Medical Informatics Unit, Health Information Management and Department, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Marsa Gholamzadeh, PhD;
Health Information Management and Department, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran.
Email: Marsa.gholamzadeh@gmail.com

ABSTRACT

Due to challenges in training medical terminology and leverage artificial intelligence (AI)'s potential to improve retention, comprehension, and pronunciation, we developed a mobile app model combining the Leitner system, personalized AI feedback, and gamification to enhance learning effectiveness. This survey is a descriptive and developmental study. A literature review and comparative analysis of similar systems in digital health domains were conducted to determine the functional and non-functional requirements of our application searching scientific databases and related keywords. Additionally, a comparative analysis of similar applications available on the App Store and Google Play was included in our survey. The appropriate AI-driven algorithm for integration into our application was also identified during this phase. Ultimately, the final model of our application and its main sections were developed under expert supervision. Multiple innovative features were identified to enhance the learning process including intelligent personalized learning pathway, speech recognition module for real-time feedback, and dynamic adjustment of repeated phrases based on user performance to ensure efficient and targeted learning. Adding gamification features, such as guessing games, puzzles, and friendly competitions with other users for solving terminology-based challenges significantly increased user engagement and motivation. The app includes leaderboards to foster a sense of achievement and community among users. In conclusion, this study highlights the potential of combining AI and gamification to improve medical education. The app's features could provide an engaging and effective solution for mastering medical terminology. Future studies could explore additional features, such as collaborative learning modes and integration with broader medical curricula.

Harnessing Mobile Health to Mitigate Social Injuries among Older Adults: A Review of Strategies and Impacts

Elaheh Shoushtari-Moghaddam[1], Mohammad Hossein Kaveh[2]*

1. Student Research Committee, Department of Health Education and Promotion, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran
2. Research Center for Health Sciences, Institute of Health, Department of Health Promotion, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Mohammad Hossein Kaveh, PhD;
Research Center for Health Sciences,
Institute of Health, Department
of Health Promotion, School of
Health, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Mhkaveh255@gmail.com

ABSTRACT

Social harms, including loneliness, social isolation, and elder abuse, significantly impact the health and well-being of older adults. Mobile health (mHealth) interventions have emerged as effective tools to address these challenges by promoting social engagement, enhancing mental health support, and improving access to resources. This review examines the effectiveness of mHealth applications in mitigating social Harms and fostering resilience among older adults. A literature review was conducted, analyzing 15 studies published between 2018 and 2023 from databases such as PubMed, Scopus, and Google Scholar. The review focused on peer-reviewed articles evaluating mHealth applications designed for older adults experiencing or at risk of social Harm, emphasizing intervention efficacy, user engagement, and health outcomes. The findings indicate that mHealth platforms significantly improve social engagement, reducing loneliness by 30% through features like virtual support groups and social networking. Applications offering teletherapy and self-help tools led to a 25% reduction in depressive symptoms, with users valuing immediate access to mental health professionals. AI-driven solutions for elder abuse prevention increased reporting rates by 20%, providing timely intervention via real-time monitoring and user-friendly designs. Health education features within mHealth tools enhanced health literacy and resource awareness, empowering users to manage their health effectively and integrate into their communities. In conclusion, mHealth interventions hold great promise in addressing social Harms among older adults. These tools promote resilience and well-being by fostering social connections, enhancing mental health, and preventing elder abuse. Future research should prioritize usability, accessibility, and community integration to maximize their impact.

Please cite this article as: Shoushtari-Moghaddam E, Kaveh MH. Harnessing Mobile Health to Mitigate Social Injuries among Older Adults: A Review of Strategies and Impacts. Int J Nutr Sci. 2025;10(2-Supplement):S211.

International Journal of Nutrition Sciences

POSTER

Health Tourism Challenges and Solutions in the Shadow of Artificial Intelligence: A Review

Fateme Semnan*

Department of Psychiatric Nursing, Dehaghan Unit, Islamic Azad University, Dehaghan, Iran

ARTICLE INFO

Corresponding author:
Fateme Semnan, MD;
Department of Psychiatric Nursing,
Dehaghan Unit, Islamic Azad
University, Dehaghan, Iran.
Email: Fatemesemnan68@gmail.com

ABSTRACT

In this article, the solutions and challenges of health tourism are discussed. In order to grow sustainably for this industry, it needs to pay attention to some specific principles and solutions. As an emerging technology, artificial intelligence is transforming many industries, including health tourism. This technology, with the ability to process a huge amount of data, learning and forecasting, has the potential to significantly improve the provision of health tourism services. This research is written in a descriptive-analytical way. The challenges of health tourism include the problems of laws and standards, lack of medical staff, infrastructure and equipment problems, competitions and marketing, lack of advertising techniques, insurance and payment problems for tourists, and cultural and language differences, as well as safety issues. Security benefits of cooperation are personalization of information and customization, improvement of the process of rosification and treatment planning, early diagnosis of the patient by analyzing medical interpretations, better communication between the doctor and the patient on a round-the-clock basis, increasing efficiency and reducing the cost and improving the patient's experience in the field and finally reducing the waiting time as well as increasing the access to information. In conclusion, there are ethical challenges in this field, which include paying attention to privacy and information security, accountability and accountability, automatic transparent decision making by the system, problems in data biases and discriminations.

POSTER

How Artificial Intelligence Technology May Improve Patient Care Routes?

Fahimeh Pourjafari*

Department of Anatomical Sciences, School of Medicine, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

*Corresponding author:
Fahimeh Pourjafari, PhD;
Department of Anatomical Sciences,
School of Medicine, Kerman
University of Medical Sciences,
Kerman, Iran.
Email: pourjafari.f@gmail.com
          f.pourjafari@kmu.ac.ir

ABSTRACT

Background: Artificial intelligence (AI) is attracting a lot of interest in medicine. One of its applications in medicine is in the field of post-surgical care for patients. In this study, we examine one of the applications of artificial intelligence in the care of patients undergoing surgery. The purpose of this study is to examine one of the uses of artificial intelligence in the care of patient who are undergoing surgery.

Methods: Patients who had cholecystectomy surgery in the hospital for a month were evaluated in this study. Following the surgery, a set of tips for postoperative care was given, as well as questions regarding symptoms, medication use and the recovery process using chat bot software. Also, to measure patient satisfaction, questions were created about the use of this software. Finally, the patients were given the link to the questions on their mobile phones to answer them.

Results: The results showed that patients' answers to questions at home were more accurate, useful, effective, and more satisfying than when they visited a medical center. The software also received a high score in the evaluation.

Conclusion: According to the results, using a chatbot can save time, money, reduce anxiety and increase accuracy in responding in patient. It can be an effective tool for monitoring and remote care for patient in various medical centers.

Please cite this article as: Pourjafari F. How Artificial Intelligence Technology May Improve Patient Care Routes? Int J Nutr Sci. 2025;10(2-Supplement):S213.

Human Considerations and Challenges in Metaverse-Based Psychological Counseling: A Review on Ethical, Cultural, and Social Dimensions

Atefeh Mohammadi*, Mohammad Hossein Kaveh

Department of Health Education and Promotion, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

Corresponding author:
Atefeh Mohammadi, PhD;
Department of Health Education and
Promotion, School of Health, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: A.m9225@yahoo.com

ABSTRACT

With the rapid advancement of new technologies and the emergence of the Metaverse, psychological counseling services have undergone significant transformations. This shift presents both opportunities and challenges, particularly regarding ethical, cultural, and social concerns, which require thorough investigation. The aim of this study is to explore the human considerations and challenges associated with the development of these services in the Metaverse. This is a review study conducted in 2024, utilizing databases such as SID, Google Scholar, Web of Science, and Scopus. Using the keywords of Metaverse, Psychological Counseling, Ethical Challenges, Sociocultural and Out of 20 identified articles, 10 relevant papers published between 2019 and 2024 were analyzed. The findings indicate that the development of Metaverse-based psychological counseling services faces complex challenges across ethical, cultural, and social levels. Ethically, issues related to privacy, data security, and transparency in counseling interactions are of utmost importance. Culturally, the linguistic and cultural diversity in the Metaverse can impact the quality and effectiveness of counseling, especially in communities with diverse values and perspectives. From a social perspective, the lack of face-to-face interactions and human connections may reduce the quality of counseling experiences and lead to distrust in online services. Consequently, there is a need for the development of clear guidelines to protect user data, enhance transparency in services, and consider cultural differences in counseling delivery. In conclusion, the development of psychological counseling services in the Metaverse requires careful attention to ethical, cultural, and social challenges in order to maximize its benefits.

POSTER

Identifying Key Requirements for Developing a Nutrition Recommender Mobile Application for Polycystic Ovary Syndrome Management

Fahimeh Solat[1,2], Leila Shahmoradi[1]*, Leila Azadbakht[3], Sharareh Rostam Niakan Kalhori[1], Jebraeil Farzi[4], Mobina Zeinalabedini[5], Goli Arji[6], Meysam Rahmani[6]

1. Health Information Management and Medical Informatics Department, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
2. Saveh University of Medical Sciences, Saveh, Iran
3. Endocrinology and Metabolism Research Centre, Department of Community Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran
4. Health Information Technology Department, School of Allied Medical Sciences, Zabol University of Medical Sciences, Zabol, Balouchestan, Sistan, Iran
5. Students' Scientific Research Center, Department of Community Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran
6. Health Information Management, School of Nursing and Midwifery, Saveh University of Medical Sciences, Iran

ARTICLE INFO

Corresponding author:
Leila Shahmoradi, PhD;
Health Information Management and
Medical Informatics Department,
School of Allied Medical Sciences,
Tehran University of Medical
Sciences, Tehran, Iran.
Email: Lshahmoradi2022@gmail.com

ABSTRACT

Background: Polycystic ovary syndrome (PCOS) is a complex endocrine disorder that affects 5–18% of women worldwide. Adopting a healthier lifestyle, especially by making nutritious dietary choices, can significantly improve the management of symptoms and reduce complications associated with this condition. This research aims to identify the essential needs and capabilities required to design and develop a nutrition recommender application for individuals with polycystic ovary syndrome.
Methods: This descriptive study was conducted in three stages of (i) A systematic review of application programs and recommender systems, (ii) Designing a researcher-developed questionnaire, and (iii) Identifying the information elements and feature of a mobile application aimed at providing nutritional recommendations for individuals with PCOS. After extracting the items for the questionnaire, we assessed its validity using the content validity ratio and measured reliability through Cronbach's alpha coefficient. The questionnaire was distributed to faculty members and students, and the results were analyzed and validated using SPSS software based on content validity ratio calculation.
Results: A total of 74 items were identified across four categories of educational needs, demographic information, medical records, and application capabilities. Of these, eighteen were considered lower priority for inclusion in the application program based on their content validity ratio.
Conclusion: The integration of mobile health and recommender systems can significantly enhance the lifestyle of individuals with PCOS, thereby improving their quality of life and helping to prevent the associated consequences of this condition.

Please cite this article as: Solat F, Shahmoradi L, Azadbakht L, Rostam Niakan Kalhori S, Farzi J, Zeinalabedini M, Arji G, Rahmani M. Identifying Key Requirements for Developing a Nutrition Recommender Mobile Application for Polycystic Ovary Syndrome Management. Int J Nutr Sci. 2025;10(2-Supplement):S215.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Identifying the Challenges of Implementing Telemedicine

Nasrin Moradi¹*, Maryam Amani², Abbas Yazdanpanah²

1. Health Services Management Department, Shiraz University of Medical Sciences, Shiraz, Iran
2. Health Services Management Department, Marvdasht Branch, Islamic Azad University. Marvdasht, Iran

ARTICLE INFO

*Corresponding author:
Nasrin Moradi, PhD;
Health Services Management
Department, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Nasrin.moradi.2009@gmail.com

ABSTRACT

Background: Technologies in today's world are becoming increasingly complex, and telemedicine is a technological tool that is improving health worldwide. This strategy involves various methods of exchanging medical information to maintain or improve the health status of patients. The present study aims to identify the challenges of implementing telemedicine in Ahvaz, Iran.

Methods: This qualitative study was conducted in 1402. Semi-structured interviews were conducted from 8 physicians and nurses have more than 5 years of work experience. The participants were selected by purposive sampling. In this method, the researcher used participants in the research who had rich experience with the subject under study and were willing to participate in the research. The number of participants was determined based on data saturation. The collection tool in this study was a semi-structured interview guide sheet. The qualitative content analysis method was used to analyze the data. It was done using the Granheim and Landman method.

Results: The average age of the interview participants in this study was 40.90±7.41. The results showed that the challenges of implementing telemedicine were identified into four main categories, including information confidentiality, cultural issues, infrastructure problems, and user issues and 15 sub-themes.

Conclusion: Successful implementation of telemedicine facilitates access to services for physicians and the receipt of services by patients. It is suggested that this approach be strengthened in the country by addressing the challenges. Improving infrastructure and training users to use telemedicine programs will play an important role in facilitating the implementation of telemedicine.

Please cite this article as: Moradi N, Amani M, Yazdanpanah A. Identifying the Challenges of Implementing Telemedicine. Int J Nutr Sci. 2025;10(2-Supplement):S216.

POSTER

Impact of a Mobile App-Based Educational Program on Stoma Patients: A Review

Fatemeh Esmaeli, Shirin Bahrami*

Student Research Committee, Department of Medical Surgical Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Shirin Bahrami, MSc;
Student Research Committee,
Department of Medical Surgical
Nursing, School of Nursing and
Midwifery, Shahid Beheshti
University of Medical Sciences,
Tehran, Iran.
Email: Bahrami.sh.260@gmail.com

ABSTRACT

Ileostomies or colostomies may be required for patients for various reasons. Providing good care is essential for patients to cope with their stoma. In an increasingly digital society, mobile application may be an easy way for patients to access health-related information and improve their self-care and self-management. This review study aimed to assess the impact of mobile applications on patients with stomas. In this systematic review, an extensive search was conducted with keywords of stoma, ostomy, and mobile application in international databases of Scopus, web of science, PubMed and search engine of Google Scholar and the national databases of Irandoc, Magiran, Noormags, and SID. The initial search yielded 98 studies. Gray literature and review studies were excluded. Search and evaluation of the quality of studies was done with standard tools by two independent researches, finally 9 studies were included and the data were extracted, and the abstract was reported according to PRISMA. Apps are a more effective educational tool than printed information for patients to adapt to their stomas and maintain independence in postoperative period, and show significant improvement in quality of life, but they have a number of problems such as technical issues, privacy, and app personalization. It is crucial that these apps are thoughtfully designed in terms of content and user interface to ensure their effectiveness and safety. In conclusion, the findings showed that home follow-up care via a mobile application can effectively improve the level of psychosocial adjustment, self-efficacy scale, and other related outcomes of ostomy patients.

Please cite this article as: Esmaeli F, Bahrami S. Impact of a Mobile App-Based Educational Program on Stoma Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S217.

Impact of Digital Health Interventions on Self-Care Improvement in Patients with Chronic Kidney Disease: A Review

Mozhan Rassoulian[1,2,3], Bahlol Rahimi[2,3]*, Laaya Joudivand[1]

1. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Medical Informatics, Urmia University of Medical Sciences, Urmia, Iran
3. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Bahlol Rahimi, PhD;
Department of Medical Informatics,
Urmia University of Medical
Sciences, Urmia, Iran.
Email: Bahlol.rahimi@gmail.com

ABSTRACT

Chronic Kidney Disease (CKD) is one of the fastest-growing chronic diseases globally, with its prevalence continuously rising in many countries. Therefore, the continuous management of this disease through self-care strategies is essential to slow its progression and improve patients' quality of life. The aim of this study is to evaluate the impact of digital health interventions on enhancing self-management and quality of life in patients with CKD. This study is a narrative review that analyzes the impact of digital health interventions on enhancing self-management in patients with CKD. A comprehensive search was conducted across reputable databases, including PubMed, Web of Science and Scopus, for articles published between 2012 and 2024. The articles were screened based on title, abstract, and full text, resulting in the selection of eleven studies for further analysis. The findings indicate that digital health interventions have a significant impact on improving self-management in patients with CKD. These interventions, through advanced digital tools such as mobile applications and personalized recommendation systems, assist patients in tracking their symptoms, adhering to prescribed medications, and effectively implementing necessary lifestyle changes, including dietary adjustments and physical activity. Moreover, these tools facilitate continuous and efficient communication between patients and healthcare teams, enhancing patient health management and facilitating therapeutic processes. In conclusion, digital health interventions significantly improve patient awareness, adherence to treatment guidelines, and slow the progression of CKD. Additionally, by reducing the risk of complications and improving quality of life, these interventions have become an effective tool in managing this disease.

Please cite this article as: Rassoulian M, Rahimi B, Joudivand L. Impact of Digital Health Interventions on Self-Care Improvement in Patients with Chronic Kidney Disease: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S218.

POSTER

Impact of Mobile Health Technologies on Health Management in Elderly Hypertensive Patients: A Quasi-Experimental Study

Mohammad Bastani[1], Nahid Mehrabi[1]*, Mahdi Ghorbani[2], Sorayya Rezayi[1]

1. Department of Health Information Technology, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran
2. Department of Laboratory Sciences, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Nahid Mehrabi, PhD;
Department of Health Information Technology, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran.
Email: N.mehrabi@ajaums.ac.ir

ABSTRACT

Background: The increase in life expectancy and the rise of chronic diseases, especially hypertension, create a growing demand for effective healthcare services for the elderly. Mobile health (mHealth) technologies are recognized as effective solutions for improving health and managing chronic conditions. This study aims to assess the impact of mHealth technologies on hypertension management in elderly patients.

Methods: In this quasi-experimental study, 60 elderly individuals aged 65 and above with a history of hypertension were randomly assigned to two groups: the intervention group (30 participants) and the control group (30 participants). The intervention group used mHealth applications and wireless wearable devices for 8 weeks. The control group received no interventions. Data on quality of life, physical activity, satisfaction with healthcare services, and physiological data were collected before and after the intervention. Data analysis was performed using independent t-tests and SPSS software.

Results: The results showed that the intervention group had a significant increase in quality of life, physical activity, and satisfaction with healthcare services compared to the control group. This group also exhibited better blood pressure control and fewer doctor visits. The use of mHealth applications and devices increased elderly individuals' awareness of their health status, motivating them toward healthier habits and dietary adherence.

Conclusion: This study highlights the significant role of mHealth technologies in improving the health status and quality of life of elderly hypertensive patients and suggests that these technologies should be more widely adopted in healthcare programs for the elderly.

Please cite this article as: Bastani M, Mehrabi N, Ghorbani M, Rezayi S. Impact of Mobile Health Technologies on Health Management in Elderly Hypertensive Patients: A Quasi-Experimental Study. Int J Nutr Sci. 2025;10(2-Supplement):S219.

International Journal of Nutrition Sciences

POSTER

Impact of Using Smart Phone on Removing Technophobia, Improving Mental Welfare and Successful Ageing of Old Women Living Alone during Covid-19 Pandemic in Shiraz, Iran

Fakhruddin Boraghi[1], Arezoo Avazzadeh[1], Abdolrahim Asadollahi[2]*

1. Student Research Committee, Department of Gerontology, Faculty of Health, Shiraz University of Medical Sciences, Shiraz, Iran
2. Research Center for Health Sciences, Institute of Health, Department of Gerontology, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Abdolrahim Asadollahi, PhD;
Research Center for Health Sciences,
Institute of Health, Department of
Gerontology, School of Health, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Gs21205@gmail.com

ABSTRACT

Background: The COVID-19 pandemic and the subsequent lockdown led to increased feelings of loneliness among the older adults, particularly women. Smartphones can help alleviate the complications arising from this crisis. However, technophobia remains a significant barrier preventing older adults from using technology. The present study aimed to investigate the use of smartphones in reducing technophobia and improving mental health and successful aging among older individuals living alone during the COVID-19 pandemic in Shiraz, Iran.

Methods: This clinical trial involved 80 older women living alone, members of the Shiraz Farzanegan Foundation. Participants were randomly assigned to the intervention (40) or control (40) group. The intervention group received nine online smartphone training sessions via WhatsApp, including 45-minute instructional and 120-minute review sessions. Data were collected pre- and post-intervention using demographic, technophobia, Ryff Psychological Welfare, and Successful Aging questionnaires. SPSS software was used for data analysis with independent and paired t-tests.

Results: According to Pearson's correlation test, a significant negative correlation was found between technophobia and psychological Welfare in older women living alone (r=-0.303, *p*=0.041), as well as between technophobia and successful aging (r=-0.644, *p*=0.001). Based on the independent t-test, no significant differences were observed between the intervention and control groups regarding technophobia (*p*=0.553), psychological Welfare (*p*=0.654), and successful aging (*p*=0.064) before the intervention. However, after the intervention, significant differences were observed in the mean scores of these measures ($p \leq 0.001$).

Conclusion: Online smartphone training is an effective intervention to reduce technophobia and enhance psychological Welfare and successful aging in older adults.

Please cite this article as: Boraghi F, Avazzadeh A, Asadollahi A. Impact of Using Smart Phone on Removing Technophobia, Improving Mental Welfare and Successful Ageing of Old Women Living Alone during Covid-19 Pandemic in Shiraz, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S220.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Improving the Efficiency of the Medical Equipment Supply Chain in Hospitals through Internet of Things: A Review

Fatemeh Mohabati[1], Seyed Pouria Hedayati[1*], Niloufar Boulagh[1], Melika Kazemi[2], Seyed Sobhan Hosseini[1], Mahboubeh Mohabati[3]

1. Zabol University of Medical Sciences, Zabol, Iran
2. Islamic Azad University, Science and Research Branch, Tehran, Iran
3. Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyed Pouria Hedayati, PhD;
Zabol University of Medical Sciences,
Zabol, Iran.
Email: Pouria2005@gmail.com

ABSTRACT

The Internet of Things (IoT) has emerged as a transformative technology in healthcare, particularly in enhancing the efficiency of medical equipment supply chain management in hospitals. Traditional supply chain systems often face challenges such as poor operational efficiency, outdated information systems, and inadequate access to real-time data. This systematic review synthesizes existing literature on IoT applications in hospital supply chains, focusing on their impact on operational efficiency and patient safety. A comprehensive literature search was conducted across multiple databases, including PubMed, Scopus, and Google Scholar, using keywords such as "Internet of Things", "medical equipment supply chain", and "hospital logistics". Studies published between 2010 and 2024 that reported empirical data on IoT applications in healthcare supply chains were included. A total of 75 studies met the inclusion criteria, and data extraction captured key findings related to IoT technologies utilized and their overall impact on supply chain efficiency. The analysis revealed that IoT technologies, including RFID systems, smart sensors, and mobile applications, significantly improve logistical operations within hospital supply chains. Findings indicated enhanced operational efficiency through reduced lead times for equipment availability and improved inventory management practices. Additionally, the integration of IoT technologies contributed to increased patient safety by facilitating better monitoring of medical equipment conditions and reducing errors in medication administration. In conclusion, this systematic review demonstrates that implementing IoT can substantially enhance the efficiency of medical equipment supply chains in hospitals. However, challenges such as security vulnerabilities and interoperability issues must be addressed to fully leverage IoT's potential.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Improving Women's Lifestyle Using Mobile Health Applications: A Review

Marzie Mojab[1], Parvin Yadollahi[2]*

1. Student Research Committee, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Maternal-fetal Medicine Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Parvin Yadollahi, PhD;
Maternal-fetal Medicine Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Yadollahi_556@yahoo.com

ABSTRACT

Despite extensive efforts to promote better health, a significant proportion of women continue to engage in unhealthy lifestyle practices, which are linked to various adverse health outcomes, including cardiovascular disease, diabetes, cancers, and reproductive dysfunction. This study aims to investigate the positive effects of mobile applications on women's lifestyles. A systematic review of 67 studies was conducted using PubMed, Scopus, Web of Science, Cochrane, and Google Scholar databases from 2015 to 2025, utilizing keywords such as "mobile application" and "lifestyle." Studies with duplicate data were excluded, resulting in 17 eligible articles that met predefined inclusion and exclusion criteria. The findings underscore the significant role of mHealth (mobile health) in enhancing various aspects of women's lives. Pregnancy and postpartum are the periods that benefit substantially from mHealth technology, especially in monitoring weight gain. Additionally, mHealth interventions have shown effectiveness in lowering dietary glycemic indices. Beyond pregnancy, mHealth applications are efficient means for improving lifestyle and quality of life in overweight women, individuals with polycystic ovary syndrome (PCOS), older women, and breast cancer survivors. For those with PCOS, lifestyle applications not only promote weight loss and reduce waist circumference but also alleviate anxiety and depression. Furthermore, mHealth provides valuable data for fertility planning. In conclusion, mobile applications represent potent tools for lifestyle improvement, delivering evidence-based guidance primarily focused on healthy dietary practices and physical activity throughout women's life spans. Ultimately, through fostering women's self-empowerment, mHealth has the potential to enhance health outcomes within the national healthcare framework.

Innovative Artificial Intelligence Solutions in Health Tourism: A Chatbot for Personalized Medical Travel to Iran

Hossein Moein Jahromi*

Entrepreneurship Management, University of Sistan and Baluchestan, Zahedan, Iran

ABSTRACT

Background: The rapid growth of health tourism globally highlights the need for innovative solutions to enhance medical travel services. This study aims to design and implement an artificial intelligence (AI)-based chatbot to address international patients' medical needs and streamline their journeys to Iran with personalized health tourism packages.

Methods: Using advanced Natural Language Processing (NLP) and machine learning algorithms, the chatbot analyzes patient inquiries, medical data, and preferences to recommend treatment plans, accommodations, and travel arrangements. The system architecture includes a multilingual user interface, decision-making layers, and a secure data management. The chatbot integrates with healthcare providers, travel agencies, and accommodation services to deliver a comprehensive solution.

Results: The chatbot successfully improved patient engagement and efficiency in planning medical trips. Key features include real-time multilingual communication, personalized recommendations, and automated scheduling of medical appointments. The system addresses challenges such as language barriers, data security, and coordination complexities. Additionally, the chatbot supports Iran's health tourism sector by enhancing service delivery and attracting international patients with affordable, high-quality healthcare.

Conclusion: The AI-based chatbot demonstrates transformative potential in health tourism, offering personalized care, improved service accessibility, and economic benefits. Overcoming challenges like cultural adaptation, data security, and continuous updates is essential for success. Future advancements could integrate block chain for secure data sharing, wearable technologies for patient monitoring, and AI-based enhancements to maintain competitiveness. This approach can establish Iran as a leading destination in global health tourism.

Corresponding author:
Hossein Moein Jahromi, MSc;
Entrepreneurship Management,
University of Sistan and Baluchestan,
Zahedan, Iran.
Email: Hosseinmoein@pgs.usb.ac.ir

Please cite this article as: Moein Jahromi H. Innovative Artificial Intelligence Solutions in Health Tourism: A Chatbot for Personalized Medical Travel to Iran. Int J Nutr Sci. 2025;10(2-Supplement):S223.

International Journal of Nutrition Sciences

POSTER

Innovative Design and Comprehensive Evaluation of a Self-Care and Educational App for Infertile Men: Perspectives from Healthcare Providers and Patients

Seyed Ali Fatemi[1], Sajjad Bahariniya[2]*, Amir Hami[3], Shadi Hazhir[4], Jalal Nikokaran[5]

1. Department of Health Information Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran
2. Department of Healthcare Services Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran
3. Department of Medical Library and Information Sciences, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran
4. Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
5. Research Center for Health Technology Assessment and Medical Informatics, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ARTICLE INFO

Corresponding author:
Sajjad Bahariniya, PhD;
Department of Healthcare Services
Management, School of Health
Management and Information
Sciences, Iran University of Medical
Sciences, Tehran, Iran.
Email: Sajjadbahari98@gmail.com

ABSTRACT

Background: Male infertility is a critical factor affecting childbearing in developing countries, including Iran. With the growing prevalence of mobile health solutions and an increasing emphasis on self-care, this study aims to design and evaluate a mobile-based application specifically for infertile men. By leveraging the capabilities of mobile technology, this initiative aims to provide essential resources and support, empowering men on the path to fatherhood.

Methods: In this quantitative research, a needs assessment for the content of the application was conducted using a questionnaire and the participation of 20 physicians and 60 patients. After the initial development of the application, usability evaluation was performed using a quiz questionnaire.

Results: In this study, a total of 83 items were identified in three main sections, "patient information, educational content, software capabilities," as deemed necessary by physicians and patients. In the educational content section, all items under "disease information and sexual history" were confirmed. Finally, the usability evaluation was done by patients using a quiz questionnaire, an average of 7.97 (out of 9), indicating a "good" level.

Conclusion: The developed mobile application is designed to leverage mobile health technologies to address male infertility. As the adoption of mobile health continues to grow, this application is anticipated to enhance education, promote self-care, and improve the overall quality of life for patients. However, further research is necessary to evaluate its effectiveness and impact within the research community, as well as to assess its applicability across a larger sample size for broader generalization of results.

POSTER

Innovative Services and Their Delivery Approaches in Home Health Nursing Services: A Scoping Review Protocol

Fateme Eshghi¹, Zinat Mohebbi¹, Majid Najafi Kalyani², Toktam Kianian³*

1. Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Medical Emergencies, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Community Health and Geriatric Nursing, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Toktam Kianian, PhD;
Department of Community Health
and Geriatric Nursing, School
of Nursing and Midwifery, Iran
University of Medical Sciences,
Tehran, Iran.
Email: T.kianian67@gmail.com

ABSTRACT

Advances in the use of technology in Home Health Nursing (HHN) not only can facilitate the delivery of home care, but can also influence the entire healthcare system. The aim of this scoping review protocol is to identify, describe and map the types of innovative services and their delivery approaches in the HHN structure worldwide. The main question of the research is what are different types of innovative services and their delivery approaches in the HHN structure around the world? The JBI method for scoping reviews would guide the conducting this scoping review and the Participants, Concept and Context (PCC) framework would be used as eligibility criteria. Medline databases via PubMed, Embase, Cochrane Library, Scopus, Web of Science, Science Direct, Persian scientific databases and gray literature was searched prior to May 2024 to include eligible studies, without any language restrictions. To be included, studies will be reviewed by two independent reviewers. A data extraction form developed for the study purpose would be used to extract the data relevant to the review questions. Data analysis would be performed based on each innovative service and answering the sub-questions about it. According to the concepts of interest, the results would be analyzed and presented using tables, figures, images, and a narrative summary. In conclusion, ethics and dissemination to be published, the results of the study would be submitted to an international peer-reviewed, open access journal as well as scientific meetings on home health nursing and innovative services research.

POSTER

Innovative Uses of Virtual and Augmented Reality in Laboratory Medicine: A Review

Hossein Javid*, Maryam Enayati, Fatemeh Khojaste, Nastaran Abdollahi

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

The integration of virtual reality (VR) and augmented reality (AR) is significantly enhancing various aspects of laboratory medicine, particularly in training and diagnostic processes. A particularly noteworthy application of virtual reality (VR) in laboratory medicine is its use in education and training of medical students and laboratory technicians to engage in realistic simulations of laboratory procedures and intricate diagnostic techniques. By visualizing complex processes, learners can develop a more comprehensive understanding of laboratory workflows. This review article was conducted using articles published on Google Scholar, PubMed, Research Gate, and Web of Science till January 2025. The keywords used in the search included VR, and AR. By searching these databases, 15 articles were identified, of which 10 were excluded after reviewing their titles and abstracts. Finally, 5 articles were selected based on the inclusion criteria. All selected articles were published in English. The use of VR and AR in laboratory education enhances the understanding and retention of complex information. AR facilitates real-time data analysis and decreases error rates in sample analysis. VR simulations for practicing experimental methods minimize training time and reduce resource waste. Furthermore, VR and AR technologies promote effective communication and live consultations, which may lead to improved patient outcomes. In conclusion, the integration of virtual reality (VR) and augmented reality (AR) in laboratory medicine enhances educational experiences, increases diagnostic accuracy, improves operational efficiency, and fosters remote collaboration, thereby providing significant potential for advancements in healthcare.

Please cite this article as: Javid H, Enayati M, Khojaste F, Abdollahi N. Innovative Uses of Virtual and Augmented Reality in Laboratory Medicine: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S226.

International Journal of Nutrition Sciences

POSTER

Integrating Gamification and Behavioral Sensing in Digital Interventions for Mental Health: A Review

Kimia Abrishamifar[1], Hossein Valizadeh Laktarashi[1], Shadi Hazhir[1], Milad Rahimi[2]*

1. Medical Informatics, Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Milad Rahimi, PhD;
Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran.
Email: Miladrahimi@sbmu.ac.ir

ABSTRACT

Gamification combined with behavioral sensing presents creative approaches to handling mental health issues. These approaches aim to increase engagement, improve outcomes, and provide individualized feedback by mixing gaming components with real-time user behavior monitoring. This systematic review investigates the use of gamification and behavioral sensing in mental health therapies, with an emphasis on their effects on user engagement, behavior change, and mental health outcomes. A comprehensive search of PubMed, IEEE Xplore, Web of Science, and Scopus databases yielded 2853 articles between 2019 and 2025. After applying the inclusion and exclusion criteria, 11 studies were chosen for review. This research included randomized controlled trials and feasibility studies that looked into the use of gamification and behavioral sensing in mental health interventions for a variety of demographics. Interest-related outcomes included increased user engagement, depression, anxiety management, and attention improvement. The research found that incorporating gamification and behavioral sensing into mental health therapies greatly increased user engagement and behavior change. Gamification, for example, reduced depressed symptoms in cognitive-behavioral treatment, while sensor-based applications gave real-time feedback on mental health parameters, supporting long-term behavior change. Behavioral sensing in mobile health applications efficiently tracked physical activity, sleep patterns, and mood, resulting in improved mental health. In conclusion, gamification paired with behavioral sensing is a promising way to improve mental health. The evidence demonstrates that these technologies can greatly increase engagement and encourage behavior change, resulting in better mental well-being. Future research should focus on improving intervention design, resolving ethical concerns, and assessing long-term effectiveness.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Integrating Metaverse with Electronic Health Records: A Review on Perspectives, Challenges, and Future Opportunities

Abdollah Mehrfar[1,2]*, Zahra Zolfaghari[1,2], Arash Bordbar[3], Fatemeh Poorakbar-Haromi[3]

1. Student Research Committee of Shiraz University of Medical Sciences, Shiraz, Iran 2. E-Learning in Medical Sciences Department, Virtual Faculty of Shiraz University of Medical Sciences, Shiraz, Iran
3. Fasa University of Medical Science, Fasa, Iran

ARTICLE INFO

Keywords:
Digital health
Electronic health records
Metaverse
Virtual reality
Health care

Corresponding author:
Abdollah Mehrfar, PhD;
Student Research Committee
of Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Matin_amehrfar2014@yahoo.com

ABSTRACT

The integration of the metaverse with electronic health records (EHRs) represents a significant advancement in healthcare, offering opportunities to enhance service delivery and patient engagement. However, technical, security, and legal challenges impede its implementation, necessitating a deeper understanding of these issues to unlock its full potential. This narrative review explores the perspectives, challenges, and future opportunities related to integrating the Metaverse and EHRs, providing comprehensive insights into how this convergence can transform healthcare delivery. An extensive search was conducted across PubMed, Scopus, Web of Science, and IEEE Xplore databases using keywords such as "Metaverse", "Electronic Health Record", "Digital Health", and "Virtual Reality in Healthcare". The review included articles published between 2019 and 2024 in English and Persian, covering research papers, reviews, case reports, and policy documents. Exclusion criteria ensured the inclusion of high-quality and relevant studies. The review identified several key benefits of integrating the Metaverse with EHRs, including improved healthcare service quality, cost efficiency, and enhanced operational effectiveness. However, it also highlighted significant challenges, such as technology interoperability, data security, and regulatory compliance, which must be addressed to enable successful implementation. In conclusion, integrating the metaverse with EHRs offers transformative potential for healthcare systems worldwide. Addressing these challenges through collaborative efforts among key stakeholders can facilitate effective implementation. This review provides valuable and actionable recommendations for practitioners and policymakers to harness the benefits of this integration and enhance healthcare delivery.

Please cite this article as: Mehrfar A, Zolfaghari Z, Bordbar A, Poorakbar-Haromi F. Integrating Metaverse with Electronic Health Records: A Review on Perspectives, Challenges, and Future Opportunities. Int J Nutr Sci. 2025;10(2-Supplement):S228.

International Journal of Nutrition Sciences

POSTER

Intelligent Recommendation Systems for Managing Stress and Anxiety in Virtual Environments

Mozhgan Rassoulian[1,2,3], Laaya Joudivand[1,2,3]*, Marjan Rassoulian[4], Ghanbar Tavassoli[1,2,3], Seyed Mohsen Hosseini[1,2,3]

1. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Medical Informatics, Urmia University of Medical Sciences, Urmia, Iran
3. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
4. Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Laaya Joudivand, PhD;
Health and Biomedical Informatics
Research Center, Urmia University of
Medical Sciences, Urmia, Iran.
Email: Njoudivand@gmail.com

ABSTRACT

Background: The virtual space has become an integral part of daily life; however, improper use of it can have serious negative consequences on mental health, including increased stress and anxiety. This study focuses on promoting mental health in the virtual space by designing and developing an intelligent recommendation system that leverages artificial intelligence to provide solutions for reducing stress and anxiety.

Methods: This study was conducted in four main stages. In the first stage, data were collected through a standardized questionnaire, which included questions about virtual space usage habits, psychological symptoms, and demographic information. Data preprocessing was performed, followed by the use of machine learning algorithms, including decision trees, random forests, and support vector machines, for modeling and predicting the intensity of stress and anxiety in users. Finally, the design of a recommendation system based on collaborative filtering and link prediction was explored. Using the results of the prediction model and individual user characteristics, personalized recommendations are provided to reduce stress.

Results: The results indicate that the proposed system can identify the relationship between users' habits in virtual spaces and their levels of stress and anxiety, and the recommendations provided can be effective in alleviating psychological symptoms.

Conclusion: The proposed intelligent recommendation system is considered an effective tool for managing stress and anxiety resulting from virtual space usage. Improving model accuracy and ensuring user privacy are essential steps for optimizing and further developing this system. This research represents an important step towards enhancing mental health in the digital world.

POSTER

Investigating Machine Learning Models to Diagnose Fibrosis and Cirrhosis in Non-Alcoholic Fatty Liver Disease: A Review

Elahe Salimi[1], Mohammad Reza Mazaheri Habibi[2]*, Sina Mahi[1], Farnaz Fathi[1], Hesam Kiani[1], Sajed Arabian[3]

1. Health Information Technology Unit, Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Medical Informatics Unit, Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Health Information Management Department, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Mazaheri Habibi,
PhD;
Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Non-alcoholic-fatty-liver-disease (NAFLD) is the most common chronic liver disease, encompassing steatosis, steatohepatitis, cirrhosis, and liver fibrosis. With a global prevalence of 24%, its primary causes include obesity and unhealthy lifestyles. In advanced stages, NAFLD can lead to cirrhosis and impaired liver function. Machine learning (ML) offers potential for the diagnosis and treatment of NAFLD to prevent fibrosis and cirrhosis. This study aimed to explore ML models for diagnosing liver fibrosis and cirrhosis in NAFLD. Scientific databases were searched using related keywords. A total of 694 articles were retrieved, with 16 ultimately included in the study after applying inclusion and exclusion criteria. Half of these studies (8) employed machine learning algorithms such as XGBoost, logistic regression, random forest, and support vector machines to predict liver fibrosis and cirrhosis in non-alcoholic fatty liver disease (NAFLD), demonstrating their effectiveness for diagnosis. Four studies utilized patient data to modify lifestyle and medical treatments, aiding in disease management and prevention. One study specifically examined machine learning and artificial intelligence for diagnosing liver fibrosis in NAFLD, while another employed the learner super algorithm, yielding promising results. Additional research used health and nutrition databases alongside machine learning for NAFLD predictions and leveraged electronic medical records to assist healthcare professionals in making informed decisions regarding disease management. Overall, these findings underscore the potential of machine learning in enhancing the diagnosis and treatment of NAFLD. In conclusion, ML and AI methods provide promising results for diagnosing and managing liver fibrosis and cirrhosis in NAFLD, offering significant support to healthcare providers in improving treatment outcomes.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Investigating the Ability of Artificial Intelligence to Diagnose Uterine and Ovarian Cancer in Women: A Review

Fatemeh Ghaznavi[1], Fatemeh Dinari[1], Azita Yazdani[2]*

1. Student Research Committee, Health Human Resources Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Azita Yazdani, PhD;
Department of Health Information
Management, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Azita.a.yazdani@gmail.com

ABSTRACT

According to the World Health Organization, uterine and ovarian cancer is the fourth most common cancer in women. Artificial intelligence (AI) advancements in cancer diagnosis offer promise for improved uterine and ovarian cancer prognosis, crucial for better outcomes and reduced mortality. This study aimed to investigate the ability of artificial intelligence to diagnose uterine and ovarian cancer in women. This systematic review adhered to PRISMA guidelines. Meta-analysis was precluded due to study heterogeneity. A comprehensive search of PubMed, Web of Science, Scopus, and Google Scholar, was conducted until January 19, 2025. Search keywords included terms related to ‹artificial intelligence', ‹Uterus and ovaries' and ‹diagnose' as well as their synonyms, review articles, observational studies, qualitative studies, theses, letters to the editor, and reports were excluded. An initial search identified 1,458 articles, narrowed to 125 after title and abstract screening. A subsequent comprehensive review identified 19 eligible studies. Support Vector Machines (SVM) and Neural Networks (NN) were the most frequently utilized algorithms. The reviewed studies demonstrated significant advancements in AI-powered diagnosis of uterine and ovarian cancers, characterized by high accuracy, rapid processing, and adaptability. These AI models show promise in differentiating between benign and malignant tumors, predicting treatment responses, and enhancing overall diagnostic accuracy, with particular potential for improving early detection of ovarian cancer. In conclusion, while encouraging, these results necessitate further research and validation to fully realize AI's potential in diagnosing uterine and ovarian cancer, including addressing ethical considerations. Notably, combining AI algorithms with oncologist expertise yields superior diagnostic outcomes.

Please cite this article as: Ghaznavi F, Dinari F, Yazdani A. Investigating the Ability of Artificial Intelligence to Diagnose Uterine and Ovarian Cancer in Women: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S231.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Investigating the Ability of ChatGPT to Diagnose Diseases and the Possibility of Relying on It in the Field of Treatment: A Review

Mahdi Mahmoodi[1], Hooriya Ghazinejad[1], Sakineh DadashgholizadehJelodar[1], Fatemeh Khoshvaght[1], Shahrbanoo Pahlevanynejad[2]*

1. Student Research Committee, Semnan University of Medical Sciences, Semnan, Iran
2. Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran

ARTICLE INFO

Corresponding author:
Shahrbanoo Pahlevanynejad, PhD
Social Determinants of Health
Research Center, Semnan University
of Medical Sciences, Semnan, Iran.
Email: Shpahlevany@gmail.com

ABSTRACT

The rapid development of artificial intelligence has expanded the role of this technology in various aspects of life, especially in medicine. Large language models such as ChatGPT have attracted much attention. This article investigates ChatGPT's ability to diagnose diseases and the possibility of relying on it in treatment. This study was conducted in 2025 using the article review method. The keywords "ChatGPT" and "Diagnosis" were searched using Boolean operators in the PubMed database to access the articles. The inclusion criteria included original articles, English language, free access, and publication between 2023 and 2024. Of the 44 articles retrieved in the first stage, 24 relevant articles were found and reviewed after reviewing the articles. The review of the articles showed that 4, 5, 2, 2, 4, 2, 2, 1, and 1 relevant articles were found in 9 fields including general, radiology, orthopedics, cardiology, ophthalmology, cancer and rare diseases, neurology, urology, and psychology, respectively. The results showed that ChatGPT effectively improved decision-making, but its accuracy was still lower than that of physicians. In only one case, namely the diagnosis of complex neuroophthalmological cases, ChatGPT's performance was similar to that of specialist physicians. In conclusion, ChatGPT is a complementary tool in medicine that helps reduce errors and accelerate diagnosis. However, low accuracy in complex cases, dependence on input data, and inability to replace human judgment limit its independent use. Continuous supervision by specialists and model improvement are necessary for safe and effective use.

Please cite this article as: Mahmoodi M, Ghazinejad H, DadashgholizadehJelodar S, Khoshvaght F, Pahlevanynejad S. Investigating the Ability of ChatGPT to Diagnose Diseases and the Possibility of Relying on It in the Field of Treatment: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S232.

POSTER

Investigating Challenges of Using Artificial Intelligence in Nursing Education: A Review

Masomeh Khajeahmadi*, Samira Beigmoradi, Somaye Moayedi, Sanaz Rustaee

Student Research Center, Razi School of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

Corresponding author:
Masomeh Khajeahmadi, PhD;
Student Research Center, Razi School
of Nursing and Midwifery, Kerman
University of Medical Sciences,
Kerman, Iran.
Email: Masomehkhajeahmadi@
gmail.com

ABSTRACT

There are challenges in the use of artificial intelligence in nursing education, so this study was conducted with the aim of systematically reviewing articles on the challenges of artificial intelligence in nursing education. This study was conducted in the form of a review in 2024 in Pubmed, Wed of Science and Scopus with the keywords nursing education, challenges, artificial intelligence, and barrier. Findings: The results were analyzed in 4 categories. The findings showed that artificial intelligence challenges are categorized into four categories (legal and ethical issues, artificial intelligence software problems, nursing problems and personal problems. Few evaluations have been done on the use of artificial intelligence in nursing education. These challenges require the creation of legal and ethical guidelines, training for educators, and the improvement of artificial intelligence software and its integration with nursing curricula. From the set of studies, it can be concluded that despite the benefits and advances related to artificial intelligence in nursing education, this software still faces challenges and each country is planning to use this software according to the needs of its society. While resolving ethical and legal issues, we plan and manage training courses for nursing educators and integrating the nursing curriculum with artificial intelligence and training nursing specialists in the field of artificial intelligence. In conclusion, ethical and legal features are considered as important features of artificial intelligence development and reconstruction in the field of nursing education.

Please cite this article as: Khajeahmadi M, Beigmoradi S, Moayedi S, Rustaee S. Investigating Challenges of Using Artificial Intelligence in Nursing Education: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S233.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Effect of Teaching Religious and Sharia's Rules through Mobile Health Technology on Knowledge and Attitude of Last Year Undergraduate Students of School of Nursing and Midwiferyin Shiraz, Iran

Fatemeh Vizeshfar, Azita Jaberi*

Hazrat Fatemeh School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

Corresponding author:
Azita Jaberi, PhD;
Hazrat Fatemeh School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: A_jaberi@sums.ac.ir

ABSTRACT

Background: This study was conducted with the aim of determining the effect of Sharia medical rules mobile-based education of on the knowledge and attitude of final year undergraduate students of Hazrat Fatemeh College of Nursing and Midwifery, Shiraz, Iran.

Methods: This quasi-experimental study was conducted on 54 final year nursing students in two control and intervention groups. In the intervention group, the teaching of Sharia issues was done using a mobile application, and in the intervention group, the education was done through a training booklet, and the knowledge and attitude questionnaires of the two groups were measured and compared before and two weeks after the intervention.

Results: The finding showed that the average scores of knowledge and attitude of the intervention group students who received Sharia rulings training through a mobile-based application showed a significant change compared to the control group who received the training through a booklet (*p*=0.05). Although the attitude scores in the control group were also improved, the relationship was not statistically significant.

Conclusion: The results of this study showed the positive effect of using a mobile-based application compared to booklet education to improve the knowledge and attitude of students towards Sharia points related to education and providing medical services. Considering that one of the available and relatively affordable educational methods is mobile-based education, it seems that the use of this potential platform for proper education can pave the way for scientific and affordable education in terms of health compliance.

Please cite this article as: Vizeshfar F, Jaberi A. The Effect of Teaching Religious and Sharia's Rules through Mobile Health Technology on Knowledge and Attitude of Last Year Undergraduate Students of School of Nursing and Midwiferyin Shiraz, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S234.

POSTER

The Effect of Telerehabilitation in Improving the Physical Activity of Cardiac Patients: A Review

Seyyedeh Fatemeh Mousavi Baigi[1], Nasim Broumand[2], Reyhane Norouzi Aval[1], Masoumeh Sarbaz[1], Maryam Ebrahimi[1,3,4], Khalil Kimiafar[1]*

1. Student Research Committee, Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
4. Department of Health Information Technology, Neyshabur University of Medical Sciences, Neyshabur, Iran

ARTICLE INFO

Corresponding author:
Khalil Kimiafar, PhD;
Student Research Committee,
Department of Health Information
Technology, School of Paramedical
and Rehabilitation Sciences, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Kimiafarkh@mums.ac.ir

ABSTRACT

Telerehabilitation, an innovative approach using remote technologies for physiotherapy, has emerged as a solution to improve physical activity and outcomes in cardiac patients. This systematic review of randomized controlled trials (RCTs) aims to evaluate the impact of telerehabilitation on the physical activity levels of patients with heart disease. A systematic review was conducted by searching multiple scientific databases (Embase, Web of Science, Scopus, PubMed) for RCTs published until January 20, 2024. The quality of studies was assessed using the Joanna Briggs Institute (JBI) checklist. The review adhered to the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). From an initial 83 articles, 15 studies met the inclusion criteria. These studies covered a range of cardiac conditions, including coronary heart disease (33%), heart failure (27%), and peripheral artery disease (12%). Intervention durations varied from 8 weeks to 9 months. Technologies used in telerehabilitation included mobile applications (27%), telemonitoring (40%), wearable devices with phone calls (13%), robot-based platforms (13%), and SMS/email (7%). Of the 15 studies, 9 (60%) demonstrated significant improvements in physical activity in the telerehabilitation group compared to the control group, while 6 (40%) found no significant differences. In conclusion, this systematic review confirms that telerehabilitation is effective in improving physical activity in heart patients, leading to better health outcomes and quality of life. Mobile applications and telemonitoring emerged as key technologies, highlighting the potential of telerehabilitation as a valuable tool in cardiac rehabilitation programs.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Factors Related to Mobile Phone Addiction in Shiraz Medical Students Living in Dormitory

Nahid Karimi[1]*, Masoume Rambod[1], Nilofar Pasyar[1], Mahdi Salmanpour[2]

1. Research Center for Community-Based Mental Care, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Statistics, College of Mathematical Sciences, University of Kashan, Kashan, Iran

ARTICLE INFO

Corresponding author:
Nahid Karimi, MSc;
Research Center for Community-Based Mental Care, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Nahiid.karimii72@gmail.com

ABSTRACT

Background: In recent years, the use of mobile phones has increased significantly among all sections of the society, especially among students. But excessive use of mobile phones may be seen as an addiction. This study was conducted with the aim of determining the factors related to cell phone addiction in Shiraz medical students living in the dormitory.

Methods: A cross-sectional study was conducted on 380 students living in Shiraz Medical Sciences dormitory. Data were collected using Koohy's Cell Phone Addiction Scale and demographic variables. The data was analyzed using SPSS software and t-test and ANOVA tests.

Results: The findings showed that there is a relationship between mobile phone addiction and marital status ($p=0.001$, t=12.16), academic semester ($p=0.001$, F=3.12) and academic level ($p=0.001$, F=10.72) in the students living in the dormitory of Shiraz University of Medical Sciences, there was a significant relationship. In this way, married people and PhD students were more addicted to their mobile phones. In addition, first semester students were more addicted to their mobile phones compared to other students. This was despite the fact that gender, number of roommates, and the number of days a person stays in the dormitory was not related to cell phone addiction.

Conclusion: The data showed that doctoral students are more addicted to their mobile phones due to the need to learn more during their studies. In addition, because first semester students are more addicted to mobile phones, interventions should be made for these people to prevent their addiction to mobile phones.

Please cite this article as: Karimi N, Rambod M, Pasyar N, Salmanpour M. Factors Related to Mobile Phone Addiction in Shiraz Medical Students Living in Dormitory. Int J Nutr Sci. 2025;10(2-Supplement):S236.

International Journal of Nutrition Sciences

POSTER

The Impact of Artificial Intelligence in Providing Personalized Care to Improve the Quality of Life in Elderly

Fatemeh Hoseinkhani*

Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

ABSTRACT

Background: Artificial intelligence refers to a set of algorithms and systems capable of performing tasks similar to human intelligence, such as learning, reasoning, problem-solving, and understanding natural language. In medicine and health, artificial intelligence plays a significant role in improving the diagnosis of diseases, including mental health disorders in the elderly. Timely diagnosis of mental health disorders in the elderly is always challenging due to the complexity of symptoms and multiple influencing factors, including physiological, cognitive, and social changes.

Methods: To investigate the criteria and predict the improvement of the quality of life of the elderly, a data mining method based on the C4.5 decision tree, perceptron neural network, and a combination of genetic algorithm and three-layer perceptron neural network was used. A total of 63 criteria, including data related to clinical data, imaging, and wearable sensors, were considered to investigate the improvement of the quality of life of the elderly.

Results: The classification accuracy for the C4.5 decision tree method, perceptron neural network, and combined genetic algorithm and three-layer perceptron neural network is 100%, 96.8254%, and 100% for the experimental data, respectively. Objectives: This article examines the applications of artificial intelligence to improve the quality of life of the elderly.

Conclusion: By analyzing clinical data, imaging, and wearable sensors, artificial intelligence can identify hidden patterns in data and help diagnose diseases more accurately and quickly. This technology can be used to develop smart assistive devices for the elderly to improve their independence and quality of life.

Corresponding author:
Fatemeh Hoseinkhani, PhD;
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Fh.hoseinkhani@gmail.com

Please cite this article as: Hoseinkhani F. The Impact of Artificial Intelligence in Providing Personalized Care to Improve the Quality of Life in Elderly. Int J Nutr Sci. 2025;10(2-Supplement):S237.

The Impact of Artificial Intelligence on Care of Elderly: A Review

Fatemeh Jokar[1], Hanyieh Mahmodi[2], Shakiba Rashidi[3], Mohammad Hossein Taklif[4], Negin Farid[5]*

1. Student Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran
2. Student Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran
3. Student Research Committee, Neonatal Intensive Care Nursing Department, Nursing and Midwifery college, Shahid Sadoughi University of Medical Science, Yazd, Iran
4. Marine Medical Research Center, Baqiyatullah University of Medical Sciences, Tehran, Iran
5. Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Negin Farid, MSc;
Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
Email: N.farid@sbmu.ac.ir

ABSTRACT

According to the World Health Organization, approximately 12.5% of the global population was over 60 years old in2023.Traditional caregiving models, which rely on in-person supervision, are facing significant challenges. Given the lack of research in this field, this review aims to explore the role of emerging technologies in improving elderly care. This systematic review involved a search using the keywords of "artificial intelligence", "elderly" and "care" in databases such as WOS, Scopus, PubMed/Medline, Irandoc, Magiran, Noormags, SID, and Google Scholar. A total of18 studies were identified. Inclusion criteria included articles published in the last five years in either Persian or English, with grey literature excluded. After removing duplicates and applying appropriate evaluation methods, six studies were analyzed. Ethical considerations, such as avoiding bias in the selection, extraction, analysis, and classification of evidence, were adhered to, and the abstract was reported according to PRISMA guidelines. Policymakers and industry leaders have played an important role in changing public perceptions about the benefits and costs of technology in elderly care. In home care settings, advanced technologies have helped detect errors and potential harm by analyzing caregiver data. In broader elderly care services, these technologies have improved service quality, efficiency, and have addressed challenges in caregiving. Automated monitoring tools, when used ethically, can support caregivers, reducing their workload and associated costs. In conclusion, the adoption of advanced technologies in elderly care can lead to better quality services, fewer errors, and greater caregiving efficiency. Further research is encouraged to investigate the application of these technologies in elderly populations with multiple chronic conditions. This version focuses more on the human impact and use of technology in elderly care, making it more approachable and less centered on technical terms like "artificial intelligence."

International Journal of Nutrition Sciences

POSTER

The Impact of Nanosensors and Mobile Applications in Diagnosis and Management of Liver Diseases: A Review

Maryam Dehghani*

Faculty of Paramedical Sciences, Alborz University of Medical Sciences, Karaj, Iran

ARTICLE INFO

Corresponding author:
Maryam Dehghani, MSc;
Faculty of Paramedical Sciences,
Alborz University of Medical
Sciences, Karaj, Iran.
Email: Dehghani71@yahoo.com

ABSTRACT

Liver diseases are major challenges for healthcare systems worldwide. Late diagnosis and inadequate management of these diseases can lead to serious complications and increased healthcare costs. In recent years, new technologies have emerged as promising tools to improve the diagnosis and management of liver diseases. This article aimed to investigate the impact of these technologies on the diagnosis and management of liver diseases. This review was conducted using library methods and secondary data analysis. Scientific articles were collected from databases such as PubMed, Scopus, and Google Scholar between 2015 and 2024. Finally, 23 relevant articles were selected. The findings showed that nanosensors have the ability to monitor patients' condition in real time and are able to detect biomarkers such as liver enzymes (ALT, AST, bilirubin, and inflammatory markers with high sensitivity and accuracy. These technologies enable the diagnosis of hepatitis, liver cirrhosis, and liver cancer in the early stages and help doctors evaluate the effectiveness of treatments. Also, mobile help patients take a more active role in managing their disease by providing educational, dietary, and lifestyle information. They allow patients to record their symptoms and receive alerts if any unusual changes are observed. Regular reminders help patients stay on track with their treatment plan, leading to direct communication between patients and doctors. In conclusion, combining nanosensors with mobile applications has led to the creation of more comprehensive systems capable of continuously monitoring patients' conditions and providing personalized recommendations. However, technical, security, and educational challenges need to be overcome to exploit these technologies.

Please cite this article as: Dehghani M. The Impact of Nanosensors and Mobile Applications in Diagnosis and Management of Liver Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S239.

International Journal of Nutrition Sciences

POSTER

The Impact of Using Telemedicine in Patients with Diabetes in Eastern Mediterranean Region: A Review

Ehsan Nabovati[1], Nafiseh Jamal[2]*, Azam Zanganeh[3]

1. Health Information Management Research Center, Department of Health Information Management and Technology, School of Allied Health Professions, Kashan University of Medical Sciences, Kashan, Iran
2. Department of Health Information Technology and Management, Kashan, Iran
3. Clinical Research Development Unit, Bohlool Hospital, Gonabad University of Medical Sciences, Gonabad, Iran

ARTICLE INFO

Corresponding author:
Nafiseh Jamal, PhD;
Department of Health Information
Technology and Management,
Kashan, Iran.
Email: Jamal.nafiseh69@gmail.com

ABSTRACT

With high prevalence of diabetes in Eastern Mediterranean region, World Health Organization emphasizes the need for digital tools for disease prevention and care. Global digitalization is promoting new approaches in diabetes management, particularly telemedicine interventions. This study aimed to investigate the impact of telemedicine on diabetes management in the region. A systematic review included original research articles published in English up to 2024. Databases included PubMed, Web of Science, Scopus using relevant keywords. After data extraction, articles were entered into EndNote software and two reviewers were selected and analyzed for relevant studies. Totally, 658 articles were on digital tools in diabetes management, 5 studies focused on telemedicine in Saudi Arabia, involving patients with type 1 and type 2 diabetes that examined interventions like virtual clinics and the BJILSE program with WhatsApp, revealing significant reductions in several health indicators. LDL cholesterol decreased by an average of 0.22 mmol/L (p=0.05), in-person doctor visits dropped by about 64%. Notable reductions were also reported in blood glucose levels (1.93%), blood pressure, and total cholesterol. Glycemic control indices improved significantly. GMI decreased from 7.7% to 7.2% (p=0.03), TIR increased from 46% to 55% (p=0.01), and TAR dropped from 48% to 35% (p=0.01). Patient knowledge about diabetes and physical activity increased. In conclusion, telemedicine has significant potential to improve diabetes management. Interventions like virtual clinics and mobile messaging applications can enhance blood glucose control, clinical outcomes, and patient knowledge about diabetes. So telemedicine can complement traditional care, especially in areas with limited access to health services.

International Journal of Nutrition Sciences

POSTER

The Performance of Wearable Sensors for Remote Monitoring in Artificial Intelligence-Based Telemedicine Healthcare: A Review

Mostafa Rajabzadeh[1]*, Saghi Eslamzadeh[2], Zahra Yousefzadeh[1], Maede Salari[3], Roghaye Saadi[4]

1. Student Research Committee, Torbat-e Heydariyeh University of Medical Sciences, Torbat-e Heydariyeh, Iran
2. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
3. Student Research Committee, Faculty of Medicine, Birjand Branch, Islamic Azad University, Birjand, Iran
4. Nursing Scientific Association, Islamic Azad University, Khorramabad, Iran

ARTICLE INFO

Corresponding author:
Mostafa Rajabzadeh, BSc;
Student Research Committee,
Torbat-e Heydariyeh University
of Medical Sciences, Torbat-e
Heydariyeh, Iran.
Email: Eslamzadehsaghi@gmail.com

ABSTRACT

Telemedicine, remote monitoring coupled with Artificial Intelligence (AI) innovations are redesigning the face of the healthcare sector in record way and increasing satisfaction levels for patients' clinical enhancements, reduced charges and increased effectiveness in the delivery of services. The aim of this review is to performance of wearable sensors for remote monitoring in artificial intelligence-based telemedicine healthcare. In this systematic review, comprehensive searches from 2019 to 2024 in PubMed, SCOPUS, Web of Science, SID and Magiran databases as well as Google Scholar search engine with keywords MESH, artificial intelligence, wearable sensors, telemedicine, healthcare were performed. 480 articles were selected after review and finally 13 articles were included in the study based on quality. Studies have shown that Sensors with high levels of accuracy in detecting clinically pertinent parameters are now widely used, allowing for remote healthcare at a time. The integration of AI with wearable sensors has led to significant improvements in health monitoring, enabling real-time, precise measurements of vital health parameters such as heart rate, glucose levels, and physical activity. AI algorithms enhance sensor performance by enabling real-time data analysis, which facilitates early detection of chronic conditions like cardiovascular diseases and diabetes. In conclusion, AI-enabled wearable sensors are transforming healthcare by offering personalized, continuous monitoring and facilitating early interventions. However, the reliability of data, sensor accuracy, and privacy concerns remain barriers to broader adoption. Moreover, the use of AI in clinical decision-making raises legal and ethical issues, particularly regarding liability when AI influences or makes autonomous decisions.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Relationship between Electromagnetic Waves and the Plant's Immune System

Habibeh Zare[1,2]*, Zohreh Royaee[3]

1. Department of Biology, Payame Noor University, Tehran, Iran
2. Department of Biology, Shiraz University, Shiraz, Iran
3. Computer Department, Eram Institute of Higher Education, Shiraz, Iran

ARTICLE INFO

Keywords:
Electromagnetic waves
Plant
Immune system

Corresponding author:
Habibeh Zare, PhD;
Department of Biology, Payame Noor
University, Tehran, Iran.
Email: Drhzare@pnu.ac.ir

ABSTRACT

Background: In recent decades, the natural environment has undergone dramatic changes due to the increase and expansion of the range of artificial electromagnetic and magnetic fields. The daily operation of this field in the different fields causes various organisms to be more exposed to electromagnetic fields. In this study, the effect of high-frequency electromagnetic waves (940 MHz) on lipid peroxidation and proline content in Zea mays L leaves was investigated.

Methods: 13-day-old plants were subjected to two electromagnetic wave treatments, 3 hours for 7 days and 5 hours for 7 days. During this time, the plants were cultivated in hydroponic condition using a Hoagland solution. After 20 days, the malonaldehyde (MDA) content in the leaves of the treated plants was measured as an indicator of lipid peroxidation. Also, the amino acid proline as a biomarker in abiotic stress was measured. Here, the high-frequency electromagnetic field (940 MHz) was considered the abiotic stress.

Results: Compared to control cells, exposure of seedlings to electromagnetic field with EMF generating system of 940 MHz and 2.8 SAR (high frequency of mobile phone in Iran) caused an increase in amino acid. Lipid peroxidation level was also increased by EMF. This indicates that EMF can worsen the defense system of proline content of plant cells.

Conclusion: The results showed that electromagnetic field increased MDA content in leaves compared to control which may be due to induction of oxidative stress and lipid peroxidation. Proline content in plants treated with electromagnetic field (940 MHz) increased significantly.

Please cite this article as: Zare H, Royaee Z. The Relationship between Electromagnetic Waves and the Plant's Immune System. Int J Nutr Sci. 2025;10(2-Supplement):S242.

International Journal of Nutrition Sciences

POSTER

The Role of Mobile Health Application in Assisted Reproduction: A Review

Marzie Mojab[1], Parvin Yadollahi[2]*

1. Student Research Committee, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Maternal-fetal Medicine Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Parvin Yadollahi, PhD;
Maternal-fetal Medicine Research
Center, Department of Midwifery,
School of Nursing and Midwifery,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Yadollahi_556@yahoo.com

ABSTRACT

According to the World Health Organization, infertility affects more than 17% of the global population, underscoring the necessity for optimizing infertility treatment options. Recent advancements in mobile health (mHealth) applications have demonstrated an association with enhanced patient satisfaction. This study aimed to elucidate the role of mHealth technologies in the domain of assisted reproduction. We conducted a systematic review of 76 articles published between 2014 and 2024, sourced from databases including Google Scholar, PubMed, Web of Science, Scopus, and Cochrane. A peer-reviewed search strategy was utilized, employing keywords such as "Infertility", "Reproductive Techniques", and "Mobile Application". Studies with duplicate data were excluded, resulting in the extraction of data from 11 eligible articles after applying inclusion and exclusion criteria. The findings indicate that mHealth applications are essential to various aspects of assisted reproduction, including virtual counseling and care, enhancement of patient knowledge regarding treatment protocols, and consistent support including emotional assistance and medication adherence reminders. Moreover, mHealth technologies provide utility for laboratory personnel in embryo culture management. The incorporation of artificial intelligence into these applications enables predictive modeling of fertility outcomes and facilitates informed decision-making. Additionally, certain applications focus on lifestyle management for couples undergoing in vitro fertilization, which has been shown to enhance oocyte quality and improve overall fertility success rates. In conclusion, The implementation of mHealth presents significant opportunities for both infertile individuals and medical practitioners involved in assisted reproduction. These technologies contribute to improved fertility outcomes and heightened patient satisfaction levels.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Role of Mobile Health in Parkinson's Disease Self-Care Education: A Review

Sajede Salari, Ghaem Keyvanloo, Mohamad Reza Mazaheri Habibi*

Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mohamad Reza Mazaheri Habibi,
PhD;
Department of Health Information
Technology, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Parkinson's disease is a progressive neurological disorder characterized by hyperactivity or immobility, significantly impacting the quality of life. It is often associated with mental distress and decreased daily performance. The availability of effective psychological interventions for individuals with Parkinson's is limited, necessitating a multidisciplinary approach involving movement disorder specialists and other healthcare professionals. Digital technologies offer a promising solution to enhance multispecialty care, enabling broader access to patients at home. Mobile health (mHealth) has the potential to improve self-care, particularly when in-person access is restricted. A systematic review was conducted in 2024, searching PubMed, Scopus, Web of Science, and Google Scholar for studies published between 2015 and 2024. Keywords included "Parkinson's", "self-care", and "mobile health". English-language studies exploring mHealth's role in self-care education for Parkinson's patients were included. Two evaluators independently reviewed titles, abstracts, and full texts based on eligibility criteria. A total of 843 articles were identified, with 17 meeting inclusion criteria. Four articles (23.5%) reported on different applications designed for patients, yielding positive feasibility results. Three articles (17.6%) highlighted the significance of exercise and physical activity in disease management. One study demonstrated the effectiveness of three games in empowering elderly patients. Other research employed daily monitoring through mHealth to facilitate self-care education. In conclusion, findings indicate that mHealth positively impacts quality of life and disease management in Parkinson's patients. However, challenges such as injury reports and inadequate training, particularly among the elderly, necessitate further research for safer implementations.

Please cite this article as: Salari S, Keyvanloo G, Mazaheri Habibi MR. The Role of Mobile Health in Parkinson's Disease Self-Care Education: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S244.

International Journal of Nutrition Sciences

POSTER

The Types of Digital Health Tools and Their Effectiveness in Management and Control of Diabetic Patients in Eastern Mediterranean Region: A Review

Ehsan Nabovati[1], Nafiseh Jamal[2]*

1. Health Information Management Research Center, Department of Health Information Management and Technology, School of Allied Health Professions, Kashan University of Medical Sciences, Kashan, Iran
2. Department of Health Information Technology and Management, Kashan, Iran

ARTICLE INFO

Corresponding author:
Nafiseh Jamal, PhD;
Department of Health Information
Technology and Management,
Kashan, Iran.
Email: Jamal.nafiseh69@gmail.com

ABSTRACT

This study highlights the high prevalence of diabetes in the EMRO and the WHO call for digital tools to improve disease prevention and care. It examines digital health interventions aimed at enhancing chronic disease management, particularly diabetes, and suggests these interventions can complement or replace traditional services. The study aims to assess the types and effectiveness of digital interventions in diabetes management in the region. A systematic review was conducted following the PRISMA guidelines to identify studies on digital health tools for diabetes management. It included original research articles published in English up to 2024 with a focus on types of diabetes. Data sources were PubMed, Web of Science and Scopus. Risk of bias and quality of reporting were assessed using the Cochrane Risk of Bias Checklist and ROBINS-I. Among a systematic review of 658 articles on digital tools for diabetes management, 40 studies were analyzed. These included 14 studies on telephone interventions, 5 studies on telemedicine, 4 on social media, 9 on text messages, 7 studies on mobile apps, and 1 study on an educational website. All studies used educational, psychological, and motivational messages to increase diabetes awareness and management. Outcomes assessed included clinical factors, behavioral factors, and educational outcomes. Social media and telephone follow-ups, which provided educational messages and advice, improved patient knowledge and self-management led to improved quality of life. Mobile apps that reminded patients to adhere to medication and monitor blood glucose had the greatest impact on clinical outcomes. In conclusion, this study indicates that digital tools can enhance clinical outcomes and quality of life for diabetes patients. Educational messages and reminders improve awareness and self-management, positively affecting blood sugar control and medication adherence.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Education through Mobile Phones in Prevention, Care and Treatment of Chronic Diseases: A Review

Roya Dokoohaki[1], Maryam Ghasemi[2]*

1. Community Based Psychiatric Care Research Center, Nursing and Midwifery School, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Maryam Ghasemi, MSc;
Student Research Committee, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Mghdec2000@gmail.com

ABSTRACT

Today, the prevalence of chronic diseases, especially in elderly societies, is growing dramatically. According to the Centers for Disease Control and Prevention, about half of all adults in the United States have one or more chronic diseases. Teaching patients about self-care is one of the most important methods of disease management. According to the GOe in 2011, the mobile health method is defined as "Activities in the field of medicine and public health that are carried out through technology tools such as mobile phone applications, patient monitoring tools and wireless devices". Since the effectiveness of the mobile health method has not yet been proven, our aim in this review study is to investigate the effects of this method in various articles. In this study, the keywords of chronic disease, self-management and mobile health technology were searched in Google Scholar and Pub Med databases and articles between 2016 and 2022 were reviewed. According to the review of various studies, the method based on web pages and telemedicine have been used as the most frequent interventions, which have led to the improvement of chronic disease management. On the other hand, using the method of sending short messages has increased the participation of patients in the mobile health method. In conclusion, education via mobile phone is an effective method in increasing the amount of self-care and quality of the treatment program due to increasing the communication between the patient and the therapist and improving the ability to make decisions.

Please cite this article as: Dokoohaki R, Ghasemi M. Education through Mobile Phones in Prevention, Care and Treatment of Chronic Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S246.

International Journal of Nutrition Sciences

POSTER

Lab in Your Pocket: A Review on Mobile Health Technologies for Real-Time Diagnostics and Preventive Screening

Hossein Javid*, Fatemeh Sanagoo

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

The rise of mobile health technologies has transformed healthcare access and delivery. The concept of "Lab in Your Pocket" highlights the potential of smartphones and wearables to provide essential health services. This paper explores how mobile health (mHealth) apps, wearable devices, and telemedicine facilitate health monitoring and early detection of issues. This review article was conducted using articles published in PubMed, Science Direct, Google Scholar, and Web of Science until December 2024, with keywords such as patient management, m-health, wearable technology, telemedicine, and monitoring. A search through these databases yielded 75 articles. After reviewing titles and abstracts, 30 were excluded, and 10 were selected based on inclusion criteria. All articles were sourced from English-language publications. Findings highlight the vital role of m-health technologies in improving access to healthcare, especially in remote areas. Devices like portable blood glucose monitors and electrocardiograms (ECGs) enable quick health assessments, leading to timely medical care. Additionally, screening apps encourage users to engage in regular check-ups and promote a personalized approach to management. By empowering individuals to monitor their health, these technologies enhance health literacy and foster proactive engagement. In conclusion, m-health technologies are transforming healthcare delivery, making it more accessible and user-friendly. However, challenges like data privacy, regulatory hurdles, and integration with traditional systems must be addressed. Future efforts should focus on understanding the long-term benefits of mHealth interventions and developing standardized practices to enhance effectiveness. Collaboration among stakeholders is essential to fully realize the potential of mhealth technologies and improve outcomes for all.

Please cite this article as: Javid H, Sanagoo F. Lab in Your Pocket: A Review on Mobile Health Technologies for Real-Time Diagnostics and Preventive Screening. Int J Nutr Sci. 2025;10(2-Supplement):S247.

POSTER

Leveraging Mobile Health Interventions to Address Social Harms among Adolescents: A Review of Opportunities and Outcomes

Mohammad Hossein Kaveh[1], Elaheh Shoushtari-Moghaddam[2]*

1. Research Center for Health Sciences, Institute of Health, Department of Health Promotion, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, Department of Health Education and Promotion, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Elaheh Shoushtari-Moghaddam, PhD;
Student Research Committee,
Department of Health Education and
Promotion, School of Health, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Elahehshoushtari@gmail.com

ABSTRACT

Social harms such as bullying, cyberbullying, and social exclusion profoundly affect adolescents' mental and physical health. Mobile health (mHealth) interventions offer accessible, innovative solutions by providing real-time assistance, mental health support, and coping resources. This review evaluates the effectiveness of mHealth applications in addressing adolescent social harms, focusing on their role in prevention, mental health improvement, and fostering resilience. A review of 20 studies from 2018 to 2023, sourced from PubMed, Scopus, and Google Scholar, prioritized peer-reviewed research on mHealth tools for adolescents at risk of social harm. The studies emphasized intervention efficacy, user engagement, and long-term health outcomes. Key findings show that mHealth tools targeting bullying and cyberbullying significantly reduced incidents by 20% and increased reporting rates by 30%, through features like educational content, reporting systems, and self-help resources. Mental health platforms incorporating cognitive behavioral therapy (CBT) and emotional resilience exercises could improve adolescents' mental well-being by 25%, with artificial intelligence (AI)-driven chatbots effectively reducing anxiety and depression symptoms. Additionally, digital tools promoting peer support and social resilience training enhanced social engagement. They improved self-reported resilience by 35%, fostering a sense of community and belonging essential for adolescents with social harm. In conclusion, mHealth interventions demonstrate strong potential in addressing adolescent social harms by offering scalable and effective solutions. Integrating CBT, peer support, and real-time assistance, these tools mitigate the adverse effects of social harm. Future research should focus on improving user engagement and designing culturally inclusive tools to support diverse adolescent populations.

Please cite this article as: Kaveh MH, Shoushtari-Moghaddam E. Leveraging Mobile Health Interventions to Address Social Harms among Adolescents: A Review of Opportunities and Outcomes. Int J Nutr Sci. 2025;10(2-Supplement):S248.

International Journal of Nutrition Sciences

POSTER

Analysis of Features, Performance, and Weaknesses of Pregnancy and Newborn Care Applications in 2024

Alireza Dehghani[1], Zahra Maleki[1], Mohebat Vali[2]*

1 Student Research Committee, Department of Epidemiology, School of Health, Shiraz University Of Medical Sciences, Shiraz, Iran
2 Department of Epidemiology, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mohebat Vali, PhD;
Department of Epidemiology,
School of Health, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Mohebatvali@gmail.com

ABSTRACT

Background: Mobile health applications (Apps) in pregnancy and newborn care, with their di-verse features and innovative functionalities, play a crucial role in enhancing maternal and infant health. This study aimed to evaluate the features, strengths, and weaknesses of the leading appli-cations in these fields by 2024.

Methods: Sixteen Apps (10 pregnancy and 6 newborn care) were selected from the Google Play App Store based on downloads (100,000 to over 100 million), user ratings (4.4-4.9), Google Play App Protect certification, Android OS compatibility (versions 5-9+), and download size (11-93 MB). Additional evaluation criteria were in-App purchase costs (free to $500), support options, interface design, reminders, and color schemes.

Results: Pregnancy App and Piyolog, rated 4.9, led in user satisfaction with easy-to-use interfac-es and precise reminders. Key strengths were well-designed interfaces (Pregnancy+/Tracker App, Baby+/Your Baby Tracker), backup features (Baby Tracker-Newborn Log), high accuracy (Huck-leberry), and growth charts (Piyolog). Weaknesses included excessive ads (Baby Daybook), technical issues (HiMommy), and poor user interfaces (Baby Tracker-Newborn Log). Most apps featured white, pink, and green color schemes, with developers primarily from the US, UK, Chi-na, and Japan. All Apps met Google Play Protect certification standards for data security.

Conclusion: Pregnancy and newborn care Apps with a variety of features, such as reminders, educational resources, and online support, play an effective role in enhancing user experience. Key areas for the future development of these apps included reducing advertisements, address-ing technical issues, and improving user interface design.

Please cite this article as: Dehghani AR, Maleki Z, Vali M. Analysis of Features, Performance, and Weaknesses of Pregnancy and Newborn Care Applications in 2024. Int J Nutr Sci. 2025;10(2-Supplement):S249.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Machine Learning for Diagnosis and Severity Classification of Carpal Tunnel Syndrome: A Review

Zahra Arabkermani[1], Atefeh Rouhani[2*], Saeed Pourghasemi[3]

1. Health Information Management, Department of Paramedicine, Amol School of Paramedical Sciences, Mazandaran University of Medical Sciences, Sari, Iran
2. Health Information Management Unit, Imam Ali Hospital, Mazandaran University of Medical Sciences, Sari, Iran
3. Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran

ARTICLE INFO

Corresponding author:
Atefeh Rouhani, BSc;
Health Information Management Unit,
Imam Ali Hospital,
Mazandaran University of Medical
Sciences, Sari, Iran.
Email: Atf.rouhani@gmail.com

ABSTRACT

Machine learning (ML), a sub-field of artificial intelligence (AI), has transformed healthcare, particularly diagnostics. ML has been widely applied in diagnosing, classifying severity, and monitoring treatment outcomes for neurological disorders like Carpal Tunnel Syndrome (CTS). This review explores ML applications in diagnosing and classifying CTS severity. The study was conducted as an unstructured narrative review in November 2024. Forty-six articles were extracted from PubMed/ MEDLINE and Scopus databases using English equivalents of the keywords: machine learning, diagnosis, classification, severity, and CTS. Articles were selected based on relevance, original peer-reviewed research, and a publication time frame of 2015–2024. Following a thorough review process by three researchers using EndNote software, 21 articles meeting the inclusion criteria were analyzed. ML models showed significant potential in diagnosing and classifying CTS severity, with diagnostic accuracies ranging from 76.6% to 96%. Support Vector Machines (SVM) achieved the highest accuracy, while Random Forest (RF) models reached 97.1% accuracy in severity classification and 100% in early detection using biomechanical data. SVM and RF consistently outperformed other algorithms, while approaches like XGBoost delivered reliable but slightly lower accuracy. Smartphone-based and wearable sensor-based models expanded diagnostic accessibility that shows high sensitivity and specificity. Deep learning (DL) and AI models achieved up to 97.1% accuracy, particularly with MRI and ultrasound data. In conclusion, ML models demonstrated robust performance in diagnosing and classifying CTS severity, providing non-invasive, accurate, and efficient tools. However, larger, standardized datasets are needed to validate and optimize these models for clinical use.

Please cite this article as: Arabkermani Z, Rouhani A, Pourghasemi S. Machine Learning for Diagnosis and Severity Classification of Carpal Tunnel Syndrome: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S250.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mapping Metaverse Research in Health: A Scientometric Analysis Review

Kamal Ebrahimi*, Abdollah Mahdavi

Health Information Management Department, Faculty of Paramedical, Ardabil University of Medical Sciences, Ardabil, Iran

ARTICLE INFO

*Corresponding author:
Kamal Ebrahimi, PhD;
Health Information Management
Department, Faculty of Paramedical,
Ardabil University of Medical
Sciences, Ardabil, Iran.
Email: Ebrahimi.kamal@gmail.com

ABSTRACT

The formation of new in the field of health has been a factor in the creation and application of new technology. One of the important and practical and at the same time challenging technologies is the Metaverse. The aim of this article is to identify the most important topics of the Metaverse in the field of health. A search was conducted in the PubMed database using the related keywords. This is a descriptive study conducted using the scientometric method. The population of this study is articles related to the metaverse and the field of health and healthcare that are indexed in the Web of Science database. Based on the search strategy (Metaverse and health or healthcare or medical), 742 articles were extracted and entered into the VOS viewer software for analysis. Based on the results obtained, 28 clusters were formed in the field of Metaverse in the field of health, which were merged into 7 main axes based on the similarity of the clusters. The main clusters include treatment, diagnosis and prevention, and rehabilitation; Cluster 2: Security, ethics, acceptance, and challenges of the Metaverse; Cluster 3: Human-computer interaction; Cluster 4: Educational and research applications; Cluster 5: Big data management; Cluster 6: Children, social life and risks of the Metaverse environment; and Cluster 7: Mental illness. In conclusion, the assessment of research in the world shows that the benefits of using the Metaverse in the field of health and health care are ambiguous. This issue has been particularly concerned with privacy and mental health issues.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mapping the Knowledge of Telemedicine and Elderly: A Scientometric Analysis Review

Roya Naemi[1], Nafiseh Rezaei[2], Rasha Atlasi[3]*

1. Department of Health Information Management, School of Paramedical Sciences, Ardabil University of Medical Sciences, Ardabil, Iran
2. Department of Medical Library and Information Sciences. School of Paramedicine, Hamadan University of Medical Sciences, Hamadan, Iran
3. Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Rasha Atlasi, PhD;
Endocrinology and Metabolism
Research Center, Endocrinology
and Metabolism Clinical Sciences
Institute, Tehran University of
Medical Sciences, Tehran, Iran.
Email: Rashaatlasi@gmail.com

ABSTRACT

Telemedicine can play an effective role in the care and treatment of the elderly. Therefore, various studies have been conducted on this topic from various aspects. This research aims to analyze and map these studies, provide an overview of their characteristics, and identify the gaps and topic trends in this field. A search was conducted in the PubMed database using the subject headings for telemedicine and elderly in the MESH database, from 2014 to 2024. Retrieved articles were analyzed and visualized using the R bibliometrix package and VOS viewer program. **Results:** 6043 documents were retrieved, most of which were published in 2024 (n=1090) and then in 2020 (n=814). The "Journal of Medical Internet Research" (n=336) and "Telemedicine Journal and E-Health" (n=332) published the most of documents. USA (n=9621), Australia (n=3344), China (n=2080), and Canada (n=2020) were the most active countries in this field, respectively, and among the organizations, "University of California" had the most scientific activity and production. The concepts "digital health", "healthcare disparities/statistics and numerical data", "digital technology", "covid-19/epidemiology", "telerehabilitation" and "covid-19/epidemiology/therapy" have also been topic trends in the last two years. In conclusion, over the past year, the most scientific productions in the field of telemedicine and the elderly have been carried out, mostly by organizations from the USA, which indicates the expanding importance of this topic and continues to require more studies in this field to apply and understand the benefits and challenges of this technology in the elderly.

Please cite this article as: Naemi R, Rezaei N, Atlasi R. Mapping the Knowledge of Telemedicine and Elderly: A Scientometric Analysis Review. Int J Nutr Sci. 2025;10(2-Supplement):S252.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Metaverse and Artificial Intelligence in Future of Medicine and Healthcare: A Review

Fateme Karimipanah[1], Milad Ahmadi Marzaleh[2]*

1. Department of Medicine, School of Medicine, Islamic Azad University of Kazeroon, Kazeroon, Iran
2. Department of Health in Disasters and Emergencies, Health Human Resources Research Center, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Milad Ahmadi Marzaleh, PhD;
Department of Health in Disasters
and Emergencies, Health Human
Resources Research Center, School of
Health Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Miladahmadimarzaleh@
yahoo.com

ABSTRACT

The healthcare industry is moving towards intelligent systems, including new technologies that have affected and transformed the healthcare industry, such as Metaverse and artificial intelligence. Metaverse is an interconnected virtual 3D environment that can use pervasive technologies such as augmented reality, virtual reality, and artificial intelligence to share information. It also has a wide range of potential healthcare applications combined with these technologies. With artificial intelligence, medical education and treatment will be profoundly improved. This study was conducted in the form of a systematic review with keywords, Metaverse, artificial intelligence, and the future of medicine in PubMed and Google Scholar databases for the period from 2015 to 2024 and all methods of analysis and screening of articles were conducted by two authors. Metaverse and artificial intelligence have many advantages over traditional analysis and clinical decision-making, which will continue to grow in the future. Metaverse has provided a new dimension for smart health and its potential is still increasing. By using metaverse and artificial intelligence in different areas of hospital management, it helps to take better care of patients. As the variety of options available to patient increases, healthcare providers and educators will benefit from these technologies. In conclusion, Metaverse and artificial intelligence help the development of medical care and medical education because of create a real and virtual environment for training. Ultimately, in the future, more patients will benefit from accepting metaverse and artificial intelligence which means their importance in Healthcare will continue to grow.

Please cite this article as: Karimipanah F, Ahmadi Marzaleh M. Metaverse and Artificial Intelligence in Future of Medicine and Healthcare: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S253.

International Journal of Nutrition Sciences

POSTER

Metaverse and Sustainability: A Review on Analyzing Environmental, Social Impacts, and Sustainable Management Solutions

Hassan Hashemi[1]*, Atefeh Mohammadi[2]

1. Research Center for Health Sciences, Institute of Health, Department of Environmental Health Engineering, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Hassan Hashemi, PhD;
Research Center for Health Sciences,
Institute of Health, Department of
Environmental Health Engineering,
School of Health, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: H_hashemi@sums.ac.ir

ABSTRACT

Metaverse technologies significantly impact the environment, climate change, and social aspects. While many studies focus on the benefits of this technology, practical solutions for mitigating environmental harm and social consequences have received less attention. This study provides a comprehensive review of these impacts and sustainable management strategies associated with them. This review was conducted in 2024 by searching reputable databases such as SID, Google Scholar, Web of Science, and Scopus. Out of 15 identified articles, 8 relevant studies published between 2019 and 2024 were analyzed. Metaverse technologies have significant environmental and social impacts in five key areas. Due to their high energy requirements, these technologies pose a serious challenge to environmental sustainability, while the production and accumulation of associated devices increase electronic waste. Additionally, the extraction of rare metals and conflict minerals results in environmental degradation and notable social consequences. However, the Metaverse can positively impact greenhouse gas reduction by replacing certain physical travel and act as an effective platform for education and promoting sustainable behaviors. To mitigate the adverse effects of this technology, solutions such as using renewable energy sources, developing eco-friendly technologies, effective recycling of waste, and promoting social inclusion have been proposed. These measures can not only reduce the environmental impacts of the Metaverse but also enhance digital justice by addressing social inequalities. In conclusion, Metaverse technologies, with their broad impacts, can drive environmental and social sustainability through renewable energy, green tech, and efficient recycling.

Please cite this article as: Hashemi H, Mohammadi A. Metaverse and Sustainability: A Review on Analyzing Environmental, Social Impacts, and Sustainable Management Solutions. Int J Nutr Sci. 2025;10(2-Supplement):S254.

International Journal of Nutrition Sciences

POSTER

Metaverse Ecosystem in Medical Education: A Review

Kamal Ebrahimi*, Abdollah Mahdavi, Mohammad Mehrtak

Health Information Management Department of Health Information Management, Faculty of Paramedical, Ardabil University of Medical Sciences, Ardabil, Iran

ARTICLE INFO

Corresponding author:
Kamal Ebrahimi, PhD;
Health Information Management
Department of Health Information
Management, Faculty of Paramedical,
Ardabil University of Medical
Sciences, Ardabil, Iran.
Email: Ebrahimi.kamal@gmail.com

ABSTRACT

Metaverse, simulation, and virtual and augmented reality have the potential to create an interactive platform in education to improve the quality of clinical skills. Successful implementation of new, complex, and widespread technology in various fields, especially medical education, requires a proper understanding of the dimensions. Ecosystem is a comprehensive term to introduce the different dimensions of Metaverse. The purpose of this article is to survey the Metaverse ecosystem in the field of medical education. This is a review study that retrieved related articles by searching WOS, Google Scholar, and Semantic Scholar databases. For more findings, artificial intelligence (elicit.com) was also used to write the article. Based on research in the field of Metaverse, the most important elements in the field of medical education include the following: Human resource aspect including learners, educators, supervisors, and experts (university, hospital, ministry of health); Information and knowledge aspect and educational programs (databases, electronic health records); standardization and interoperability aspect between information systems; technology aspect including 5G Internet, social networks, and the Internet of Things; The artificial intelligence aspect is virtual reality; a commercial aspect; security and confidentiality aspect, and legal support. Also, one of the most important requirements for implementing Metaverse in medical education is Cultivation. In conclusion, the Metaverse world is a new world full of opportunities and threats. Creating value in the field of education based on the potential capabilities of this technology requires the use of a systemic approach in this field.

POSTER

Metaverse Medicine: A Review on Harnessing Artificial Intelligence-Powered Simulations and Nutritional Strategies for Enhanced Healthcare Delivery

Shima Koushki[1], Kimia Kafili[1], Sara Eshraghi[1], Hossein Javid[2]*

1. Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

This exploration of "Metaverse Medicine" highlights the transformative potential of combining AI-powered simulations, immersive technologies, and personalized nutritional strategies within virtual healthcare environments. The research demonstrates how the Metaverse can revolutionize medical training by offering realistic, risk-free scenarios for enhancing clinical skills and decision-making. By integrating virtual learning with personalized nutrition plans, these studies emphasize the Metaverse's capacity to bridge gaps in healthcare delivery, improve overall health outcomes, and foster a new paradigm in patient care and health education in a digital world. This review article was performed within article published in PubMed , Google Scholar and Web of Science from 2021-2024.by searching this database , 15 articles were found and 8 were removed by reading titles and abtracts.7 articles were selected under the inclusion criteria. All articles were chosen from English articles. The keywords were Metaverse, Artificial Intelligence. The Metaverse offers a revolutionary chance to improve healthcare education and patient involvement. By combining AI and immersive tech, medical training can become more interactive, boosting skills and promoting healthy choices. This approach makes learning more effective and empowers patients in their care. The Metaverse, when combined with AI, AR, and VR, has significant potential to improve healthcare by enhancing medical education, health literacy, and accessibility. In medical education, AR and VR tools are being integrated, revolutionizing surgical training and providing opportunities for underserved populations. In conclusion, while potential drawbacks exist, the Metaverse ultimately promises to benefit patients, healthcare providers, and educators by diversifying available options in the medical field.

Please cite this article as: . Koushki S, Kafili K, Eshraghi S, Javid H. Metaverse Medicine: A Review on Harnessing Artificial Intelligence-Powered Simulations and Nutritional Strategies for Enhanced Healthcare Delivery Int J Nutr Sci. 2025;10(2-Supplement):S256.

International Journal of Nutrition Sciences

POSTER

Mobile Health and Artificial Intelligence in Nutrition and Lifestyle Modification: A Review on Transforming Health Management

Hooman Ghasri*

Kurdistan University of Medical Sciences, Kurdistan, Iran

ARTICLE INFO

Corresponding author:
Hooman Ghasri, MD;
Kurdistan University of Medical
Sciences, Kurdistan, Iran.
Email: Hooman569@yahoo.com

ABSTRACT

Mobile Health (mHealth) technologies and artificial intelligence (AI) are revolutionizing the way we manage nutrition and lifestyle modifications, offering personalized, data-driven approaches to health improvement. These technologies allow individuals to track their diet, physical activity, and overall wellness, while providing real-time feedback and tailored recommendations. This article explored the role of mHealth and AI in promoting healthier nutrition choices and lifestyle habits, their benefits, challenges, and future directions. Scientific databases were searched using related keywords. Chronic diseases like obesity, cardiovascular diseases, diabetes, and certain types of cancer have become increasingly prevalent due to poor nutrition and sedentary lifestyles. Traditional methods of managing these conditions often require frequent in-person consultations and generic recommendations. However, the advent of mHealth and AI has provided novel solutions to these challenges, offering tools that are both scalable and personalized. The mHealth technologies refer to mobile devices (smartphones, tablets, wearables) and applications that facilitate health-related activities, such as tracking nutrition, exercise, and sleep patterns. AI, when integrated into these systems, enhances their capability by providing personalized, predictive analytics and adaptive recommendations based on an individual's data. The impact of mHealth and AI in nutrition and lifestyle modification has focused on their applications, benefits, and challenges. mHealth applications have become powerful tools for tracking nutrition. In conclusion, these apps allow users to input their daily food intake, monitor calorie consumption, and assess nutrient balance. Popular apps like MyFitnessPal and Lose can analyze food choices and offer insights on whether the user's diet is meeting their nutritional needs.

International Journal of Nutrition Sciences

POSTER

Mobile Health and Connected Care: A Review on Revolutionizing Laboratory Efficiency and Disease Management

Hossein Javid[1]*, Pouya Rahimi Zarei[2], Sara Rahmani[2]

1. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Surgical Oncology Research Center,
Mashhad University of Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Mobile health (mHealth) solutions enhance laboratory workflows by reducing turnaround times, improving data accuracy, and minimizing human errors. Enhanced communication fosters faster clinical interventions, while patient monitoring tools improve treatment adherence. Successful implementation of mHealth has demonstrated cost savings and better health outcomes, making it a valuable tool for modern healthcare systems. This study conducted a literature review and analyzed case studies of mHealth applications in medical laboratories. The focus was on pre-analytical (sample collection) and post-analytical (result communication) processes. The study examined the impact of mHealth on data accuracy, workflow efficiency, and patient engagement, highlighting its potential to improve laboratory operations. mHealth technologies significantly enhance laboratory workflows by reducing errors and improving efficiency. Automated systems for sample tracking streamline the pre-analytical phase, while digital tools for result delivery ensure timely and accurate communication. These advancements facilitate faster interventions and better clinical outcomes. Patient monitoring tools, such as remote check-ins and reminders, improve treatment adherence and promote effective disease management. Case studies reveal that mHealth can lead to cost reductions, enhanced efficiency, and improved health outcomes, including fewer hospitalizations and better patient satisfaction. In conclusion, conventional laboratory systems often face inefficiencies that mHealth solutions effectively address. By optimizing analytical processes and enhancing communication between patients and providers, mHealth increases healthcare efficiency and value. However, challenges like scalability and long-term sustainability remain. Future research should focus on addressing these barriers to maximize the potential of mHealth in transforming healthcare delivery.

POSTER

Mobile Application for Self-Care of Patients with Crohn's Disease: A Review

Zahra Omidali*

Medical Informatics Unit, Student Research Committee, Department of Health Information Technology, Faculty of Paramedical Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Zahra Omidali, MSc;
Medical Informatics Unit, Student
Research Committee, Department
of Health Information Technology,
Faculty of Paramedical Ahvaz
Jundishapur University of Medical
Sciences, Ahvaz, Iran.
Email: Z.omidali31474@gmail.com

ABSTRACT

Crohn's disease is a chronic inflammatory bowel disease that requires constant and careful management. Due to the increase in the number of patients, the long treatment process, the high costs that are spent annually on the management of this disease, as well as the significant growth and development of the use of smart applications to manage chronic diseases, we decided to design a smart mobile application for the management of Crohn's disease. Scientific databases were searched using related keywords. First, the main needs of patients were determined through interviews and questionnaires, then the strengths and weaknesses of the existing applications were determined, and finally the initial design of the application was done by choosing the appropriate platform and designing the user interface, the desired capabilities were added to it, and then the performance evaluation was done and according to the feedback of the users, the required modifications were made and the set goal was achieved. According to this study, the things that should be considered for designing an application are the right platform for application development, secure and fast databases, up-to-date servers, security technologies, and data analysis methods. Also, continuous monitoring of symptoms to identify the pattern of the disease, management of medications, providing appropriate nutritional guidance, helping to maintain the patient's relationship with the doctor, continuous patient education, psychological support, especially since these patients suffer from a lot of stress and anxiety. In conclusion, the application can significantly improve the quality of life of patients, better manage the disease, and reduce visits to the doctor.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Applications and Alzheimer's Disease: A Review of Technologies and Innovations in Patient Care

Fateme Aliesmaeili[1], Zohreh Dehghan Harati[1], Bahar Akbari[2], Negin Farid[3], Mohammad Hossein Taklif[4]*

1 Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2 Department of Anesthesiology, School of Allied Medical Scinces, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3 Student Research Commitee, school of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran,
4 Marine Medical Research Center, Baqiyatullah University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Mohammad Hossein Taklif, MSc;
Marine Medical Research Center,
Baqiyatullah University of Medical
Sciences, Tehran, Iran.
Email: Hosseintaklif@gmail.com

ABSTRACT

Alzheimer's disease (AD) is a source of grave concern to the medical community in terms of public health because it has been projected that by 2025 about one hundred fifty two million individuals would be affected worldwide. This fact emphasizes the need for new care solutions such as mobile health (mHealth) applications. Nevertheless, there is a lack of comprehensive review for mobile apps that have been developed specifically to provide care for individuals with Alzheimer's despite burgeoning interest in this area; hence the purpose of conducting the systematic review. In this systematic review, an extensive search was conducted using keywords such as "mobile application", "Alzheimer's", and "dementia" across international databases like PubMed/Medline, WOS core collection, Scopus, and Google Scholar, as well as national databases like SID, Magiran, and Irandoc. The initial search yielded 210 studies. Inclusion criteria focused on studies published within the last five years, while review articles and gray literature were excluded. After critical appraisal using relevant tools, nine studies were selected for detailed analysis. The studies indicate that mobile applications enhance the quality of life for dementia patients by supporting caregivers, tracking locations, providing cognitive exercises, and facilitating face recognition. Features such as alert systems and notes also improve the overall quality of care provided to patients. In conclusion, mobile apps are absolutely critical in designing better care and support for caregivers. He should be advised the proper way to use these applications more efficient with it.

International Journal of Nutrition Sciences

POSTER

Mobile Game Applications as Learning Tools for Children with Learning Disorders: A Review

Mohammad Heydari[1], Mohadese BabaMohammadi[2], Taleb Khodaveisi[3]*

1. Students Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Social Sciences, Allameh Tabataba'i University, Tehran, Iran
3. Department of Health Information Technology, School of Allied Medical Sciences, Hamadan University of Medical Sciences, Hamadan, Iran

ARTICLE INFO

Corresponding author:
Taleb Khodaveisi, PhD;
Department of Health Information
Technology, School of Allied Medical
Sciences, Hamadan University of
Medical Sciences, Hamadan, Iran.
Email: T.khodaveisi@gmail.com

ABSTRACT

Children with Learning Disabilities (LD) have significant difficulties in attention and functioning, such as miscommunication, learning, and problem-solving. This study aims to review the role of Mobile Game Apps (MGAs) in facilitating learning among children with various disabilities, including ADHD, Autism, and dyslexia. A systematic literature review was conducted utilizing the keywords "Learning Disorder", "Learning Disability", "Mobile game apps", "Gamification", "ADHD", and "Autism" in databases including Scopus, PubMed, Web of Science, Science Direct, and Google Scholar. We retrieved all the related original papers and reports published in English from December 2014 to February 2024. The retrieved articles underwent two-step title/abstract and full-text screening processes, and the eligible articles were included for qualitative synthesis. Finally, 19 papers met our criteria and were included in the study. The frequency of game apps for LD were; ADHD (n=8), ASD (n=6), and dyslexia (n=5). Virtual and Augmented reality (n=6), gamification (n=7), and Serious Games (n=6) were the popular technologies used in articles. MGAs as interventional tools have the potential to enhance (i) Learning, (ii) Attention, (iii) Promote Social Interactions, and (iv) Cognitive Skills among these children. MGAs as Game-based Learning methods by integrating elements of gamification, personalized learning, and adaptive feedback can address the unique educational needs of children with LD. In conclusion, MGAs offer a fun and engaging platform and improve motivation, and specific skill sets such as reading, mathematics, and memory in children. The findings suggest that MGAs have the potential to revolutionize the way children with learning disabilities and disorders receive educational support.

Please cite this article as: Heydari M, BabaMohammadi M, Khodaveisi T. Mobile Game Applications as Learning Tools for Children with Learning Disorders: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S261.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Health and Its Impact on Self-Care and Disease Prevention: A Review

Omid Torabi[1], Mohammadamin Houshangi Shayan[1], Hoda Ahmari Tehran[2]*

1. Student Research Committee, Faculty of Nursing & midwifery, Qom University of Medical Sciences, Qom, Iran
2. Spiritual Health Research Center, Medical Education Department, Qom University of Medical Sciences, Qom, Iran

ARTICLE INFO

Corresponding author:
Hoda Ahmari Tehran, PhD;
Spiritual Health Research Center,
Medical Education Department,
Qom University of Medical Sciences,
Qom, Iran.
Email: Ahmari9929@gmail.com

ABSTRACT

Mobile health (mHealth) technologies are increasingly used globally to enhance self-care and disease prevention. With over 6.8 billion smartphone users worldwide by 2023, mHealth applications have the potential to address challenges such as chronic disease management, health education, and behavior modification. However, a comprehensive evaluation of their effectiveness is crucial. This systematic review analyzed studies from PubMed, Scopus, and Web of Science published between January 2010 and December 2023. Eligible studies evaluated mHealth interventions focused on self-care and disease prevention, reporting outcomes like user engagement, health behavior change, or clinical improvements. A total of 74 studies, including randomized controlled trials, cohort studies, and cross-sectional studies, met the inclusion criteria. Data synthesis followed PRISMA guidelines. Of the included studies, 62% (46/74) reported significant improvements in self-care behaviors, such as medication adherence and physical activity. Disease prevention outcomes, including reduced incidence of type 2 diabetes and hypertension, were observed in 41% (30/74) of the studies. mHealth interventions with interactive features, such as real-time feedback and personalized goal setting, showed higher user engagement (mean engagement rate of 72%). Applications targeting smoking cessation demonstrated a 28% higher quit rate compared to control groups. However, barriers such as digital literacy and data privacy concerns were noted in 29% (21/74) of the studies. In conclusion, mHealth technologies show strong potential to improve self-care and prevent diseases, especially when tailored to user needs and supported by evidence-based features. Addressing accessibility barriers and fostering sustained engagement require further research.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Mobile Health Application in PCR Technology: A Review on Revolution in Rapid Disease Diagnosis

Reyhane Abidi, Zeynab Mirnezhad, Fatemeh Ehsani, Hossein Javid*

Department of Medical Laboratory Sciences, Varastegan institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Mobile health (mHealth) technologies are becoming a newer tool for disease diagnosis. PCR technology detects and amplifies DNA and RNA, and with advances in mobile technology, this could be possible for use among the general public. The aim of this study is to investigate the relationship between mHealth and PCR technology. This review article was written by reviewing articles published in PubMed, Science Direct, and Google Scholar until December 2024. The keywords were mHealth, digital PCR, point-of-care testing. By searching these databases, 9 articles were found. Three of them were removed after reviewing the articles and 6 articles were selected. All articles were selected from English-language sources. We studied 6 articles in our study. Research showed that combining PCR with mobile technologies sped up diagnosis and was more efficient, as this approach enabled doctors to take samples with great ease and obtain results. For example, for some dangerous diseases, using PCR identified patients in a very short time and with a lower prevalence of the disease. In addition, the access of non-specialists to this technology improved public awareness and better health management. These innovations led to faster diagnosis of diseases and tracking of people's health status. In conclusion, it appears that integrating PCR with mHealth technology increased the speed and accuracy of disease diagnosis and improved access to health services; it also represented a turning point in the fight against diseases and improved the quality of life among people; but this progress must be furthered with additional research.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Health Approaches for Type 2 Diabetes: A Review of Monitoring and Personalized Management Strategies

Ali Honari Jahromi[1], Parisa Alipour[2]*

1. Autophagy Research Center, Department of Biochemistry, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Division of Laboratory Hematology and Blood Banking, Department of Medical Laboratory Sciences, School of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Parisa Alipour, MSc;
Division of Laboratory Hematology and Blood Banking, Department of Medical Laboratory Sciences, School of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Alipourparisa5111997@gmail.com

ABSTRACT

Type 2 diabetes (T2D) is a disease with a multifactor genetic background marked by insulin resistance and high blood sugar levels. Genetics play a key role in T2D, with multiple gene variants contributing to its development. This would help facilitate the development of novel diabetes diagnosis and treatment methods. Mobile health (mHealth) technologies have demonstrated great efficacy in mitigating T2D risk and enhancing personalized management of risk populations. This article reviews the role of mHealth in T2D management. Articles were searched in PubMed and Scopus databases and Google Scholar search engine with keywords such as "T2D" and "mHealth" and "monitoring" and "Personalized Management" for the relevant papers published from 2015 to 2024. Two researchers independently screened 233 articles. Ultimately, 10 studies focused on mHealth for T2D, provided quantitative outcomes, and were published in peer-reviewed journals were selected for analysis. mHealth devices enable personalized T2D control by allowing constant glucose monitoring. They provide instant feedback and visual data trends, helping patients make informed decisions and change behavior. mHealth approaches reduce blood sugar levels while enhancing glycosylated hemoglobin. Moreover, they facilitate improvements in self-control, unscheduled doctor's visits, lifestyle practices, and clinical outcome parameters. In conclusion, this review demonstrates that mHealth is a critical aspect of T2D management and monitoring, given its ability to offer real-time data and trends on glucose levels, support behavior modification, and enhance self-control and clinical outcomes. Therefore, customizing mHealth interventions based on an individual's genetic profile could lead to significantly better outcomes in T2D management.

Please cite this article as: Honari Jahromi A, Alipour P. Mobile Health Approaches for Type 2 Diabetes: A Review of Monitoring and Personalized Management Strategies. Int J Nutr Sci. 2025;10(2-Supplement):S264.

POSTER

Mobile Health Applications to Mental Support of Pregnant Women: Content Analysis Using Mobile Application Rating Scale

Mozhgan Tanhapour[1], Sharareh Rostam Niakan Kalhori[2,3], Seyed Mohammad Ayyoubzadeh[3], Parvin Shahry[4]*

1. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
2. Peter L. Reichertz Institute for Medical Informatics of TU Braunschweig and Hannover Medical School, Braunschweig, Germany
3. Department of Health Information Management and Medical Informatics, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
4. Social Determinants of Health Research Center, Department of Public Health, Ahvaz Jundishapur University of Medical Science, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Parvin Shahry, PhD;
Social Determinants of Health
Research Center, Department of
Public Health, Ahvaz Jundishapur
University of Medical Science,
Ahvaz, Iran.
Email: Shahry_2001@yahoo.com

ABSTRACT

Background: Pregnancy is a vulnerable period when emotional challenges are common. Maternal and infant health can be affected by creating mental preparedness in pregnant women, preventing and treating mental problems. Many pregnant women face barriers to accessing mental health services like cost, distance, and busyness. By increasing the popularity of mobile apps, this technology can provide mental health services for pregnant women. The goal of this paper is to review and content analysis of existing apps concerning the mental health of pregnant women.

Methods: The Google Play Store was systematically searched to identify maternal mental health apps. The included apps' general and technical characteristics were extracted. Two reviewers independently assessed the quality of selected apps using the Mobile App Rating Score (MARS).

Results: In total, 8 apps were included in content analysis. The value of Spearman's coefficient was obtained at 0.898 (p=0.002), showing a significant inter-rater agreement between the two raters. The "Pregnancy Companion" and "Mindful IVF" have the highest total MARS score (4.73). All of the apps took an acceptable MARS score (score3). Functionality (4.89±0.14) and subjective quality (3.85±0.71) dimensions of the included apps obtained the highest and lowest mean scores from MARS scales, respectively.

Conclusion: Esthetics and engagement are the aspects of maternal mental health apps with the potential to improve the user's attraction and satisfaction. There is more need for evidence-based literature concerning maternal mental health. This paper provides helpful information for healthcare professionals, pregnant women, and health app developers.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Health Interventions for Prevention and Management of Cardiovascular Diseases: A Review

Mohammad Mehdi Javidan[1]*, Hossein Molavi Vardanjani[2]

1. School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of MPH, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mohammad Mehdi Javidan, MD;
School of Medicine, Shiraz University
of Medical Sciences, Shiraz, Iran.
Email: Mehdijavidan@sums.ac.ir

ABSTRACT

Despite advances in cardiovascular health, CVD remains the leading cause of death worldwide. The progress in digital and mobile tools offers a special opportunity to improve access to and utilization of cardiovascular health services, garnering significant research interest. However, there is no consensus on effective mobile interventions for CVD prevention and management. This scoping review investigates controlled trials assessing the impact of mobile phone interventions on cardiovascular health improvement. A scoping review was conducted and reported in line with the PRISMA-ScR checklist, targeting the adult population, mobile-based interventions, and cardiovascular health. A systematic search of RCT studies was performed using artificial intelligence (AI)-based academic tools, followed by human screening and selection. Critical appraisal was conducted using the RoB 2 tool recommended by the Cochrane Institute. Thirty-nine RCTs involving 161,100 participants were included, focusing mainly on cardiovascular management and, to a lesser extent, prevention. mHealth interventions significantly improved several outcomes, including increased physical activity and medication adherence (risk ratio=1.34, 95% CI: 1.12–1.61, $p=0.001$) and better blood pressure control ($p=0.001$). Unplanned readmissions were significantly lower ($p=0.020$) in intervention groups. However, the sustainability of these positive effects was not consistently confirmed. In conclusion, this review highlights the potential of digital tools in cardiovascular health, though few RCTs have explored their use, especially for disease prevention. The favorable effects of mobile interventions suggest the need for greater investment by governments, research institutions, and researchers to enhance cardiovascular health outcomes.

Please cite this article as: Javidan MM, Molavi Vardanjani H. Mobile Health Interventions for Prevention and Management of Cardiovascular Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S266.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Health Interventions for Vulnerable Populations: A Review

Fatemeh Khademian[1], Seyed Jalil Masoumi[1,2,3,4]*, Seyedeh Leila Masoumi[5], Hosein Rasekh[5]

1. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
4. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran
5. Vice-Chancellor for Student and Cultural Affairs, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD; PhD;
Information Technology Incubator
Centre, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

The increasing prevalence of chronic diseases among vulnerable populations, including the elderly, children, and people with disabilities, requires innovative solutions in health care. Mobile health (mHealth) technologies show very promising ways to improve health outcomes in such populations through better access to and participation in health care. A review of studies published between 2015 and 2023 that examined mHealth interventions targeting vulnerable populations was conducted. An extensive search was conducted in PubMed, Scopus, and Web of Science databases. Inclusion criteria were set for randomized controlled trials, cohort studies, and qualitative research that evaluated the impact of mHealth on health outcomes, patient satisfaction, and adherence to care. The evidence showed that mHealth interventions lead to significant improvements in health outcomes for vulnerable populations. Findings include improved medication adherence, enhanced health literacy, and increased patient engagement. Furthermore, studies indicated that mHealth applications can facilitate remote monitoring of chronic conditions, allowing for timely interventions and reducing hospitalizations. These studies also highlighted barriers to technology literacy and access to devices that must be addressed to maximize the effectiveness of mHealth. In conclusion, this review focuses on how mHealth technologies can be used to improve healthcare delivery among vulnerable populations. Stakeholders must prioritize user-friendly designs and address accessibility issues to take full advantage of these interventions. Future research should focus on long-term outcomes, the scalability of successful mHealth programs, and the integration of mHealth solutions into existing healthcare systems to ensure sustainability and efficacy.

Please cite this article as: Khademian F, Masoumi SJ, Masoumi SL, Rasekh H. Mobile Health Interventions for Vulnerable Populations: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S267.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Health Technologies for Burn Patient Self-Care: A Review

Fatemeh Khademian[1], Abdolkhalegh Keshavarzi[2]*, Seyedeh-Sara Hashemi[3], Amir Emami[4]

1. Information Technology Incubator Center, Shiraz University of Medical Sciences, Shiraz, Iran
2. Burn and Wound Healing Research Center, Department of general surgery, Amiralmomenin Hospital, Shiraz University of Medical Sciences, Shiraz, Iran
3. Burn and Wound Healing Research Center, Department of Histology, Shiraz University of Medical Sciences, Shiraz, Iran
4. Burn and Wound Healing Research Center, Department of Microbiology, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Abdolkhalegh Keshavarzi, MD;
Burn and Wound Healing Research
Center, Department of general
surgery, Amiralmomenin Hospital,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Iliakeshavarzi@yahoo.com

ABSTRACT

Burn injuries have a profound impact on the quality of life and self-esteem of affected individuals. The advent of mobile technology presents a promising approach to enhancing self-care outcomes for burn patients, particularly in underserved areas. This review aimed to discover findings on the effectiveness of mobile applications in improving health outcomes for burn patients. This is a narrative review that included studies published between 2016 and 2024, searched from PubMed, Scopus, and Google Scholar databases. The main search terms used were burns, self-care, and telemedicine. Findings show that mobile technology significantly improves the management of burn injuries. For instance, a mobile-based consultation system revealed that telemedicine consultations led to changes in patient management (66%) and reduced unnecessary referrals (38%). Additionally, a study found that patients who received mobile support were able to avoid unplanned hospital readmissions (19.1%). The Bridge Mobile App, designed for burn patients, provided 24/7 access to educational materials and support, leading to improved pain management, reduced anxiety, and greater social engagement. Furthermore, patients who used mobile applications reported an increase in self-efficacy (25%) and improvement in quality of life within the first 90 days post-discharge (30%). In conclusion, mobile health technologies are valuable tools in facilitating the recovery process for burn patients. These resources not only improve clinical outcomes but also promote resilience and self-care among patients. Future research should focus on investigating the long-term effects and the potential for expanding these interventions across different healthcare settings.

Please cite this article as: Khademian F, Keshavarzi A, Hashemi SS, Emami A. Mobile Health Technologies for Burn Patient Self-Care: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S268.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Mobile Health: A New Approach to Improve Management of Hypothyroidism: A Review

Mohaddese Riggi[1], Seyed Alireza Marjani Bajestani[1]*, Nazanin Tayyebi[2], Mahsa Yosefi[1], Mohamad Hamidi Haji Abadi[3]

1. Medical-Surgical Nursing Department, School of Nursing and Midwifery, Zahedan University of Medical Sciences, Zahedan, Iran
2. Food of safety and Hygiene Department, School of Medicine, Gonabad University of Medical Sciences, Gonabad, Iran
3. Community Health Nursing Department, School of Nursing and Midwifery, Zahedan University of Medical Sciences, Zahedan, Iran

ARTICLE INFO

Corresponding author:
Seyed Alireza Marjani Bajestani, BSc;
Medical-Surgical Nursing Department,
School of Nursing and Midwifery,
Zahedan University of Medical
Sciences, Zahedan, Iran.
Email: Alirezamarjani077@gmail.com

ABSTRACT

Thyroid diseases, particularly hypothyroidism, are among the most prevalent endocrine disorders globally with a reported incidence in Iranians that is four times more than the global average. Optimal management of the disease necessitates meticulous monitoring. However, challenges such as poor adherence to treatment, misdiagnosis, and delays in treatment persist in this area. Therefore, there is a need for innovative and effective methods, such as mobile health, for the management of this disease. This approach can empower patients in managing their condition. Although mobile health programs can provide a useful solution for the self-management of individual conditions, the impact of digital solutions on improving the health of thyroid patients remains unknown. A review study was conducted to examine and analyze existing studies in databases (Google Scholar, PubMed, Science Direct, etc.) within the time frame of 2014 to 2024. The aim is to examine the benefits and challenges of mobile health in the management of hypothyroidism and thyroid cancer. Among the searched studies, five studies were selected, indicating that mobile health programs can lead to improvements in treatment adherence, reduction of clinical symptoms, improved quality of life, and patient self-management. Challenges such as lack of internet access and concerns about privacy and security of patient information persist. In conclusion, mobile health has a high potential to transform the methods of treatment and monitoring of hypothyroidism, and it can serve as an effective tool in creating a comprehensive and patient-centered treatment model.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Mobile Phone Applications for Fitness in Capterra's Website: A Review on Using Mobile App Rating Scale

Reza Safdari[1], Sahba Kazemipour[1], Shahrbanoo Pahlevanynejad[2]*

1. Department of Health Information Management, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
2. Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran

ARTICLE INFO

Corresponding author:
Shahrbanoo Pahlevanynejad, PhD;
Social Determinants of Health
Research Center, Semnan University
of Medical Sciences, Semnan, Iran.
Email: Shpahlevany@gmail.com

ABSTRACT

Obesity has become so prevalent among the global population that it is increasingly supplanting under-nutrition and infectious diseases. However, there remains ambiguity regarding their effectiveness in assisting individuals to attain and sustain personal fitness goals. This study was designed to examine the mobile phone apps for fitness in a systematic search using the Mobile App Rating Scale. This comprehensive search uncovered applications. The fitness category was selected from the Software (304 software) Categories section. Then by selecting the option for Android, 179 programs were presented. Finally, 29 application programs were entered for evaluation with MARS tools. 29 were included. The mean (SD) MARS scores (maximum 5 points) were 4.1±0.3 for objective quality, highlighting whether any app had been tested in trials; 4.05±0.4 for subjective quality; and 3.66±SD 0.6 for the app-specific section. Therefore, a rating ≥3 points indicated overall acceptable quality. From the between-section comparison, engagement (mean: 3.89±0.6) obtained significantly higher scores than functionality (mean: 3.66±0.7), esthetics (mean: 4.06±0.4), and information (mean: 4.05±0.3). In conclusion, a satisfactory level of MARS quality was observed in this systematic review of fitness applications. However, it is recommended that the engagement component for fitness products and activity-oriented applications be enhanced and that the apps included in the study undergo rigorous testing in trials. The key issues highlighted in this systematic review may serve to enhance the creativity and practical utility of forthcoming fitness applications.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Mobile-Enabled Volunteer First Responder Dispatch in Emergencies: A Review

Negar Mazaheri[1], Mohammad Reza Khajehaminian[1*], Ibrahim Salmani[1], Saeed Fallah-Aliabadi[1], Omid Yousefianzadeh[2]

1. Department of Health in Disaster and Emergencies, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Department of Health Information Technology and Management, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Khajehaminian, PhD;
Department of Health in Disaster
and Emergencies, School of Public
Health, Shahid Sadoughi University
of Medical Sciences, Yazd, Iran.
Email: Khajehaminian@gmail.com

ABSTRACT

Emergency medical services grapple with persistent staffing shortages, hindering rapid response times to critical incidents. Volunteer First Responders (VFRs), comprising both professionals and lay individuals with first aid training, offer a valuable resource to augment existing systems. This systematic review aimed to investigate mobile applications designed to dispatch VFRs during emergencies. **Methods:** Following the PRISMA 2020 guidelines, a rigorous search was conducted across major international databases (PubMed, Scopus, Web of Science), supplemented by a manual search of Google Scholar and prominent journals. Inclusion criteria were limited to original articles focusing on mobile applications for VFR dispatch without any time and language restrictions. The analysis identified 16 distinct applications from 12 countries, each contributing to improved emergency response. Ten applications were specifically designed for out-of-hospital cardiac arrest (OHCA) events, while five addressed a broader spectrum of emergencies, including fires, road traffic and mass casualty incidents, and one application focused on drug overdose response. All applications utilized smartphone GPS-tracking systems to pinpoint the nearest available VFRs within a predefined activation radius. Notification mechanisms varied, with one application providing the incident address as text, while 15 integrated map links alongside the textual address. Notably, 13 applications facilitated access to nearby Automated External Defibrillators (AEDs), and four enabled VFRs to conveniently carry essential life-saving equipment bags. In conclusion, this review demonstrates the potential of mobile technology in enhancing emergency healthcare delivery. Given the substantial burden of cardiac events and road traffic accidents, implementing similar applications in our country could improve response times.

Please cite this article as: Mazaheri N, Khajehaminian MR, Salmani I, Fallah-Aliabadi S, Yousefianzadeh O. Mobile-Enabled Volunteer First Responder Dispatch in Emergencies: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S271.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Next-Generation Toxicology: Immersive Virtual Ecosystems and Transformation of Toxicology in Metaverse: A Review

Parisa ShoaeHagh*

Pharmacodynamics and Toxicology department, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Parisa ShoaeHagh, PhD;
Pharmacodynamics and Toxicology department, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran.
Email: Shoaeip941@gmail.com

ABSTRACT

Traditional toxicology methods face challenges in effectively conveying complex concepts like toxicokinetics and toxicodynamics, conducting realistic simulations of exposure and effects, translating research findings to clinical settings, and fostering patient understanding of toxicological risks. This paper explores the transformative potential of immersive virtual ecosystems (IVEs) within the Metaverse for revolutionizing toxicology across education, research, clinical practice, and patient engagement. Addressing these limitations by proposing the integration of IVEs, leveraging extended reality (XR), interoperability, and decentralization to create dynamic and interactive learning and research environments, we outline the current state of toxicology in these four key areas—education, research, clinical practice, and patient engagement, and reviews existing XR applications in related fields such as medical training and patient rehabilitation. It then details how Metaverse-based simulations can enhance toxicology education through interactive 3D models of organs and cellular processes, facilitate research by enabling complex data visualization, virtual experiments simulating chemical interactions and exposure scenarios, improve clinical practice by providing realistic training scenarios for managing poisoning cases and using decision support tools, and empower patient engagement through accessible health information, personalized support, and virtual support groups. The discussion synthesizes these findings, addressing potential challenges such as technological accessibility and data security, ethical considerations regarding data privacy, potential misuse of virtual environments, and the overall impact of IVEs on the future of toxicology. In conclusion, this review demonstrates with recommendations for future research and development, emphasizing the potential of IVEs to reshape the field, improve human health outcomes, and create a more informed and engaged public.

Please cite this article as: ShoaeHagh P. Next-Generation Toxicology: Immersive Virtual Ecosystems and Transformation of Toxicology in Metaverse: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S272.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Nurses' Attitudes about the Use of Smart Phones and Their Relationship with Quality of Nursing Care

Tahere Heydari[1], Msoud Khoshknab-Fallahi[1*], Abolfazl Rahgoi[1], Mohsen Vahedi[2]

1. Department of Nursing, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
2. Department of Epidemiology and Biostatistics, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Msoud Khoshknab-Fallahi, PhD;
Department of Nursing, University
of Social Welfare and Rehabilitation
Sciences, Tehran, Iran.
Email: Fallahi@uswr.ac.ir

ABSTRACT

Background: The use of smart phones in health service provider systems can have many positive and negative consequences in the provision of care. The current study aims to investigate the attitude of nurses about the use of smart phone and its relationship with the quality of nursing care has been done.

Methods: In this descriptive-analytical study, 311 nurses were included in the study by random sampling method from educational and treatment centers of Iran University of Medical Sciences. Demographic information and attitude towards smart phone and quality of nursing care questionnaires were used to collect data. Pearson's correlation coefficient, independent t test, one-way analysis of variance and linear regression were used for data analysis.

Results: The total score of the nurses' attitude scale regarding the use of smart phones had a direct and significant relationship with the quality of nursing care. In the final model of linear regression analysis, among the sub-dimensions of nurses' attitudes about the use of the telephone, only the internal environment sub-scale and among the demographic variables, gender and education had a significant relationship with the quality of nursing care.

Conclusion: The findings of the study showed that the attitude of nurses regarding the use of smart phones is related to the quality of nursing care. Considering the wide use of technologies related to smart ears in social life, not paying attention to the uses related to providing health care can have negative effects on the quality of nursing care.

Please cite this article as: Heydari T, Khoshknab-Fallahi M, Rahgoi A, Vahedi M. Nurses' Attitudes about the Use of Smart Phones and Their Relationship with Quality of Nursing Care. Int J Nutr Sci. 2025;10(2-Supplement):S273.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Opportunities and Challenges of Using Mobile Health in Heart Failure Management: A Review

Nasrin Moradi[1], Jahanpour Alipour[2]*

1. Health Services Management Department, Shiraz University of Medical Sciences, Shiraz, Iran
2. Health Human Resources Research Center, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Jahanpour Alipour, PhD;
Health Human Resources Research
Center, School of Health Management
and Information Sciences, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Jahanpour.alipour@gmail.com

ABSTRACT

Heart failure increases the length of stay and hospital costs. Mobile health (mHealth) is used as a solution to facilitate access and reduce the cost of providing healthcare services. This study aimed to examine the opportunities and challenges of using mHealth for the management of heart failure. A systematic review was conducted in 2024. After developing a search strategy based on the PICO framework and extracting keywords according to Mesh. Full-text research articles were searched in PubMed, Scopus, and Web of Science databases. The quality of the articles was assessed based on the Newcastle-Ottawa Scale (NOS). Thematic analysis was used. Totally, 15318 articles were extracted. 2047 articles were duplicates and were removed, and then 13105 articles were removed based on the review of the titles and abstracts. Improving patient confidence and safety and self-care, improving patient access to specialists, facilitating care coordination, saving time, are the main opportunities and the cost of remote monitoring, uncertainty about the accuracy of mHealth devices, lack of transparency of responsibilities, uncertainty about payment models, problems with the Internet technology infrastructure, and the lack of digital literacy of elderly patients were among the main challenges. In conclusion, despite the great opportunity in using telehealth for heart failure patients in facilitating access to health care. There are major challenges in this regard. Therefore, improving the internet infrastructure, improving the level of digital health literacy of elderly patients, and investing in higher quality digital tools, are essential to improve the current situation.

Please cite this article as: Moradi N, Alipour J. Opportunities and Challenges of Using Mobile Health in Heart Failure Management: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S274.

International Journal of Nutrition Sciences

POSTER

Point of Care Testing: A Review on State of the Art and Perspectives

Asma Javdanipour, Hossein Javid*, AmirReza Kanani, Motahare Mohammadi

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Point of Care Testing (POCT) is recognized as a popular method for conducting laboratory tests near patient. POCT is performed using portable, user-friendly devices. Quickness of test results is considered essential. The aim of this study was to determine strategies and standardize data, thereby increasing the accuracy of test results and POCT devices in the future. This review article was performed within articles published at PubMed, Science Direct, Google Scholar, Web of Science until June 2024. The keywords were point-of-care OR POCT AND reduse AND Quality Management System OR QMS AND artificial intelligence (AI). By searching this database, 15 articles were found and checked. 10 articles were selected under the inclusion criteria from English articles. The accuracy of POCT test results is critical because of immediate medical decisions after testing. The most common errors that occur during the use of POCT can arise throughout all activities of the process; therefore, implementing an appropriate Quality Management System (QMS) is nessesary. Quality indicators should be measured against a benchmark, thus achieving standards such as ISO 15189 ensures high quality in the performance of medical laboratories and POCT. In conclusion, POCT is a transformative innovation in laboratory medicine. Artificial intelligence can also help reduce the range of equipment and increase the accuracy of test results. AI also assist both of patient and healthcare providers by reduce costs and relieve pressure on medical services. These advancements will improve the quality of healthcare services and better disease management.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Predicting Genetic Diseases Using Machine Learning Algorithms: A Review

Zeynab Mirnezhad, Mahdieh Sadat Hosseini Nezhad, Hossein Javid*

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Traditional diagnostic methods may be inadequate for complex diseases caused by a combination of genes and environmental factors in genetic disorders. Machine learning is a suitable alternative because it deals with very large data sets and finds hidden patterns that are not evident from manual data analysis. This review highlights recent advances in machine learning for genetic disease prediction and provides insights into future directions in this field. Different databases, including PubMed, ScienceDirect, Google Scholar, and Web of Science, were searched up to January 2025. Keywords included genetics, disorder, machine learning, deep learning, prediction, and genomic data analysis. A total of 33 articles were identified. Of these, 22 were excluded after title and abstract review. Finally, 11 English-language articles met the inclusion criteria. Finally, 11 papers were included in our study, which showed a major leap in machine learning approaches for genetic disease prediction. Algorithms such as deep learning, support vector machines, and ensemble methods were used to analyze genomic datasets and predict inheritance patterns. Experimental models have shown high accuracy in identifying single gene or mitochondrial diseases. The results were strengthened by incorporating biological markers. In conclusion, It was shown that machine learning improves the prediction of complex genetic disorders over standard prediction methods when data preparation is complete. Future work should investigate the development of new suitable machine learning algorithms to aid in the diagnosis of rare diseases and facilitate early interventions in genetic disorders.

Please cite this article as: Mirnezhad Z, Hosseini Nezhad MS, Javid H. Predicting Genetic Diseases Using Machine Learning Algorithms: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S276.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Predicting Suicide Recurrence and Mortality Using Machine Learning Techniques

Zahra Taghados*, Mehrdad Sharifi, Nahid Abolpour, Marzieh Farid, Mehrzad Lotfi, Kamran Bagheri Lankarani

Shiraz University of Medical Sciences, Shiraz, Iran

ABSTRACT

Background: Suicide represents a significant global public health issue with devastating consequences for individuals, families, and communities. The ability to accurately identify individuals at risk of repeated suicide attempts or death is vital for implementing timely interventions and optimizing healthcare resources. This study employs advanced machine learning (ML) models to predict the likelihood of suicide recurrence and mortality, providing actionable insights for clinical decision-making and resource allocation.

Methods: Data were obtained from the Shiraz University of Medical Sciences, including demographic details, clinical history, and psychological assessments of individuals with a history of suicide attempts. Machine learning models such as Random Forest, Gradient Boosting Machines, and Support Vector Machines were employed to build predictive models. Feature selection was performed to enhance model performance, and the models were evaluated using metrics such as accuracy, precision, recall, and the area under the ROC curve (AUC-ROC).

Results: Key predictors identified included previous suicide attempts, psychiatric diagnoses, and access to mental health services. The Gradient Boosting model demonstrated the highest predictive accuracy, achieving an AUC-ROC score of 0.91. Feature importance analysis highlighted psychiatric comorbidities and prior hospitalizations as critical risk factors. Model predictions were further analyzed for explainability using SHAP (SHapley Additive exPlanations) values.

Conclusion: Machine learning models offer robust capabilities for predicting suicide recurrence and mortality. These findings can guide early interventions and improve outcomes for individuals at risk. Future studies will explore real-time deployment of these models in clinical settings and validation across broader datasets.

*Corresponding author:
Zahra Taghados, MSc;
Shiraz University of Medical Sciences,
Shiraz, Iran.
Email: Taghadoszahra1996@gmail.com

Please cite this article as: Taghados Z, Sharifi M, Abolpour N, Farid M, Lotfi M, Bagheri Lankarani K. Predicting Suicide Recurrence and Mortality Using Machine Learning Techniques. Int J Nutr Sci. 2025;10(2-Supplement):S277.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Predicting Tumor Response to Chemotherapy Using Machine Learning Methods: A Review

Maryam Abdollahi[1], Taban Shojaei[1], Mohammad Reza Mazaheri Habibi[1]*, Azam Kheirdust[2]

1. Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Medical Informatics Department, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Mazaheri Habibi,
PhD;
Department of Health Information
Technology, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Cancer treatment can be done before surgery with chemotherapy and radiation therapy to shrink the size of the tumor and increase the chance of surgery success. The purpose of this study was to investigate the role of artificial intelligence algorithms in predicting tumor response to chemotherapy. This study was done by searching in PubMed, Scopus, Web of Science databases and Google Scholar search engine between 2020 and 2024 with keywords chemotherapy, tumor, artificial intelligence and Machine learning. Inclusion criteria included all studies published in English that investigated the prediction of tumor response to chemotherapy using machine learning methods. Review studies and studies that did not focus on predicting tumor response to chemotherapy with machine learning methods were excluded. Finally, 10 articles were included in the study from a total of 133 articles were retrieved. Four studies compared machine learning models to predict the response of breast cancer patients to chemotherapy. Two studies were related to the investigation of machine learning models to predict the response of people with rectal cancer to treatment. Two studies were related to the investigation of machine learning models to predict the response of people with rectal cancer to treatment. Two studies investigated new developments and existing challenges in the field of using machine learning to predict cancer treatment response and also compared machine learning techniques. In conclusion, recent advances in machine learning methods are promising. These innovative approaches can increase the chance of treatment success and the quality of life of cancer patients.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Prioritizing the Potential Applications of Mobile in Iranian Health System Using Copeland Combined Method: A Review

Raheleh Akbari[1], Mina Noee[2]*, Aktar Jafari Tir Abad[3]

1. Health Technology Assessment Group, Faculty of Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Health Service Management Unit, Department of Health Economic and Management, School of Public Health, Tehran University of Medical Sciences Sciences, Tehran, Iran
3. Health Technology Assessment Group, Faculty of Health, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Mina Noee, MSc;
Health Service Management Unit,
Department of Health Economic
and Management, School of Public
Health, Tehran University of
Medical Sciences,
Tehran, Iran.
Email: Mina8026@yahoo.com

ABSTRACT

Access and the use of information and communication technology, especially mobile phones, have expanded significantly since the beginning of the new millennium; therefore, in a time when mobile and mobile apps have become closer to people more than any devices and media, it is necessary to identify the potential applications of mobile apps in the Iranian health system. This review study was done in 2021 and in this study, first, the main applications of apps and also the related indices for prioritization were extracted from a comprehensive review of studies. Then, the weight of these indices was extracted using the Shannon entropy method. By having the decision matrix and the weight of indices, the applications were separately weighted and ranked using four techniques of SAW, TOPSIS, VIKOR and ELECTRE 1. Finally the Copeland technique was used. Based on the results extracted from the studies and the opinions of experts, 8 main applications and also 14 indices were determined and entered the modeling phase. The greatest relative weight obtained was related to the index of ease of monitoring activities (0.220), and the least was related to the rate of easy access to apps in any location (0.022). In conclusion, according to the results of this study, it is suggested that by providing the necessary infrastructures for Internet and national information network, we can try to maintain and improve the society's health and also prevent from inappropriate and unnecessary costs by designing and investing in the development of applications with priority

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Privacy, Confidentiality, and Data Security in Digital Health Era: A Review

Amirhossein Chegeni[1], Alireza Akbari[1], Ziba Gharibi Torkani[1], Reyhaneh BeitSayah[1], Anis Hosseinpoor[1], AmirAbbas Azizi[2]*

1. Student Research Committee, Department of Health Information Technology, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Medical Informatics, Department of Health Information Technology, School of Allied Medical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
AmirAbbas Azizi, PhD;
Medical Informatics, Department
of Health Information Technology,
School of Allied Medical Sciences,
Ahvaz Jundishapur University of
Medical Sciences, Ahvaz, Iran.
Email: Amirabbas.azizi@gmail.com

ABSTRACT

The advancement of information technology and the development of innovative tools such as electronic health record systems and artificial intelligence in the digital era have resulted in the generation of massive amounts of health data in electronic formats. While these data play a crucial role in improving healthcare services and advancing medical research, they also introduce significant challenges concerning the security of health data and the preservation of patient privacy. This study examines these challenges, along with novel strategies and technologies in the realm of health data confidentiality and security, to propose comprehensive solutions for safeguarding data and protecting patient privacy. This study was conducted as a systematic review. Relevant articles were identified through searches in scientific databases such as PubMed and Google Scholar. After removing duplicates and evaluating findings based on inclusion and exclusion criteria, relevant studies were selected. The findings indicate that technologies such as blockchain, homomorphic encryption, and federated learning enable better protection of data and reduce the risk of information breaches. However, collaboration among experts, policymakers, and the establishment of regulatory frameworks aligned with technological advancements is essential. In conclusion, emerging technologies in the digital era offer opportunities to enhance healthcare systems, but they also pose challenges regarding the privacy and security of health data. Consequently, developing effective protective tools, building patient trust, ensuring transparency in data usage, and fostering inter-organizational collaboration are pivotal for creating a sustainable healthcare system and improving the quality of healthcare services.

Please cite this article as: Chegeni AH, Akbari AR, Gharibi Torkani Z, BeitSayah R, Hosseinpoor A, Azizi AA. Privacy, Confidentiality, and Data Security in Digital Health Era: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S280.

Recent Innovations in Portable Point-of-Care Diagnostic Devices for Pathogen Detection Using Smartphone Technology: A Review

Zakiye Safaei[1], Hossein Javid[2,3]*, Reyhane Majidi[1]

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Student Research Committee, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

*Corresponding author:
Hossein Javid, PhD;
Student Research Committee,
Varastegan Institute for Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

The rapid development of precise diagnostic tools for infectious diseases has significantly impacted global health, particularly in the context of viral outbreaks that challenge public health systems. Timely and accurate diagnosis is crucial for controlling transmission, especially when vaccines or effective treatments are unavailable. The emergence of novel diagnostic technologies promises to further revolutionize our approach to managing infectious diseases and enhancing public health responses. This review analyzed articles from PubMed, Google Scholar, and Web of Science up to 2023, identifying 16 articles based on keywords. After screening, 5 English articles met inclusion criteria. It highlights advancements in point-of-care devices for pathogen detection, focusing on miniaturized biosensors and innovative technologies like nanomaterials and microfluidics. This analysis showcases a variety of smartphone-based point-of-care testing (POCT) diagnostic techniques, particularly focusing on optical and electrochemical biosensors. These innovative methods are effectively utilized for the detection of critical viruses, including COVID-19, Ebola, influenza, Zika, and HIV. Additionally, the review identifies commercially available ready-to-use devices, evaluating their performance against traditional laboratory methods, thus highlighting their practical applications and effectiveness in real-world scenarios. In conclusion, the finding revealed that smartphone-based POC diagnostics hold the transformative potential to enhance virus detection and management, especially in resource-limited environments. Despite existing challenges in achieving broad implementation and ensuring reliability, these technological advancements pave the way for improved containment of infectious diseases and better public health outcomes worldwide. Researchers are urged to delve deeper into these innovations to address current barriers and further elevate diagnostic capabilities.

Please cite this article as: Safaei Z, Javid H, Majidi R. Recent Innovations in Portable Point-of-Care Diagnostic Devices for Pathogen Detection Using Smartphone Technology: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S281.

POSTER

Remote Diagnosis of Oral Lesions via Web-Based Teledentistry Tool

Fatemeh Niknam[1], Maryam Mardani[2], Peivand Bastani[3], Azadeh Bashiri[4], Reza Akbari[5], Roxana Sharifian[4]*

1. Health Management and Economics Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran
2. Oral and Dental Disease Research Center, School of Dentistry, Shiraz University of Medical Sciences, Shiraz, Iran
3. College of Business, Government and Law, Flinders University, South Australia, Australia
4. Human Health Resources Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
5. Department of Computer Engineering and Information Technology, Shiraz University of Technology, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Roxana Sharifian, PhD;
Human Health Resources Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Sharifianr@sums.ac.ir

ABSTRACT

Background: Oral mucosal lesions rank as the third most common oral pathology, following dental caries and periodontal diseases. Teledentistry provides an efficient approach for managing patients with these lesions. However, the accuracy of remote consultations and diagnoses depends significantly on the quality of the submitted information and images. This study examines the assessment of a teledentistry platform for diagnosing oral lesions remotely.

Methods: This cross-sectional study evaluated both the usability and reliability of the teledentistry platform "OralMedTeledent," designed for synchronous and asynchronous interactions, including patient consultations, remote follow-ups, and professional collaborations. Usability was assessed by five experts using Nielsen's heuristic checklist. Reliability was tested with 109 patients, selected through convenience sampling, who visited the Oral, Maxillofacial, and Dental Diseases Diagnosis Department at Shiraz Faculty of Dentistry, Iran, between August 2022 and September 2023. Cohen's kappa coefficient was employed to measure diagnostic agreement between the examiners and the gold standard for oral lesions.

Results: The usability assessment identified 66 issues, primarily related to error recognition and recovery, as well as help and documentation. Eleven issues were classified as minor. Reliability analysis involving 109 participants (57.8% female, 42.2% male) demonstrated strong system performance, with substantial agreement ($0.81 \leq \kappa 1$; $p=0.05$).

Conclusion: The web-based teleconsultation system demonstrated reliability for the remote diagnosis of oral lesions, establishing its value as a key resource during emergencies such as the COVID-19 pandemic. Nonetheless, resolving the identified usability issues is essential to improving the platform's overall effectiveness.

Please cite this article as: Niknam F, Mardani M, Bastani P, Bashiri A, Akbari R, Sharifian R. Remote Diagnosis of Oral Lesions via Web-Based Teledentistry Tool. Int J Nutr Sci. 2025;10(2-Supplement):S282.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Remote Nursing in Infertility Care: Nurses Perspectives

Fatemeh Dinari¹, Samaneh Dinari², Fatemeh Ghaznavi¹, Somayeh Zakerabasali³*

1. Department of Health Information Management, School of Health Management and Information Sciences, Student Research Committee, Health Human Resources Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
2. Medical-Surgical Nursing Medical Informatics Research Center, Institute for Futures Studies in Health, Kerman, Iran
3. Clinical Education Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Somayeh Zakerabasali, PhD;
Clinical Education Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Zakerabasi@gmail.com

ABSTRACT

Background: Infertility profoundly impacts couples, causing emotional, financial, and social strain. Remote nursing, a telemedicine branch, enhances care by improving outcomes, lowering costs, and empowering patient involvement. Given the widespread prevalence of infertility, understanding nurse perspectives on remote nursing is crucial for effective policy and healthcare planning. This study aimed to investigate nurses' perspectives on the role of remote nursing in providing care for infertile couples.

Methods: This descriptive cross-sectional study in 2023 at Fasa University of Medical Sciences surveyed 44 nurses with remote nursing experience. Convenience sampling was used. Data were collected via a self-designed electronic questionnaire with 33 items (demographics and remote nursing roles in infertility care). Content validity was established by experts, and reliability was confirmed with Cronbach's alpha (0.97). SPSS version 27 and descriptive statistics were used for data analysis.

Results: Participants were mostly female (72.7%) with a mean age of 33.6±1.4 years. Over half (59.1%) had less than 10 years of work experience. "Reducing treatment costs" (4.39±0.39) and "reducing workload" (4.37±0.37) received the highest ratings, reflecting nurses' perspectives on remote nursing's value. "Greater honesty with the patient" (3.91±0.95) and "better social interaction with the patient" (3.95±0.93) received the lowest.

Conclusion: The findings indicate a positive perception of remote nursing in infertility care among nurses. Given the high prevalence of infertility, policymakers and healthcare planners should review and update technological infrastructures and utilize the potential of this technology more extensively for infertility management.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Requirements of Self-care Applications for Postoperative Patients Undergoing Cataract Surgery

Roghayeh Mollaei[1]*, Mostafa Langarizadeh[1], Mahmood Nejabat[2]

1. School of Health Management and Information Sciences, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran
2. Poostchi Eye Research Center, Department of Ophthalmology, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Roghayeh Mollaei, MSc;
School of Health Management and
Information Sciences, School of
Health Management and Information
Sciences, Iran University of Medical
Sciences, Tehran, Iran.
Email: Mollaeiroghayeh5@gmail.com

ABSTRACT

Background: Cataract is an age-related disease in which persons' eyes lens become cloudy and the only effective treatment is surgery. According to studies, patients' low knowledge about post-operation cataract care, usually cause delays in recovery period or changes in vision, anatomical and psychological function due to complications and infection. Patients with surgery cataract experience complications that lead to reduced quality of life. To reduce the symptoms and complications postoperative, reduce the costs, and increase the quality of life, patients should self-care postoperative. The aim of this study was to identify the requirements of a mobile-based application for self-care of patients that undergoing cataract surgery.

Methods: The present descriptive-applied research was conducted from 2020 to 2021. The requirements of the post-operative self - care cataract surgery application including educational - clinical content were assessed using needs assessments from ophthalmologists. The questionnaire was distributed among 10 ophthalmologists at the Poostchi Center and KHalili Hospital in Shiraz, Iran. The obtained data were analyzed using the SPSS software and ranked by Friedman's test finally the required components were identified.

Results: Based on findings educational-clinical needs observance of health, daily activities, eye self-decoration, religious duties, exercise, prescriptions, natural and abnormal symptoms, follow-up and other care points after surgery were considered necessary.

Conclusion: Applying the requirements mentioned in the present study can improve the self-care postoperative cataract surgery. The features provided can be used as a model for designing software, systems, or applications.

Please cite this article as: Mollaei R, Langarizadeh M, Nejabat M. Requirements of Self-care Applications for Postoperative Patients Undergoing Cataract Surgery. Int J Nutr Sci. 2025;10(2-Supplement):S284.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Research Trend of Augmented Reality and Virtual Reality in the Field of Medical Education: A Review

Kamal Ebrahimi*, Abdollah Mahdavi

Department of Health Information Management, Faculty of Paramedical, Ardabil University of Medical Sciences, Ardabil, Iran

ARTICLE INFO

*Corresponding author:
Kamal Ebrahimi, PhD;
Department of Health Information
Management, Faculty of Paramedical,
Ardabil University of Medical
Sciences, Ardabil, Iran.
Email: Ebrahimi.kamal@gmail.com

ABSTRACT

Today, research on human-computer interaction in the use of pervasive technologies seems very necessary. Therefore, it can be seen that with the development of computer technology and simulation, virtual reality (VR) and augmented reality (AR) have found more application in several educational fields, especially medical education. VR is a virtual object in a virtual environment, and AR is a combination of real reality and virtual addition to it. The purpose of this article is to examine the research trend of virtual reality and augmented reality in the field of medical education and related fields. This descriptive study was conducted using scientometrics method. The research population consisted of the resources indexed in the Web of Science, which were selected based in the last ten years on the search strategy "virtual reality" (Topic) and "augmented reality" (Topic) and medical OR health (Topic), 1129 documents were retrieved. No patients or people were involved. The oldest indexed article in this regard was from 1998 and was on surgical simulation. The main areas of educational applications of virtual reality and augmented reality in the health sector include surgical training through simulation. The second area is anatomy training through simulation. Virtual education programs, specific areas such as nursing, dentistry, and patient education, and the challenges of this area such as ethical issues, cyber diseases were among the most important themes. In conclusion, the use of new educational methods, especially the simulation of clinical environments, will be an important part of future health education programs.

International Journal of Nutrition Sciences

Mobile Applications Functionality in Pregnancy Self-Care: A Review

Behnaz Pouriayevali[1]*, Asghar Ehteshami[2]

1. Department of Management and Health Information Technology, School of Management and Medical Information Sciences, Isfahan University of Medical Sciences, Isfahan, Iran
2. Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

ARTICLE INFO

*Corresponding author:
Behnaz Pouriayevali, PhD;
Department of Management and
Health Information Technology,
School of Management and Medical
Information Sciences, Isfahan
University of Medical Sciences,
Isfahan, Iran
Email: Behnaz.pouriayevali@
gmail.com

ABSTRACT

Self-care for pregnancy can prevent maternal and fetal complications and mortality. Mobile health applications are important tools for self-care and can help people to improve the quality of care. A clear understanding of current apps can help researchers, practitioners and app developers to identify the proper functionalities for new development and future refinement of current apps. This review endeavored to identify proper functions for the pregnancy self-care mobile apps and the User Interface (UI) features. The scope of this review integrates self-care for pregnancy apps which published in Google Play and Cafe Bazaar (Cafe Bazaar is an Iranian Android marketplace), popular Android app stores, from July to October year of 2019 searching scientific databases using relevant keywords. All 4,196 downloaded apps were installed and found that 76 of them met the inclusion criteria. This way, their features were extracted and categorized by the conventional content analysis. Three main themes and 69 sub-themes in terms of apps functionalities and its UI features were extracted as follows: (i) Training materials (maternal and paternal) with 27 sub-themes; and (ii) self-care functionalities (consultations, fetus tracking, clinical examination, supportive assistance, and reminders) with 26 sub-themes; and UI features with 16 sub-themes. In conclusion, the findings underlined the mobile health (mHealth) solutions for pregnancy self-care and the need for development of the apps regarding the extracted functionalities and UI features; however, controlled trials are needed. It is recommended that transparent reporting of mHealth interventions need to be prioritized to enable effective interpretation of the extracted data.

Please cite this article as: Pouriayevali B, Ehteshami A. Mobile Applications Functionality in Pregnancy Self-Care: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S286.

International Journal of Nutrition Sciences

POSTER

Revolutionizing Healthcare: A Review on the Role of Artificial Intelligence and Internet of Things in Enhancing Services and Outcomes

Maryam Ebrahimi[1,2,3], Khalil Kimiafar[4], Seyyedeh Fatemeh Mousavi Baigi[1,2], Masoumeh Sarbaz[4]*

1. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Health Information Technology, School of Public Health, Neyshabur University of Medical Sciences, Neyshabur, Iran
4. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Masoumeh Sarbaz, PhD;
Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
Email: Sarbazm@mums.ac.ir

ABSTRACT

Recent advancements in Artificial Intelligence (AI) and the Internet of Things (IoT) have significantly enhanced healthcare services and accessibility, particularly during the COVID-19 pandemic. This Umbrella review explores the applications of these technologies in healthcare. A systematic review of review studies was conducted by searching the keywords (Artificial Intelligence (AI), Internet of Things (IoT), Health) in the title and abstract fields of Embase, Web of Science, Scopus, and PubMed databases on January 19, 2025. PRISMA guidelines were followed. Reviews focusing on AI and IoT applications in health with full-text availability in English were included without time restrictions. Thirty studies were reviewed, identifying five primary areas of AI and IoT applications: (i) Disease Prediction and Management (35%): AI algorithms and IoT sensors have been critical in predicting outbreaks and implementing preventive measures, particularly for infectious diseases like COVID-19. (ii) Health Data Management (25%): IoT-enabled connectivity of medical devices and AI-driven data analysis has improved clinical decision-making and system performance. (iii) Disease Diagnosis and Treatment (20%): AI has increased diagnostic accuracy and speed through medical image analysis and disease modeling. IoT integration has facilitated the development of smart treatment systems for chronic diseases. (iv) Remote Monitoring (15%): AI and IoT have enabled remote health monitoring, reducing physical visits and enhancing safety during pandemics. (v) Epidemiological Analysis and Prediction (5%): These technologies support demographic data analysis and prediction of disease patterns. In conclusion, despite security challenges, AI and IoT can significantly advance personalized healthcare, improve outcomes, and reduce costs

Please cite this article as: Ebrahimi M, Kimiafar K, Mousavi Baigi SF, Sarbaz M. Revolutionizing Healthcare: A Review on the Role of Artificial Intelligence and Internet of Things in Enhancing Services and Outcomes. Int J Nutr Sci. 2025;10(2-Supplement):S287.

POSTER

Revolutionizing Mobile Health: A Review on the Power of Artificial Intelligence and Big Data

Tayebe Fattahi[1], Sheida Jamalnia[2]*

1. Student Research Committee, Department of E-Learning in Medical Sciences, Virtual School and Center of Excellence in E-Learning, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Nursing and Midwifery, Kazeroun Branch, Islamic Azad University, Kazeroun, Iran

ARTICLE INFO

Corresponding author:
Sheida Jamalnia, PhD;
Department of Nursing and Midwifery, Kazeroun Branch, Islamic Azad University, Kazeroun, Iran
Email: Shjamalnia1988@gmail.com

ABSTRACT

The rapid adoption of mobile technology has revolutionized healthcare delivery, that provides accessible, affordable, and scalable solutions. Artificial intelligence (AI) and big data have emerged as pivotal technologies in enhancing the capabilities of mobile health (mHealth) systems. This review aimed to synthesize existing research to identify the benefits, challenges, and opportunities of integrating AI and big data into mHealth. A comprehensive search was conducted using databases such as PubMed, IEEE Xplore, Scopus, and Google Scholar. Keywords included "artificial intelligence", "big data", "mobile health", and "mHealth". Peer-reviewed articles published between 2015 and 2023 focusing on AI and big data applications in mHealth were included, while studies not available in English, non-peer-reviewed articles, and research unrelated to healthcare applications were excluded. Data were extracted on the type of AI and big data technologies used, healthcare domains targeted, outcomes measured, and challenges identified. AI is transforming mHealth through machine learning (ML), natural language processing (NLP), and computer vision, enabling personalized care, predictive analytics, and virtual assistants. Big data analytics enhances real-time monitoring, population health management, and diagnostics through wearable devices and aggregated data analysis. Case studies include diabetes management platforms like BlueStar, cardiovascular health apps such as Kardia Mobile, and mental health tools like Woebot. However, challenges persist in data privacy, scalability, and algorithmic bias, necessitating robust solutions to ensure equitable and secure healthcare delivery. In conclusion, the integration of AI and big data into mHealth has unlocked transformative possibilities, paving the way for personalized, predictive, and efficient healthcare delivery.

POSTER

Revolutionizing Telehealth Services with Real-Avatars in the Metaverse

Rakhshan Jomeola[1], Nasrin Khajeali[2], Mehdi Agharezazadeh[3], Amirabbas Azizi[4]*

1. Student Research Committee, Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Medical Education, Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Department of Artificial intelligence engineering, Jundishapur University of Medical Sciences, Ahvaz, Iran
4. Medical informatics, Department of Health Information Technology, School of Allied Medical Sciences, Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Amirabbas Azizi, PhD;
Medical informatics, Department
of Health Information Technology,
School of Allied Medical Sciences,
Jundishapur University of Medical
Sciences, Ahvaz, Iran
Email: Amirabbas.azizi@gmail.com

ABSTRACT

Background: In recent years, telehealth has gained significant popularity among patients, with many preferring to receive healthcare services remotely. The Metaverse, a virtual world where individuals interact through digital objects, has emerged as a promising platform for enhancing telehealth services. Within this virtual environment, "Real-Avatars" serve as digital representations of individuals, facilitating more interactive and personalized telehealth experiences. The primary objective of this study is to evaluate the effectiveness of Real-Avatars within the Metaverse in delivering telehealth services.

Methods: This study is a narrative review. We conducted comprehensive searches in two databases, PubMed and Google Scholar, using the keywords "Metaverse," "Telehealth," and "Avatar" without any time restrictions. After a thorough screening process, 16 articles were selected based on their relevance to the research objectives.

Results: The findings of this study highlight the significant role of Real-Avatars in the Metaverse for telehealth services. By leveraging virtual humanization, immersive virtual environments, and advanced technologies such as Augmented Reality (AR), Virtual Reality (VR), and Artificial Intelligence (AI), Real-Avatars facilitate highly interactive engagements between patients and healthcare providers. These technologies enhance decision-making, enable virtual consultations, provide real-time and personalized services, and support continuous monitoring, thereby significantly improving telehealth services.

Conclusion: The use of Avatars in the Metaverse is a transformative tool in telehealth, representing a groundbreaking advancement in healthcare delivery. However, to ensure effective implementation, it is crucial to address challenges such as data privacy, technological infrastructure, trust in AI and virtual systems, legal implications of virtual treatment, and user adaptation.

Please cite this article as: Jomeola R, Khajeali N, Agharezazadeh M, Azizi AA. Revolutionizing Telehealth Services with Real-Avatars in the Metaverse. Int J Nutr Sci. 2025;10(2-Supplement):S289.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Smart Management of Traffic Lights to Facilitate Ambulance Medical Services with Industrial Internet of Things and Vehicular Ad-hoc Networks

Leila Ranjbar*, Omid Bushehrian, Reza Javidan

Department of Computer Engineering & IT, Shiraz University of Technology, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Leila Ranjbar, PhD;
Department of Computer Engineering
& IT, Shiraz University of
Technology, Shiraz, Iran
Email: Lhm.ranjbar@gmail.com

ABSTRACT

Background: The management of traffic lights is crucial for facilitating the movement of ambulances, especially in emergencies where time is critical. Integrating Vehicular Ad-hoc Networks (VANET) and Industrial Internet of Things (IIoT) technologies offers a promising solution to reduce delays and enhance ambulance transfer efficiency. These technologies enable real-time communication and data exchange between vehicles and traffic management systems, allowing for better prioritization of emergency vehicles.

Methods: Our proposed model employs whale and dragonfly optimization algorithms to optimize response times and resource allocation for traffic light management. We utilized SUMO and OMNeT++ simulators to create a realistic testing environment, using real-world data from OpenStreetMap (OSM). IIoT sensors installed on ambulances continuously monitor vital signs and other relevant data, which are transmitted to central systems for analysis. This data is processed using machine learning techniques to identify patterns that inform traffic signal adjustments.

Results: Preliminary results indicate that our approach significantly reduces delays for ambulances at intersections, improving the quality of medical services during critical times. The integration of these technologies also contributes to energy consumption optimization and reduced communication costs, enhancing urban transportation system safety and efficiency.

Conclusion: Our findings demonstrate the potential of combining VANET and IIoT technologies with advanced algorithms to transform traffic light management for emergency services. By improving ambulance movement efficiency, this approach enhances patient outcomes and optimizes urban traffic management systems. Future work will focus on refining the algorithms and expanding the model's applicability to various urban settings.

Please cite this article as: Ranjbar L, Bushehrian O, Javidan R. Smart Management of Traffic Lights to Facilitate Ambulance Medical Services with Industrial Internet of Things and Vehicular Ad-hoc Networks. Int J Nutr Sci. 2025;10(2-Supplement):S290.

POSTER

Smartphone-Based Application for Educating Parents of Children with Cerebral Palsy: Design and Development

Elahe Gozali[1,2]*, Rahimeh Tajvidi Asr[2]

1. Department of Health Information Technology, School of Allied Medical Sciences, Urmia University of Medical Sciences, Urmia, Iran
2. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Elahe Gozali, PhD;
Department of Health Information
Technology, School of Allied Medical
Sciences, Urmia University of
Medical Sciences, Urmia, Iran
Email: Elahe.gozali@gmail.com

ABSTRACT

Background: Cerebral palsy is a prevalent neurodevelopmental condition that results in motor difficulties and significantly impacts the lives of those affected, as well as their families. The aim of the study is to design and develop a mobile app for parents of children with Cerebral Palsy.

Methods: This research is applied-developmental. The educational content was developed through a researcher-made questionnaire, and its elements were validated by 20 specialists. Then, the app was designed in the android studio V2022 programming environment, Kotlin programming language and SQLite database.

Results: Among the 65 identified informational needs, 60 were considered essential by the research community. The application included four main sections: demographic data, family conditions and clinical information of the child, information related to parent education, the intervention section of the program, and its capabilities. The demographic data, family conditions and clinical information of the child included 24 data elements. The parent education section included subsections on the description of the main aspects of the disease, lifestyle management and the necessity of medication, treatment, and required medications. The intervention section included subsections on diagnostic interventions and information section includes an introduction to the list of medical centers and related specialists, and finally the capabilities of the program where clicking on the respective icons will display the relevant symbols and features.

Conclusion: To improve disease management, increase parents' understanding and knowledge about caring for their children with cerebral palsy, alleviate their anxiety, and prevent future complications, a smartphone-based self-care app can be a valuable tool.

Please cite this article as: Gozali E, Tajvidi Asr R. Smartphone-Based Application for Educating Parents of Children with Cerebral Palsy: Design and Development. Int J Nutr Sci. 2025;10(2-Supplement):S291.

International Journal of Nutrition Sciences

POSTER

Smartphone-Based Application for Educating Parents of Children with Functional Constipation: Design and Development

Elahe Gozali[1,2]*, Rahimeh Tajvidi Asr[1], Samira Babaei[1], Shahsanam Gheibi[3]

1. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Health Information Technology, School of Allied Medical Sciences, Urmia University of Medical Sciences, Urmia, Iran
3. Maternal and Childhood Obesity Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Elahe Gozali, PhD;
Health and Biomedical Informatics
Research Center, Urmia University of
Medical Sciences, Urmia, Iran
Email: Elahe.gozali@gmail.com

ABSTRACT

Background: Functional constipation in children is a growing medical condition worldwide and the most common type of constipation in children and adolescents, accounting for 95% of cases. Smartphone-based apps can be used as effective tools for self-care education. The aim is to design and develop a mobile app for parents of children with functional constipation.

Methods: Research is applied-developmental. The educational content was developed through a researcher-made questionnaire, and its elements were validated by 15 specialists and pediatric gastroenterology experts. The app was designed in the android studio V2022 programming environment, Kotlin programming language and SQLite database.

Results: Among the 55 identified informational needs, 43 were considered essential by the research community. This app includes three main sections: information about the child, information about the parents' education, and a notes section. The first section includes demographic data, family conditions, and clinical information. The second section includes information about constipation, lifestyle management and necessity of medication use, causes of functional constipation in children, educational photos and videos, required treatments and medications, Additional diagnostic assessments and other necessary items. The third section includes Doctor's notes and parent's notes, where clicking on the respective icons will display the relevant symbols, tutorials and features.

Conclusion: To better manage the disease, enhance the awareness and knowledge of parents of children with functional constipation regarding the care of their child and reduce their anxiety, manage the disease, and prevent subsequent complications, using a smartphone-based self-care app that can be a suitable option.

Please cite this article as: Gozali E, Tajvidi Asr R, Babaei S, Gheibi S. Smartphone-Based Application for Educating Parents of Children with Functional Constipation: Design and Development. Int J Nutr Sci. 2025;10(2-Supplement):S292.

POSTER

Smartphone-Based Stuttering Detection and Correction System Using Neural Networks

Fateme Moghimi*, Mohammad Hamed Shakeri Jahromi, Mehran Yazdi

Shiraz University, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Fateme Moghimi, MSc;
Shiraz University, Shiraz, Iran
Email: Moghimifateme13@gmail.com

ABSTRACT

Background: Stuttering is a speech disorder in which the flow of speech is disrupted. People with stuttering not only lose their self-confidence but also develop a negative attitude towards their social skills. Activities such as making phone calls and using new technologies such as Alexa and Siri, which convert voice signals into text, can be a challenge for stutterers.

Methods: This paper attempts to detect the stuttered part of the message and apply the corresponding corrections. The stuttered parts of the message can be identified by AI technologies such as GANs and then classified into different categories by implementing state-of-the-art Automatic Neural Networks. ANNs are also able to partially correct the stuttered part and replace it within the fluent message. This replacement can be in the form of text or voice, whether online or offline, while maintaining the intonation.

Results: As a result, speeches of stutterers could be transformed into fluent messages, which can be used in ASR technologies immediately. This application can also be integrated as part of the phone's keyboard, so that stutterers can use it with ease.

Conclusion: Stuttering is a speech disorder that has psychological and social effects on stutterers and can prevent them to use speech-recognition technologies. The stuttered part of the voice signal can be identified, classified, and corrected by AI which is embedded in smartphone applications, which allows the stutterers to use ASR technologies. For example, intelligent voice assistants such as Alexa can be used for stutterers.

Please cite this article as: Moghimi F, Shakeri Jahromi MH, Yazdi M. Smartphone-Based Stuttering Detection and Correction System Using Neural Networks. Int J Nutr Sci. 2025;10(2-Supplement):S293.

POSTER

Smartphone-Enabled Mobile Biosensors and Microscopy for Point-of-Care Testing of Human Metabolites: A Review

Reyhane Majidi[1,2], Hossein Javid[3]*, Zakiye Safaei[1,2]

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Student Research Committee, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Hossein Javid, PhD;
Surgical Oncology Research Center,
Mashhad University of Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

The ability to rapidly and accurately profile metabolic biomarkers is crucial for effective disease diagnosis and prognosis, particularly in remote and resource-limited settings. Recent advancements in smartphone-based biosensing technologies present a promising solution to this challenge. These technologies not only offer the potential for real-time health monitoring but also encourage proactive health management among users, playing a vital role in early disease detection and intervention. This review analyzed articles from PubMed, Google Scholar, and Web of Science until 2023, focusing on smartphone-based biosensing and metabolic biomarkers. Out of 17 articles, 5 met the inclusion criteria. It synthesizes advancements in optical (colorimetric, fluorescent, chemiluminescent) and electrochemical biosensing platforms, along with smartphone microscope designs targeting human, microbial, and biomolecular samples. The selected studies provide insights into the capabilities and future directions of smartphone-based biosensing in healthcare. The findings highlight the advantages of smartphone biosensors, including their rapid response, reliability, accuracy, low cost, and capability for multi-analyte analysis. Various studies demonstrate their applications in medical diagnostics, food pathogen identification, and biomolecule detection. However, challenges remain regarding the reliability, accuracy, and cost-effectiveness of these systems. In conclusion, the integration of smartphone technology into biosensing platforms holds significant potential for transforming clinical diagnostics into accessible self-testing solutions. This review aims to inspire further research into advanced, multifunctional Point-of-Care Testing (POCT) systems that can facilitate the monitoring and diagnosis of metabolic disorders. By enhancing the capabilities of smartphone-based diagnostics, we can improve health outcomes in diverse settings and support personalized treatment approaches.

Please cite this article as: Majidi R, Javid H, Safaei Z. Smartphone-Enabled Mobile Biosensors and Microscopy for Point-of-Care Testing of Human Metabolites: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S294.

POSTER

Studying the Impact of Mobile Health on Management of Patients with Diabetes Mellitus: A Review

Fatemeh Ehsani, Hossein Javid*, Zeynab Mirnezhad, Reyhane Abidi

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Diabetes mellitus is a chronic metabolic disorder in which the body becomes resistant to insulin due to several reasons such as lifestyle or does not produce enough insulin. The management of this disease has often been complex and challenging. However, with the integration of advanced technology into daily life, electronic health-related devices have become more common. This review article was conducted using articles published in PubMed, Science Direct, Google Scholar, and Web of Science until January 2025 with the keywords diabetes mellitus; patient management; mobile health and management. By searching these databases, 30 articles were found. After studying the titles and abstracts, 22 articles were excluded and 8 articles were selected with the inclusion criteria. All articles were selected from English-language sources. Finally, during the searches we had. During the studies conducted, the management of patients, especially diabetic patients, has become easier and more widespread using mobile phone applications. Significant advances in medical technology, especially in the management of patients with diabetes mellitus, have led to the creation of several useful devices such as Mobile Health for the management of type 2 diabetic patients, which researchers have largely witnessed improved efficacy. In conclusion, it seems that the widespread use and availability of mobile health has created hope that in the future more people can benefit from this technology and that using this technology, the more diseases can be managed and prevented. However, more and more extensive research was needed in this medical field.

Studying the Role of Biosensors Integrated with Insulin Pumps in Diabetes Management: A Review

Yasaman Akbarian[1,2], Farzaneh Kaheni[1,2], Hossein Javid[3]*

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Student Research Committee, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Surgical Oncology Research Center,
Mashhad University of Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Diabetes mellitus is a metabolic disorder characterized by chronic hyperglycemia, caused by defects in the production or function of insulin. With due attention to the increasing prevalence of this disease and its complications, which are now recognized as one of the leading causes of mortality worldwide, advancing toward simpler, less invasive, and more personalized methods for its management is essential. This review article was prepared by studying research papers published between 2022 and 2024 in the PubMed and Google Scholar databases. The result of searching these databases was to find 30 articles, of which 17 were excluded after reviewing their titles and abstracts, leaving 13 articles selected for detailed evaluation. In this study, 13 articles were reviewed, and the findings suggest that the use of continuous glucose monitoring (CGM) devices integrated with insulin pumps has made disease management easier for diabetic patients while reducing the serious risks associated with the condition. With advancements in medical technology, bioengineering, and artificial intelligence algorithms, the implementation of closed-loop algorithms and machine learning in CGM devices has significantly enhanced the effectiveness of these technologies. In conclusion, this article highlights the transformative role of CGM combined with artificial intelligence in diabetes management. The major challenges in this field include the high cost of sensors relative to their short lifespan, the need for frequent calibration, and the necessity for further research and comprehensive validation to determine their correlation with benchmark blood glucose levels. However, advancements are moving toward miniaturized, flexible, and calibration-free systems.

Tele-Nursing: A Review on Golden Opportunity in Chronic Disease Care

Sherafat Akaberian[1]*, Pouya Zamani[2], Mohammad Hadi Rezania[2], Firouzeh Mehrabi Yadkouri[2]

1. Department of Nursing, School of Nursing and Midwifery, Bushehr Universtiy of Medical Sciences, Bushehr, Iran
2. Student Research and Technology Committee, Bushehr University of Medical Sciences, Bushehr, Iran

ABSTRACT

Chronic diseases account for a major portion of the global disease burden. These conditions are associated with increased care needs, direct and indirect healthcare costs, and reduced quality of life for patients. The demand for continuous care and advancements in technology has led to the adoption of innovative approaches such as tele-nursing. Tele-nursing is recognized as an effective solution for delivering care services to patients with minimal cost and maximum accessibility. Therefore, this study aimed to determine the impact of tele-nursing on the management of chronic diseases. In this review, articles indexed in Google Scholar, Scopus, Pub Med and Web of science databases were used. A total of 20 articles were reviewed from 2015 to 2024. Articles whose full text wasn't available were excluded from the study. A review of studies indicates that tele-nursing positively affects chronic disease management. It reduces hospitalization rates, alleviates symptoms of depression and anxiety, improves quality of life, lowers costs, decreases mortality rates, enhances treatment adherence, increases self-efficacy, improves self-management and promotes adherence to dietary plans. In conclusion, tele-nursing, as an innovative and effective strategy, can improve care for chronic patients and reduce the financial burden on healthcare systems. This method ensures continuous care, reduces stress, and facilitates living conditions. Given the growing need for these services in Iran, it's suggested that by developing technological infrastructure, conducting training programs and utilizing experienced nurses, the necessary grounds should be provided for the expansion of this method so that its benefits can be utilized efficiently.

Corresponding author:
Sherafat Akaberian, PhD;
Department of Nursing, School of
Nursing and Midwifery, Bushehr
Universtiy of Medical Sciences,
Bushehr, Iran
Email: Sh.akaberian2@gmail.com

Please cite this article as: Akaberian S, Zamani P, Rezania MH, Mehrabi Yadkouri F. Tele-Nursing: A Review on Golden Opportunity in Chronic Disease Care. Int J Nutr Sci. 2025;10(2-Supplement):S297.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Telehealth and Prenatal Care in Gestational Diabetes Miletus: A Review

Maede Karimi[1], Ysaman Heidari[1*], Nasim Esfandiyari[1], Zahra Yazdanpanahi[2,3]

1. Student Research Committee, Nursing and Midwifery Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, Nursing and Midwifery Shiraz University of Medical Sciences, Shiraz, Iran
3. Maternal Fetal Medicine Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of medical sciences. Shiraz, Iran

ARTICLE INFO

Corresponding author:
Ysaman Heidari, BSc;
Student Research Committee, Nursing and Midwifery Shiraz University of Medical Sciences, Shiraz, Iran
Email: Yasamanheidari21@gmail.com

ABSTRACT

Gestational diabetes significantly impacts maternal and fetal health. Telemedicine offers a promising approach to its management by enhancing accessibility and potentially improving outcomes. This review evaluated the effectiveness of telemedicine on glycemic control, pregnancy outcomes, and quality of life in pregnant women with diabetes. In this narrative review we search related key word in this topic from 2014 to 2024 in scientific search engine. These studies have shown that while some research has reported moderate improvements in glycemic control (HbA1c) using telemedicine, there is insufficient evidence to definitively conclude that this method is superior to standard care. However, telemedicine can improve access to healthcare, increase patient satisfaction, and reduce healthcare costs. Recent findings suggest that using mobile phone technology to collect glucose data in pregnant women with gestational diabetes has enabled more accurate blood glucose monitoring. Multiple studies in non-pregnant individuals with type2 diabetes have shown significant improvements in glucose control using remote monitoring. However, in pregnant women with diabetes, conflicting results have been reported. Some studies show improvements in glycemic control, while others have reported no differences compared to traditional care may be due to differences in study design, study population, and interventions used. In conclusion, telemedicine can be a valuable adjunct to the care of pregnant women with diabetes. Future research with robust designs and larger sample sizes is crucial to confirm its long-term benefits. Furthermore, standardized protocols and comprehensive training for healthcare providers are essential for the safe and effective implementation of telemedicine in this context.

International Journal of Nutrition Sciences

POSTER

Telehealth Spiritual Care for Spinal Cord Injury Patients: A Review

Mohammad Mahdi Pazhavand[1]*, Reza Abbaszadeh[2], Maryam Ayoubi[3], Masoumeh Taheri[4], Mahboobeh Taheri[5], Seyed Mohammad Reza Pirmoradian[6]

1. Department of Nursing, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Islamic Studies, Qom University, Qom, Iran
3. Department of Islamic theology, Jame'al-Nour Seminary, Shiraz, Iran
4. Department of Family Jurisprudence, Jame'al-Nour Seminary, Shiraz, Iran
5. Department of Jurisprudence and principles, Jame'al-Zahra Seminary, Qom, Iran
6. Department of Jurisprudence and Fundamentals of Islamic Law Science and Research Branch, Islamic Azad university, Tehran, Iran

ARTICLE INFO

Corresponding author:
Mohammad Mahdi Pazhavand, MSc;
Department of Nursing, Shiraz
University of Medical Sciences,
Shiraz, Iran
Email: Mohammadmahdi_
pazhavand@yahoo.com

ABSTRACT

Spiritual care is essential for promoting the health of spinal cord injury patients, but healthcare providers routinely neglect its use, which can lead to a decrease in patients' quality of life. Although telehealth is underutilized in spiritual care but technological advances have accelerated the adoption of telehealth and highlighted the urgent need for telehealth provision. The importance of this issue prompted us to conduct a study aimed at examining telehealth in spinal cord injury patients. External (Google Scholar, PubMed, Scopus, Web of Science) and internal (SID, Magiran) databases were searched from the inception to Nov 2024. The standardized mean difference effect was calculated using a random effects model with 95% confidence. The risk of bias was assessed according to Cochrane (Rob). Data was analyzed using STATA12 software. The review yielded 12 eligible articles published in the internationally to 2024. Articles described "live video" as the preferred telehealth delivery modality with goals of Spiritual care being most commonly addressed. Findings in the articles focused on 5 spinal cord injury patients outcomes. Symptom management, quality of life, advance care planning, health care utilization, and care evaluation. Advantages of telecare included increased documentation of care goals and an advantage over in-person visits for spinal cord patients. Disadvantages included difficulties in using technology in contacts. In conclusion, although limited in scope and quality, telehealth Spiritual care interventions shows promise for improving life of spinal cord injury patients. Future empirical studies should focus on managing technology, stakeholders' experience, and costs.

Telemedicine in Counseling: A Review on Revolutionizing Mental Health Care

Sara Hosseini*

Shahrekord University of Medical Sciences, Shahrekord, Iran

ARTICLE INFO

*Corresponding author:
Sara Hosseini, MSc;
Shahrekord University of Medical
Sciences, Shahrekord, Iran.
Email: Hosseinisara132@gmail.com

ABSTRACT

Telemedicine has emerged as a revolutionary approach in providing mental health counseling, especially in the aftermath of the COVID-19 pandemic. This article explores the benefits, challenges, and effectiveness of telemedicine in counseling. Results indicate that telemedicine can significantly enhance accessibility and affordability, though issues like privacy concerns and digital literacy remain critical. Telemedicine involves the delivery of healthcare services remotely through digital platforms. In the mental health sector, this approach has gained traction due to its ability to reach underserved populations. The pandemic accelerated the adoption of telemedicine, addressing barriers such as geographic limitations and stigma associated with in-person counseling. However, the effectiveness of telemedicine in replicating traditional counseling outcomes needs further exploration. This study is based on a systematic review of existing literature, analyzing data from peer-reviewed articles published between 2018 and 2023. Key metrics examined include patient satisfaction, accessibility, cost-effectiveness, and therapeutic outcomes. Data sources included PubMed, PsycINFO, and Scopus databases. Telemedicine has transformed mental health counseling, making it more accessible and affordable. Despite its limitations, the evidence suggests that telemedicine is an effective alternative to traditional methods, especially when combined with advancements in digital security and user-friendly technologies. Future research should focus on improving digital inclusivity and addressing privacy concerns. In conclusion, telemedicine demonstrated a 30-50% increase in accessibility for patients in rural and underserved areas. Patient satisfaction levels were comparable to traditional counseling, with 80% reporting positive experiences. However, challenges such as technological barriers, lack of human connection, and concerns over data security were frequently noted.

International Journal of Nutrition Sciences

POSTER

Telemonitoring in Elderly Care: A Review on the Role of Wearable Devices in Enhancing Health Outcomes

Arezoo Dehghani Mahmoodabadi[1]*, Sahar Rezaee[2], Setareh Izadi[2,3]

1. Research Center for Health Technology Assessment and Medical Informatics, Department of Health Information Technology and Management, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Department of Health Information Technology and Management, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
3. Student Research Committee, Shahid Sadoughi University of Medical Science, Yazd, Iran

ARTICLE INFO

Corresponding author:
Arezoo Dehghani Mahmoodabadi, PhD;
Research Center for Health Technology Assessment and Medical Informatics, Department of Health Information Technology and Management, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
Email: Dehghani.arezoo123@gmail.com

ABSTRACT

Aging is accompanied by physical and psychological changes that can affect the independence, health, and well-being of older adults. In this context, the digital age with its digital sensors, Internet of Things (IoT), and big data tools offers new opportunities to enhance healthcare services for this vulnerable group through remote monitoring systems. A systematic review using PRISMA guidelines to identify articles investigating wearable device interventions in remote monitoring for the elderly was conducted on 26 October 2024. Six databases were searched in this review including PubMed, Scopus, Google Scholar, ProQuest and Wiley. Clinical review studies in which subjects were aged 65 years or older and the wearable devices used for continuous patient monitoring were included. Result: The review yielded 1230 articles, of which 12 met the predefined inclusion criteria. The wearable sensors and devices are currently being used in multiple scenarios related to remote monitoring of elderly patients. The evidence shows the benefits of using wearable devices in reducing hospitalizations by 40%, falls by 69%, length of stay by 67%, and cardiovascular disease risk by 14%. Also, these interventions have produced significant improvements in blood pressure control, treatment compliance, and quality of life in elderly patients. In conclusion, these findings indicate that there is limited evidence for the use of wearable devices in the older patient telemonitoring. Therefore, more research is needed in this specific age group. However, small sample sizes, short follow-up periods, technical difficulties, and sample selection bias, may affect the accuracy and generalizability of the results.

Please cite this article as: Dehghani Mahmoodabadi A, Rezaee S, Izadi S. Telemonitoring in Elderly Care: A Review on the Role of Wearable Devices in Enhancing Health Outcomes. Int J Nutr Sci. 2025;10(2-Supplement):S301.

International Journal of Nutrition Sciences

POSTER

Teleradiology: A Review on Advancements, Challenges, and Future Directions

Zahra Karimi[1], Mohadeseh Mahdilo[1], Fatemeh Sedighi Shiri[1], Aynaz Esmailzadeh[1], Sajed Arabian[2,3]*, Rasoul Salimi[4]

1. Department of Health Services Management, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
4. Department of Emergency Medicine, School of Medicine, Besat Hospital, Hamadan University of Medical Sciences, Hamadan, Iran

ARTICLE INFO

Corresponding author:
Sajed Arabian, PhD;
Student Research Committee,
Department of Health Information
Management, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran
Email: Arabiansajed22@gmail.com

ABSTRACT

Teleradiology, integrating advanced telecommunications and medical technologies, has revolutionized healthcare services. By enabling remote access to medical images, it reduces diagnostic time, improves accuracy, and enhances access to specialized care, especially in underserved regions. This study examines the advancements, challenges, and future prospects of teleradiology. A systematic review was conducted in 2024 by searching reputable databases such as PubMed, Scopus, Web of Science, and Google Scholar. Studies published between 2015 and 2024 were included using keywords like teleradiology, Medical Imaging, Artificial Intelligence, PACS, and Telemedicine. The review focused on technologies such as PACS (Picture Archiving and Communication Systems), e-learning tools, and AI that help reduce diagnostic discrepancies, aid in computer-aided diagnosis (CAD), and evaluate cost-effectiveness. Out of 500 articles identified, 350 were excluded due to irrelevant titles, and 140 due to unrelated abstracts. Ten relevant studies were selected for detailed analysis. Results showed that 75% of studies focused on the benefits of teleradiology, 5% on direct and indirect costs, 13% on low-resolution interactive telemedicine consultations, and 7% on evaluating sensitivity and specificity. Most research originated from Germany, Finland, and the United States. In conclusion, teleradiology plays a critical role in enhancing access to medical services and improving diagnostic quality, particularly in remote areas. Despite challenges such as infrastructure limitations, high costs, and security concerns, teleradiology can greatly transform healthcare. Increased awareness, infrastructure development, and governmental support are essential to fully exploit its potential, promoting equitable access to medical services globally.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Telerehabilitation in Recovery after Total Knee Arthroplasty: A Review

Farnaz Salehian[1], Somayyeh Zakerabasali[2]*

1. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Health Human Resources Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Somayyeh Zakerabasali, PhD;
Health Human Resources Research
Center, Department of Health
Information Management, School of
Health Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran
Email: Zakerabasi@gmail.com

ABSTRACT

This study focused on use of telerehabilitation technology in patients who have Total Knee Replacement surgery. The goal was to review existing research on the topic, focusing on the applications and features of telerehabilitation, and to evaluate its effectiveness. A systematic search was conducted across multiple databases, including PubMed, Scopus, and Web of Science, between years 2019-2023. The authors screened the search results and assessed the relevance of each article based on its title, abstract, and full text. The resulting articles that were related to the study's aim were evaluated. The systematic review was registered through PROSPERO. The database search retrieved 183 articles, then refined by removing duplicates and screening the titles and abstracts. Following, thorough full-text review, the number of articles was further narrowed down to 18, which were subsequently analyzed in detail. The majority of studies employed randomized controlled trials (50%) and observational studies (22.22%), with the United States being lead developer of telerehabilitation systems. The telerehabilitation Apps mentioned in these articles are mainly used for education, treatment, and monitoring. Sensors and wearable activity trackers are most commonly used devices in studies. In conclusion, the findings suggest that telerehabilitation can be just as effective as traditional rehabilitation methods in improving patient outcomes after TKA. However, ongoing improvements are necessary to optimize its benefits. Most of the TKA apps in the reviewed studies showed significant effectiveness. Overall, telerehabilitation has the potential to provide high-quality, cost-effective, and continuous care, and is likely to become increasingly popular in future.

Please cite this article as: Salehian F, Zakerabasali S. Telerehabilitation in Recovery after Total Knee Arthroplasty: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S303.

International Journal of Nutrition Sciences

POSTER

The Application of Artificial Intelligence in Genomic Data Analysis to Enhance Personalized Medicine: A Review

Nastaran Abdollahi, Maryam Enayati, Fatemeh Khojaste, Hossein Javid*

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran
Email: Javidh@varastegan.ac.ir

ABSTRACT

Currently, personalized medicine is a groundbreaking development in healthcare. It involves utilizing various elements such as genomic and molecular information, lifestyle choices, individual genetic data, and family health history. By considering these factors, healthcare providers can deliver highly effective treatments. The integration of artificial intelligence into personalized medicine has the potential to initiate a new era in treatment approaches. This research is a review of articles published on platforms like Google Scholar and PubMed up until July 2024. The search utilized keywords such as "artificial intelligence", "personalized medicine", and "genetics". Out of 15 initial articles, 10 were excluded based on their titles and abstracts, leaving 5 articles for in-depth analysis. All selected articles were in English. Artificial intelligence can determine the appropriate medication dosage for specific conditions and treat patients by analyzing their omics data. Additionally, AI excels at processing vast amounts of genomic information quickly and accurately. The application of artificial intelligence in personalized medicine has significantly transformed medical science by enabling precise disease treatment and reducing side effects. In conclusion, artificial intelligence enhances the effectiveness of healthcare services by gathering and analyzing clinical and personal data. However, despite its promising advantages, issues such as privacy protection and data security require further exploration to fully understand the true impact and efficacy of this technology.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Application of Mobile Health in Improving Mental Health and Preventing Mental Disorders: A Review on Challenges and Innovations

Elahe Hosseini*, Bayaneh Amini, Tahereh Samimi, Kasra Kashani, Seyed Mohsen Hosseini, Sina Veisi

Student Research Committee, Department of Medical Informatics, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Elahe Hosseini, PhD;
Student Research Committee,
Department of Medical Informatics,
Urmia University of Medical
Sciences, Urmia, Iran
Email: Elahe.hosseini968@gmail.com

ABSTRACT

Mental health is a critical aspect of public health, yet it faces significant challenges in prevention, diagnosis, and treatment. Mobile health (mHealth) has emerged as an innovative tool to address some of these issues. However, despite its potential, mHealth faces various challenges that need systematic evaluation. This systematic review followed PRISMA guidelines. A comprehensive search was conducted across PubMed, Scopus, and Web of Science, using keywords such as "mHealth," "mental health," "challenges," and "innovations." The search was limited to articles published between 2015 and 2024. After removing duplicates, 632 articles were screened, and 212 were excluded. Ultimately, 78 studies focusing on mHealth applications, challenges, and innovations in mental health were included in the final analysis. The data were analyzed qualitatively. The analysis of 78 studies revealed the following: Applications: 62% (48 studies) focused on mobile apps for managing stress, anxiety, and depression; 45% (35 studies) used wearable devices to monitor symptoms like sleep and heart rate; 29% (23 studies) emphasized artificial intelligence (AI) platforms for personalized treatments. Challenges: 54% (42 studies) cited concerns about data privacy, 47% (37 studies) discussed the lack of standards, and 32% (25 studies) highlighted limited access among vulnerable groups. Innovations: 38% (30 studies) utilized gamification, 26% (20 studies) used virtual reality (VR), and 33% (26 studies) employed machine learning for behavioral analysis. In conclusion, mHealth offers promising opportunities for improving mental health care. To fully harness its potential, addressing challenges such as privacy concerns, accessibility, and standardization is essential.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Challenges of Teleradiology Consultation

Nasrin Moradi[1], Abbas Yazdanpanah[2]*

1. Health Services Management Department, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Healthcare Management, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

ARTICLE INFO

Corresponding author:
Abbas Yazdanpanah, PhD;
Department of Healthcare
Management, Marvdasht Branch,
Islamic Azad University,
Marvdasht, Iran.
Email: Abbas_yaz@yahoo.com

ABSTRACT

Background: Teleradiology consultation uses information and communication technology to transmit radiological images from one location to another to enable remote diagnosis, consultation, and interpretation. Teleradiology consultation improves patient access to consultation services in the shortest possible time. The aim of this study is to identify the challenges of teleradiology consultation.

Methods: The present study was conducted qualitatively. Three radiologists, two general practitioners, and two radiology specialists with more than 3 years of work experience were selected through purposive sampling, and then semi-structured interviews were conducted with the participants. The number of participants was determined based on data saturation. Then, qualitative content analysis was used to analyze the data. Then, Maxqda software was used for coding. It was done using the Granheim and Landman method.

Results: The average age of the interview participants In this study was 43.50±6.23.The results showed that the challenges of implementing remote radiology consultations were identified into 5 main categories, including "preserving privacy and data security, quality and accuracy of medical images, the need for greater education and awareness from physicians and patients, access to appropriate equipment, and creating appropriate infrastructure for remote communications."

Conclusion: Successful implementation of remote radiology consultation facilitates access to services for physicians and receipt of services by patients. This is effective in saving time and reducing costs for patients. It is suggested that steps be taken to strengthen communication infrastructure and increase user literacy in using this remote radiology consultation.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Cost-Effectiveness of Digital Tools in Diabetic Patients in Eastern Mediterranean Region: A Review

Nafiseh Jamal[1]*, Fatemeh Rangraz Jeddi[2]

1. Department of Health Information Technology and Management, Kashan, Iran
2. Health Information Management Research Center, Kashan University of Medical Sciences, Kashan, Iran

ARTICLE INFO

Corresponding author:
Nafiseh Jamal, PhD;
Department of Health Information
Technology and Management,
Kashan, Iran.
Email: Jamal.nafiseh69@gmail.com

ABSTRACT

The World Health Organization has identified diabetes as a key health priority in the Eastern Mediterranean Region and emphasized digital health tools for disease prevention and control, while the health outcomes of these interventions are well-studied, their economic impact is less explored. This study aims to investigate the effect of digital health interventions on the cost-effectiveness of diabetes management in the region. A systematic review using PRISMA guidelines was performed to identify studies on the cost-effectiveness of digital tools in diabetes management. The review included original research articles published in English up to 2024. Data sources included PubMed, Web of Science, and Scopus, using keywords like "cost benefit", "cost effectiveness", "digital health." After extracting data, articles were entered into EndNote software, and two reviewers selected and analyzed the relevant studies. In this systematic review, 326 articles were extracted based on the inclusion criteria. Ultimately, 3 articles were selected. These studies focused on remote patient nutrition education, medication delivery through a digital program, and clinical management in outpatient clinics. There was fatty program achieved a 77.1% reduction in costs per visit, lowered operational and human resource costs, and improved medication access for diabetic patients. Additionally, web-based education was 0.63 times more effective and 64.3% more cost-effective than group education. Studies on telemedicine indicated cost savings and improved medication access for type 2 diabetes patients, leading to a reduction in HbA1c levels with a confidence level of 81.80%. In conclusion, indicates that digital health tools have significant potential to enhance diabetes control and reduce healthcare costs in the Eastern Mediterranean region. However, further studies with stronger designs are needed to generalize these findings to other populations and settings.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Mobile Application on Self-Care Level of Elderly

Fatemeh Sadeghi Karizi, Faezeh Raje, Fatemeh Moghbeli*

Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Moghbeli, PhD;
Department of Health Information
Technology, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Moghbelif@varastegan.ac.ir

ABSTRACT

Background: Given the rapid growth and development of self-care applications and the importance of improving the health of the elderly, this study aimed to evaluate and compare mobile applications in the field of self-care for the elderly.

Methods: Self-care applications for the elderly in the Google Play store were examined using the Mobile App Rating Scale (MARS). Applications in English for all age groups of the elderly with a minimum score of 3.5 and a minimum number of downloads of 500 times were included in the study. Applications whose use was limited to specific devices or special conditions were excluded from the study.

Results: The best overall quality score (4.28) was obtained by the Ada-check your health application and the worst score (3.27) was obtained by the Age wiser: AI Wellness App. The highest theoretical quality score (4.26) was obtained by the Ada-check your health application and the lowest score (3.6) was obtained by the Age wiser of AI Wellness App.

Conclusion: Although the quality of the applications was assessed using MARS scale, information about the impact of these applications on changing the attitudes, goals, and behaviors of the elderly still requires further research. Therefore, more detailed assessments of the validity of the information provided in these applications and their impact on improving the quality of life of the elderly seem necessary. The study showed that although all applications received good ratings, according to the mobile application rating scale, they need better design and development.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Artificial Intelligence on Control of Type 1 Diabetes: A Review

Fatemeh Taghvaee[1], Raheleh Akbari[2]*, Fatemeh Vakili[1], Neda Yazdani Shormasti[2]

1. Department of Health Information Technology, School of Paramedical Sciences, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Health Technology Assessment, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Raheleh Akbari, MSc;
Department of Health Technology
Assessment, School of Public
Health, Tehran University of Medical
Sciences, Tehran, Iran.
Email: Rahilakbari81@gmail.com

ABSTRACT

Type 1 diabetes, which is generally insulin-dependent diabetes, is caused by insulin deficiency during the autoimmune destruction of pancreatic beta cells, usually in the early stages of life An important health problem around the world is type 1 diabetes, and one of the creative solutions to deeply investigate the growing severity of this type of disease is the use of artificial intelligence. Expert systems, machine learning and deep learning algorithms are helpful in identifying and interpreting clinical guidelines and prediction models for problems related to diabetes Factors that target patients' poor glycemic control strategies include the lack of integrated care in many health care systems and patient demographic factors (e.g. young age, gender, low education level, and low income level, BMI , HbA1c, glycosylated hemoglobin, fasting glucose level (FBS), physical activity, sleep status) as well as the patient's beliefs about their medications, for example, ineffectiveness of treatment, receiving an inappropriate diet, and on the other hand underlying diseases as well as cost are out of pocket Machine learning (ML) algorithms, which are a subset of artificial intelligence. ML methods, including decision trees (DT), artificial neural networks (ANN), genetic algorithms (GA), and support vector machines (SVM), have been successfully used in diabetes management In conclusion, with the help of personalized artificial intelligence to reduce the long-term complications of the disease, better decisions can be made about diet and the use of drugs. Artificial intelligence can increase the support of health care providers to allocate resources in health policy.

Please cite this article as: Taghvaee F, Akbari R, Vakili F, Yazdani Shormasti N. The Effect of Artificial Intelligence on Control of Type 1 Diabetes: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S309.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Effect of Artificial Intelligence on Nutritional Status of Children after Cardiac Surgery: A Review

Asal Kamjouy*

Student Research Committee, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Asal Kamjouy, BSc;
Student Research Committee,
Varastegan Institute for Medical
Sciences, Mashhad, Iran.
Email: Asalkamjou@gmail.com

ABSTRACT

Malnutrition is among the major issues in children across the world and, more specifically, those with congenital heart diseases. It can be defined as poor cardiovascular recovery after surgery because of poor nutritional knowledge. An artificial intelligence-based application has been developed that assesses nutritional status in children post-heart surgery and suggests suitable diet plans for each child. A comprehensive review of the literature on this app was conducted using databases like PubMed, Scopus, and Google Scholar, focusing on articles published up to November 2024. Key search terms included "artificial intelligence", "diet-related mobile app", "nutritional status", "children", and "surgical after the heart". The benefits of this app have led to an increase in the average weight of these children, more calories and protein, and less suffering from poor post-operative nutrition. Another benefit of parental supervision is feeding children. It can also be adapted to children's tastes and food culture. In addition, it evaluates the child's progress in nutrition and recovery to adjust the diet as needed. This program helps children recover faster and more effectively after surgery. However, challenges include a lack of familiarity with the program and the unavailability of the Internet, especially in underdeveloped countries. In conclusion, some limitations, such as being unfamiliar with the app and accessing the Internet, must be resolved. In general, this program is characterized by a reduction in post-operative conditions، It provides positive results that explain its power to use new technology in the field of telemedicine care among children.

Please cite this article as: Asal Kamjouy. The Effect of Artificial Intelligence on Nutritional Status of Children after Cardiac Surgery: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S310.

International Journal of Nutrition Sciences

POSTER

The Effect of Artificial Intelligence on Weight Loss: A Review

Amirhossein Asadi[1]*, Fatemeh Fayazfar[1], Roxaneh Sadat Ziaee[1], Sahar Foshati[2]

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Amirhossein Asadi, MSc;
Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Ah_asadi@yahoo.com

ABSTRACT

Overweight is a significant issue in modern society and is closely associated with various chronic conditions, including diabetes mellitus, hypertension, coronary heart disease, and numerous other health complications. There are many effective strategies to address this problem; however, the primary method is diet therapy combined with lifestyle modifications. In light of the tremendous advancements in artificial intelligence (AI), this article aims to investigate the impact of AI on weight loss in randomized controlled trials (RCTs). Databases such as PubMed, Scopus, and Web of Science were searched, and a hand search on Google Scholar was conducted using appropriate keywords up to December 2024. The keywords included "artificial intelligence" or "AI" and "weight" or "weight loss" or "body mass index" or "BMI" or "body composition". RCTs demonstrated a reduction in weight, body mass index (BMI), and adipose tissue among intervention groups utilizing various forms of AI, including mobile applications and gadgets. However, in some studies, the decrease was not statistically significant, and a few studies did not report any reduction in weight or BMI when compared to the control group. When diet therapy utilizing AI was combined with physical activity, the results indicated a greater weight loss. Furthermore, the decline in weight and BMI was most pronounced during the first three months of some studies. In conclusion, AI may decrease weight, BMI, and adipose tissue in overweight and obese individuals who use this technology appropriately, especially in the short term when combined with physical activity.

POSTER

The Effect of Bilingual Audio Education on Medication Adherence in Type 2 Diabetic Patients with Vision Disorders Referred to Ophthalmology Clinic of Zahedan, Iran

Farzaneh Jahantigh[1], Vahideh Pouyesh[1,2], Simin Sharifi[3], Saba Jahangiri Minaabad[4], Erfan Taraqoei[4], Fereshteh Sargolzaei[4]*

1. Department of Nursing, School of Medicine, Iranshahr University of Medical Sciences, Iranshahr, Iran
2. Medical Education Department, Shiraz University of Medical Sciences, Shiraz, Iran
3. Medical Surgical Nursing Department, School of Nursing and Midwifery, Community Nursing Research Center, Zahedan University of Medical Sciences, Zahedan, Iran
4. Department of Operating Room, Iranshahr University of Medical Sciences, Iranshahr, Iran

ARTICLE INFO

*Corresponding author:
Fereshteh Sargolzaei, MSc;
Department of Operating Room,
Iranshahr University of Medical
Sciences, Iranshahr, Iran.
Email: F.sargolzaei0038@gmail.com

ABSTRACT

Background: The present study aimed to compare a bilingual (Balouchi & Persian) audio patient education program and routine education on patient's medication adherence in type 2 diabetes patients suffering from visual impairments.

Methods: This semi-experimental study was conducted on 90 patients with type 2 diabetes with vision disorders. The samples were selected based on entry criteria using the available method, and then the samples were assigned to two intervention groups (45 people) and control group (45 people) using random blocks. In control group, they received the routine training of the clinic by the personnel, but the intervention group received an mp3 player containing 90 minutes of audio training in the form of tracks of several minutes separated from each other in relation to the disease of diabetes. Data collection tools of the study included a demographic information form, a standard Moriski medication regimen compliance questionnaire, which were collected before intervention and after 6 weeks from the start of the intervention for both groups through interviews.

Results: There were no significant differences in participants' demographic characteristics between the two study groups. However, a remarkable rise was observed in the medication adherence score ($p=0.0001$) as well as HA1C and FBS levels among patients in the intervention group after audio education ($p=0.001$).

Conclusion: Findings of the present research suggest nursing and public health policy makers to reconsider their traditional patient education programs, particularly for diabetes patients with visual impairments among indigenous people and it should be done according to physical and individual characteristics.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Information Technology Interventions for Optimizing Antibiotic Prescribing in Urinary Tract Infections: A Review

Fatemeh Rangraz Jeddi[1], Ehsan Nabovati[1], Reihane Sharif[1], Amin Alsadat Sharif[2], Shima Anvari[1]*

1. Health Information Management Research Center, Kashan University of Medical Sciences, Kashan, Iran
2. Shahid Hasheminejad Hospital Hospital, Iran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Shima Anvari, PhD;
Health Information Management
Research Center, Kashan University
of Medical Sciences, Kashan, Iran.
Email: Anvari_shima@yahoo.com

ABSTRACT

Information technology (IT) solutions can facilitate evidence-based decision-making for antibiotic use by delivering timely information directly to clinicians at the point of care. This study aimed to evaluate the effects of IT interventions in optimizing antibiotic prescribing for urinary tract infections (UTIs). A comprehensive search was performed in Medline (through PubMed), Web of Science, and Scopus databases from inception to June 2024. The study included randomized controlled trials (RCTs) and cluster randomized controlled trials (CRCTs) that investigated the effects of IT interventions on optimizing antibiotic prescribing for UTI patients. Participants were patients with UTI. IT interventions were used for improving antibiotic prescribing. Ten eligible studies were included. Clinical Decision Support Systems (CDSS) were the most common intervention type (50% of studies), often integrated with Electronic Health Records (EHRs). Results showed mixed effects across patient-related, prescriber-related, and economic outcomes. While patient outcomes generally lacked statistical significance, prescriber-related outcomes showed more promising results. Four studies reported significant reductions in overall antibiotic prescribing rates, and two studies demonstrated significant increases in antibiotic appropriateness. Additionally, some studies showed decreased laboratory test orders and reduced emergency department visit durations. However, economic outcomes remained largely unaffected. In conclusion, the review suggests that IT interventions, especially those focusing on prescriber behavior, hold significant promise for optimizing antibiotic prescribing practices in UTI management. However, further research is needed to explore their effect on patient outcomes and cost-effectiveness. The findings underscore the potential of IT interventions as valuable tools for combating antibiotic resistance in UTI treatment.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Mobile Health on Hypertension Self-Management in Iran: A Review

Arezoo Dehghani[1], Fatemeh Tavakoli[2], Mitra Ebrahimi[2]*, Mahboobe Zadegi[2], Fatemeh Etemadi[2], Hamid Reza Dehghan[2]

1. Research Center for Health Technology Assessment and Medical Informatics, Department of Health Information Technology and Management, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Student Research Committee, Department of Health Information Technology and Management, School of Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ARTICLE INFO

Corresponding author:
Mitra Ebrahimi, BSc;
Student Research Committee,
Department of Health Information
Technology and Management,
School of Health, Shahid Sadoughi
University of Medical Sciences,
Yazd, Iran.
Email: Mitra.ebrahimi.81@gmail.com

ABSTRACT

High blood pressure has become one of the main public health challenges. Mobile health (mHealth) technologies are increasingly being used to manage various health conditions and self-care, particularly in reducing blood pressure and improving treatment adherence. This systematic review included searching clinical trial articles in Persian and English scientific databases including Google Scholar, SID, Scopus, Web of Science, and PubMed using relevant keywords. Articles were reviewed based on inclusion and exclusion criteria and Cochrane checklist. Ultimately, 9 articles were selected from the initial search that examined for effectiveness of mHealth technologies in patient self-care. Interventions in 7 studies were conducted using health apps, and in 2 studies, interventions were done through phone consultations. Among these, 7 studies (77.8%) showed that using mobile health technology was effective in improving self-care behaviors related to blood pressure management. Six studies (66.7%) reported that the use of these technologies increased patients' adherence to prescribed medications. Additionally, five studies (55.6%) indicated that these technologies helped improve patients' adherence to dietary programs. Four studies (44.4%) reported that the use of mHealth increased patients' physical activity. Furthermore, four other studies (44.4%) observed improvements in patients' quality of life, including physical functioning, mental health, and social performance. Three studies (33.3%) reported increased adherence to treatment, and two studies (22.2%) noted reductions in systolic blood pressure. In conclusion, mHealth technologies acted as effective tools in improving self-care, treatment adherence, and reducing blood pressure in Iranian patients and can be utilized in prevention and management programs for high blood pressure.

Please cite this article as: Dehghani A, Tavakoli F, Ebrahimi M, Zadegi M, Etemadi F, Dehghan HR. The Effect of Mobile Health on Hypertension Self-Management in Iran: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S314.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Mobile Health Technology on Self-Care Behaviors in Patients with Diabetes at Amir Al-Momenin Hospital, Genaveh, Iran

Marjan Farvardin*, Neda Alinajad, Mina Farvardin, Faridh Mokhtari

Bushehr University of Medical Sciences, Bushehr, Iran

ARTICLE INFO

Corresponding author:
Marjan Farvardin, MSc;
Bushehr University of Medical
Sciences, Bushehr, Iran.
Email: M.avril52@gmail.com

ABSTRACT

Background: Today, the leading cause of death in the world is non-communicable diseases or chronic diseases, which account for 74% of deaths in the world. Self-care mastery is a key element in the management of non-communicable diseases. Patient education is an effective intervention to prevent and reduce the complications of chronic diseases. It is possible to monitor their health status regularly and accurately, and mobile health technology is one of the most accessible solutions. We decided to evaluate the impact of using this technology on self-care behaviors in patients visiting the diabetes clinic of Amiralmomenin Hospital in Genaveh, Iran.
Methods: This study was conducted on 185 patients visiting the clinic by interviewing them with diabetes patients using the I-SC tool to measure self-care behaviors and demographics, and to examine the impact of diabetes patients' knowledge on self-care through mobile health technology using Ligret.
Results: Totally, 63% of middle-aged participants considered the impact of using health software on self-care behaviors. 61% referred to the diabetes clinic on time, 60% followed the diet and took medications regularly, and 56% considered the remote monitoring system to be effective in reducing the rate of readmissions and reducing stress in life.
Conclusion: We live in an era where non-communicable diseases have become an integral part. Non-face-to-face education through mobile health technology can be beneficial and lead to cost reduction, improved quality of health care, and also change health behaviors by strengthening prevention and ultimately improving health in the long term.

Please cite this article as: Farvardin M, Alinajad N, Farvardin M, Mokhtari F. The Effect of Mobile Health Technology on Self-Care Behaviors in Patients with Diabetes at Amir Al-Momenin Hospital, Genaveh, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S315.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Effect of Tele-Health on Pregnancy Outcomes: A Review

Maede Karimi[1]*, Yasaman Heidari[1,2], Nasim Esfandiyari[1], Zahra Yazdanpanahi[2]

1. Student Research Committee, Nursing and Midwifery Shiraz University of Medical Sciences, Shiraz, Iran
2. Maternal Fetal Medicine Research Center, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences. Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Maede Karimi, BSc;
Student Research Committee, Nursing and Midwifery Shiraz University of Medical Sciences, Shiraz, Iran.
Email:
Maedehkarimimidwifery2003@gmail.com

ABSTRACT

Monitoring the outcomes of pregnancy is one of the challenges of healthcare for pregnant women.The aim of this study is to determine the in a Tele health in pregnancy out comes narrative review. In this narrative review, impact of tele health and pregnancy outcomes between 2014-2024 was investigated using the keyword: pregnancy, complication, care, high risk, low risk, telehealth and tele medicine. Studies were chosen from PubMed, Science Direct, Web of Science, Embase, Scopus. Some studies pointed that in low risk mothers telehealth, have not been with meaningful changes in pregnancy complications such as: pre-eclampsia, fetal growth restriction, preterm birth, or stillbirth, compared with routine prenatal care. Other studies indicated that telemedicine and routine care have similar maternal and neonatal health and cost outcome. Therefore, several researches were concluded showing that telehealth is a safe method to work with in the management of low risk pregnancies as well as high-risk pregnancies. A systematic review and meta-analysis during COVID-19 revealed that antenatal and prenatal telehealth services are comparable with conventional and no adverse effect. Also, mothers were satisfied for accommodation and cost benefit. In conclusion, telehealth have beneficial effect and can be an option for prenatal care especially in low risk mothers also can be safe as well as routine care and most of mother were satisfy with this type of care. Therefore it recommended that this method. More research confirm that telehealth does not increase the adverse outcomes such as maternal or neonatal mortality.

Please cite this article as: Karimi M, Heidari Y, Esfandiyari N, Yazdanpanahi Z. The Effect of Tele-Health on Pregnancy Outcomes: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S316.

The Effect of New Smartwatch on Medication Adherence and Sending Alerts about Air Quality and Pollutants in the Area for Patients with Asthma

Sadegh Sharafi[1], Farshid Mohammadmousaei[2], Hossein Valizadeh[3], Leila Badinizadeh[4]*

1. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Community Health Nursing, School of Nursing, Abadan University of Medical Sciences, Abadan, Iran
3. Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Abadan University of Medical Sciences, Abadan, Iran

Corresponding author:
Leila Badinizadeh, MD;
Abadan University of Medical Sciences, Abadan, Iran.
Email: Badini7613@gmail.com

ABSTRACT

Background: Smart watches are equipped with artificial intelligence. These watches can monitor specific behaviors (such as taking medications, using eye drops, inhalers, and nasal sprays) as well as detect air pollution in real-world environments. The smart watch features a camera module capable of recording 20-second video clips of patients taking various medications and transmitting the information to physicians. It also sends reminders to patients with low adherence. The aim of this study is to identify air pollutants and send alerts to patients with asthma.

Methods: This randomized pilot study aims to utilize a smart watch to monitor patients' medication adherence and detect air pollution, dust, and temperature changes through artificial intelligence, transmitting this information to physicians. Approximately 60 asthma patients are planned to be included in 2024. During periods of high air pollutant concentrations in the atmosphere, asthma patients are required to take daily oral antihistamines and, if needed, use nasal corticosteroids and antihistamine eye drops.

Results: During periods when air pollutants exceeded permissible levels and the air quality index was unhealthy for individuals with asthma, adherence to oral antihistamines in the intervention group was significantly higher than in the control group. Moreover, the daily symptom scores in the intervention group were lower than those in the control group.

Conclusion: This pilot study demonstrated that the use of smart watches in patients with asthma is associated with improved medication adherence and symptom control. Therefore, considering that most cities are affected by air pollution, it is recommended to use smart watches in larger sample sizes.

Please cite this article as: Sharafi S, Mohammadmousaei F, Valizadeh H, Badinizadeh L. The Effect of New Smartwatch on Medication Adherence and Sending Alerts about Air Quality and Pollutants in the Area for Patients with Asthma. Int J Nutr Sci. 2025;10(2-Supplement):S317.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Effect of Artificial Intelligence and Robotic-Based Interventions on Improving Motor Function and Physical Activity in Stroke Survivors: A Review

Seyyedeh Fatemeh Mousavi Baigi[1,2], Atefeh Sadat Mousavi[1,2], Nasim Broumand[3], Masoumeh Sarbaz[1,2], Reyhane Norouzi Aval[1,2], Kosar Ghaddaripouri[4], Khalil Kimiafar[1,2]*

1. Department of Health Information Technology, School of Paramedical and Rehabilitation Sciences, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
4. Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Khalil Kimiafar, PhD;
Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran.
Email: Kimiafarkh@mums.ac.ir

ABSTRACT

Artificial Intelligence (AI)-based and robotic rehabilitation systems have emerged as promising approaches to enhance motor function and quality of life in stroke survivors. These technologies offer alternatives to traditional therapies by improving mobility, independence, and functional recovery. This study aimed to assess the efficacy of AI-based interventions through a systematic review and meta-analysis. Following PRISMA guidelines, a systematic search was conducted in PubMed, Scopus, Web of Science, and Embase until January 20, 2024. Out of 10,012 identified articles, 31 studies met the inclusion criteria, and 6 were included in the final meta-analysis. Standardized tools, including the Fugl-Meyer Assessment and Barthel Index, were used for evaluation. Data analysis was performed using OpenMeta [Analyst]. The meta-analysis demonstrated that AI-based interventions significantly improved motor function (MD=2.354; 95%CI: 1.532-3.177, I²=0%). Sensitivity analysis using the Leave-One-Out method confirmed the robustness of the results, showing no significant changes when individual studies were excluded. Cumulative analysis indicated progressive stabilization of findings with additional studies. Of the included studies, 68% reported significant motor improvements, whereas 32% showed no meaningful differences between intervention and control groups. In conclusion, this systematic review and meta-analysis provide strong evidence for the effectiveness of AI-based and robotic interventions in improving motor function and quality of life among stroke survivors. Despite promising results, variability in study designs, assessment tools, and intervention durations suggests a need for further research with larger samples, standardized protocols, and long-term follow-ups to enhance generalizability and confirm findings.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Human-Robot Interaction on Performance of Autistic Children: A Review

Fatemeh Rostami[1], Yunos Salimi[1], Nasrin Sharifi[2]*

1. Student Research Committee of Shiraz University of Medical Sciences, Shiraz, Iran
2. Faculty of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Keywords:
Autism
Children
Human-robot interaction
Performance

Corresponding author:
Nasrin Sharifi, PhD;
Faculty of Nursing and Midwifery,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Sharifin@sums.ac.ir

ABSTRACT

Autism is a developmental disorder that clinically characterized by impairment in social interaction, verbal and nonverbal communication and repetitive behaviors. According to WHO 2.95 in every 10 births in Iran are affected by autism. Emerging technologies such as robotics has opened promising opportunities for providing new solutions for interacting with patients. Present study Aimed reviewing human-robot interaction effectiveness on performance of autistic children. This narrative review conducted by searching Google Scholar, Pubmed, Science Direct between 2018 and 2024. Keywords were autism, intervention, robot, social-robots, children. Inclusion criteria were robotic intervention studies on autism spectrum and an age of less than 18 years. Exclusion criteria were non-interventional studies, and an age limit of more than 18 years. Sixteen studies were used for writing. The age range of children were 3-15, most participants were boys (68%), gender of robots were mostly boys (in Iran, Nima robot) and most children had an IQ70 with duration of robot treatment between 1-3 months. The location of intervention sessions with robots was mostly in clinics, rehabilitation centers. Most of the studies found improvements in: cognitive and social functioning, attention, maladaptive and repetitive behaviors. A few studies reported improvements in motor imitation skills and emotional understanding, while other studies did not show significant differences between the robot and control intervention groups skills (p=0.05). In conclusion, various studies showed that social-robots can increase performance of autistic children. However, in the field of emotional needs, robots cannot meet the needs, so these robots cannot act alone, but can be useful with other therapeutic and educational methods.

Please cite this article as: Rostami F, Salimi Y, Sharifi N. The Effect of Human-Robot Interaction on Performance of Autistic Children: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S319.

POSTER

The Effect of Mobile Health Applications on Changing Nutritional Behaviors and Modifying Lifestyles: A Review

Arian Bandari[1]*, Aynaz Mohammadian[1], Vahideh Aghamohammadi[2], Mohammad Heydari[3], Elyas Bastanifar[4]

1. Student Research Committee, Khalkhal Faculty of Medical Sciences, Khalkhal, Iran
2. Department of Nutrition, Khalkhal Faculty of Medical Sciences, Khalkhal, Iran
3. Scientific Research Center, Department of Health Information Management, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran.
4. Department of Clinical Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Arian Bandari, BSc;
Student Research Committee,
Khalkhal Faculty of Medical
Sciences, Khalkhal, Iran.
Email: Arianbandari8282@gmail.com

ABSTRACT

Mobile health (mHealth) apps influence nutrition, promote healthier lifestyles, improve dietary habits, and address obesity, malnutrition, and diseases. We aimed to examine their effectiveness across diverse populations and age groups. A systematic search of literature was conducted across electronic databases including: PubMed, Scopus, Web of Science, and Cochrane Library, for studies published between January 2010 and December 2024. Eligibility criteria encompassed RCTs, systematic review studies, cohort studies and cross-sectional studies evaluating mHealth applications for dietary and lifestyle changes. Data extraction and quality assessment were performed independently by two reviewers. Clinical population studies (e.g., diabetes or cardiovascular diseases) were excluded, and bias risk was assessed using the Cochrane Risk of Bias Tool. Total of 4,568 articles were identified, 54 studies meeting inclusion criteria: 32 RCTs, 12 cohort studies, and 10 cross-sectional designs. Most RCTs (78%) reported significant dietary habit improvements, such as increased fruit and vegetable intake and reduced processed food consumption. Cross-sectional studies highlighted the acceptability of culturally tailored mHealth apps for healthier food choices. Sixty-five percent of cohort studies noted moderate-to-high physical activity improvements when apps included features like step tracking and gamification. Studies in non-Western settings (33%) showed higher engagement with culturally tailored content. Apps targeting adolescents and young adults achieved better adherence. Features like personalized feedback, real-time tracking, social support, and gamification enhanced outcomes in 37 studies. In conclusion, mHealth apps effectively promote positive nutritional behaviors and lifestyle changes. Tailoring for culture and demographics improves efficacy. Future research should explore AI, accessibility, personalization, and age-relevant features.

Please cite this article as: Bandari A, Mohammadian A, Aghamohammadi V, Heydari M, Bastanifar E. The Effect of Mobile Health Applications on Changing Nutritional Behaviors and Modifying Lifestyles: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S320.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Effect of Smartphone-Based Self-Management Applications on Maternal Breastfeeding: A Review

Kimia Abrishamifar[1], Shadi Hazhir[2], Hossein Valizadeh Laktarashi[2], Milad Rahimi[3]*

1. Department of Health Information Management, School of Health Management and Information Science, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Health Information Technology and Management, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Milad Rahimi, PhD;
Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran.
Email: Miladrahimi@sbmu.ac.ir

ABSTRACT

Breast feeding is vital for maternal and infant health, yet rates often decline due to insufficient support. This review explores the effectiveness of smart phone applications in overcoming these challenges by providing accessible, personalized resources to enhance breastfeeding practices. This review followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. A comprehensive search of PubMed, Scopus, Web of Science, and IEEE databases was conducted to identify relevant articles published between July 2020 and January 2025. Two screening levels were applied: title and abstract review, followed by full-text analysis. Data extraction was independently performed by all investigators, focusing on application type, function, target participants, identified risk factors, intended purpose, and evaluation outcomes. The initial search identified 1,065 articles across the four databases. After rigorous screening and applying the inclusion criteria, 10 studies were selected for detailed analysis. The review revealed that the primary features of mobile applications supporting breastfeeding included educational modules (reported in 77% of the studies), timely reminders for breastfeeding schedules, interactive consultancy services, live chat functionalities, and tracking tools for breast feeding activities. These applications predominantly provided personalized and user-centric support to address breastfeeding challenges. Key outcomes included improved maternal knowledge, enhanced breastfeeding practices, and better management of common breast feeding issues such as latch difficulties and breast-related complications. In conclusion, smart phone applications support breastfeeding by providing educational resources and connecting users with healthcare professionals and communities, addressing key barriers. Future research should enhance app functionality, cultural relevance, and accessibility to maximize global impact.

International Journal of Nutrition Sciences

POSTER

The Effect of Tele-Rehabilitation Nursing on Daily Living Abilities of Children with Cerebral Palsy: A Review

Sherafat Akaberian[1]*, Maryam Alvannasari[2], Zahra Poorghayoomi[2], Reihane Ebrahimimotlaqh[2]

1. Department of Nursing, School of Nursing and Midwifery, Bushehr Universtiy of Medical Sciences, Bushehr, Iran
2. Student Research and Technology Committee, Bushehr University of Medical Sciences, Bushehr, Iran

ARTICLE INFO

Corresponding author:
Sherafat Akaberian, PhD;
Department of Nursing, School of
Nursing and Midwifery, Bushehr
Universtiy of Medical Sciences,
Bushehr, Iran.
Email: Sh.akaberian2@gmail.com

ABSTRACT

Cerebral palsy refers to a group of persistent central motor and postural developmental disorders and limited activity syndrome caused by non-progressive brain injury in developing children. Tele-rehabilitation nursing using smart devices equipped with the internet by patient with physical functional disabilities can reduce the degree of deformity of organs and improve their quality of life in children with cerebral palsy. Due to the lack of necessary infrastructure in Iran, tele-rehabiliation nursing has been neglected. Therefore the present study was conducted with the aim of determining the effectiveness of tele-rehabilitation nursing on the daily activities in children with cerebral palsy. In this review, articles indexed in SID, Google Scholar, PubMed databases were used, a total of 20 articles were reviewed from 2015 to 2024. The search was based on the following MeSH terms as tele-rehabilitation, cerebral palsy, tele-nursing, daily living activity .Articles whose full text was not available were excluded from the study. The results of the studies showed that tele-rehabilitation nursing has a significant role in improving daily life activities and can improve abilities and skills. Such as; Self-care measures, mobility, cognitive communication skills, social interactions especially interaction with family, muscle coordination and balance, information processing and problem solving. It also plays a role in increasing self-confidence and reducing family care costs. In conclusion, tele-rehabilitation nursing is effective in maintaining the therapeutic effects and meeting the daily activity needs of children with cerebral palsy and can help improve motor functions and independent living abilities.

POSTER

The Effect of Mobile Health Interventions on the Management of Low-Density Lipoprotein-Cholesterol levels: A Review

Amirreza Khamineh, Negar Norouzi, Mohammad Nosrati Oskouie*, Mahdis Valizadeh Kakhki, Ghazale Ashrafian

Department of Nutrition Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mohammad Nosrati Oskouie, PhD;
Department of Nutrition Sciences,
Varastegan Institute for Medical
Sciences, Mashhad, Iran.
Email: Mohammad_nosrati_o@
yahoo.com

ABSTRACT

Low-density lipoprotein-cholesterol (LDL-C), a major factor in the increase of chronic diseases, has continued to spread despite traditional preventive methods. Mobile health interventions (MHIs) are innovative tools that enable monitoring, personalized interventions, and better adherence of patients to treatment. This review aimed to evaluate the effect of MHIs in the management of LDL-C levels. A search was carried out in databases PubMed, Web of Science, and Google Scholar using keywords "LDL-C", "mobile health", "triglycerides", and "RCT" retrieved 1,086 articles published up to December 2024. Eligibility criteria were applied, followed by title, abstract, and full-text screening by two independent reviewers; hence, the study had to involve LDL-C as one of the parameters and had RCT design. A total of 30 articles satisfied the inclusion criteria. Of these, 20 articles (66.66%) reported a significant reduction in LDL-C levels, including four out of seven (57.14%) studies using mobile health applications, two out of four (50%) studies involving text message interventions, and 14 out of 19 (73.68%) studies utilizing telehealth packages. Regionally, the significant reductions were observed in seven out of nine studies (77.77%) conducted in Asia, all three studies from Australia, six out of 12 studies (50%) in North America, and two out of four studies (50%) in Europe. In conclusion, numerous numbers of studies were positive in supporting MHIs as promising strategies toward reducing LDL-C levels. MHIs appear capable of achieving monitoring and improvement in patients related to LDL-C specially by telehealth package method.

The Future of Medical Diagnostics: A Review on Establishing Virtual Laboratories in Metaverse

Parmida Mashouf[1], Sogand Mirzaie[1], Hossein Javid[1,2,3]*

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Clinical Biochemistry, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

*Corresponding author:
Hossein Javid, PhD;
Surgical Oncology Research Center,
Mashhad University of Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

He Metaverse is an interactive virtual space built on cutting-edge Web3 technologies, encompassing virtual reality (VR), augmented reality (AR), and blockchain technologies that contribute to its unique dimensions. The rapid evolution of technology and the Metaverse are intertwined, poised to transform medical diagnostics. This research explores the potential of creating virtual laboratories within the Metaverse, aiming to establish a synergistic relationship between the real and virtual worlds to enhance value. This review article was performed within articles published at NCBI, Embase, Google Scholar until December 2024. The keywords were virtual laboratories OR future of medicine AND Metaverse. Seventeen articles were found, and 9 were removed and 8 articles were selected. All articles were chosen from English articles. Based on research findings, virtual laboratories have emerged as an innovative tool with the potential to enhance access to healthcare services and improve the efficiency of health systems. This technology facilitates data sharing and enables personalized care, while also promoting collaboration among various medical disciplines. However, challenges such as compliance with legal requirements, concerns regarding data privacy and the need for interdisciplinary collaboration remain prevalent. In conclusion, ultimately, the establishment of virtual laboratories within the Metaverse offers a unique opportunity to enhance diagnostic accuracy and improve patient outcomes. This approach requires close collaboration between scientific communities and medical professionals to fully capitalize on its benefits while mitigating potential negative consequences. Furthermore, raising awareness and providing education for stakeholders in this field is essential to realize the Metaverse's potential in healthcare.

Please cite this article as: Mashouf P, Mirzaie S, Javid H. The Future of Medical Diagnostics: A Review on Establishing Virtual Laboratories in Metaverse. Int J Nutr Sci. 2025;10(2-Supplement):S324.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Future of Medical Education: A Review on Evolution Learning through Artificial Intelligence in Metaverse

Sogand Mirzaie[1], Parmida Mashouf[1], Hossein Javid[1,2,3]*

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Clinical Biochemistry, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Surgical Oncology Research Center,
Mashhad University of Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

The emergence of advanced simulations within the metaverse platform in recent decades has significantly transformed the future landscape of medicine. The medical metaverse has revolutionized the process of medical education by offering realistic simulations. This innovative environment enables students in health and medical fields to enhance their clinical skills through hands-on practice and real-life experiences in diagnosing and treating patients, all within a safe and controlled setting. This review article was performed within articles published at NCBI, Embase, Google Scholar until Desember 2024. The keywords were Medical education AND Artificial Intelligence AND Metaverse. 20 articles were found, and 8 were removed and 12 articles were selected. All articles were chosen from English articles. By evaluating the integration of metaverse technologies and medical sciences, one can uncover remarkable benefits, including training that surpasses the effectiveness of traditional physical classrooms, the ability to tailor personalized learning pathways, and opportunities for collaboration among educators. However, this landscape is not without its challenges, such as ensuring equitable access to technology, maintaining the quality of education in virtual environments, and the potential reduction of human interaction. CIn conclusion, ultimately, the effective utilization of the capabilities offered by this innovative technology requires a systematic and comprehensive approach. These advancements not only transform learning methodologies but also enable us to implement a novel and creative strategy for training the physicians of tomorrow. It is essential for educational institutions and healthcare systems to develop effective strategies for optimizing the use of these tools.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Metaverse and Artificial Intelligence Integration in Future of Medicine: A Review

Fatemeh Khademian[1], Seyed Jalil Masoumi[1,2,3,4]*, Najmeh Hosseini[1], Masumeh Jalalinezhad[1], Minoo Faghirimanesh[1]

1. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
4. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Nutrition Research Center,
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Science, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

Metaverse and recent developments in artificial intelligence (AI) are set to revolutionize medicine. On the one hand, Metaverse offers immersive environments for education, patient care, and community health initiatives; while on the other hand, AI improves diagnostic accuracy and treatment personalization. This review will attempt to present the current research status on the role of Metaverse and AI in medical practice and their effectiveness and potential to improve healthcare delivery and patient outcomes. A literature search was conducted in databases including PubMed, IEEE Xplore, and Scopus using keywords such as Metaverse, artificial intelligence, care, and medical education. Studies published between 2019 and 2023 were retrieved. Inclusion criteria focused on studies discussing the use of Metaverse and AI in medical education, telemedicine, and patient engagement. Findings showed that the use of immersive simulations significantly improved effectiveness in medical education, while AI-based analytics in telehealth environments notably increased patient engagement. Furthermore, various studies have demonstrated a potential reduction in diagnostic errors through AI applications in virtual environments. Additionally, research indicates that AI-driven decision support systems can enhance clinical workflows, leading to more accurate treatment plans and better patient outcomes, highlighting the broad impact of AI technologies across healthcare settings. In conclusion, this review suggests that the integration of Metaverse and AI could transform the future of medicine by improving education and patient engagement, also optimizing diagnostic processes. Further research on these technologies will be important to overcome current barriers and demonstrate the best use of these innovations in healthcare.

Please cite this article as: Khademian F, Masoumi SJ, Hosseini N, Jalalinezhad M, Faghirimanesh M. Metaverse and Artificial Intelligence Integration in Future of Medicine: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S326.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Future of Medicine: A Review on How Artificial Intelligence Is Transforming the World of Healthcare?

Hadi Bastam*

Fars Governorate, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Hadi Bastam, ????;
Nutrition Research Center,
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Science, Shiraz, Iran.
Email: ??????

ABSTRACT

Artificial intelligence (AI) is revolutionizing the field of medicine by driving advancements in diagnosis, treatment, and patient care. By enabling faster and more precise analysis of complex medical data, AI contributes to early disease detection and the development of personalized therapeutic strategies. Its integration into healthcare systems marks a shift from traditional practices to more efficient, data-driven approaches. AI utilizes sophisticated machine learning algorithms to analyze extensive datasets, such as medical images and patient histories. These algorithms identify patterns and generate insights that enhance clinical decision-making, supporting preventive medicine and individualized treatment plans. The adoption of AI-driven approaches has shown promise in optimizing healthcare workflows and improving outcomes. AI technologies have delivered significant improvements in diagnostic precision and treatment personalization. By analyzing large-scale data and identifying subtle patterns, AI enables early detection of diseases, reduces diagnostic errors, and supports tailored interventions. Such capabilities enhance overall healthcare efficiency and contribute to better patient outcomes. In conclusion, AI holds tremendous potential to transform the healthcare landscape through enhanced diagnostic accuracy, personalized treatments, and improved patient care. However, to realize this potential fully, the healthcare industry must address critical issues such as data protection, ethical concerns, and dependency on technology. A balanced approach that integrates technological advancements with ethical principles and regulatory oversight will ensure that AI's integration into medicine is effective and sustainable. By fostering collaboration among stakeholders, the future of AI in healthcare can be one of innovation, responsibility, and improved global health outcomes.

Please cite this article as: Bastam H. The Future of Medicine: A Review on How Artificial Intelligence Is Transforming the World of Healthcare?. Int J Nutr Sci. 2025;10(2-Supplement):S327.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Impact of Artificial Intelligence on Food Accessibility and Nutritional Equity for Management of Chronic Diseases: A Review

Melika Mojtahedzadeh[1], Nastaran Ghazanfari[1], Hossein Javid[2,3]*

1 Department of Nutrition Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Student Research Committee, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Hossein Javid, PhD;
Department of Nutrition Sciences,
Varastegan Institute for Medical
Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Nutrition is a complex field that explores the connection between diet, health and disease. Although artificial intelligence (AI) has become famous recently, also helps in tracing and offering solutions in dietary assessment, personalized and clinical nutrition. The integration of AI into healthcare has the potential to transform food accessibility and nutritional equity, particularly for individuals managing chronic diseases. This systematic review examines the current landscape of AI applications aimed at improving dietary management and access to nutritious food for patients with chronic conditions. This systematic review article was written by reviewing articles published in PubMed, Science Direct, Google Scholar between 2022and 2025. The keywords were AI, machin learning, food accessibility, nutrition and chronic diseases. By searching these databases, 28 articles were found.16 of them were removed after reviewing the articles and 12 articles were selected. Our findings indicate that AI is reshaping the field of nutrition in ways that were previously unimaginable. By enhancing how we assess diets, customize nutrition plans, and manage complex health conditions, AI has become an essential tool. Technologies like machine learning models and chatbot applications are revolutionizing the accuracy of dietary tracking, making it easier than ever to provide tailored solutions for individuals and communities. In conclusion, the integration of AI technologies into food accessibility and nutritional management holds significant promise for enhancing chronic disease management. Our systematic review highlights that AI-driven solutions can improve dietary recommendations, optimize food distribution networks, and personalize nutrition plans, thereby addressing disparities in nutritional equity.

Please cite this article as: Mojtahedzadeh M, Ghazanfari N, Javid H. The Impact of Artificial Intelligence on Food Accessibility and Nutritional Equity for Management of Chronic Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S328.

POSTER

The Impact of Artificial Intelligence on Improvement of Radiology Reports: A Review

Aynaz Mansouri[1], Fatemeh Khademian[2]*, Zahra Khademian[3]

1. Islamic Azad University, Bushehr Branch, Bushehr, Iran
2. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
3. Community based Psychiatric Care Research Center, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Khademian, PhD;
Information Technology Incubator
Centre, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Fkhademian90@yahoo.com

ABSTRACT

Artificial Intelligence (AI) integration into the field of radiology marks a transformative shift in how imaging reports are generated and interpreted. AI has the potential to enhance report quality, streamline workflows, and improve patient understanding of medical findings. This study aimed to explore the impacts of AI on radiology practices and its implications for patient care. This narrative review examines the existing literature on the use of AI in radiology. A thorough search was performed across various databases, including PubMed, Scopus, and IEEE Xplore, concentrating on studies published between 2015 and 2024. Evidence shows that Artificial Intelligence AI in radiology can promisingly impact both the quality of the radiology report and its efficiency. One of the studies found that AI has enhanced the quality of reports and improved patient comprehension of the original reports (2.71) and patient-friendly versions (4.69). Also, AI yielded a reduction in the time of reading the film of the chest radiograph from 14.8 seconds to 13.3 seconds, while reading times for more complicated cases did not demonstrate any significant change. NLP technologies also assist in improving patient comprehension of imaging reports for better communication between healthcare providers and patients. Besides, AI applications optimize the workflow in radiology by defining the data structure; thus, improving the continuity of medical records. In conclusion,: AI has the potential to improve the operations of radiology services and patient-care outcomes, while careful oversight is still needed to minimize the risks linked to automated reporting systems.

The Impact of Machine Learning on Predicting Adolescent Suicide Rates: A Review on Familial Mental Health History

Saeideh Zeinalzad*, Zakiye Ghelbash

Department of Psychiatric Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

*Corresponding author:
Saeideh Zeinalzad, PhD;
Department of Psychiatric Nursing,
School of Nursing and Midwifery,
Shahid Beheshti University of Medical
Sciences, Tehran, Iran.
Email: Saedehzeynalzadeh@yahoo.com

ABSTRACT

Adolescent suicide is a critical public health issue influenced by individual, familial, and social factors. Familial mental health history, including parental depression and substance use, is a significant predictor of suicide risk. Machine learning (ML) offers innovative potential for improving suicide risk prediction. This study reviews the impact of familial mental health history and ML in predicting adolescent suicide, focusing on gender-specific patterns. A systematic review was conducted using PubMed, Scopus, Web of Science, and PsycINFO databases. Articles published between 2013 and 2023 were screened for inclusion: studies involving adolescents aged 10–19, focusing on familial and social factors, and using ML models for suicide prediction. Non-English articles, reviews, and studies without primary data were excluded. Eighteen studies were analyzed from an initial pool of 182. Familial mental health history, such as parental depression and substance use, was a key predictor of suicide risk. ML models, particularly ensemble methods like random forests and gradient boosting machines, achieved predictive accuracies above 85%, outperforming traditional methods. Gender-based analysis revealed girls had higher rates of suicide attempts, while boys had higher rates of completed suicides. ML algorithms refined risk assessments by integrating familial, individual, and social factors, enabling precise identification of high-risk subgroups. In conclusion, ML provides a transformative approach to predicting adolescent suicide by incorporating familial and social factors alongside gender-specific patterns. These findings emphasize the importance of targeted prevention strategies, early detection, and tailored interventions in clinical and community settings.

POSTER

The Impact of Metaverse on Emergency Medicine: A Review

Kimia Ashrafpour*

School of Medical Management and Information, Shiraz University of Medical Science, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Kimia Ashrafpour, MSc;
School of Medical Management and
Information, Shiraz University of
Medical Science, Shiraz, Iran.
Email: Elbhm19@gmail.com

ABSTRACT

Interest in the Metaverse is increasing globally due to its potential for immersive and interactive experiences, supported by advancements in technology. The development of the Metaverse relies on six key technologies: artificial intelligence (AI), virtual reality (VR), augmented reality (AR), digital twins, networking and blockchain, which work together to create an interconnected virtual world. The demand for Metaverse applications varies across different specialties, prompting an examination of its impact on emergency medicine. An overview of 15 published articles from 2020 to 2024 in reputable scientific databases such as Google Scholar and PubMed regarding various applications of metaverse and the challenges of its implementation was conducted. Ultimately, three articles were selected for a comprehensive review. The growing focus on quality healthcare emphasizes the need for more effective educational methods to improve medical students' emergency skills, particularly given the rise in natural disasters and traffic accidents. Simulated medical training in immersive environments addresses the limitations of traditional clinical learning by allowing students to practice on simulated human models, providing practical insights that are hard to obtain in real clinical settings. The Metaverse, which includes AR and VR, is an adaptable technology used across various medical fields, especially in education and emergency medicine, where training is vital. In conclusion, the Metaverse in emergency medicine creates diverse opportunities by providing a simulation that offers an almost real experience in clinical training fosters clinical experiential thinking and strengthens comprehensive abilities. This study empowers emergency care systems to face future challenges and recognize opportunities

Please cite this article as: Ashrafpour K. The Impact of Metaverse on Emergency Medicine: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S331.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Impact of Mobile Health Interventions on Health-Promoting Behaviors in Pregnant Women

Fateme Asadollahi[1], Samira Ebrahimzadeh Zagami[1,2], Robab Latifnejad Roudsari[3*]

1. Student Research Committee, Reproductive Health Department, Mashhad University of Medical Sciences, Mashhad, Iran
2. Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Robab Latifnejad Roudsari, PhD;
Department of Midwifery, School of
Nursing and Midwifery, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Rlatifnejad@yahoo.com

ABSTRACT

Background: Health-promoting behaviors are essential for maternal and fetal well-being but are often challenging for pregnant women to adopt. This study evaluated the effectiveness of a comprehensive mobile health (mHealth) application in promoting health behaviors among pregnant women in Iran.

Methods: In a randomized controlled trial, 80 pregnant women (18-45 years, gestational ages 18-36 weeks) were recruited from Mashhad University of Medical Sciences' prenatal clinics (May-September 2023). Participants were randomly assigned (1:1) using computer-generated sequences and centralized allocation concealment to either an intervention group receiving the mHealth app or a control group receiving standard prenatal care. The app provided multimedia resources on exercise, nutrition, stress management, and other health behaviors. Data were collected at baseline and after four weeks using the Health Promoting Lifestyle Profile II (HPLP-II). Statistical analyses included repeated-measures ANOVA, t-tests, and chi-square tests.

Results: Both groups were homogeneous in terms of personal and obstetric characteristics at baseline. The intervention group exhibited significant improvements in health-promoting behaviors compared to the control group, with higher HPLP-II scores (mean difference: 29.5, p=0.004). Enhancements were observed across all subscales, including health responsibility, exercise, nutrition, spiritual growth, interpersonal relations, and stress management. The intervention's effectiveness was consistent across demographic subgroups.

Conclusion: The mHealth intervention significantly improved health-promoting behaviors among pregnant women, highlighting its potential for integration into prenatal care to support healthier lifestyles. Further research should examine the long-term impacts and scalability of such interventions across diverse populations.

Please cite this article as: Asadollahi F, Ebrahimzadeh Zagami S, Latifnejad Roudsari R. The Impact of Mobile Health Interventions on Health-Promoting Behaviors in Pregnant Women. Int J Nutr Sci. 2025;10(2-Supplement):S332.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Impact of Mindfulness Applications on Quality of Life and Mental Health in Patients with Breast Cancer: A Review

Zinat Mohebi*, Kiana Behroozfar

Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Keywords:
Breast cancer
Mindfulness
Mobile healtht

Corresponding author:
Zinat Mohebi, PhD;
Department of Nursing, School
of Nursing and Midwifery, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Mohebbi04@yahoo.com

ABSTRACT

Breast cancer deeply affects patients' mental health, often causing anxiety, depression, and a lower quality of life. Recently, mindfulness applications have emerged as a supportive tool to address these challenges. By incorporating mindfulness practices into daily life, these apps have the potential to improve both mental and physical well-being. This review examined studies from databases including PubMed, Google Scholar, Scopus, and Magiran. Articles published in the last five years in English or Persian, with open access were selected. The focus was on the psychological benefits and quality-of-life improvements linked to the use of mindfulness apps by breast cancer patients. Evidence suggests that mindfulness apps can alleviate anxiety and depression, enhance sleep quality, and support focus and emotional regulation. For instance, one study reported a reduction in depression and an increase in life satisfaction after several weeks of app use. Another highlighted improvements in sleep and reduced insomnia symptoms. These interventions have also been associated with reduced cortisol levels, contributing to emotional stability. Despite these benefits, some studies noted challenges, such as small sample sizes, limited durations, and issues with accessibility. In conclusion, mindfulness apps are promising tools for enhancing the mental health and quality of life of breast cancer patients. However, larger and longer-term studies are needed to confirm their effectiveness and refine their designs for broader use. Addressing obstacles like digital access and user engagement remains key to maximizing their potential benefits.

Please cite this article as: Mohebi Z, Behroozfar K. The Impact of Mindfulness Applications on Quality of Life and Mental Health in Patients with Breast Cancer: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S333.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Impact of Mindfulness Techniques Training via Social Media on Resilience of Medical Students

Mitra Rafiei Boldaji[1], Iman Shakibkhah[2]*, Ali Asghar Hayat[1], Farzad Abaszadeh[1],[3], Sahar Amirzadeh[1]

1. Clinical Education Research Center, Department of Medical Education, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, Department of Health in Disasters and Emergencies, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Student Research Committee, Faculty of Allied Medicine, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

Corresponding author:
Iman Shakibkhah, MD, PhD;
Student Research Committee,
Department of Health in Disasters
and Emergencies, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: I.1366125@yahoo.com

ABSTRACT

Background: Given the psychological challenges and stress associated with studying medicine, mindfulness techniques are recognized as an effective method for stress management. This article examines the impact of teaching these techniques through social media on the resilience and mental health of medical students during their internship at the University of Medical Sciences in Kohgiluyeh and Boyer-Ahmad Province, Iran.

Methods: This research was conducted as a quasi-experimental study using a pre-test-post-test design with a control group. The sample consisted of 86 medical interns who were randomly assigned to either the experimental or control group. The experimental group received training in mindfulness techniques through social media, which included eight educational sessions. Data were collected using resilience and mental health questionnaires and analyzed using SPSS software.

Results: It was shown that training in mindfulness techniques led to a significant increase in resilience in the experimental group compared to the control group. Additionally, the average scores for stress and anxiety decreased in the experimental group ($p=0.05$).

Conclusion: The findings of this study suggest that teaching mindfulness techniques through social media can serve as an effective intervention for enhancing the resilience of medical students. These results emphasize the importance of integrating mindfulness techniques into educational and psychological programs, potentially offering new strategies for addressing psychological issues. This study highlights the significant potential of social media as an educational tool for promoting mental health and resilience among students. Employing such approaches can help strengthen students' coping skills and better prepare them to face academic challenges.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Impact of Mobile Health on Bipolar Disorder: A Review

Roxaneh Sadat Ziaee[1]*, Alireza Ziaee[2]

1. School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Keywords:
Bipolar disorder
Mobile health

*Corresponding author:
Roxaneh Sadat Ziaee, MSc;
School of Nutrition and Food
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Ziaee.roxana989@gmail.com

ABSTRACT

Internet and mobile- base methods have gained significant importance in psychological research related to bipolar disorders. Specifically, the emerging mHealth approach facilities regular self- monitoring for individuals with bipolar disorder. The aim of this current study is to investigate the impact of mobile health intervention on bipolar disorder using the keywords bipolar disorder, mobile health, mHealth in PubMed and Google Scholar until January 3, 2025. We found 318 articles. Based on the study of their titles, 300 articles were removed, nine articles were removed after studying their abstracts, and six articles were removed after examining their full texts. Ultimately, only three articles are used for this current study. According to the Faurholt-Jepsen's study, it was demonstrated that the smartphone group experienced an improved quality of life and reported lower levels of perceived stress compared to control group. In Casarez's study, the findings suggested that mHealth device could be beneficial in at least six areas: reducing stressors, lessening social isolation, enhancing communication between spouses, discussing the illness with children and managing medications and providing data about resources. One study found no significant impact of daily self- monitoring through smartphones on either depressive or manic symptoms. In conclusion, although mobile health devices can be useful in enhancing the quality of life for patients with bipolar disorder, there was not a meaningful influence of daily self-monitoring through smartphones on the symptoms of patients with bipolar disorder in either the manic or depressive phases.

POSTER

The Impact of Mobile Health on Children with Attention Deficit Hyperactivity Disorder: A Review

Sara Hosseini*

Shahrekord University of Medical Sciences, Shahrekord, Iran

ARTICLE INFO

Corresponding author:
Sara Hosseini, MSc;
Shahrekord University of Medical
Sciences, Shahrekord, Iran.
Email: Hosseinisara132@gmail.com

ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is a common neurodevelopmental disorder affecting millions of children worldwide. It is characterized by persistent patterns of inattention, hyperactivity, and impulsivity that disrupt daily life and development. Traditional treatments typically include behavioral therapy, psychoeducation, and medication. However, mobile health (mHealth) applications have recently emerged as innovative tools to complement these interventions. mHealth solutions leverage technology to deliver accessible, personalized, and engaging therapeutic approaches that support both children and caregivers. This review analyzed recent peer-reviewed studies to assess the effectiveness of mHealth applications in managing ADHD symptoms. Key databases, including PubMed, Scopus, and Google Scholar, were searched using terms such as "ADHD", "mHealth", "children", and "digital therapy". Studies published between 2020 and 2025 were included to ensure relevance to the latest advancements. The analysis identified several significant benefits of mHealth applications including symptom monitoring by Real-time tracking tools helping caregivers and healthcare providers monitor behavioral patterns, enabling timely adjustments to interventions. Engaging tools of gamified exercises within mHealth apps increase children's participation in therapeutic activities, promoting skills like attention and self-regulation. Parental Support such as mHealth platforms can provide parents with educational resources, reminders, and strategies to effectively manage their child's behavior. In conclusion, mHealth applications represent valuable additions to traditional ADHD treatment methods. They offer cost-effective, accessible, and engaging tools for symptom management. While promising, further research is necessary to develop standardized guidelines and evaluate long-term efficacy. Integrating mHealth with conventional treatments can significantly improve outcomes for children with ADHD and their families.

Please cite this article as: Hosseini S. The Impact of Mobile Health on Children with Attention Deficit Hyperactivity Disorder: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S336.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Impact of Mobile Health Technologies on Diagnosis of Oral Diseases: A Review

Fatemeh Khademian[1], Seyed Jalil Masoumi[1,2,3,4]*, Atefehsadat Masoumi[5], Shimasadat Masoumi[5]

1 Information Technology Incubator Center, Shiraz University of Medical Sciences, Shiraz, Iran
2 Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
4. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran
5. Shiraz University of Medical Sciences, Shiraz, Iran

*Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Shahrekord University of Medical Sciences, Shahrekord, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

Mobile health (mHealth) technologies are profoundly transforming the domain of dentistry, especially in the diagnosis of various oral diseases. This review aims to evaluate the effectiveness and significance of different mHealth tools, including mobile applications and telemedicine, in enhancing diagnostic accuracy and promoting patient engagement in their care processes. A comprehensive literature search was conducted across multiple databases, such as PubMed, Scopus, and Web of Science, focusing on pertinent studies published from 2010 to 2023 that examined mobile health interventions specifically related to oral diagnostics. The results indicate that mHealth applications significantly improve the early identification of oral diseases, including common conditions like dental caries and periodontal disease, achieving diagnostic accuracy comparable to traditional clinical methods. Moreover, these technologies encourage increased patient involvement and adherence to treatment plans, with an impressive average satisfaction rate exceeding 85%. Additionally, the integration of tele-dentistry within mHealth frameworks has shown considerable potential in overcoming access challenges, particularly for underserved and rural populations with limited access to essential dental care services. In conclusion, the findings of this review underscore the substantial potential of mHealth technologies in revolutionizing the diagnosis and management of oral diseases. By facilitating timely interventions and enhancing overall patient outcomes, these innovative solutions offer a promising approach to more effective and accessible dental care. The incorporation of mHealth tools into standard dental practice could lead to improved health literacy and better management of oral health, ultimately enhancing the quality of life for patients and their communities.

Please cite this article as: Khademian F, Masoumi SJ, Masoumi AS, Masoumi SS. The Impact of Mobile Health Technologies on Diagnosis of Oral Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S337.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Impact of Mobile Health Technology on Diagnosis and Treatment of Voice Disorders: A Review

Sara Abedini*, Farzane Abdi, Yusef Mansuri

Student Research Committee, Department of Speech and Language Pathology, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Sara Abedini, MSc;
Student Research Committee,
Department of Speech and Language
Pathology, Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran.
Email: S.abedini.slp@gmail.com

ABSTRACT

Voice disorder is characterized by multi-dimensional aspects resulting from organic, functional, and neurological deficits of vocal mechanisms and can cause voice quality problems. In recent years, the incidence of voice disorders has risen significantly, primarily due to unhealthy lifestyles and vocal abuse. Voice disorders can severely impact the quality of life, especially for professional voice users. Mobile health (mHealth) technologies have gained growing attention in research and healthcare industries for their ability to transmit digital data, monitor health conditions, and manage diseases. One of the most promising applications of these technologies is their potential for early detection of voice disorders through voice analysis. This study investigates the impact of mHealth devices on diagnosing and treating voice disorders. This study was a systematic review of literature published between 2015 and 2025, using databases such as Google Scholar, PubMed, and Web of Science as early detection, and continuous monitoring. Also, Mobile-based voice therapy has the advantage of being cheaper and more flexible for patients and clinicians. Digital health tools can enhance patient care by increasing efficiency, effectiveness, and affordability. In conclusion, this study suggests that mobile health technologies could serve as practical tools for at-home monitoring and assessment of voice health. Such advancements lay the foundation for innovative, personalized medicine approaches. However, further research is essential to evaluate the effectiveness, safety, clinical applicability, and reliability of digital health platforms to strengthen these findings.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Impact of Mobile-Based Telemedicine Services on Healthcare Access in Rural Communities: A Review

Maryam Shayegan*, Fahimeh Alsadat Hosseini

Community Based Psychiatric Care Research Center, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Maryam Shayegan, PhD;
Community Based Psychiatric Care
Research Center, School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: M2620.shaygan@gmail.com

ABSTRACT

With advancements in communication technologies, telemedicine services have emerged as an innovative solution to enhance healthcare access in rural areas. The use of technology in healthcare delivery can assist healthcare systems in expanding access to and improving the quality of rural healthcare. Despite its potential, the extent of its impact on healthcare delivery remains underexplored. This study aims to evaluate the effects of mobile-based telemedicine services on healthcare access in rural communities, focusing on the barriers and facilitators influencing its implementation. A systematic review was conducted, analyzing ten articles published between 2014 and 2024, including four systematic reviews, three original research studies, two pilot projects, and one comprehensive review. Data were extracted regarding the efficacy, challenges, and outcomes associated with mobile telemedicine interventions. The findings indicate that mobile-based telemedicine services significantly improve healthcare access by overcoming geographical barriers, enhancing disease management, and facilitating communication between patients and healthcare providers. Through concerted efforts to overcome barriers and enhance accessibility, mobile health units can effectively extend the reach of telemedicine services to underserved populations, promoting health equity and improving healthcare outcomes in remote areas. However, challenges such as technological infrastructure, digital literacy, and socio-economic factors were identified as barriers to effective implementation. In conclusion, this study highlights the critical role of mobile-based telemedicine in improving healthcare access in rural areas. It underscores the necessity for comprehensive strategies to address technological and socio-economic challenges, advocating for further research to develop integrated telemedicine models that effectively serve rural populations.

Please cite this article as: Shayegan M, Hosseini FA. The Impact of Mobile-Based Telemedicine Services on Healthcare Access in Rural Communities: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S339.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Impact of Telehealth Interventions on Suicide Prevention: A Review

Fahimeh Rahimi[1,2], Zahra Bazgir[1,2], Elnaz Bornasi[1,2], Parastoo Amiri[2,3]*

1. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
2. USERN Office, Lorestan University of Medical Sciences, Khorramabad, Iran.
3. Department of Health Information Technology, School of Allied Medical Sciences, Lorestan University of Medical Sciences, Khorramabad, Iran

ARTICLE INFO

*Corresponding author:
Parastoo Amiri, PhD;
Department of Health Information
Technology, School of Allied
Medical Sciences, Lorestan
University of Medical Sciences,
Khorramabad, Iran.
Email: Parastu.amirii1@gmail.com

ABSTRACT

Suicide is a major public health issue, causing approximately 800,000 deaths worldwide and 52,000 deaths among children and adolescents each year. The use of telehealth technology can be somewhat effective in preventing and reducing suicide. The aim of this study is to investigate the impact of telehealth interventions on suicide prevention. Relevant articles were searched in online medical databases, including PubMed, Science Direct, Scopus, and Google Scholar, using the keywords "telehealth", "telemedicine", "digital health", "virtual medicine", "telepsychology", and "suicide", up to the year 2024, regardless of geographical location. Exclusion criteria included all non-English articles, reviews, conference abstracts, books, and letters to the editor. Duplicate articles were also removed. Data collection was performed using a researcher-developed checklist and Microsoft Excel 2020. The review of studies showed that telehealth interventions have helped reduce suicidal thoughts and attempts in communities. A few studies also indicated that telehealth interventions are effective in preventing suicide in young people and several studies have reported the positive impact of cognitive-behavioral therapy delivered via video conferencing. Some studies have shown that the use of digital platforms has been effective in preventing suicide. In conclusion, telehealth interventions, by increasing access to psychiatric services in remote and underserved areas, are relatively effective in preventing suicide. However, there are still challenges and limitations, including the establishment of software and hardware infrastructure, implementation costs, and the acceptance of telepsychiatry technologies by service providers and recipients, which should be considered a priority in the plans of researchers and policymakers.

Please cite this article as: Rahimi F, Bazgir Z, Bornasi E, Amiri P. The Impact of Telehealth Interventions on Suicide Prevention: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S340.

International Journal of Nutrition Sciences

POSTER

The Metaverse and Medical Practice: A Review

Marsa Gholamzadeh, Shahryar Naji, Elmira Khakvatan, Mohammad Heydari, Ebrahim Yousefi, Saman Mortezaei*

Department of Health Information Management, Tehran University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Saman Mortezaei, MSc;
Department of Health Information
Management, Tehran University of
Medical Sciences, Tehran, Iran.
Email: Ss.mortezaei@gmail.com

ABSTRACT

Metaverse is a concept that refers to realities that extend beyond our physical boundaries. Given its potential to revolutionize healthcare by providing virtual environments to address limitations of traditional medicine, this study aims to investigate the application of the Metaverse across various medical specialties and sub-specialties. Web of Science, Scopus, IEEE, and PubMed databases were searched using structured search strings from January 2001 to November 2024. The review adhered to the PRISMA guidelines. A qualitative analysis was then performed to identify fields in which the Metaverse has been utilized and to analyze the characteristics of the included studies. The systematic search retrieved 1,168 records, of which 519 duplicates removed. Of the remaining 649 records, 477 were excluded during the title and abstract screening, and 125 were excluded after full-text analysis, resulting in the inclusion of 47 studies. Korea and the USA were the leading countries in Metaverse research. Of the included papers, 66% focused on designing and evaluating a Metaverse system, 13% developed frameworks for creating Metaverse systems, and 21% examined participants' perspectives on the developed systems. Most studies emphasized "Augmented Reality", followed by "Virtual Worlds" and "Mirror Worlds". "Life Logging" received minimal attention, while some articles addressed multiple Metaverse types or did not specify any type. General medicine and medical education emerged as the most common clinical domains. In conclusion, this investigation highlights gaps in the development of Metaverse systems across clinical domains. However, further research is needed to explore its potential and address challenges in healthcare.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Metaverse Phenomenon and Its Impact on Health of Cancer Patients: A Review

Zahra Galavi[1], Khadijeh Moulaei[2], Parastoo Amiri[3]*, Reyhane Kornokar[4], Elnaaz Bornasi[5]

1. Department of Health Information Technology, School of Allied Medical Sciences, Zabol University of Medical Sciences, Zabol, Iran
2. Health Management and Economics Research Center, Health Management Research Institute, Iran University of Medical Sciences, Tehran, Iran
3. Department of Health Information Technology, School of Allied Medical Sciences, Lorestan University of Medical Sciences, Khorramabad, Iran
4. Department of Computer Engineering, National University of Skills, Tehran, Iran
5. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

ARTICLE INFO

*Corresponding author:
Parastoo Amiri, PhD;
Department of Health Information
Technology, School of Allied
Medical Sciences, Lorestan
University of Medical Sciences,
Khorramabad, Iran.
Email: Parastu.amirii1@gmail.com

ABSTRACT

Nowadays, considering the importance of cancer and its role on the quality of life of patients with cancer, the management of these patients can be one of the priorities of health managers. Metaverse is a new technology that has many capabilities in the field of health due to its potential and functionality. Therefore, the purpose of this article is to systematically investigate the role of Metaverse on the management of cancer patients. In this systematic review, we searched scientific databases such as Web of Science, PubMed, and Scopus by combining topic-related keywords (Metaverse and cancer) without time limits. Two authors independently gathered the data by a data extraction table. In total, 191 articles were identified, and 11 articles were included in this study. Most of the studies (60%) were published in 2022, and South Korea was the country with the most published studies (54%). The Metaverse has numerous potential applications in cancer care, ranging from immersive virtual reality (VR) therapy for cognitive assessment and rehabilitation to digital evaluation of drug interactions. This review stated that applications of the Metaverse to cancer care could be in the areas of surgical treatment and cancer rehabilitation. This review also mentioned that the application of VR to rehabilitation practice improved cancer patient outcomes. In conclusion, by utilizing cutting-edge artificial intelligence technologies, there is huge potential for the Metaverse to transform cancer care and to offer new frontiers over the spectrum of cancer prevention, treatment, and rehabilitation.

Please cite this article as: Galavi Z, Moulaei K, Amiri P, Kornokar R, Bornasi E. The Metaverse Phenomenon and Its Impact on Health of Cancer Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S342.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Most Efficient Machine Learning Methods for Predicting Type 2 Diabetes: A Review

Fatemeh Adelirad[1]*, Narjes Hassanpour[2], Mohammad Parsa Bayat[2], Ali Rahimnezhad[2]

1. Department of Public Health, School of Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Adelirad, PhD;
Department of Public Health, School
of Health, Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran.
Email: Adeliradf@gmail.com

ABSTRACT

World Health Organization has described diabetes as "silent epidemic". This chronic metabolic disease included serious complications such as retinopathy, coronary artery disease, peripheral neuropathy, acute kidney failure, and even death. The prevalence of diabetes, particularly type 2 diabetes is on the rise with the increasing elderly population. Furthermore, predictive models based on machine learning algorithms appear to be effective in identifying patients with diabetes and uncovering hidden patterns in diabetes risk factors. Therefore, this study aims to review the prediction of the risk of developing type 2 diabetes using machine learning techniques. Articles published in databases such as PubMed, Web of Science, and Google Scholar from 2019 to 2024 were searched using the keywords "diabetes", "machine learning" and the "elderly population" in the text of the article. A total of 40 studies were identified, and 26 studies were selected based on the inclusion criteria, with their details extracted. The results of the review of the conducted studies indicated that the Gradient Boosting method, implemented in the XGBoost system, is an effective machine learning approach that can gather predictive models to create a more reliable prediction model for diabetes. Additionally, based on the feature importance ranking map, high blood pressure, fasting blood glucose, age, coronary artery disease, ethnicity, parental diabetes, triglycerides, and waist circumference were identified as the most significant predictors of the risk of type 2 diabetes. In conclusion, it appears that the XG-Boost method, with its speed, efficiency, and high accuracy, can be employed to optimize predictive models for diabetes.

The Potential of Metaverse-Based Surgical Simulations: A Review on Cost Reduction and Accessibility in Medical Training

Shima Anvari[1], Reihane Sharif[1]*, Nafiseh Jamal[1], Ali Dehghani Arani[2], Ali Entesarian Bidgoli[2]

1. Health Information Management Research Center, Kashan University of Medical Sciences, Kashan, Iran
2. Student Research Committee, Kashan University of Medical Sciences, Kashan, Iran

ARTICLE INFO

Keywords:
Virtual reality
Metaverse
Computer simulation
Surgery
Accessibility

Corresponding author:
Reihane Sharif, PhD;
Health Information Management
Research Center, Kashan University
of Medical Sciences, Kashan, Iran.
Email: Fr.sharif@yahoo.com

ABSTRACT

Metaverse-based surgical simulations, incorporating technologies such as Virtual Reality (VR), Augmented Reality (AR), and Extended Reality (XR), are emerging as innovative training solutions. Low- and middle-income countries (LMICs) can benefit from immersive, interactive, and scalable learning environments, which have the potential to reduce training costs and increase accessibility. In this scoping review, we examine how metaverse-based surgical simulations can reduce the cost and improve accessibility of surgical training for medical professionals, while also assessing their educational impact. PubMed, Scopus, and Web of Science databases were searched for publications from 2010 to 2024. A total of 1,247 articles were found in the initial search, but 31 were eligible for final analysis after removing duplicates and applying inclusion/exclusion criteria. For assessing the methodological quality of included studies, we used the Mixed Methods Appraisal Tool (MMAT). Our selection criteria included relevance to surgical training, cost reduction, and improved accessibility. Surgical simulations based on the Metaverse showed substantial potential for reducing costs. The use of affordable devices like VR headsets and smartphones in resource-limited settings can save infrastructure costs. According to the MMAT assessment, 75% of studies had high methodological quality scores (80%). As a result of the scalability of virtual simulations, multiple students can be trained simultaneously without requiring additional physical resources, significantly reducing costs per student. In conclusion, with metaverse-based surgical simulations, barriers such as cost and accessibility in surgical training can be overcome. There is high-quality evidence supporting their effectiveness, although specific surgical specialties require more rigorous research.

International Journal of Nutrition Sciences

POSTER

The Role of Artificial Intelligence in Optimizing Nutritional Interventions for Mental Health: A Review

Omid Barez[1], Yalda Hsanzadehghanad[1], Hossein Javid[2]*

1. Department of Nutrition Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

That is well known artificial intelligence (AI) and nutrition integration along sciences which will be a new area of study in mental health. There is actually a great need for nutritional interventions when there is evidence that consumption patterns affect psychological experiences obviously so much. This article deals with the solutions that AI promises in individualizing diets, anticipating mental health conditions, and compliance with diet uses. A content review of several previous studies was conducted. Articles published in 2015-2024 using artificial intelligence for nutrition and mental health from Scopus, Google Scholar, and PubMed were searched. Some of the relevant keywords used included "artificial intelligence," "nutrition", "mental health", and "diet interventions". Entries were critically assessed regarding the methodologic soundness and relevance to the subject under investigation. The results show that machine learning models have been able to successfully analyze dietary intake data and identify patterns towards mental health status. AI programs have been successful when it comes to nutrition in all individual factors and psychological profiles. Some of the challenges encountered in such technologies include data privacy issues and needs for a large number of data. In conclusion, AI technology is the way to optimize nutrition-based interventions that will improve mental health results. Future studies would be focusing on overcoming the obstacles currently facing AI-based models. Future studies in this regard additionally include investigation into embedding such systems in public health efforts. Health service policy-makers should also keep in mind AI resources while formulating their nutrition advice.

Please cite this article as: Barez O, Hsanzadehghanad Y, Javid H. The Role of Artificial Intelligence in Optimizing Nutritional Interventions for Mental Health: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S345.

International Journal of Nutrition Sciences

POSTER

The Role of Artificial Intelligence and Metaverse in Prevention, Diagnosis, and Treatment of Gastrointestinal Diseases: A Review

Fatemeh Khademian[1], Seyed Jalil Masoumi[1,2,3,4]*, Zahra Khademian[5], Zahra Koohjani[6], Zahra Ebnehoseini[7]

1. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
4. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran
5. Community Based Psychiatric Care Research Center, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
6. Health Information Technology Unit, Economic Health Department, Mashhad University of Medical Sciences, Mashhad, Iran
7. Medical Informatics Unit, Health Information Technology unit of Economic Health Department, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Nutrition Research Center,
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Science, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

Gastrointestinal diseases are prevalent worldwide, significantly affecting quality of life and healthcare systems. In this regard, Artificial Intelligence (AI) technologies are emerging as valuable tools for improving prevention, diagnosis, and treatment strategies. This narrative review assesses the applications of AI and Metaverse technologies in the management of gastrointestinal disorders by analyzing studies published from 2015 to 2024 across databases such as PubMed, Scopus, and Science Direct. The narrative review study illustrated that AI technologies have the potential to improve diagnostic accuracy for conditions like inflammatory bowel disease (IBD) and gastrointestinal cancers through advanced image recognition and predictive analytics. It is worth noting that a 30% increase in early detection rates was observed due to AI-assisted endoscopic evaluations, enabling clinicians to identify abnormalities more effectively than conventional methods. Furthermore, AI algorithms facilitate personalized treatment plans by analyzing patient data to predict responses to therapies. The Metaverse provides immersive educational experiences that improve patient understanding of their conditions through interactive simulations. Additionally, remote consultations within Metaverse platforms enhance access to specialized care, particularly for patients in underserved regions, thereby mitigating healthcare disparities. In conclusion, the integration of AI and Metaverse technologies represents a significant advancement in the management of gastrointestinal diseases. These innovations not only enhance diagnostic accuracy but also improve treatment adherence and empower patients through comprehensive education and remote support. Future research should focus on optimizing these technologies for wider clinical application and exploring their long-term effects on patient outcomes.

POSTER

The Role of Artificial Intelligence in Determining the Severity of Stuttering in Individuals: A Review

Yousef Mansouri, Farzaneh Abdi*, Sara Abedini Baghbadorani

Speech and Language Pathology Department, Student Research committee, ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Farzaneh Abdi, MSc;
Nutrition Research Center,
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Science, Shiraz, Iran.
Email: Farzaneabdi.slp@yahoo.com

ABSTRACT

Stuttering is a common speech disorder that negatively impacts an individual's quality of life, communication and social interactions. Traditional methods of assessing stuttering rely heavily on subjective evaluations by speech therapists. However, with the advent of Artificial Intelligence, there are now opportunities to transform these assessments into more objective and data-driven processes. AI, with its advanced capabilities in image processing and data analysis, can improve the assessment of stuttering, offering more precise treatment plans. The aim of this study is to develop an application that uses AI to measure the percentage of stuttering, its type (block, prolongation, repetition), severity, and secondary behaviors, thereby enhancing the overall quality of treatment for individuals with this disorder. This study was conducted as a systematic review of literature published between 2021 and 2025, using databases such as Google Scholar, PubMed, and Web of Science. Using this application can result in precise measurement of the occurrence percentage, type, and severity of stuttering, as well as secondary behaviors. This tool can assist speech therapists in evaluating the patient's condition and tailoring effective treatment plans. Additionally, it allows for continuous monitoring of treatment progress and determining the effectiveness of therapy sessions. In conclusion, this intelligent tool not only enhances the accuracy and speed of assessment but also enables extensive data analysis and prediction of treatment outcomes. AI technology and applications based on it can significantly improve the quality of life for individuals with stuttering by providing more precise and effective speech fluency assessments and treatment planning.

Please cite this article as: Mansouri Y, Abdi F, Abedini Baghbadorani S. The Role of Artificial Intelligence in Determining the Severity of Stuttering in Individuals: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S347.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Artificial Intelligence in Dietary Intake Tracking and Menu Planning: A Review

Sanaz Jamshidi[1], Seyed Jalil Masoumi[1,2,3,4]*, Mitra Soltani[5]

1. Center for Cohort Study of Shiraz University of Medical Sciences Employees, Shiraz University of Medical Sciences, Shiraz, Iran
2. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
3. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
4. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
5. Imam Reza Imam Reza specialty and subspeciality Clinic, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyed Jalil Masoumi, MD, PhD;
Nutrition Research Center,
Department of Clinical Nutrition,
School of Nutrition and Food
Sciences, Shiraz University of
Medical Science, Shiraz, Iran.
Email: Masoumi7415@gmail.com

ABSTRACT

With rising concerns about obesity and nutrition-related diseases, effective dietary management has become increasingly important. Artificial Intelligence (AI) technologies offer innovative solutions for tracking dietary intake and optimizing menu planning, potentially improving adherence to nutritional guidelines. This review synthesizes recent literature on AI applications in dietary intake tracking and menu planning. Databases such as PubMed, Scopus, and ISI were systematically searched for studies published between 2015 and 2023 that highlighted the use of AI tools for monitoring food consumption patterns or developing personalized meal plans. Key metrics included accuracy of food recognition technology, user engagement levels, and improvements in dietary compliance. The review identified relevant studies showcasing diverse AI methodologies such as machine learning algorithms for image recognition of food items, natural language processing for analyzing dietary logs, and recommendation systems tailored to individual health goals. Many studies reported increased accuracy in food recognition tasks compared to traditional methods. Additionally, users experienced heightened motivation to adhere to healthier eating habits when supported by personalized AI-driven menus. Through the utilization of artificial intelligence, individuals can acquire significant insights regarding their eating habits, exercise routines, and general health, thereby enabling them to make well-informed choices and embrace healthier lifestyles. In conclusion, this review confirms that AI plays a pivotal role in enhancing dietary intake tracking and menu planning by increasing accuracy and user engagement. Future research should focus on integrating these technologies into broader public health initiatives while addressing data privacy concerns related to personal information usage.

Please cite this article as: Jamshidi S, Masoumi SJ, Soltani M. The Role of Artificial Intelligence in Dietary Intake Tracking and Menu Planning: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S348.

The Role of Artificial Intelligence in Nutrition and Its Connection to Personalized Medicine: A Review

Yalda Hasanzadehghanad[1], Omid Barez[1], Hossein Javid[2]*

1. Department of Nutrition Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

The integration of artificial intelligence (AI) into health care has become a diverse field, especially nutrition, which is vital for health and disease management. Personal medicine requires compliance with medical and nutritional care with unique genomic and molecular characteristics. Personalized medicine integrates health care into individual needs, and AI enhances personal nutrition by providing dietary recommendations based on individual health data. This article explores AI in nutrition and personal medicine. Search databases such as PubMed and Google Scholar have been identified from 2010 to 2024 using keywords such as "artificial intelligence", "nutrition" and "personal medicine." The selected studies were analyzed to determine the methods and consequences of clinical practice. Important areas in which AI affects nutrition, personal medicine, and personalized diet recommendations. AI systems improve genetic and metabolic data and lifestyle to follow dietary guidelines. Nutritional assessment by AI algorithms can reduce or surplus food in diet consumption data. Predictive analysis by AI tools can evaluate health outcomes and risk of chronic diseases such as obesity and diabetes based on dietary patterns. Behavioral Interventions by programs that use AI stimulate users. In conclusion, the combination of AI, nutrition and personal medicine is promising for better health outcomes. AI has the analytical ability to provide accurate nutritional evaluation and appropriate recommendations. With research done and a focus on validating these interventions among different populations, AI can improve diseases if it is constantly combined with feeding practices.

Please cite this article as: Hasanzadehghanad Y, Barez O, Javid H. The Role of Artificial Intelligence in Nutrition and Its Connection to Personalized Medicine: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S349.

International Journal of Nutrition Sciences

POSTER

The Role of Artificial Intelligence in Nutritional Science: A Review

Seyed Jalil Masoumi[1,2,3,4]**, Fatemeh Khademian**[2]***, Minoo Faghirimanesh**[2]**, Najmeh Hosseini**[2]**, Masumeh Jalalinezhad**[2]

1. Center for Cohort Study of Shiraz University of Medical Sciences Employees, Shiraz University of Medical Sciences, Shiraz, Iran
2. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
3. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
4. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Khademian, PhD;
Information Technology Incubator
Centre, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Khademian90@yahoo.com

ABSTRACT

The advent of artificial intelligence has introduced novel approaches across numerous domains, including field of nutrition science. With rising prevalence of diet-related health concerns such as obesity, diabetes, and cardiovascular diseases, there is an urgent demand for innovative strategies that can deliver suitable dietary recommendations. This review seeks to consolidate existing research on the applications of AI in nutrition, emphasizing its efficacy in dietary assessment, personalized nutrition, and health monitoring. A comprehensive literature search was performed across various databases, including PubMed, Scopus, and Web of Science, utilizing keywords such as artificial intelligence, nutrition, personalized diet, and machine learning from 2013 to 2023. The review encompasses studies that employed AI technologies to evaluate dietary intake, offer personalized nutritional guidance, or track health outcomes. AI-driven programs, which incorporate sophisticated machine learning algorithms and cutting-edge dietary tracking applications, have been proven to significantly improve both dietary adherence and overall health outcomes for users. Specifically, individuals who engaged with AI-based tools reported substantial enhancements in their compliance with established dietary guidelines and recommendations. Furthermore, AI systems have exhibited high degree of accuracy in forecasting potential nutritional deficiencies and delivering customized dietary advice based on detailed individual health profiles, thus fostering healthier eating behaviors and improved nutritional management. In conclusion, this review highlights pivotal role of artificial intelligence in markedly advancing nutritional practices among diverse populations. Consequently, AI has the potential to facilitate more personalized dietary guidance, thereby reinforcing the connection with nutritional advice to effectively mitigate diet-related issues and enhance overall health outcomes.

The Role of Artificial Intelligence in Predicting Glioblastoma Multiforme Methylation of Patients: A Review

Negin Khodayari[1]*, Hamideh Bashiri[2]

1. Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran
2. Department of Physiology and Pharmacology, Afzalipour School of Medicine, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

Corresponding author:
Negin Khodayari, MD;
Faculty of Veterinary Medicine,
Shahid Bahonar University of
Kerman, Kerman, Iran.
Email: Neginkhodayari37@gmail.com

ABSTRACT

Glioblastoma multiforme (GBM) is a high-grade glioma characterized by invasive growth, drug resistance, and a high recurrence rate. Temozolomide (TMZ), an alkylating agent, is commonly used as chemotherapy in GBM standard of care. TMZ can be effective by adding a methyl group to the O6 position of guanine in DNA, ultimately inducing apoptosis in tumor cells. Tumor cells expressing the O6-methylguanine-DNA methyltransferase (MGMT) gene can repair this methylation damage, contributing to drug resistance. Patients with MGMT promoter methylation demonstrate improved prognosis and improved responses to TMZ, making this methylation status a valuable biomarker for predicting overall survival. Recently, non-invasive AI-based methods have emerged as powerful tools for assessing MGMT methylation status and addressing critical clinical needs. This study systematically reviews the articles on AI-based methodologies for determining MGMT methylation status, utilizing databases such as Google Scholar, PubMed, Scopus, and Science Direct. Key search terms included "Glioblastoma multiforme", "MGMT methylation status", and "artificial intelligence". Various studies employed diverse AI methodologies, including Support Vector Machines (SVM), Artificial Neural Networks (ANN), Machine Learning (ML), and Deep Learning (DL). MRI is crucial in AI-driven analyses, providing exceptional tissue contrast in vivo for specific anatomical regions. In conclusion, AI applications show promising results in managing GBM, particularly in predicting overall survival. AI can improve healthcare access by enhancing clinical outcomes through precision medicine, even in resource-limited settings. Despite existing challenges, these innovative methods hold significant potential in neuro-oncology, aligning with the current shift toward precision medicine in clinical practice.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Artificial Intelligence in Management of Type 2 Diabetes Mellitus: A Review

Nastaran Ghazanfari[1], Sohrab Amiri[1], Melika Mojtahedzadeh[1], Hossein Javid[2,3]*

1. Department of Nutrition Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
3. Student research committee,Varastegan Institute for medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder characterized by high blood sugar levels due to insulin resistance and relative insulin deficiency. The impact of artificial intelligence on T2DM has recently attracted significant attention. Focusing on how this technology can potentially improve early diagnosis and personalized treatment. The aim of this systematic review is management of T2DM. A systematic search of studies published in PubMed, Google Scholar, and other relevant databases between 2018 and 2024 was conducted, focusing on implementing artificial intelligence (AI) technologies in T2DM care. Twelve studies were included, five of which addressed AI's role in predicting glycemic trends, four examined its impact on medication adherence, and three highlighted personalized treatment approaches. A standardized method was used to extract and compare findings, identifying areas of agreement and divergence, by using PIRSMA chart. The findings indicate significant benefits of AI in T2DM care. Eight studies (67%) reported improved glycemic control using predictive AI models, and seven (58%) highlighted improved medication adherence facilitated by AI-based mobile applications. Six studies (50%) demonstrated AI's effectiveness in predicting complications such as diabetic retinopathy and neuropathy. However, three studies (25%) identified inconsistencies in AI accuracy due to data variability, and two studies (17%) raised concerns about challenges like integration into clinical workflows and data privacy issues. In conclusion, AI has great potential in improving T2DM management, particularly in trend prediction, medication adherence, and personalized interventions. Nonetheless, variability in AI performance and unresolved data privacy concerns pose.

Please cite this article as: Ghazanfari N, Amiri S, Mojtahedzadeh M, Javid H. The Role of Artificial Intelligence in Management of Type 2 Diabetes Mellitus: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S352.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Role of Chatbots in Neoplasm Self-Management: A Review

Mahdie ShojaeiBaghini[1]*, Fatemeh Maarefdoust[2]

1. Medical Informatics Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran
2. Faculty of Management and Medical Information Sciences, Kerman University of Medical Sciences, Kerman, Iran

ARTICLE INFO

*Corresponding author:
Mahdie ShojaeiBaghini, PhD;
Medical Informatics Research Center,
Institute for Futures Studies in Health,
Kerman University of Medical
Sciences, Kerman, Iran.
Email: Mahdiehsh@gmail.com

ABSTRACT

Given the increasing number of cancer patients and the complexities of managing this disease, the use of new technologies can significantly contribute to improving the quality of life of patients and reducing medical costs. Chatbots have emerged as effective virtual assistants, providing essential support for self-management. The present study aimed to investigate the role of chatbots in neoplasm management using a systematized review. This systematized review was conducted following the PRISMA guidelines to identify studies focused on the application of chatbots in diabetes management. We searched PubMed, Web of Science, and Scopus without any limitations on time or geography to locate relevant studies. Data were collected using a standardized extraction form, and the results are presented in tables. This study reviewed 8 articles out of a total of 44 retrieved. Most of the selected research was conducted in the United States in 2023, utilizing a mixed-methods approach. Most of them as primary objective are to design a chatbot for gastrointestinal cancer patients. The chatbots provided timely and useful information on neoplasm management, dietary guidelines, and mental health support. Further research is needed to validate these findings and to advance the development of chatbot technology within healthcare in a larger population. In conclusion, this study indicates that chatbots can significantly enhance diabetes management as a supplementary tool to healthcare. To fully realize their potential, further research and addressing existing challenges are essential to facilitate broader adoption in healthcare.

Please cite this article as: ShojaeiBaghini M, Maarefdoust F. The Role of Chatbots in Neoplasm Self-Management: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S353.

POSTER

The Role of ERMP1 Gene Knockdown in Pancreatic Cancer: Bridging Laboratory Findings with Mobile Health Innovations

Ali Honari Jahromi[1,2], Matia Sadat Borhani[2], Pooneh Mokarram[1]*, Mozhdeh Zamani[1]

1. Autophagy Research Center, Department of Biochemistry, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Biology Department, Faculty of Sciences, Gonbad Kavous University, Golestan, Iran

ARTICLE INFO

Corresponding author:
Pooneh Mokarram, PhD;
Autophagy Research Center,
Department of Biochemistry, School
of Medicine, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Mokaram2@gmail.com

ABSTRACT

Background: Pancreatic cancer is an aggressive malignancy with limited treatment options. The Endoplasmic Reticulum Metallopeptidase 1 (ERMP1) gene is associated with cancer progression. This study investigates the effects of ERMP1 knockdown via shRNA on autophagy and the unfolded protein response (UPR) pathways in MIA PaCa-2 cells. Additionally, a mobile health application was developed to facilitate monitoring of health status through consistent tracking of genetic and biological data, helping predict cancer development or recurrence for personalized care.

Methods: Long-term knockdown of ERMP1 expression in MIA PaCa-2 cells was done using specific shRNA, with efficiency validated via RT-qPCR. Cancer-related markers were analyzed. Furthermore, a mobile health application was developed to monitor biomarkers through sensor-equipped connected devices (e.g., blood testers) and allow users to input dietary and lifestyle habits, including daily food intake, exercise, and sleep patterns. The app analyzes whether dietary changes affect specific biomarker trends, offering personalized insights and recommendations based on this correlation.

Results: Laboratory data indicated that ERMP1 knockdown significantly reduced the expression of cancer-related genes and highlighted its potential as a therapeutic target. The mobile health application effectively monitors biomarkers and provides real-time feedback through visual dashboards. It sends alerts and offers personalized lifestyle recommendations, including dietary adjustments based on the impact of nutritional changes on specific biomarkers.

Conclusion: By integrating laboratory findings with mobile health (mHealth) innovations, such as AI-driven diagnostics and Internet of Things (IoT)-based monitoring which includes dietary and lifestyle recommendations, we can improve early detection, personalized treatment, and remote management of cancer, representing a transformative approach to patient care.

Please cite this article as: Honari Jahromi A, Borhani MS, Mokarram P, Zamani M. The Role of ERMP1 Gene Knockdown in Pancreatic Cancer: Bridging Laboratory Findings with Mobile Health Innovations. Int J Nutr Sci. 2025;10(2-Supplement):S354.

POSTER

The Role of Explainable Artificial Intelligence in Trustworthiness of Artificial Intelligence-Based Medical Diagnostic Systems: A Review

Amirhossein Chegeni[1], Alireza Akbari[1], Ziba Gharibi Torkani[1], Arash Seraj Zadeh[2], Amir Jamshidnezhad[3]*

1. Student Research Committee, Department of Health Information Technology, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Department of Health Information Technology, School of Allied Medical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Amir Jamshidnezhad, PhD;
Health Information Technology
Department, Jundishapur University
of Medical Sciences, Ahvaz, Iran.
Email: Dr.jamshidnejad@gmail.com

ABSTRACT

With advancements in artificial intelligence (AI), AI-driven diagnostic systems have become pivotal in healthcare. These systems enhance clinical decision-making by processing complex medical data accurately and rapidly. However, their opaque "black box" nature often undermines user trust, particularly among clinicians. Explainable AI (XAI) emerges as an innovative solution to this challenge, offering transparent, interpretable explanations of AI decision-making processes. This study explores the role of XAI in the reliability of medical diagnostic systems, addressing challenges and proposing strategies to improve XAI design and implementation. A systematic review and qualitative analysis of studies were conducted using PubMed, and Google Scholar with keywords like "XAI" and "trust in medical diagnostics." Articles focusing on transparency and trustworthiness were screened based on inclusion and exclusion criteria. Data were categorized into four domains: model transparency, the role of explanations in clinical decisions, human-AI interaction, and the impact of transparency on trust. Algorithms such as LIME, SHAP, and Grad-CAM were evaluated for predictive accuracy and transparency. Out of 257 initial results, six highly relevant studies were analyzed. Results demonstrated that AI model transparency significantly enhances trust in diagnostic systems. XAI explanations aid clinicians in verifying model outputs, fostering effective human-AI interactions in clinical environments. Transparent and customizable explanations also improve model performance and reliability. In conclusion, XAI enhances the trustworthiness and acceptance of AI diagnostic systems by providing interpretable insights into decision-making processes. Future research should focus on developing advanced XAI methods and exploring multifaceted human-AI interactions to further integrate XAI into healthcare systems.

Please cite this article as: Chegeni AH, Akbari AR, Gharibi Torkani Z, Seraj Zadeh A, Jamshidnezhad A. The Role of Explainable Artificial Intelligence in Trustworthiness of Artificial Intelligence-Based Medical Diagnostic Systems: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S355.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Internet of Things and Wearable Devices in Health Monitoring: A Review

Fatemeh Khademian[1]*, Seyed Jalil Masoumi[1,2,3,4], Mohammad Bagher Askari[5], Zahra Koohjani[5], Zahra Ebnehoseini[5]

1. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
4. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran
5. Health Information Technology Unit, Economic Health Department, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Khademian, PhD;
Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Fkhademian90@yahoo.com

ABSTRACT

The integration of the Internet of Things (IoT) with wearable devices can provide a new approach to health monitoring, allowing continuous data collection and real-time analysis of health indicators. These innovations may be useful in promoting patient adherence, enhancing health outcomes, and supporting preventive disease management. This literature search was performed using databases such as PubMed, Scopus, and IEEE Xplore on IoT-based health monitoring solutions using wearable devices between 2016 and 2023. The findings showed valuable benefits regarding the application of wearable devices in health monitoring. Notably, there was a reduction in hospital readmissions and improvements in the management of chronic diseases. User satisfaction ratings were high, with approximately 85% of participants reporting positive experiences. Furthermore, advanced wearable technologies have demonstrated their capability to monitor a wide range of physiological parameters, including heart rate variability, blood pressure, and glucose levels. Also, studies showed that integrating artificial intelligence with wearable devices enhances predictive analytics for chronic disease management, leading to timely interventions and better patient outcomes. However, challenges remain, particularly regarding privacy concerns and the need for improved interoperability between various devices. In conclusion, the results of this review provide valuable evidence on the effectiveness of IoT and wearable devices to improve health monitoring practices. It is necessary to address privacy issues and focus on technology standardization for better device integration and user experience. Future research should also explore innovative solutions to overcome existing barriers and enhance the overall efficacy of wearable health monitoring systems.

Please cite this article as: Khademian F, Masoumi SJ, Askari MB, Koohjani Z, Ebnehoseini Z. The Role of Internet of Things and Wearable Devices in Health Monitoring: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S356.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Internet of Things in Blood Glucose Prediction and Glycemic Control Using Continuous Monitoring and Lifestyle Data in Type 2 Diabetes Patients

Amir Mohammad Parsasanahad[1], Hossein Valizadeh Laktarashi[2], Zeynab Naseri[3], Sadegh Sharafi[3]*

1. Student Research Committee, Abadan University of Medical Sciences, Abadan, Iran
2. Medical Informatics Department, School of Paramedical, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
3. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Sadegh Sharafi, MSc;
Student Research Committee, Ahvaz
Jundishapur University of Medical
Sciences, Ahvaz, Iran.
Email: Sadeghsharafi1995@gmail.com

ABSTRACT

Background: Managing blood glucose levels in patients with type 2 diabetes is crucial to preventing hyperglycemic and hypoglycemic conditions and maintaining overall health. Continuous glucose monitoring (CGM) is an effective tool for blood glucose management. This study aimed to evaluate the effect of an Internet of Things (IoT)-based approach on predicting and controlling blood glucose levels by incorporating data on physical activity and daily calorie intake.

Methods: In this study, 300 type 2 diabetes patients were enrolled. After measuring fasting blood sugar (FBS) for seven days, 212 patients with uncontrolled blood glucose were selected. They underwent weekly CGM, with physical activity and calorie intake tracked through an app. A Fog-based system predicted blood glucose levels and offered personalized recommendations, which were compared with actual CGM measurements to assess the system's effectiveness.

Results: Out of 212 patients, 128 completed the 8-week study. Among them, 112 showed significant improvements in glycemic control, while 16 showed no notable changes. Sixty patients did not adjust their calorie intake or physical activity, and 24 dropped out. Among those with positive changes, 87.5% expressed satisfaction with the IoT-based approach for managing their physical activity and dietary habits.

Conclusion: IoT-based approaches can significantly improve glycemic control by predicting and managing blood glucose levels. Furthermore, these methods can effectively regulate physical activity and calorie intake, which are key factors in controlling blood glucose. Future studies are recommended to assess the isolated impact of physical activity and daily calorie intake on blood glucose levels.

Please cite this article as: Parsasanahad AM, Valizadeh Laktarashi H, Naseri Z, Sharafi S. The Role of Internet of Things in Blood Glucose Prediction and Glycemic Control Using Continuous Monitoring and Lifestyle Data in Type 2 Diabetes Patients. Int J Nutr Sci. 2025;10(2-Supplement):S357.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Large Language Models in Health Literacy: A Review

Zeinab Ghaffari*

Health Information Technology Department, Faculty of Paramedical, Jondi Shapour University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Zeinab Ghaffari, MSc;
Health Information Technology
Department, Faculty of Paramedical,
Jondi Shapour University of Medical
Sciences, Ahvaz, Iran
Email: Zynbghaffari@yahoo.com

ABSTRACT

Large language models such as ChatGPT, Gemini, and Copilot can significantly enhance health literacy by offering accessible, understandable, and personalized health information. However, it is essential to recognize their limitations alongside their capabilities. This study aimed to evaluate large language models' effectiveness and limitations in improving health literacy. The present study was conducted in accordance with PRISMA guidelines. A systematic search for articles published between 2014 and 2024 was performed using PubMed, Web of Science, Scopus, and Google Scholar databases. The search utilized the keywords "health literacy," "large language models," and "artificial intelligence." Initially, 103 articles were retrieved from these databases. After screening the titles and abstracts and removing 33 duplicates, 23 articles that were most relevant to the study were selected for further analysis. The results showed that using large language models to enhance health literacy offers several advantages, including improving the readability and accessibility of health information, simplifying complex scientific content, providing personalized educational materials, creating resources for patient education, and adapting outputs to suit different reading levels. However, there are also limitations, such as the potential for inaccurate or unreliable information, biases, privacy concerns, and ethical issues. In conclusion, large language models have the potential to help bridge the gap between complicated educational resources and health literacy, making medical information more accessible and understandable. However, it is important to note that large language models also have limitations that need to be addressed in future research, and appropriate solutions should be developed.

Please cite this article as: Ghaffari Z. The Role of Large Language Models in Health Literacy: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S358.

International Journal of Nutrition Sciences

POSTER

The Role of Mobile Health and Artificial Intelligence in Managing Type 1 Diabetes: Preventing Hypoglycemia with Smart Insulin: A Review

Hossein Moein Jahromi[1]*, Sahar Saiedi[2]

1. Entrepreneurship Management Department, University of Sistan and Baluchestan, Zahedan, Iran
2. Nursing Department, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Hossein Moein Jahromi, MSc;
Entrepreneurship Management
Department, University of Sistan and
Baluchestan, Zahedan, Iran.
Email: Hosseinmoein@pgs.usb.ac.ir

ABSTRACT

Type 1 diabetes is a chronic condition requiring consistent blood glucose monitoring and insulin administration. One of the major challenges for patients is the risk of hypoglycemia caused by improper insulin dosing or timing. Mobile health (mHealth) and artificial intelligence (AI) technologies have emerged as transformative tools for optimizing diabetes management. This study explores the potential of AI-driven solutions to prevent hypoglycemia and personalize insulin administration based on real-time data. Continuous glucose monitoring (CGM) systems, integrated with AI algorithms, collect and analyze real-time blood glucose data to predict glucose fluctuations. These systems are further enhanced by incorporating additional patient data, including dietary intake, physical activity, sleep patterns, and stress levels, allowing for a more comprehensive understanding of glucose dynamics. AI-powered smart insulin pumps use this data to adjust insulin dosage automatically, reducing the likelihood of hypoglycemic episodes. Moreover, mHealth applications serve as a central platform for data aggregation, providing patients with actionable insights, reminders, and alerts. These apps also facilitate remote patient monitoring, enabling healthcare providers to review patient data and optimize treatment plans. This paper highlights the role of AI in creating predictive models that can identify the risk of hypoglycemia and take proactive measures. It also discusses challenges such as data privacy, algorithm accuracy, and user adoption. In conclusion, by integrating advanced mHealth technologies and AI-driven systems, the management of type 1 diabetes can be significantly improved, enhancing patient safety and quality of life. Future advancements in AI and digital health hold promise for revolutionizing chronic disease management.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Mobile Health Applications in Pain Management: A Review

Hadis Salimi[1], Zahra Maleki[1], Fatemeh Rezaei Chegini[1], Mohebat Vali[2]*

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Non-Communicable Diseases Research Center, Research Center for Health Sciences, Institute of Health, Department of Epidemiology, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mohebat Vali, PhD;
Non-Communicable Diseases
Research Center, Research Center
for Health Sciences, Institute of
Health, Department of Epidemiology,
School of Health, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Mohebatvali@gmail.com

ABSTRACT

Pain management is a critical component of healthcare, as poorly managed or untreated pain can significantly impact an individual's physical and mental well-being. Mobile health (mHealth) applications have emerged as innovative tools that offer symptom tracking, personalized care, and enhanced communication between patients and providers. This descriptive study analyzed data from mobile health applications available on platforms such as Google Play, App Store, Bazaar, and Myket. The evaluation included app name, developer, category, number of downloads, ratings, data security, required operating systems, file size, special features, strengths, weaknesses, and user rating (on a scale of 10). User experience and visual design were also assessed. A total of 56 health applications were identified in this field. The average number of downloads was 52,240, and the average user rating was 4.3 out of 5. The application "Pain Relief Hypnosis" had over 50,000 downloads, while "Migraine Buddy" achieved the highest engagement with more than 3 million downloads. Approximately 91% of the applications were free to use, though most required in-app purchases for advanced features. In conclusion, mHealth applications have proven to be valuable tools in pain management, offering features such as symptom tracking, personalized care, and improved patient-provider communication. These technologies make pain management more accessible and cost-effective. However, challenges remain, including data security concerns, usability issues, and the need for stronger clinical evidence. Further research and development are necessary to maximize the potential of mHealth applications and improve patient outcomes.

Please cite this article as: Salimi H, Maleki Z, Rezaei Chegini F, Vali M. The Role of Mobile Health Applications in Pain Management: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S360.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Role of Mobile Health Applications in Promoting Elderly Health: A Review

Ali Honari Jahromi[1], Milad Ahmadi Marzaleh[2]*, Neda Jalili[2]

1. Autophagy Research Center, Department of Biochemistry, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
2. Companion Health and Vulnerable Groups, Department of Healthcare Management, Faculty of Medical Information and Management, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Milad Ahmadi Marzaleh, PhD;
Companion Health and Vulnerable Groups, Department of Healthcare Management, Faculty of Medical Information and Management, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Miladahmadimarzaleh@yahoo.com

ABSTRACT

The aging world population is putting pressure on health care around the globe, particularly in mental and primary care. Though mHealth is a series of personalized services that can connect seniors and help them interact with health professionals remotely, unfamiliar technologies, health problems, or simply social barriers would block a significant part of the population over 50 from the adoption of low digital alphabetization. This scoping review collates current knowledge on mHealth applications for elderly people regarding benefits, challenges, and factors influencing adoption. A systematic review of databases (PubMed, Web of Science, and Scopus) was conducted of those studies published in December 2019. Data extraction and narrative synthesis were used to analyze the studies of mHealth interventions in care for elderly people during COVID-19, mHealth effectiveness, barriers, and solutions. The adoption of mHealth technologies is driven by perceived usefulness, ease of use, and family support, but barriers such as digital literacy gaps, health concerns, privacy issues, and cost can hinder uptake. Solutions like user-oriented design, family involvement, and personalized features help overcome these challenges. Studies show that mHealth improves mental health, reduces stress, saves costs, and empowers patients, with chatbots and personalized apps enhancing well-being, adherence, and long-term engagement through real-time feedback and tailored support. In conclusion, mHealth can offer personalized and flexible health information for the elderly, making healthcare affordable and widely available. Nonetheless, successful adoption entails addressing barriers, including digital literacy and privacy concerns, and harnessing facilitators to adoption, such as family support and user-friendly design.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Mobile Health Applications in Management of Swallowing Dysfunction in Patients with Head and Neck Cancer: A Review

Fatemeh Shaban[1], Maryam Asgharzadeh[1], Mahdieh Razi[2]*

1. Student Research committee, School of nursing and midwifery, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Pediatrics, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Mahdieh Razi, PhD;
Department of Pediatrics, School of
Nursing and Midwifery, Mashhad
University of Medical Sciences,
Mashhad, Iran.
Email: Razimh@mums.ac.ir

ABSTRACT

Head and neck cancer is the seventh most common cancer in the world, and many patients develop dysphagia after treatment. This condition affects physical and mental health. Despite the positive effects of preventive swallowing exercises and oral diet, adherence to these programs is challenging. Mobile health (mHealth) technologies, using mobile devices, offer an innovative solution to manage dysphagia and improve healthcare. A search of PubMed, Scopus, and Web of Science databases was conducted without time limits and with the keywords "head and neck cancer", "mobile health app", "mHealth", "mobile phone system", "swallowing", "dysphagia" and "deglutition disorders". 18 articles were identified between 2018 and 2023. After removing duplicates, reviewing the title and abstract, and inclusion criteria: reviewing all patients with head and neck cancer, using mobile health apps, focusing on swallowing disorders after treatment, and exclusion criteria including: reviewing articles, not using mobile health apps as the main intervention, focusing on other cancer-related complications, 8 articles were selected by two reviewers. The results show that mHealth increases adherence to swallowing treatments and improves patients' quality of life in emotional and physical aspects. These systems allow patients to perform the exercises correctly at home by reminding them of the exercises and enable the treatment team to monitor the patients' condition more closely. In conclusion, the use of mHealth can improve treatment adherence, swallowing function, and quality of life of patients. However, further patient education and development of the technical aspects of these systems are necessary to increase the effectiveness.

Please cite this article as: Shaban F, Asgharzadeh M, Razi M. The Role of Mobile Health Applications in Management of Swallowing Dysfunction in Patients with Head and Neck Cancer: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S362.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Mobile Health in Lifestyle Management of Patients with Attention Deficit Hyperactivity Disorder: A Review

Adel Eftekhari[1]*, Moein Sheikh Ahmad Saffari[2]

1. Health in Emergencies and Disasters, Department of Nursing, Meybod School of Nursing, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Nursing Student of Meybod Nursing School, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ARTICLE INFO

Corresponding author:
Adel Eftekhari, PhD;
Health in Emergencies and Disasters Unit, Department of Nursing, Meybod School of Nursing, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
Email: Adel.Eftekhari.66@gmail.com

ABSTRACT

Attention deficit hyperactivity disorder (ADHD) is known as one of the most common behavioral disorders with side effects such as lack of concentration, emotional regulation problems, and poor academic and social development. Undoubtedly, the lifestyle resulting from this disorder requires modification and management. One of the newest methods in this regard is mobile health technology, discussed in this article. In the present study, the keywords ADHD, Mobile Health and mHealth were searched in PubMed, Google Scholar, Scopus databases between 2010 and 2025. Studies showed that mobile health can be used in each stage of diagnosis, treatment, and ultimately education of ADHD patients. In general, social media and mobile applications developed in this regard provide users with features such as providing up-to-date and specialized educational data, reminders to perform exercises, describing the progress of treatment, and helping to adjust daily routines. Another group of studies points to the proportion created between the majority group involved in ADHD and the first line of mobile phone use, namely children and adolescents, which became a schema for the development and design of mobile games with this focus, as a result, games with gamification principles have been well received and have been successful in improving cognitive and concentration skills and targeting physical activities of this age group. In conclusion, the use of mobile technology in managing the lifestyle of ADHD patients is considered an undeniable opportunity due to its add-ons such as availability, ease of use, the ability to utilize visual and auditory capacities, and ultimately its attractiveness.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Role of Mobile Health in Modifying the Lifestyle of Healthcare Workers at Shiraz University of Medical Sciences, Shiraz, Iran

Fatemeh Dinari, Fatemeh Ghaznavi, Roxana Sharifian*

Department of Health Information Management, School of Health Management and Information Sciences, Student Research Committee, Health Human Resources Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Roxana Sharifian, PhD;
Department of Health Information
Management, School of Health
Management and Information
Sciences, Student Research
Committee, Health Human Resources
Research Center, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Sharifianr@sums.ac.ir

ABSTRACT

Background: Lifestyle is crucial for quality of life. Mobile health (mHealth) technologies offer significant potential for lifestyle improvement. Recognizing the influential role of healthcare workers, this study aimed to investigate the role of mHealth in modifying the lifestyle of healthcare workers at Shiraz University of Medical Sciences.

Methods: This descriptive cross-sectional study was conducted in 2023 on 53 healthcare workers at Shiraz University of Medical Sciences. A researcher-made questionnaire was used to collect data. The content validity of the questionnaire was confirmed by three experts in medical informatics and health information management, and its reliability was determined using Cronbach's alpha (0.96). The collected data were analyzed using SPSS software and descriptive statistics.

Results: Based on the results of this study, 91.1% of the healthcare workers used mobile phone capabilities to modify their lifestyle. Most of them (90.6%) used websites and social networks to obtain this information. Regarding the role of mobile phones in modifying the lifestyle of healthcare workers, the highest mean (4.53±0.53) was related to "improving communication skills" and the lowest mean (2.78±0.2) was related to "performing meditation (focused mind)".

Conclusion: The findings showed that most healthcare workers use mobile phones as a suitable tool to modify their lifestyle. Given that in this study, healthcare workers used websites and social networks to a great extent, therefore, health officials and healthcare providers can create websites and groups on reliable and Ministry of Health-approved social networks and provide lifestyle modification information to them.

International Journal of Nutrition Sciences

POSTER

The Role of Mobile Health in Monitoring and Managing Chronic Diseases: A Review

Omid Torabi[1], Mohammadamin Houshangi Shayan[1], Hoda Ahmari Tehran[2]*

1. Student Research Committee, Faculty of Nursing and Midwifery, Qom University of Medical Sciences, Qom, Iran
2. Spiritual Health Research Center, Qom University of Medical Sciences, Qom, Iran

ARTICLE INFO

Corresponding author:
Hoda Ahmari Tehran, PhD;
Spiritual Health Research Center,
Qom University of Medical Sciences,
Qom, Iran.
Email: Ahmari9929@gmail.com

ABSTRACT

Chronic diseases, including diabetes, hypertension, and cardiovascular disorders, contribute to 70% of global mortality. Mobile health (mHealth) technologies are increasingly used to monitor and manage these conditions, offering tools to enhance patient engagement and support remote care. Despite widespread adoption, their effectiveness across various chronic diseases remains unclear. This review evaluates the impact of mHealth on clinical outcomes, patient adherence, and healthcare efficiency. We systematically reviewed studies published between 2015 and 2023 from PubMed, Scopus, and Cochrane Library. Search terms included "mobile health," "chronic diseases," and "digital health management." Eligible studies focused on mHealth interventions for chronic disease management, reported quantitative outcomes, and had a follow-up period of at least six months. Fifty-seven studies met inclusion criteria, comprising 23 randomized controlled trials, 15 cohort studies, and 19 cross-sectional analyses, with a total sample size of 18,432 participants. mHealth interventions improved disease outcomes in 72% of studies. Diabetes patients using mHealth tools achieved a mean HbA1c reduction of 1.2% (p=0.05). In hypertension management, 85% of studies reported a mean systolic blood pressure reduction of 8.7 mmHg. Medication adherence increased by 32% (95%CI: 25-39%), and hospital readmissions dropped by 18%. However, 23% of studies cited barriers such as low user engagement, data security concerns, and system interoperability challenges. In conclusion, mHealth significantly enhances chronic disease management by improving outcomes and reducing costs, though challenges in accessibility and technology integration persist. Future studies should prioritize long-term assessments and equitable access.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Mobile Health in Preventing the Effects of Climate Change on Health: A Review

Akram Ahmadizadeh Fini¹*, Elham Ahmadizadeh Fini²

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, Faculty of Health, Hormozgan Uiversity of Medical Sciences, Bandar Abbas, Iran

ARTICLE INFO

*Corresponding author:
Akram Ahmadizadeh Fini, PhD;
Student Research Committee, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Nika36700@gmail.com

ABSTRACT

Mobile health is increasingly recognized as an essential tool in managing and addressing the challenges posed by climate change. This technology has the potential to mitigate the adverse effects of climate change on health by enhancing public awareness and facilitating early warning systems. Consequently, the objective of this study is to investigate the role of mobile health within the context of climate change. This article presents a review of the application of mobile health in response to climate change. A search was conducted in electronic databases utilizing keywords related to climate change, mobile health, mitigation, and adaptation. Relevant sources were identified, and following a review of the studies found, significant and applicable findings were presented. Mobile health contributes to the reduction of carbon emissions by minimizing in-person attendance through mobile applications. Another noteworthy application of mobile health involves providing preparedness programs and access to health education in underserved communities. Additionally, technology-based systems can collect information regarding weather conditions and potential hazards, issuing necessary alerts to users. In conclusion, the results of various studies indicate that the application of mobile health has a substantial impact on coordinating health programs and enhancing awareness and preparedness concerning climate change. Furthermore, additional benefits of employing mobile health in the context of climate change include emphasizing the impact of climate change on health, improving climate literacy, tracking disease, and facilitating early warning systems through the utilization of digital tools and health applications.

Please cite this article as: Ahmadizadeh Fini A, Ahmadizadeh Fini E. The Role of Mobile Health in Preventing the Effects of Climate Change on Health: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S366.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Mobile Health in Control and Improvement of Chronic Diseases: A Review

Najibe Torkanlu[1], Fatemeh Shoghi[1], Nasim Pirzadeh[2]*

1. Student Research Committee, Esfarayen School of Medical Sciences, Esfarayen, Iran
2. Aging Health Department, School of Medical Sciences, Esfarayen Faculty of Medical Sciences, Esfarayen, Iran

ARTICLE INFO

Corresponding author:
Nasim Pirzadeh, MSc;
Aging Health Department, School of
Medical Sciences, Esfarayen Faculty
of Medical Sciences, Esfarayen, Iran.
Email: N.pirzadeh7238@gmail.com

ABSTRACT

Due to the emergence of the digital era and mobile health, the possibility of quick and easy access to information has been provided for people in order to prevent, control and reduce the complications of chronic diseases. This research was conducted with the aim of investigating the role of mobile health in the management and control of chronic diseases. In this review-narrative study, the selection criteria of the studies included full text, the target group of patients with chronic diseases, and the time of publication between 2000 and 2024. First, with keywords mobile health, chronic disease, and self-care were searched in domestic and foreign databases such as: PubMed, SID, Magiran, Science Direc and Google Scholar search engine. Then according to the entry and exit criteria and using the PRISMA checklist and finally, 16 studies were selected. The results of the review of selected articles showed that mobile health has various applications in patients with chronic diseases, which can be generally divided into 3 parts:1_Improving awareness and attitude2_ Applications related to lifestyle and self-care(including adherence to diet and medication, increasing physical activity ,controlling weight, quitting smoking and increasing quality of life in all physical, psychological and social dimensions) 3_ Applications related to remote care (improving the relationship between patients and care providers, managing appointments, Remote symptom assessment, saving time and money, quick access to information). In conclusion, mobile health improves the outcomes of health interventions and helps to control chronic diseases.

Please cite this article as: Torkanlu N, Shoghi F, Pirzadeh N. The Role of Mobile Health in Control and Improvement of Chronic Diseases: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S367.

International Journal of Nutrition Sciences

POSTER

The Role of Mobile Health Technologies in Hypertension Management: A Review

Seyed Jalil Masoumi[1,23,4], Fatemeh Khademian[1*], Masoud Najafi[1], Saeed Kaabi[5]

1. Information Technology Incubator Centre, Shiraz University of Medical Sciences, Shiraz, Iran
2. Nutrition Research Center, Department of Clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Science, Shiraz, Iran
3. Center for Cohort Study of SUMS Employees' Health, Shiraz University of Medical Sciences, Shiraz, Iran
4. Gastroenterohepatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
5. Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Khademian, PhD;
Information Technology Incubator
Centre, Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Fkhademian90@yahoo.com

ABSTRACT

Hypertension represents major global health issue, significantly contributing to cardiovascular diseases, morbidity, and mortality rates across the world. The advent of mobile health (mHealth) technologies offers promising avenues for enhancing blood pressure management through novel approaches to prevention, diagnosis, and treatment. This review seeks to evaluate the effectiveness of mHealth interventions in controlling blood pressure and promoting patient involvement in their health management. A thorough literature search was conducted across multiple databases, including PubMed, Scopus, and Web of Science, covering the period from 2016 to 2023. The studies were systematically analyzed to determine the impact of mHealth technologies on blood pressure outcomes and patient adherence to prescribed treatment plans. The results revealed that mHealth interventions resulted in significant decreases in both systolic and diastolic blood pressure levels, highlighting their effectiveness in hypertension management. Furthermore, there was a marked improvement in patient adherence to medication among users of mHealth applications, indicating the potential of these technologies to encourage healthier behaviors. Additionally, feedback from participants suggested an increase in self-management skills and health literacy, underscoring the empowering influence of mHealth tools on patients. In conclusion, this review concludes that mHealth technologies have beneficial effect on the management of hypertension, leading to notable improvements in patient-centered outcomes such as medication adherence and self-efficacy. It is recommended that these innovative tools be integrated into standard clinical practice to enhance blood pressure management and overall health outcomes. Future research should aim to explore long-term effectiveness, demographic influences, and the incorporation of these technologies.

Please cite this article as: Masoumi SJ, Khademian F, Najafi M, Kaabi S. The Role of Mobile Health Technologies in Hypertension Management: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S368.

POSTER

The Role of Mobile Health Tools in Enhancing Remote Patient Treatment: A Review

Mohammadamin Houshangishayan[1], Omid Torabi[1], Hoda Ahmari Tehran[2]*

1. Student Research Committee, Faculty of Nursing & midwifery, Qom University of Medical Sciences, Qom, Iran
2. Spiritual Health Research Center, Qom University of Medical Sciences, Qom, Iran

ARTICLE INFO

Corresponding author:
Hoda Ahmari Tehran, PhD;
Spiritual Health Research Center,
Qom University of Medical Sciences,
Qom, Iran.
Email: Ahmari9929@gmail.com

ABSTRACT

Mobile health (mHealth) tools have transformed healthcare delivery, particularly in remote settings. By leveraging smartphones, wearable devices, and apps, mHealth facilitates chronic disease management, enhances treatment adherence, and improves patient outcomes. However, the extent of their effectiveness in remote patient care remains underexplored. This systematic review followed PRISMA guidelines to evaluate the impact of mHealth tools on remote patient treatment. A literature search was conducted in PubMed, Scopus, and Web of Science for studies published between January 2015 and October 2024. Eligible studies assessed clinical outcomes, patient engagement, or treatment adherence related to mHealth interventions. Data extraction and quality assessment were performed independently by two reviewers, and a meta-analysis was conducted for comparable outcomes. Out of 2,135 studies, 78 met the inclusion criteria, including 42 randomized controlled trials and 36 observational studies. mHealth interventions were associated with improved treatment adherence (average increase: 24%, 95% CI: 18–30%, *p*=0.01) and better outcomes in chronic diseases such as diabetes (HbA1c reduction: 1.2%, 95% CI: 0.8–1.6%) and hypertension (mean systolic BP reduction: 8.5 mmHg, 95% CI: 5.3–11.7 mmHg). Patient engagement and satisfaction improved by 30% on average (95% CI: 25–35%). However, variation in intervention designs and outcome measures posed challenges for generalization. In conclusion, mHealth tools demonstrate significant potential in enhancing remote patient treatment by improving adherence, clinical outcomes, and patient engagement. However, further research is needed to standardize interventions and evaluate their cost-effectiveness in diverse populations. Future studies should explore integration with healthcare systems and long-term sustainability.

POSTER

The Role of Smart Applications in Enhancing Diabetes Management and Quality of Life: A Review

Yousef Mansouri[1], Farzaneh Abdi[1]*, Sara Abedini Baghbadorani[2]

1. Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Student Research Committee, Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Farzaneh Abdi, MSc;
Speech and Language Pathology
Department, Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran.
Email: Farzaneabdi.slp@yahoo.com

ABSTRACT

Diabetes is a chronic and complex disease that affects millions of people worldwide. Traditional management methods, such as regular visits to healthcare providers and manual self-monitoring, are often challenging and time-consuming. Smart applications can greatly enhance diabetes control and improve the quality of life for individuals living with this condition. This study systematically reviewed various smart applications and digital tools designed to support individuals with diabetes, including health management apps, symptom monitoring tools, exercise and meditation programs, and social support platforms. The review covered literature published between 2005 and 2023, using databases like Google Scholar, PubMed, and Web of Science. Applications such as "mySugr" and "Glooko" continuously monitor blood sugar levels and provide the data to users and physicians. Applications like "MyFitnessPal" and "Carb Manager" offer personalized dietary recommendations based on individual needs. The "Medisafe" application reminds users to take their medications on time. Applications like "Health2Sync" and "One Drop" collect and analyze data related to blood sugar levels, diet, and physical activities, providing analytical reports. The "GlucoseZone" application suggests suitable exercise routines for diabetes patients. Additionally, applications like "Calm" and "Headspace" help reduce stress and improve blood sugar control. In conclusion, studies indicate that the use of these applications can help improve blood sugar control and enhance the quality of life for individuals with diabetes. However, addressing challenges and striving to improve technologies and reduce costs can lead to wider and more effective use of these applications.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Smart Gadgets Use in Quality of Life for People with Disabilities: A Review

Sedighe Sadat Tabatabaei Far[1], Mohammad Mahdi Parvizi[2,3]*

1. Student Research Committee, Healthcare Services Management Department, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Dermatology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
3. Research Center for Traditional Medicine and History of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mohammad Mahdi Parvizi, MD, PhD;
Dermatology Research Center, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Mmparvizi@gmail.com

ABSTRACT

Assistive gadgets, particularly wearable devices, aid people with disabilities by enabling continuous health monitoring, improving efficiency, and reducing risks. In healthcare, they offer long-term monitoring, support, and care services. This study aims to explore the impact of smart gadgets on the quality of life for individuals with disabilities. We conducted a scoping review by searching databases such as PubMed, Science Direct, ProQuest, ISI, Scopus, Embase, Magiran, Civilica, NoorMags, and SID, using keywords related to "Gadget" and "Disability" in both English and Persian. We initially selected 228 studies from the search, which had no time limits. Two reviewers screened the studies, removed duplicates and irrelevant ones, and reviewed the final data. Smart gadgets assist people with disabilities in various ways. For individuals with visual challenges, these gadgets help in recognizing faces, colors, and objects. Tools like smart sticks, designed to guide blind individuals, offer significant benefits and are equipped with Wi-Fi and Bluetooth for easier use. Wearable devices, such as head-mounted gadgets, help users with mobility impairments by allowing wheelchair control through head movements and facial gestures. For individuals with low vision or paralysis, internet of things (IoT)-based gadgets enable contactless communication, allowing them to send messages using hand movements, with specialized software directing the message based on the movement's direction. In conclusion, smart gadgets with advanced capabilities enhance the independence and convenience of individuals with disabilities, improving access and reducing the burden of care. The development of these technologies can lead to an improved quality of life and health for these individuals.

Please cite this article as: Tabatabaei Far SS, Parvizi MM. The Role of Smart Gadgets Use in Quality of Life for People with Disabilities: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S371.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Role of Smart Watches in Monitoring Blood Pressure in Elderly aAnd Preventing Stroke with Timely Warnings: A Review

Yousef Mansouri[1], Farzaneh Abdi[1]*, Sara Abedini Baghbadorani[2]

1. Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Student Research Committee, Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Farzaneh Abdi, MSc;
Speech and Language Pathology
Department, Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran.
Email: Farzaneabdi.slp@yahoo.com

ABSTRACT

Blood pressure is one of the critical contributing factors to stroke, which is a leading cause of disability and mortality among the elderly. As the elderly population continues to grow globally, the prevalence of cardiovascular diseases among them has increased, necessitating effective methods to monitor and predict health issues, particularly strokes. Changes in blood pressure can lead to strokes, and the timely detection of such changes is crucial for prevention. Smart watches, with their capability for continuous monitoring and timely alerts, offer a promising solution in this regard. These devices can provide real-time data on blood pressure variations, enabling early intervention and prevention of serious cardiovascular events. This study was conducted as a systematic review of literature published between 2017 and 2022, using databases such as Google Scholar, PubMed, and Web of Science. The systematic review revealed that smart watches equipped with continuous blood pressure monitoring and timely alert features significantly improve the early detection and prevention of strokes and heart attacks among the elderly. Studies included in the review demonstrated that these devices could reliably detect fluctuations in blood pressure that often precede cardiovascular events. Furthermore, regular monitoring facilitated by these devices contributed to better adherence to treatment plans and lifestyle modifications, resulting in overall improved cardiovascular health outcomes. In conclusion, smart watches with continuous monitoring and timely alert capabilities play a vital role in monitoring the health of the elderly and preventing stroke. With technological improvements and cost reductions, the use of these devices will become more widespread.

Please cite this article as: Mansouri Y, Abdi F, Abedini Baghbadorani S. The Role of Smart Watches in Monitoring Blood Pressure in Elderly aAnd Preventing Stroke with Timely Warnings: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S372.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Tele-nursing in Dietary Adherence in Patients: A Review

Pantea Gorjizade[1], Maedeh Hamrah Siyani[2], Mohammad Hossein Taklif[3], Negin Farid[4]*

1. Student Research Committee, Yasuj University of Medical Sciences, Yasuj, Iran
2. Student Research Committee, Sabzevar University of Medical Sciences, Sabzevar, Iran
3. Marine Medical Research Center, Baqiyatullah University of Medical Sciences, Tehran, Iran
4. Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Negin Farid, MSc;
Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
Email: Neginfarid.79@gmail.com

ABSTRACT

The problems caused by non-observance of diet are an important challenge in the healthcare system that affects the quality of life of patients. Telenursing, which is a remote care technology, plays an important role in improving nursing services and monitoring patients' condition. Therefore, this study aims to investigate the role of telenursing on dietary adherence in patients. In this systematic review, an comprehensive search with MeSH/non-MeSH keywords "telenursing""diet" in international databases, WOS, Scopus, Medline/Pubmed, Core collection and search engines Google Scholar, Elmnet and national databases SID, Magiran, Irandoc. In the initial search, 15 studies were obtained. The inclusion criteria were publication in Farsi/English language with not time limitations. After removing duplicates and adapting to the purpose, 7 studies were reviewed. Ethical considerations ensured non-bias in selection, extraction, and analysis, with findings reported according to PRISMA guidelines. During the investigation, two studies related to type 2 diabetes and one study each for patients with celiac disease, hemodialysis, overweight conditions, coronary syndrome, and heart surgery. Three studies specifically focused on teenagers and young people, and the main communication method was telephone calls and messaging software. the studies indicated that telenursing led to increased Dietary Adherence among patients due to improved accessibility to nursing services and enhanced patient knowledge. In conclusion, the use of telenursing can have a significant effect in providing nutrition counseling and continuous follow-up and help improve dietary adherence among patients. With the advancement of communication technologies and the facilitation of the telenursing process, necessary actions are recommended for its development.

Please cite this article as: Gorjizade P, Hamrah Siyani M, Taklif MH, Farid N. The Role of Tele-nursing in Dietary Adherence in Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S373.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

The Role of Telemedicine in Emergency Surgeries: A Review

Raha Sefidfard[1], Mobina Fayyaz[1], Zahra Mahboobi[1], Sajed Arabian[2,3]*, Rasoul Salimi[2], Mojtaba Pourmehdi[1]

1. Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Emergency Medicine, School of Medicine, Besat Hospital, Hamadan University of Medical Sciences, Hamadan, Iran

ARTICLE INFO

*Corresponding author:
Sajed Arabian, PhD;
Student Research Committee,
Department of Health Information
Management, School of Health
Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Arabiansajed22@gmail.com

ABSTRACT

Emergency remote surgeries have emerged as an innovative technology in healthcare, allowing physicians to provide care to patients in critical situations and in locations far from surgical facilities. This technology has the potential to transform how emergency surgeries are performed, especially when time and access to surgical resources are limited. The aim of this study was to examine the role of telemedicine in emergency surgeries, exploring its benefits, challenges, and applications. A systematic review was conducted by searching reputable databases such as PubMed, Scopus, Web of Science, and Google Scholar. Keywords including virtual medicine, emergency surgery, and emergency treatment were used to explore relevant articles published between 2020 and 2024. English-language articles that addressed the role of telemedicine in emergency surgeries were selected for full-text review. Studies were evaluated for their relevance and quality. A total of 169 studies were initially identified, of which 24 articles were selected after screening. Ten articles (42%) focused on remote surgical management. In 8 studies (33%), the use of remote surgical technology significantly improved the quality of medical consultations and reduced response time in emergencies. Four studies (17%) highlighted the challenge of stable internet connectivity as a major barrier. Two articles (8%) discussed the potential of remote surgery as a complement to traditional care models. In conclusion, remote emergency surgeries improve access to healthcare and reduce waiting times for critical interventions. However, issues such as internet connectivity and concerns over procedure quality must be addressed to ensure broader adoption of this technology in emergency healthcare settings.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Internet of Things (Iot) in Management of Cancer: A Review

Jahanpour Alipour[1]*, Nasrin Moradi[2]

1. Health Human Resources Research Center, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Health Services Management Department, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Jahanpour Alipour, PhD;
Health Human Resources Research
Center, School of Health Management
and Information Sciences, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Jahanpour.alipour@gmail.com

ABSTRACT

Cancer is a global problem and the main cause of death worldwide. With the increase in cancer cases, the number of patients who urgently need medical interventions is increasing rapidly. The effects of this disease and its late treatment cause various side effects decrease the quality of life of cancer patients. This study aims to investigate the role of Internet of Things (IoT) in the management of cancer. A systematic review based on the PRISMA guidelines was conducted in 2024. After developing a search strategy based on the PICO framework and extracting keywords according to Mesh, research articles with full text were performed in PubMed, Scopus, Web of Science databases, and Google Scholar search engine. Quality assessment of articles was done based on the Newcastle-Ottawa Scale (NOS) tool. Thematic analysis was used to extract opportunities and challenges. A number of 1576 articles were extracted from the searched databases.568 articles were removed from duplicates.973 and 19 articles were respectively based on the title and abstract. Two articles were excluded based on the article quality appraisal. Fourteen articles were carefully reviewed. IoT is used in the continuum of care, from prevention, diagnosis to treatment and follow-up of cancer disease. Wearable devices and IoT sensors can be effective in collecting medical data, monitoring treatment, analyzing data, managing lifestyle, prevention and early diagnosis, monitoring physical activity. The security and confidentiality issues of patient information, standardization of information are the important challenges. In conclusion, using the IoT is an effective and promising solution in managing the cancer continuum of care. However, it is necessary to overcome the existing challenges in order to fully utilize the potential of this technology.

Please cite this article as: Alipour J, Moradi N. The Role of Internet of Things (Iot) in Management of Cancer: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S375.

The Role of Wearable Devices in Monitoring Blood Pressure: A Review

Helia Fasihinia*

Department of Medical-Surgical Nursing, Fatemeh School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Helia Fasihinia, MSc;
Department of Medical-Surgical
Nursing, Fatemeh School of Nursing
and Midwifery, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Heliafasihinia1381@gmail.com

ABSTRACT

Wearable devices, such as smart watches and wristbands, are widely used to monitor personal health. A blood pressure monitor is essential to ensure the proper functioning of the circulatory system. The purpose of this study is to express the ability of wearable devices to replace the traditional common devices for blood pressure monitoring. The current systematic review study was conducted through a systematic search in reputable scientific databases, including PubMed, Scopus, Web of Science, and Google Scholar, from 2016 to 2024 using the keywords "wearable device", "blood pressure", "smart watch", and "wristband". Furthermore, the papers relevant to the study's purpose were analyzed. Finally, nine studies were included in the review. "Inbody", "Careup", "Heart Guide", and "TSMS", as well as sensitive wristbands or shirts and smart rings, have been able to measure blood pressure during daily activities, even while sleeping or at home and ambulatory. They have demonstrated high accuracy in blood pressure detection compared to common cuffed devices. However, challenges have also been recognized, such as the limited sensory capabilities of the sensors and the poor surface stability between the skin and the sensors. In conclusion, wearable devices with current and simple designs, as well as easy and portable operation, can benefit the majority of individuals in society, including workers and the elderly, in terms of blood pressure monitoring. Although they are accurate, considering the challenges raised, it is necessary to sometimes use regular cuff devices alongside them to ensure accurate blood pressure assessment.

Please cite this article as: Fasihinia H. The Role of Wearable Devices in Monitoring Blood Pressure: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S376.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Use of Chatbots to Improve Prenatal, Pregnancy, and Postpartum Health: A Review

Fatemeh Sarpourian[1], Mohammad Mehdi Ghaemi[2], Hassan Shokri Garjani[3], Zahra Zare[4*], Saeid Ebrahimi[1]

1. Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Medical Informatics, Kerman University of Medical Sciences, Kerman, Iran
3. Department of Medical Informatics, Tabriz University of Medical Science, Tabriz, Iran
4. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Keywords:
Chatbot
Pregnancy
Prenatal
Postpartum

Corresponding author:
Zahra Zare, PhD;
Student Research Committee,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Zahra.zare1993@gmail.com

ABSTRACT

Chatbots, which are also known as conversational or virtual agents, are digital platforms that can interact with humans using voice, text, or animation. They have shown significant role in providing prenatal, pregnancy, and postpartum care. This review was conducted with the aim of investigating the use of chatbots in improving prenatal, pregnancy, and postpartum health in 2024. Five electronic databases were searched from 2016 until March 4, 2024 (PubMed, Embase, Web of Science, Scopus, and Cochran Library). English language studies that were conducted on pregnant women who had undergone interventions with any type of chatbot were included. In addition, backward and forward reference list checking of the selected studies was conducted. The quality of studies was appraised using the Mixed Methods Appraisal Tool. A convergent qualitative synthesis design for mixed studies review was used to synthesize the findings, and results were thematically analyzed. The initial search resulted in the extraction of 8420 articles. After checking the title, abstract, and full text, 10 articles were selected (quantitative=5, qualitative=3, and mixed=2). Four main themes were identified: (i) Screening and diagnosis, (ii) Treatment, (iii) Medical advice, and (iv) Sharing experiences. In conclusion, there are various chatbots in the medical practice that therapists and patients can benefit from according to their conditions. However, before using this technology, it seems necessary to conduct feasibility, perspective, readiness, and acceptance studies in order to prove the effectiveness of chatbots in the medical practice.

Please cite this article as: Sarpourian F, Ghaemi MM, Shokri Garjani H, Zare Z, Ebrahimi S. The Use of Chatbots to Improve Prenatal, Pregnancy, and Postpartum Health: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S377.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Use of Gamification in The Rehabilitation and Health Promotion of Children with Special Needs Using Companion Health: A Review

Maryam Dehghani*

Faculty of Paramedical Sciences, Alborz University of Medical Sciences, Karaj, Iran

ARTICLE INFO

*Corresponding author:
Maryam Dehghani, MSc;
Faculty of Paramedical Sciences,
Alborz University of Medical
Sciences, Karaj, Iran.
Email: Dehgani71@yahoo.com

ABSTRACT

Children with special needs often face unique challenges in rehabilitation and health maintenance. Traditional rehabilitation methods may be boring and unmotivating for these children. In the meantime, gamification as an innovative approach has significant potential for these children. Mobile health (mHealth), using mobile technologies, provides new opportunities to present gamification in the form of applications and interactive programs. This article examines the application of gamification in rehabilitation and health promotion of children with special needs using mHealth. This article is a systematic review that includes clinical trial studies, systematic reviews, and meta-analyses collected in reputable databases such as PubMed, Scopus, and Google Scholar between 2019 and 2024. Studies show that gamification can increase motivation and engagement of children with special needs, improve interaction and learning, personalization and adaptability, monitor progress, reduce stress and anxiety in rehabilitation activities. Game elements such as rewards, competition, scoring, and challenges make the learning experience more engaging and enjoyable. By providing easy and flexible access to gamification programs, mHealth allows for continuous rehabilitation follow-up. In addition, gamification can help strengthen children's cognitive, motor, social, and communication skills. In conclusion, gamification using mHealth is a promising approach for the rehabilitation of children with special needs that can help improve their treatment outcomes and quality of life. However, to fully exploit it, more research is needed in the field of designing effective and personalized games. Also, it is necessary to pay attention to challenges such as access to technology and education of parents and therapists.

Please cite this article as: Dehghani M. The Use of Gamification in The Rehabilitation and Health Promotion of Children with Special Needs Using Companion Health: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S378.

International Journal of Nutrition Sciences

POSTER

The Use of Mobile Health Applications in Cognitive Rehabilitation in Children: A Review

Zahra Karbasi[1], Michaeel Motaghi Niko[2], Fatemeh Asadi[1], Azam Sabahi[3], Parisa Eslami[4], Maryam Zahmatkeshan[5]*

1. Department of Health Information Sciences, Faculty of Management and Medical Information Sciences, Kerman University of Medical Sciences, Kerman, Iran
2. Department of Nursing, Shahrekord University of Medical Sciences, Shahrehkord, Iran
3. Health Information Management, Department of Health Information Technology, Ferdows Faculty of Medical Sciences, Birjand University of Medical Sciences, Birjand, Iran
4. School of Allied Medical Sciences,Tehran University of Medical Science, Tehran, Iran
5. Department of Health Information Thechnology, Noncommunicable Diseases Research Center, Fasa University of Medical Sciences, Fasa, Iran

ARTICLE INFO

Keywords:
Cognitive rehabilitation
Children
Mobile health

*Corresponding author:
Maryam Zahmatkeshan, PhD;
Department of Health Information
Thechnology, Noncommunicable
Diseases Research Center,
Fasa University of Medical Sciences,
Fasa, Iran.
Email: M.zahmatkeshan@fums.ac.ir

ABSTRACT

Mobile-based cognitive training programs can be a viable alternative to in-person interventions. The aim of this study was to investigate the use of mobile health applications for cognitive rehabilitation in children. Systematic search was performed in PubMed and Web of Science databases on January 8, 2025 without time limit. This study was conducted by combining the keywords cognitive rehabilitation AND m-health OR mobile app OR mobile application OR smartphone AND children. The inclusion criteria were the use of mobile health applications for cognitive rehabilitation in children and articles in English. Exclusion criteria included non-use of applications and unrelated diseases. Through searching scientific databases, 159 articles were obtained, and finally 8 related articles were included in the study. Most of the articles (37.5%) were conducted in 2024 and in Korea. The average age of the children participating in the study was 10.04, and 37.5% of the articles were related to patients with autism disorders and developmental disabilities. Applications used in studies were Mind Rx Kids, ProVIA- Kids app, DoBrain, DTx MBI, QiFei, SmartCAT and mobile-based games to train visuospatial WM. Based on the findings, 62.5% of the studies showed that the use of mobile health applications was effective for the cognitive rehabilitation of children. In conclusion, based on this study's findings, mobile health applications can be very effective for children with cognitive disorders. Health care providers can incorporate this technology into treatment programs for children with cognitive disorders.

Please cite this article as: Karbasi Z, Motaghi Niko M, Asadi F, Sabahi A, Eslami P, Zahmatkeshan M. The Use of Mobile Health Applications in Cognitive Rehabilitation in Children: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S379.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Use of Tele-Audiology in Audiological Management of Individuals with Hearing Impairments: A Review

Mohammad Khani[1]*, Nafiseh Salahi[1], Hamideh Ehtesham[2], Razieh Farrahi[2], Azam Sabahi[2]

1. Student Research Committee, Birjand University of Medical Sciences, Birjand, Iran
2. Health Information Management Unit, Department of Health Information Technology, Ferdows Faculty of Medical Sciences, Birjand University of Medical Sciences, Birjand, Iran

ARTICLE INFO

*Corresponding author:
Mohammad Khani, MSc;
Student Research Committee, Birjand
University of Medical Sciences,
Birjand, Iran.
Email: Khanymhmd45@gmail.com

ABSTRACT

Tele-audiology is the utilization of telemedicine to provide audiological services. Given the extensive research on telemedicine for deafness and hearing loss, this study aimed to systematically explore the role of teleaudiology in managing individuals with hearing impairments. The present study was conducted following the PRISMA guidelines. To achieve this, we searched the keywords "Persons with Hearing Impairments" and "Tele-audiology" in the Web of Science, PubMed, and Scopus databases, retrieving English-language articles without any time limits up to December 26, 2024. The study's inclusion criteria required that articles be original and in English. We excluded short articles, letters to the editor, conference abstracts, observational studies, review articles, and any articles for which the full text was unavailable or that were written in a language other than English. After selecting the relevant studies, we collected data using a data extraction form. A total of 295 articles were initially retrieved. After removing duplicates and irrelevant articles through an evaluation of the title, abstract, and full text, only 10 articles were included in this review. Teleaudiology was primarily utilized in the following areas: interaction and communication with audiologists and other individuals (60%), education and learning (30%), online health counseling (20%), and screening (10%). The technologies featured in the studies included mobile applications (60%), the Internet (20%), virtual reality (10%), and artificial intelligence (10%). In conclusion, the study's results indicated that Tele-audiology significantly enhances interactions and psychosocial well-being for deaf individuals.

Please cite this article as: Khani M, Salahi N, Ehtesham H, Farrahi R, Sabahi A. The Use of Tele-Audiology in Audiological Management of Individuals with Hearing Impairments: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S380.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Self-Management of Hypertension Using Mobile Health: A Review

Reyhane Jahantab[1]*, Zeinab Alipour[1], Mohammad Hassanzadeh[2]

1. Faculty of Medical Sciences, Ali Ibn Abi Talib University, Yazd, Iran
2. Faculty of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Reyhane Jahantab, BSc;
Faculty of Medical Sciences, Ali Ibn
Abi Talib University, Yazd, Iran.
Email: Jahantabreyhane8@gmail.com

ABSTRACT

Hypertension is recognized as a significant global health issue, and its increasing prevalence necessitates effective self-management strategies. Mobile health (mHealth) has emerged as a valuable tool in this regard. This study aims to explore mHealth as an innovative approach to self-management in hypertension through a comprehensive review of existing literature. A systematic search was performed across four major databases: PubMed, Scopus, Web of Science, and Google Scholar. The search utilized the keywords "hypertension", "mHealth","self-management" and "blood pressure control" focusing on articles published between 2020 and 2024. Initially, 12 articles were identified; after removing duplicates and screening titles and abstracts, 8 articles met the inclusion criteria based on their relevance to hypertension and mHealth, as well as adherence to the specified publication timeframe. The findings indicate that mHealth-based self-management interventions can lead to significant reductions in both systolic and diastolic blood pressure among patients with hypertension. Conversely, limited access to these technologies may result in inadequate blood pressure control and an increase in complications related to the disease. The studies reviewed demonstrate that mHealth interventions not only improve blood pressure management but also enhance health-related behaviors and adherence to treatment protocols. In conclusion, further research is crucial for optimizing and expanding the application of mHealth in hypertension management. The potential of mHealth as an effective tool for blood pressure control necessitates additional studies to confirm its specific effects and to refine these interventions for better patient outcomes.

Please cite this article as: Jahantab R, Alipour Z, Hassanzadeh M. Self-Management of Hypertension Using Mobile Health: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S381.

POSTER

Transformation in Medical Laboratories with Mobile Health Solutions for Accurate Diagnosis and Treatment: A Review

Farzaneh Kaheni[1], Yasaman Akbarian[1], Hossein Javid[1,2]*

1. Student Research Committee, Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Student Research Committee,
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

The mobile health innovations have transformed of healthcare delivery particularly in the realm of laboratory efficiency for disease prevention and management. Integration of mobile health solutions into medical laboratories examines the evolution of laboratory methods from traditional samples analysis to innovative smartphone applications that facilitate real-time data collection, analysis, and patient engagement.by using advanced technologies such as artificial intelligence and mobile connectivity, diagnostic accuracy has increased and treatment pathways have become simpler. This article's goal is to examine how mobile health transforming illness management and monitoring which will ultimately improve patient outcomes. To study the complex effects of mobile health on disease monitoring and management done a thorough examination of contemporary research and case studies in the articles published between 2023 and 2024 in Google Scholar, PubMed databases. The result of searching these databases was to find 25 articles, of which 15 were excluded after reviewing, leaving 10 articles selected detailed evaluation. The findings show that Mobile health has brought outstanding results to disease monitoring and management processes. These results include appropriate treatment recommendations and timely and more accurate disease diagnosis. In addition, telemonitoring systems enable real-time data collection and improve the capacity of healthcare providers to make better decisions and take more effective preventive measures. In conclusion, it seems that the mobile health innovations have transformed of healthcare delivery particularly in the realm of laboratory efficiency and improved interaction with patients. Healthcare will become more patient-centered and data-driven in the future.

Please cite this article as: Kaheni F, Akbarian Y, Javid H. Transformation in Medical Laboratories with Mobile Health Solutions for Accurate Diagnosis and Treatment: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S382.

The Role of Mobile Health Innovations in Empowering Patient-Centric Care and Transforming Diabetes Management: A Review

Haniyeh Kazemi*

Department of Physiology, Medical School, Shiraz Medical University, of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Haniyeh Kazemi, MSc;
Department of Physiology, Medical
School, Shiraz Medical University, of
Medical Sciences, Shiraz, Iran.
Email: Haniyehkazemi71@yahoo.com

ABSTRACT

The integration of mobile health (mHealth) technologies into the management of diabetes mellitus (DM) offers a transformative approach to combat the increasing global burden of this chronic disease. DM, characterized by impaired insulin function, necessitates continuous monitoring and lifestyle changes to prevent complications like cardiovascular disease and neuropathy. Advancements in mobile technologies, such as smartphones and wearable devices, present significant opportunities to enhance patient engagement and optimize disease management. This study aims to evaluate the effectiveness of mHealth tools in diabetes care, focusing on their role in monitoring blood glucose levels, promoting behavioral changes, and facilitating communication between patients and healthcare providers. A systematic review of recent literature was conducted, analyzing peer-reviewed articles published between 2015 and 2023 that examined the impact of mHealth technologies on diabetes management. Findings indicate that mHealth interventions can significantly improve glycemic control, with reductions in HbA1c levels averaging 0.5% to 1.0%. These tools also enhance patient engagement through features such as real-time feedback and personalized education. However, challenges like digital literacy, data privacy, and limited integration with healthcare systems hinder widespread adoption. In conclusion, mHealth represents an innovative solution for diabetes management, allowing healthcare providers to offer personalized and accessible care. Future research should address implementation barriers and explore the long-term impacts of mHealth. Collaborative efforts among policymakers, healthcare providers, and technology developers are essential to fully realize the potential of mHealth in transforming diabetes care.

POSTER

Transforming Healthcare through Technological Innovation and Revolutionizing Electronic-Health and Telemedicine with Emerging Opportunities and Challenges: A Review

Emran Pirzadeh[1], Asra Nassehi[2], Nasim Pirzadeh[3]*

1. Department of Business Administration, Faculty of Management, Payame Noor University, Tehran, Iran
2. Department of Nursing, School of Nursing and Midwifery, Bam University of Medical Sciences, Bam, Iran
3. Department of Public Health, School of Medical Sciences, Esfarayen Faculty of Medical Sciences, Esfarayen, Iran

ARTICLE INFO

Corresponding author:
Nasim Pirzadeh, MSc;
Department of Public Health, School
of Medical Sciences, Esfarayen
Faculty of Medical Sciences,
Esfarayen, Iran.
Email: N.pirzadeh7238@gmail.com

ABSTRACT

Today, Healthcare is undergoing rapid transformation due to the integration of medicine and technology. E-health and telemedicine, encompassing a wide range of information and communication technologies, have revolutionized service delivery while addressing geographical barriers in modern healthcare. Following the COVID-19 pandemic, the e-health system has advanced globally. The objective of this study is to examine the impact of technological innovation on the advancement and functionality of e-health and telemedicine systems. In this review study, databases including PubMed, Scopus, ScienceDirect, and Google Scholar were used to search keywords "Digital-health", "Telemedicine", "Telehealth", "E-health", "Electronic-health", and "Technological-innovation". The criteria for article review were thematic relevance, English language, and publication year 2023-2025. Telemedicine and e-health, driven by advanced technologies, diverse applications, and growing acceptance-particularly during the COVID-19 pandemic-have emerged as indispensable tools for facilitating patient-physician communication. Cutting-edge Technologies such as artificial intelligence, machine learning, cloud computing, Internet of Things, blockchain, wearable technologies, and virtual reality are embraced in e-health and telemedicine. They are used in medical imaging, medical research, data storage and analysis, rehabilitation, medicine discovery, and administrative tasks. However, the absence of regulatory frameworks and comprehensive standards for the adoption of technological innovations in healthcare remains a significant challenge. In conclusion, technological innovations in e-health and telemedicine have facilitated early disease diagnosis, enhanced patient monitoring, and self-care programs, significantly improving healthcare decision-making and patients' quality of life. However, effective utilization of these advancements necessitates the development of appropriate strategies that are aligned with existing healthcare systems, while ensuring robust data security measures and adherence to ethical considerations.

International Journal of Nutrition Sciences

POSTER

Transforming Healthcare: A Review on Integration of Artificial Intelligence in Metaverse

Shirin Dehghan[1]*, Mehdi Hajebrahimi[2]

1. Vice Chancellor for Research, Shiraz University of Medical Sciences, Shiraz, Iran
2. School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Shirin Dehghan, PhD;
Vice Chancellor for Research,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Dehghan.sh@gmail.com

ABSTRACT

The rapid advancement of technology has profoundly impacted numerous sectors, with healthcare being a notable example. Integrating artificial intelligence (AI) within the Metaverse is among the most promising developments that can transform healthcare by enhancing traditional medical practices and addressing rising patient demands with innovative solutions. Metaverse as an interconnected online universe consists of decentralized and stable 3D virtual reality environments, can support a new era of immersive experiences in the future. This study examines the diverse functions that AI can fulfill within virtual healthcare settings, emphasizing developments such as virtual reality and augmented reality simulations. Through analyzing case studies, we attempt to present the recent advancements and the potential of these technologies in enhancing medical practice. AI is becoming an element in medical education within the Metaverse, greatly improving traditional training methods by utilizing AI-enhanced virtual reality (VR) simulations. These simulations replicate realistic clinical situations, allowing for skill development in a safe and controlled setting. Additionally, AI enhances diagnostic processes by employing machine learning algorithms to evaluate large sets of patient data, resulting in more precise and timely diagnoses. Beyond training and diagnostics, AI-based VR therapy provides creative treatment options for individuals dealing with mental disorders. This therapy can customize scenarios based on the patient's specific responses, adjusting in realtime to maximize therapeutic results and foster resilience. In conclusion, this paper proposes how the convergence of AI and the Metaverse has the potential to enhance conventional medical practices and establish novel frameworks for healthcare delivery within an increasingly digital landscape.

POSTER

Transforming Patient Safety: A Review on Advanced Risk Management Practices in Smart Hospitals

Fatemeh Mohabati[1], Fatemeh Parsian[1], Asra Teimouri[1], Mahboubeh Mohabati[2], Seyed Pouria Hedayati[1]*, Ghazal Doulati[1]

1. Zabol University of Medical Sciences, Zabol, Iran
2. Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

ABSTRACT

Recent advancements in patient safety and risk management within smart hospitals have focused on integrating artificial intelligence (AI) to enhance clinical risk management processes effectively. AI has emerged as a crucial tool in preventing various incidents, including clinical errors and healthcare-associated infections, thereby significantly improving patient safety outcomes. A systematic review of relevant literature was conducted to evaluate the effectiveness of AI in clinical risk management. This review included qualitative analyses, case studies, and discussions on the ethical implications surrounding the deployment of AI technologies in healthcare settings. Findings indicate that while AI significantly contributes to improving risk identification and mitigation, challenges remain regarding the complexity of healthcare systems and the integration of new technologies without introducing additional risks. Standardization of practices, such as drug trolley layouts and ensuring medical records availability during surgeries, has been shown to enhance patient safety. However, proper risk assessments are essential before implementing new safety practices to avoid potential errors during execution. In conclusion, effective leadership and training among healthcare professionals are critical for improving adherence to safety protocols and enhancing overall risk management practices. Continuous evaluation and adaptation of these practices are necessary to address evolving challenges in healthcare settings. The successful implementation of AI in smart hospitals requires careful planning and ethical considerations to maximize benefits while minimizing risks. Ultimately, this approach leads to improved patient safety outcomes across healthcare systems, ensuring that patients receive high-quality care in safe environments.

Corresponding author:
Seyed Pouria Hedayati, PhD;
Zabol University of Medical Sciences,
Zabol, Iran.
Email: Pouria2005@gmail.com

Please cite this article as: Mohabati F, Parsian F, Teimouri A, Mohabati M, Hedayati SP, Doulati G. Transforming Patient Safety: A Review on Advanced Risk Management Practices in Smart Hospitals. Int J Nutr Sci. 2025;10(2-Supplement):S386.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Transforming Remote Kidney Surgeries: A Review on Machine Learning in Partial Nephrectomy

Mohammad Bastani[1], Nahid Mehrabi[1*], Sorayya Rezayi[1], Mahdi Ghorbani[2]

1. Department of Health Information Technology, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran
2. Department of Laboratory Sciences, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran

ARTICLE INFO

Corresponding author:
Nahid Mehrabi, PhD;
Department of Health Information Technology, School of Paramedical Sciences, Aja University of Medical Sciences, Tehran, Iran.
Email: N.mehrabi@ajaums.ac.ir

ABSTRACT

Kidney surgeries, particularly partial nephrectomy, have undergone significant advancements with the progress of robotic technology and machine learning. This paper explores the application of autonomous robots and machine learning in remote kidney surgeries, addressing challenges and opportunities associated with these technologies to enhance surgical precision and efficiency. This article is a systematic review based on the PRISMA protocol. The search for articles was conducted in reputable databases including PubMed, Scopus, and Web of Science, using a combination of (MeSH) keywords related to telemedicine, robotic-surgery, and partial-kidney-surgery. Inclusion criteria included studies published between 2019 and 2024 that specifically addressed the application of machine learning and autonomous robots in kidney surgeries and the use of tele-surgery. Irrelevant studies, duplicate reviews, and articles without full text were excluded from the analysis. The findings infer that robotic machine learning application in partial nephrectomies has made its procedure much safer and more accurate than it used to be. Machine learning-based algorithms will facilitate the recognition of the target tissues closely and, to a great extent, reduce human error, thus assisting in personalizing the treatment of patients. These technologies allow surgeons to reduce the incidence of complications due to better control of the surgical instruments and, thus, improve the patient's outcome. In conclusion, the results from this study indicate that the integration of machine learning and robotic kidney surgeries holds a better prospect for this field. However, further research is needed to fully explore the potential of these technologies and address the existing challenges.

Please cite this article as: Bastani M, Mehrabi N, Rezayi S, Ghorbani M. Transforming Remote Kidney Surgeries: A Review on Machine Learning in Partial Nephrectomy. Int J Nutr Sci. 2025;10(2-Supplement):S387.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Transforming Rural Healthcare in Iran: A Review on the Role of Telemedicine in Enhancing Specialized Care

Emran Pirzadeh[1], Nasim Pirzadeh[2], Asra Nassehi[3]*

1. Department of Business Administration, Faculty of Management, Payame Noor University, Tehran, Iran
2. Department of Public Health, School of Medical Sciences, Esfarayen Faculty of Medical Sciences, Esfarayen, Iran
3. Department of Nursing, School of Nursing and Midwifery, Bam University of Medical Sciences, Bam, Iran

ARTICLE INFO

Corresponding author:
Asra Nassehi, PhD;
Department of Nursing,
School of Nursing and Midwifery,
Bam University of Medical Sciences,
Bam, Iran.
Email: Nassehi88@yahoo.com

ABSTRACT

In recent years, the use of telemedicine in various medical fields has made significant progress. Telemedicine technology enables remote diagnosis and care for specific diseases. However, the development of telemedicine systems in remote areas has always been challenging. The aim of this study is to evaluate the role of telemedicine in consulting patients with certain disorders in remote and rural locations with medical specialists. In this review study, databases including PubMed, Scopus, ScienceDirect, and Google Scholar were used to search keywords "Telemedicine", "Telehealth", "Medical-Consultation", "E-health". The criteria for article review were thematic relevance, English language, and publication year 2023-2025. The reviews showed that remote medical consultation improve disease diagnosis, medication management, self-care programs, nutrition, and patient education during treatment stages in remote areas. Patient satisfaction with these services has raised the likelihood of reusing telemedicine. Telemedicine should be combined with in-person visits in a hybrid model. However, to improve the use of telemedicine, certain organizational challenges (inadequate regulations and privacy protection), individual challenges (low literacy levels and difficulty in using technology), and technical challenges (limited access to high-speed internet and infrastructure issues) must be addressed. In conclusion, telemedicine provides benefits to patients such as cost and time savings as well as the prevention of disease. Telemedicine is a critical possibility for improving healthcare access and sustainability in Iran's rural areas. Investments in infrastructure, legislation, and training programs and developing strategies for the enhancement of telemedicine applications can pave the path for widespread adoption, improving patients' quality of life.

Please cite this article as: Pirzadeh E, Pirzadeh N, Nassehi A. Transforming Rural Healthcare in Iran: A Review on the Role of Telemedicine in Enhancing Specialized Care. Int J Nutr Sci. 2025;10(2-Supplement):S388.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Usability Evaluation of Online Medical Appointment Websites

AmirMahdi Khajouei Mirzadeh[1], Farnaz Salehian[2], Somayyeh Zakerabasali[3]*

1. Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. Student Research Committee, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. Health Human Resources Research Center, Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Somayyeh Zakerabasali, PhD;
Health Human Resources Research
Center, Department of Health
Information Management, School of
Health Management and Information
Sciences, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Zakerabasi@gmail.com

ABSTRACT

Background: Online appointment scheduling websites facilitate the process of booking and managing doctor's appointments. These websites enable patients to easily view doctor's schedule, book appointments, and even make electronic payments. All is done online without the need for in-person visits.

Methods: First, 10 highly visited and popular online appointment booking sites were identified, then the informational and technical items of these sites were extracted. Finally, the usability of the appointment booking sites was evaluated using the SUS questionnaire (A 10-question form that categorized answers from completely agree to completely disagree) by 10 participants.

Results: This study reveal that "doctoreto.com" website has the highest usability score (80.5) due to its user-friendly interface and comprehensive features, including mobile apps (for Android and iOS Operating System). However, it lacks multilingual support. In contrast, "Shafadoc.ir" website has the lowest usability score (59.5) due to its limited features such as user review and rating system. Although it supports Arabic language, it has not had a significant impact on its usability score, indicating that other features have a greater influence on user experience. Other websites have scores between 66 and 78, which are close to each other, and all have similar technical features.

Conclusion: However, it can be concluded that websites that have mobile applications and online text and telephone counseling, tend to be more popular among users, especially in the field of psychiatry, where these features are in high demand and commonly found across most websites.

Please cite this article as: Khajouei Mirzadeh AM, Salehian F, Zakerabasali S. Usability Evaluation of Online Medical Appointment Websites. Int J Nutr Sci. 2025;10(2-Supplement):S389.

International Journal of Nutrition Sciences

POSTER

Using ChatGPT® to Evaluate User Feedbacks on Persian Oral Health Mobile Applications: A Review

Afshin Sarafinejad[1]*, Kasra Kashani[2]

1. Clinical Informatics Research and Development Lab, Clinical Research Development Unit, Shafa Hospital, Kerman University of Medical Sciences, Kerman, Iran
2. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Corresponding author:
Afshin Sarafinejad, MD, PhD;
Clinical Informatics Research and
Development Lab, Clinical Research
Development Unit, Shafa Hospital,
Kerman University of Medical
Sciences, Kerman, Iran.
Email: Asarafinejad@kmu.ac.ir

ABSTRACT

Oral health incurs significant costs. Education and prevention can help reduce these expenses. Since 2020, mobile health apps have become essential tools for disease prevention, health promotion, and patient education. Artificial intelligence (AI) technologies offer innovative solutions to enhance awareness and provide better access to information. We used ChatGPT® to mimic and facilitate human reading and mental interpretation ability. In December 2024, we searched for oral health mobile apps on Iranian app stores, Bazar and Myket, using relevant keywords. A total of 163 apps were identified, and 12 apps with more than 1000 downloads and user feedback sections were included in the study. Screenshots of Persian user reviews were uploaded to OpenAI® ChatGPT® v.4oMini. Using its OCR functionality and AI analysis capabilities, the model processed the Persian reviews over multiple prompting sessions, organizing the results into two Excel sheets. Limitations of the ChatGPT® model were identified and addressed. ChatGPT® successfully processed 138 out of 160 Persian screenshot images from 12 apps. It identified key themes such as comprehensiveness, usability, design, functionality, performance, and educational value. It categorized the reviews into sentiment groups of positive, negative, neutral, mixed, and irrelevant. Additionally, the app ratings ranged from 3.1/5 to 5/5 based on user-provided stars, and the model generated a ranked list as part of a qualification analysis. In conclusion, ChatGPT® proved effective for extracting and analyzing user feedback, including Persian text and images. However, its limitations, including occasional misinterpretations and calculation errors, highlight the importance of human oversight in AI-based analyses.

Please cite this article as: Sarafinejad A, Kashani K. Using ChatGPT® to Evaluate User Feedbacks on Persian Oral Health Mobile Applications: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S390.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Using Machine Learning Algorithms in Infertility Treatments: A Review

Amirali Vedadinezhad[1], Mahya Najjari[2], Fatemeh Keyfi[1]*

1. Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. Department of Microbiology and Virology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

ARTICLE INFO

*Corresponding author:
Fatemeh Keyfi, PhD;
Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran.
Email: Keifyf@varastegan.ac.ir

ABSTRACT

Infertility challenges affect millions of people globally. Machine learning offer new features for overcoming traditional reproductive technologies, such as in vitro fertilization (IVF) and intrauterine insemination (IUI). The aim of this study is to review the machine learning algorithms as a beneficial key in Infertility treatment. Different databases, including PubMed, Science Direct, Google Scholar, and Web of Science, were searched up to January 2025. Keywords included machine learning, deep learning, Infertility, and artificial intelligence. A total of 37 articles were identified. Of these, 19 were excluded after title and abstract review. Finally, 18 English-language articles met the inclusion criteria. Finally, 18 articles included in the study. Machine learning offered precision by analyzing time-lapse imaging and genetic data to assess embryo viability for increasing the chances of selecting the most promising embryos for transfer. AI contributed to the automation of routine clinical tasks, such as counting ovarian follicles through ultrasound imaging to minimize variability in measurements. One of the most significant advantages of chatbots in fertility clinics was providing patients with immediate responses. Machine learning algorithms could assess factors such as age, infertility diagnosis, and hormonal levels to predict the conception through specific treatments. It could optimize ovarian stimulation protocols by analyzing previous treatment cycles to maximize the number of viable oocytes retrieved and minimizing the risk of ovarian hyperstimulation syndrome. In conclusion, AI holds great promise for making treatments more personalized through predictive analytics, improved embryo selection, and automated procedures. However, more study is needed on this topic.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Using Telemedicine toward Education of Students and Increase Social Accountability: A Review

Bahar Moasses Ghafari[1], Parsa Hasanabadi[2]*

1. Medicine Faculty, Kurdistan university of medical sciences, Sanandaj, Iran
2. Student Research Committee, Medical Education Development Center, Kurdistan University of Medical Sciences, Sanandaj, Iran

ARTICLE INFO

Corresponding author:
Parsa Hasanabadi, MD;
Student Research Committee,
Medical Education Development
Center, Kurdistan University of
Medical Sciences, Sanandaj, Iran.
Email: Parsa.has@yahoo.com

ABSTRACT

During the COVID-19 era, telemedicine has rapidly evolved. This technology offers significant opportunities in medical education and the enhancement of social accountability, serves as a bridge to deliver medical education in underserved areas and fosters collaboration and real-world problem-solving among students. Due to the ever-increasing use of new technologies and remote patient supports, we conducted a systematic review to evaluate the role of telemedicine in medical education and its impact on increasing social accountability in society. A systematic literature search was conducted in databases including PubMed, Scopus, Web of Science, and Embase using "telemedicine," "medical education," "social accountability", and their Mesh terms. The inclusion criteria were original studies published in English from 2016 to 2025, focusing on telemedicine's educational applications and its role in meeting society's needs. All other articles were excluded. A narrative synthesis was conducted due to the heterogeneity of study designs. Out of 680 articles, 33 were chosen for further evaluation. Studies revealed its efficacy in delivering lectures, clinical skills training, and interprofessional education. In addition, telemedicine allowed students to engage with underserved populations, addressing health disparities while fostering a sense of professional responsibility. Furthermore, telemedicine is a way to educate students the communication skills, follow-up, prognosis, and management of chronic disease patients. In conclusion, telemedicine is a helpful tool for medical education for upgrade the quality of education of students. Also, it can improve social accountability toward increasing the health equity. However, there are some ethical considerations toward sharing patients' data

Please cite this article as: Moasses Ghafari B, Hasanabadi P. Using Telemedicine toward Education of Students and Increase Social Accountability: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S392.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Utility and Application of Prehospital Emergency Care Digital Platforms for Stroke Patients: A Review

Zahra Zare[1], Reza Khajouei[2], Saeid Ebrahimi[3], Fatemeh Sarpourian[3]*

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Medical Informatics, Kerman University of Medical Sciences, Kerman, Iran
3. Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Sarpourian, PhD;
Department of Health Information
Management, School of Health
Management and Information Sciences,
Shiraz University of Medical Sciences,
Shiraz, Iran.
Email: Fatemehsarpourian@gmail.com

ABSTRACT

In recent years, field triage of emergency medical services for stroke using digital platforms has received much attention. Prehospital assessment using digital platforms may accelerate definitive diagnosis and treatment. Therefore, this review was conducted with the aim of investigating the application of digital platforms for the triage of stroke in 2023. Five electronic databases were searched from inception until October 14, 2024 (PubMed, Embase, Web of Science, Scopus, and Cochran Library). English language studies of stroke patients who underwent intervention with any digital platform to receive triage services were included. In addition, backward and forward reference list checking of the selected studies was conducted. The quality of studies was appraised using the Mixed Methods Appraisal Tool. A convergent qualitative synthesis design for mixed studies review was used to synthesize the findings, and results were thematically analyzed. The initial search resulted in the extraction of 2400 articles. After reviewing the title, abstract, and full text, 10 articles were selected (quantitative=7, qualitative=2, and mixed=1). Four main issues were identified: (i) Management of symptoms and treatment, (ii) Optimizing resources, (iii) Diagnosis, and (iv) Improve communication. In conclusion, it seems that prehospital digital platforms have great potential for triaging stroke because they save admission time, optimize resources, and ultimately improve clinical outcomes. Future studies related to this area are needed in order to properly evaluate the impact of this technology on stroke outcomes and clinical resource management.

Please cite this article as: Zare Z, Khajouei R, Ebrahimi S, Sarpourian F. Utility and Application of Prehospital Emergency Care Digital Platforms for Stroke Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S393.

Utilization of Smart Applications in Managing and Improving the Quality of Life for Multiple Sclerosis Patients: A Review

Farzaneh Abdi[1], Yousef Mansouri[1]*, Sara Abedini Baghbadorani[2]

1. Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Student Research Committee, Speech and Language Pathology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ARTICLE INFO

Corresponding author:
Yousef Mansouri, MSc;
Speech and Language Pathology
Department, Ahvaz Jundishapur
University of Medical Sciences,
Ahvaz, Iran
Email: Yusef.m1991@yahoo.com

ABSTRACT

Multiple Sclerosis (MS) is recognized as a chronic and complex disease affecting the central nervous system. Over time, it can lead to numerous physical and cognitive challenges. With the advancement of modern technologies, smart applications have become a key tool in enhancing the quality of life for individuals with MS. This review article examines the role and impact of these applications in managing and improving the quality of life for MS patients. This study systematically reviewed various smart applications and digital tools designed to support individuals with MS, including health management apps, symptom monitoring tools, exercise and meditation programs, and social support platforms. The review covered literature published between 2009 and 2024, using databases like Google Scholar, PubMed, and Web of Science. There are various smart applications available to assist individuals with MS. Applications such as "MyMSTeam" and "MS Self" help users track symptoms and manage medication intake. Apps like "MS Workouts" aid patients in performing suitable physical exercises to maintain and improve their physical abilities. Programs such as "Headspace" and "Calm" help reduce stress and anxiety through meditation and breathing exercises. Additionally, online platforms and social apps like "PatientsLikeMe" enable MS patients to connect with other individuals and share their experiences. In conclusion, studies have shown that regular use of smart applications can help improve the physical and mental symptoms of individuals with MS. Recent advancements in artificial intelligence and machine learning have also provided opportunities for developing more precise and personalized tools.

Please cite this article as: Abdi F, Mansouri Y, Abedini Baghbadorani S. Utilization of Smart Applications in Managing and Improving the Quality of Life for Multiple Sclerosis Patients: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S394.

POSTER

Utilizing Machine Learning Algorithms for Identifying Biomarkers in Breast Cancer: A Review

Mahdieh Sadat Hosseini Nezhad, Zeynab Mirnezhad, Hossein Javid*

Department of Medical Laboratory Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Hossein Javid, PhD;
Department of Medical Laboratory
Sciences, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Javidh@varastegan.ac.ir

ABSTRACT

Breast cancer is one of the most common and types of cancer among women, and early detection is so important inpatient survival. Recent advances and availability of machine learning have provided an opportunity to gain insights into complex patterns in biological data. This article reviews various machine learning techniques for identifying biomarkers associated with breast cancer. A search was conducted in PubMed, Science Direct, Google Scholar, and Web of Science up to January 2025 using the keywords biomarker discovery, deep learning, and breast cancer. Initially, 29 articles were found, of which 21 were excluded after title and abstract review. Finally, 8 English-language articles were selected for inclusion. This review included 8 studies that used a variety of machine learning models to analyze genomic data from breast cancer samples. One study used the XGBoost model, which provided a hybrid feature selection framework that identified the important markers MAPK 1, APOBEC3B, and ENAH. Another study discriminated between triple-negative breast cancer (TNBC) and non-TNBC in the context of gene expression datasets using iterative feature removal methods such as RFE, and identified four prognostic genes, two novel genes POU2AF1 and S100B that are associated with distant metastases. In conclusion, the research shows that among other machine learning algorithms, XGBoost is the best choice for identifying biomarkers for early detection of breast cancer; however, further research is needed to evaluate the applicability of these algorithms in combination with biosensors to increase the accuracy of cancer biomarker detection.

Utilizing Mobile Applications and Artificial Intelligence Algorithms for Detection of Anxiety, Depression, and Stress: A Review

Samaneh Hosseini*

Department of Health Psychology and Continuous Medical Education, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Samaneh Hosseini, PhD;
Department of Health Psychology
and Continuous Medical Education,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Psys.hosseini@gmail.com

ABSTRACT

The increasing prevalence of mental health disorders, such as anxiety, depression, and stress, underscores the urgent need for innovative, effective, and scalable solutions. Mobile health (mHealth) applications and Artificial Intelligence (AI) algorithms have emerged as transformative tools to address these challenges. This comprehensive and systematic review explores the role of AI and mobile health technologies in mental health care, focusing on their effectiveness in detecting and managing psychological disorders. A comprehensive search was conducted across databases, including PubMed, Scopus, and Web of Science, to identify relevant studies published between 2015 and 2024. Peer-reviewed articles evaluating AI-driven mobile health tools for identifying anxiety, depression, or stress were included. Extracted data were synthesized narratively to identify trends, benefits, and limitations. Findings indicate that AI-powered tools, such as chatbots, facial recognition software, and wearable devices, can achieve accuracy rates of up to 90% in identifying early signs of mental health disorders. These technologies offer benefits, including accessibility, affordability, and scalability, making them valuable for underserved populations. However, challenges such as algorithmic biases, data privacy concerns, and limited integration with traditional healthcare systems remain barriers to adoption. In conclusion, to address these barriers, this review emphasizes the importance of improving algorithmic diversity, developing ethical frameworks, and promoting hybrid care models that combine AI-driven tools with human-led interventions. Successfully integrating these technologies into mental health care systems has the potential to transform early diagnosis, personalized treatment, and long-term management of mental health disorders.

POSTER

Virtual Reality as an Adjunctive Tool to Enhance Chemotherapy Tolerance: A Review

Mehrvash Hemati*

Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Mehrvash Hemati, MSc;
Department of Nursing, School
of Nursing and Midwifery, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Hematimehrvash@gmail.com

ABSTRACT

Chemotherapy is a cornerstone treatment for cancer patients, but it often comes with significant psychological distress. Virtual reality (VR) has emerged as an innovative tool aimed at alleviating these challenges. Therefore, this study aimed to evaluate the impact of virtual reality on chemotherapy tolerance in cancer patients. A systematic review was conducted using a search in Science Direct, Scopus, PubMed, Google Scholar, and CINAHL with the keywords virtual reality, chemotherapy, tolerance, and cancer. Published papers focused on virtual reality and chemotherapy in cancer patients were selected. The search reviewed studies from January 2014 to January 2024. From 462 retrieved manuscripts, 9 studies were included for analysis. The findings demonstrated that VR significantly reduces anxiety levels during treatment. In addition, VR has been shown to enhance overall quality of life. Also, patients who participated in VR sessions reported reduced pain and discomfort, as well as an improvement in their self-efficacy was achieved. Moreover, VR has been found to alter patients' perception of time, making the chemotherapy process feel shorter and less overwhelming. VR also served as an effective distraction, helping to alleviate both physical pain and emotional distress associated with chemotherapy. Furthermore, interactive VR simulations provided patients with a better understanding of the chemotherapy process, which helped reduce anxiety related to treatment expectations. Virtual reality has demonstrated significant potential as an adjunct therapy to enhance tolerance in cancer patients undergoing chemotherapy. Further studies are needed to ensure its broader implementation and long-term efficacy in oncology care

Please cite this article as: Hemati M. Virtual Reality as an Adjunctive Tool to Enhance Chemotherapy Tolerance: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S397.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Wearable Devices in Epilepsy Care: A Review on Innovations in Seizure Detection, Prediction, and Management

Fateme Aliesmaeili*, Mohammad Hadi Ayati, Ali Khani

Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Fateme Aliesmaeili, MSc;
Student Research Committee, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Ftmalismly@gmail.com

ABSTRACT

Epilepsy is a common neurological disorder, with over 50 million affected worldwide, and interferes with maintaining the quality of life because of recurrent seizures. Advanced wearable devices with automatic detection and high sensitivity are emerging as effective tools for better seizure information and management. A comprehensive review on this topic was not identified during our search; thus, this study evaluates the effectiveness of wearable devices in enhancing the quality of life for patients with epilepsy. This systematic review involved an extensive search using the keywords "wearable devices," "epilepsy," and "seizures" across international databases, including PubMed/Medline, WOS core collection, Google Scholar, and national databases such as SID, Magiran, and Elmnet. The initial search yielded 212 studies. Inclusion criteria focused on studies conducted within the last three years. Review articles, gray literature, and duplicates were excluded. After evaluation using appropriate tools, 11 studies were analyzed. Ethical considerations regarding bias in selection, extraction, and evidence classification were strictly followed, with the abstract reported according to PRISMA guidelines. Wearable devices, such as Epilepsy glasses, smartwatches, accelerometers, pulse oximeters, and wearable EEG devices, are essential for predicting and managing seizures. These tools help reduce injuries and mortality rates while improving patients' quality of life by forecasting seizure symptoms and sending alerts to mobile applications. Additionally, wearable EEG devices have decreased false alarms by 96%. In conclusion, wearable devices significantly contribute to managing seizures. Providing training to patients can further enhance the efficacy of these tools.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Wearable Smart Watch Interventions in Neurodegenerative Diseases: A Review

Zahra Zare[1], Roxana Sharifian[2], Saeid Ebrahimi[2], Fatemeh Sarpourian[2]*

1. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Health Information Management, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Sarpourian, PhD;
Department of Health Information
Management, School of Health
Management and Information Sciences,
Shiraz University of Medical Sciences,
Shiraz, Iran.
Email: Fatemehsarpourian@gmail.com

ABSTRACT

Neurodegenerative diseases are among the leading causes of mortality globally, affecting millions of people. Early identification and continuous monitoring using wearable devices, particularly smart watches, offer a promising strategy for personalized treatment. So, this review aims to examine interventions conducted with smart watches for neurodegenerative disorders. This review examined studies from six electronic databases up to October 30, 2024, focusing on patients with Parkinson's, Alzheimer's, dementia, MS, and autism who used smartwatches. The quality of studies was assessed using the Mixed Methods Appraisal Tool (MMAT), and a thematic analysis was conducted on the results. The initial search yielded 6,500 articles. After reviewing the titles, abstracts, and full texts, 18 articles were selected (quantitative=12, qualitative=5, and mixed=1). The findings indicated that smart watches were utilized in Alzheimer's for tracking patients and recognizing familiar individuals. For autism, these interventions provided visual directions, monitored behavior and movements, and facilitated emotional self-regulation. For dementia, smart watches were used to enhance social participation. They were employed for both active testing and passive monitoring of vital signs in MS, as well as for analyzing resting tremors and aiding in the early diagnosis of Parkinson's. In conclusion, smart watches have great potential for diagnosing, managing, and continuously monitoring neurodegenerative disorders by analyzing multidimensional data from daily activities. As wearable technology advances, its significance in neurology is expected to grow. This study offers valuable insights for developers, highlighting areas for improvement, and provides perspectives for future research.

International Journal of Nutrition Sciences

POSTER

Youth Sexual and Reproductive Self-Care and Digital Health: A Review

Fatemeh Dezyani[1], Zeinab Hamzehgardeshi[2], Roya Nikbakht[3], Zohreh Shahhosseini[4]*

1. Faculty of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Iran
2. Sexual and Reproductive Health Research Center, Department of Reproductive Health and Midwifery, Mazandaran University of Medical Sciences Faculty of Nursing and Midwifery, Sari, Iran
3. Department of Biostatistics and Epidemiology, Faculty of Health, Mazandaran University of Medical Sciences, Sari, Iran
4. Department of Midwifery, School of Nursing and Midwifery, Sexual and Reproductive Health Research Center, Mazandaran University of Medical Sciences, Sari, Mazandaran, Iran

ARTICLE INFO

Corresponding author:
Zohreh Shahhosseini, PhD;
Department of Midwifery, School of
Nursing and Midwifery, Sexual and
Reproductive Health Research Center,
Mazandaran University of Medical
Sciences, Sari, Mazandaran, Iran.
Email: Zshahhosseini@yahoo.com

ABSTRACT

Digital self-care is widely used by individuals to maintain and improve their health, using mobile and web applications to facilitate access to services, information, and health centers. This self-care in the field of sexual and reproductive health includes the provision of contraception, fertility regulation, and sexual health testing. The present study is a narrative review that was conducted in the Persian and Latin databases Web of Science, PubMed, Scopus, Google Scholar, SID with the keywords Self-care, Digital health, M-health, E-health, APP, youth, Sexual, reproductive, SRH, from 2000 to 2024. Finally, after reviewing the abstract and full text of the articles for compliance with the study objective, 5 articles were included in the study. A feasibility study on educational software for sexual and reproductive self-care in adolescents found it to be acceptable and capable of improving knowledge about reproductive health and family planning through user-friendly information. Another study using a two-way text support service demonstrated that users were willing to engage with the service, enhancing access to support for self-care. Additionally, a stepped care model integrating digital services with clinical work allowed young people to access specialized services through a central online portal, encouraging self-care. An intervention study on mobile-based training revealed significant improvements in self-care knowledge and behaviors among university students, particularly in areas like reproductive health and sexually transmitted diseases, except for family planning. In conclusion, the limited research on sexual and reproductive care in the digital context highlights the need for further studies in this area.

Identifying and Ranking Effect on Readiness and Acceptance of Health Field to Implement Internet of Things-Based Technologies Using Analytical Hierarchy (AHP) Method

Elham Lalianpour, Somayyeh Zakerabasali*

Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Somayyeh Zakerabasali, PhD;
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Zakerabasi@gmail.com

ABSTRACT

Advancement in Internet of Things (IoT) technology contributes significantly to the technological evolution of health science. The benefits of the Internet of Things in the medical world, which will lead to easier disease diagnosis, faster treatment, increased patient safety, and improved patient care, cannot be ignored. This study has been carried out with the aim of identifying and ranking factors affecting the acceptance and readiness to use IoT-based technologies in the field off medicine. To achieve this, the factors of technology, organization, environment and security and related sub-factors have been selected and evaluated in the form of a conceptual model of technology-organization-environment-security (TOES). This research has ranked the factors mentioned in the conceptual model of technology-organization-environment-security model, with the help of paired comparisons questionnaire, and based on the opinions of 18 experts from state-run medical training centers of Shiraz University of Medical Sciences, through analytical hierarchy process (AHP), using Expert Choice software version 11. Research findings show that factors of security, organization, technology, and environment are respectively the main concerns about the acceptance of IoT technology among the health community. Additionally, the sub-criteria of privacy, senior manager's support, technological infrastructure and government policies have the greatest impact on the readiness for adoption of IoT technology in healthcare organizations, respectively. In conclusion, it seems that by addressing each of the four aspects investigated in this study and considering the priorities, the implementation of this emerging technology is facilitated and accelerated in healthcare centers.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Food Safety Risk Communication by Games: A Review

Enayat Berizi, Zahra Esfandiari, Zohreh Ahmadi, Farzane Vaseghi-Baba*

Department of Food Hygiene and Safety, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Farzane Vaseghi-Baba,
PhD; Department of Food Hygiene
and Safety, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: Vaseghifarzane75@gmail.com

ABSTRACT

Foodborne diseases are a global public health problem, with children and adolescents at risk due to limited knowledge of food safety. Game-based learning (GBL) is an educational method to increase awareness and participation of children and adolescents in health issues. In the current study, articles were searched in international databases including Google Scholar, PubMed, Scopus and Web of Science with the keywords Food safety, Game and Risk communication. Various games have been developed to increase awareness and improve the attitude of children and adolescents towards food safety issues. The" Poison Riddle" game allowed students to play the role of a scientific detective in a virtual world and challenge their knowledge of food safety by solving a food poisoning problem at home. The "Ninja Kitchen" game introduces players to food safety challenges in a restaurant and reinforces hygiene principles. By simulating the milk supply chain, the "A mysterious poisoning" raises awareness among teenagers about food safety and the dangers of raw milk. Also, interactive games and quizzes, such as "MyPlate Blast Off" and "Just Food Fun", are effective tools for teaching food safety and nutrition to children and adults. In conclusion, the results show that using the conceptual change model in designing food safety educational games is an innovative and effective approach. This method improves learning, promotes positive attitudes and increases awareness among young people. Considering the effectiveness of interactive games, the development of these tools will play an important role in food safety education in the future.

International Journal of Nutrition Sciences

POSTER

Evaluation of Features and Performance of Elderly Care and Medication Reminder Applications

Alireza Dehghani[1], Mohebat Vali[2], Zahra Maleki[1]*

1 Student Research Committee, Department of Epidemiology, School of Health, Shiraz University Of Medical Sciences, Shiraz, Iran
2 Department of Epidemiology, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

*Corresponding author:
Zahra Maleki, PhD;
Department of Epidemiology, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Maleki5146@gmail.com

ABSTRACT

Background: The use of mobile applications (Apps) in elderly care and medication management is rapidly growing, offering potential to improve quality of life and facilitate timely medication consumption. This research evaluated features, performance, and user ratings of these Apps to identify strengths, weaknesses, and areas for improvement.

Methods: A descriptive study analyzed Apps from the Google Play Store, assessing data on name, developer, downloads, ratings, data security, operating system requirements, download size, pricing, online support, color schemes, features, strengths, weaknesses, and user ratings (scale: 1-10). User experience and visual design were also evaluated.

Results: In the "Elderly Care" category, Apps like "Be Well" (Canada) and "Vesta Elder Care" (India) excelled in features like document storage and comprehensive elderly care; but faced usa-bility challenges for seniors. The "Homage" App (Singapore) scored well for service quality; but had similar usability issues. In the "Medication Reminder and Consumption" category, Apps such as "Medisafe Pill and Med Reminder" and "My Therapy Pill Reminder" performed effec-tively for health tracking and reminders; but struggled with excessive alerts and limited customi-zation. Apps like "Pillo: Pill Reminder and Tracker" and "Medication Reminder and Tracker" showcased strong designs; but were hampered by excessive advertising.

Conclusion: While these apps feature innovative functionalities, improvements in usability, tech-nical performance, and bug resolution are necessary. Enhanced online support and refined visual design are crucial for better user experiences. App ratings ranged from 4 to 9, reflecting variabil-ity in quality and efficiency across the field.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Application of Mobile Health in the Care of Children with Cancer: A Review

Naiire Salmani[1]*, Shadi Sheikhalishahi[2]

1. Student Research Committee, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ARTICLE INFO

Corresponding author:
Naiire Salmani, PhD;
Student Research Committee, Shahid
Sadoughi University of Medical
Sciences, Yazd, Iran.
Email: N.Salmani@ssu.ac.ir

ABSTRACT

Mobile health applications in pediatric cancer treatment can empower parents to better care for their children by providing digital tools. Nurses are responsible for educating parents about symptom management, side effect management, and monitoring the condition of the sick child outside the hospital environment. This study aimed to review the applications of mobile health in the care of children with cancer. In this narrative review, searches were conducted in the databases PubMed, SID, Google Scholar, Scopus, ScienceDirect, and Web of Knowledge, using a combination of keywords such as cancer, children, nurses, mobile health, care, and Latin terms, in both Persian and English, within the time frame of 2014 to 2024. Out of 76 studies retrieved, based on inclusion and exclusion criteria and the removal of duplicate studies, nine articles relevant to the study's objective were reviewed. The results showed that mobile health-based applications include symptom tracking and reporting, symptom management, non-verbal pain reporting programs for children by parents, programs specifically for adolescents addressing sexual dysfunction or body image issues, programs focused on pain, fatigue, nausea, and mental health issues, parental responses to children's pain, and educational programs to support families in palliative care. In conclusion it was shown that by using mobile health applications, children with cancer and their parents can access health information, treatment instructions, and symptom management without the need for in-person visits, and can effectively communicate with healthcare providers

The Role of Artificial Intelligence in Diagnosis of Epidermolysis Bullosa: A Review

Aynaz Esmailzadeh[1], Alireza Rasoulian[1], Azam Kheirdoust[2], Fateme Sadat Alizade Tabatabaee[3], Safa Ramezani[1], Afsaneh Sheikh[1], Mohammad Reza Mazaheri Habibi[1]*

1. Department of Health Information Technology, Varastegan Institute for Medical Sciences, Mashhad, Iran
2. School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Nutrition Sciences, Varastegan Institute for Medical Sciences, Mashhad, Iran

ARTICLE INFO

Corresponding author:
Mohammad Reza Mazaheri Habibi,
PhD;
Department of Health Information
Technology, Varastegan Institute for
Medical Sciences, Mashhad, Iran.
Email: Mazaherim@varastegan.ac.ir

ABSTRACT

Epidermolysis Bullosa is a rare genetic skin condition characterized by skin fragility, blistering, and erosion, which predisposes patients to skin injuries. Advances in modern technology have led to the development of artificial intelligence models for diagnosis of skin diseases, including epidermolysis bullosa. The aim of this study was to examine the role of artificial intelligence in the diagnosis of epidermolysis bullosa. This study was conducted as a review in 2024, involving searches in valid databases such as PubMed, Web of Sciences, Scopus, and Google Scholar search engines. Keywords including "Artificial Intelligence", "Diagnosis", and "Epidermolysis Bullosa" were examined in studies without time restrictions. English-language studies that addressed the role of artificial intelligence in diagnosing epidermolysis bullosa met the inclusion criteria. Studies that did not focus on the diagnosis of epidermolysis bullosa were excluded. Finally, 14 articles were enrolled in the study from a total of 831 articles. The findings of these studies indicated that artificial intelligence can be beneficial in the accurate and comprehensive diagnosis of epidermolysis bullosa. Additionally, given the limited number of specialists in this field, particularly in rural and underserved areas, artificial intelligence has the potential to assist physicians in diagnosing and treating this disease and to help overcome health disparities. In conclusion, the results of this study indicated that artificial intelligence can facilitate the accurate and comprehensive diagnosis of epidermolysis bullosa in its early stages, thereby improving the quality of life and increasing awareness among patients.

POSTER

Leveraging Sensor Data for Automated Detection of Depression Using Machine Learning Algorithms

Milad Rahimi[1], Ghanbar Tavassoli[1], Mohsen Hosseini[1], Bahman Mahmoudi[1], Bahlol Rahimi[2]*

1. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran
2. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

*Corresponding author:
Bahlol Rahimi, PhD;
Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran.
Email: Bahlol.rahimi@gmail.com

ABSTRACT

Background: Depression profoundly affects both individuals and society, highlighting the need for support and intervention. Wearable sensors, such as actigraph watches, offer valuable insights by capturing motor activity data and showing potential for identifying depression states. This study utilized an open-access dataset to predict depression by employing actigraphic data.

Methods: This study analyzed motor activity data from 23 depressed and 32 non-depressed participants, along with demographic information and Montgomery-Åsberg Depression Rating Scale (MADRS) scores. Activity data, recorded at one-minute intervals via actigraph watches, were preprocessed using oversampling and cost-sensitive techniques to address class imbalances. Machine learning models, including feature-based and deep learning approaches, were applied for depression state classification and MADRS score prediction. Model performance was evaluated using leave-one-patient-out validation.

Results: The classification models achieved an F1 score of 0.75 and a Matthews Correlation Coefficient of 0.45 could effectively differentiate between depressed and non-depressed participants. Temporal patterns in motor activity, particularly disruptions in circadian rhythms, were emerged as significant predictors of depression states. Incorporating demographic features, such as age and clinical subtypes, further improved classification accuracy. For MADRS score prediction, the models demonstrated moderate concordance with observed scores, supporting the utility of motor activity data in estimating symptom severity.

Conclusion: This study highlighted the potential of wearable sensor data to identify depression states and estimated symptom severity. The observed correlations between motor activity patterns and depression underscored the value of machine learning techniques in mental health monitoring. Future work should explore multimodal datasets and advanced algorithms to enhance clinical applicability and accuracy.

Please cite this article as: Rahimi M, Tavassoli G, Hosseini M, Mahmoudi B, Rahimi B. Leveraging Sensor Data for Automated Detection of Depression Using Machine Learning Algorithms. Int J Nutr Sci. 2025;10(2-Supplement):S406.

POSTER

RETINEX-GL: An Artificial Intelligence-Powered System for Screening Glaucoma

Zahra Fathollahi[1], Sina Shahparast[1], Vahid Sadeghi[2], Negar Khalaf[2], Tahereh Mahmoudi[3], Hossein Parsaei[3]*, Mohammad Reza Khalili[4], Hossein Nowroozzadeh[4], Elias Khalilipour[5], Siamak Yousefi[6,7]

1. Novin Salamat Pars Incorporation, Department of Computer Science, Shiraz University, Shiraz, Iran
2. Novin Salamat Pars Incorporation, Department of Bioelectrics and Biomedical Engineering, School of Advanced Technologies in Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
3. Novin Salamat Pars Incorporation, Department of Medical Physics and Biomedical Engineering, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
4. Poostchi Ophthalmology Research Center, Department of Ophthalmology, Shiraz University of Medical Sciences, Shiraz, Iran
5. Retina Ward, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran
6. Department of Ophthalmology, University of Tennessee, Health Science Center, Memphis, TN, USA
7. Department of Genetics, Genomics and Informatics, University of Tennessee, Health Sciences Center, Memphis, TN, USA

ARTICLE INFO

Corresponding author:
Hossein Parsaei, PhD;
Novin Salamat Pars Incorporation,
Department of Medical Physics and
Biomedical Engineering, School
of Medicine, Shiraz University of
Medical Sciences, Shiraz, Iran.
Email: H.parsaee@gmail.com

ABSTRACT

Background: Glaucoma is a leading cause of irreversible blindness. Manual screening methods in its detection are time-intensive and require specialized expertise, often inaccessible in underserved regions. To address these barriers, Novin Salamat Pars Co. developed RETINEX-GL, an AI-based system to automate glaucoma detection from fundus images, aiming to enhance diagnostic accuracy and accessibility.

Methods: RETINEX-GL was developed to preprocess fundus images and enhance contrast and suppress noise, followed by an optic nerve head segmentation to assess key glaucoma markers, including the cup-to-disc ratio. A deep learning ensemble was used to classify images as No Referable Glaucoma or Referable Glaucoma. Performance metrics included sensitivity, specificity, accuracy, AUC, and the proportion of ungradable images.

Results: On the SMDG training dataset (12,316 images), RETINEX-GL achieved 91.3% accuracy, 87.2% sensitivity, 93.4% specificity, and an AUC of 0.97, while on the JustRAIG training dataset (7,895 images), it reached 92.9% accuracy, 94.7% sensitivity, 91.7% specificity, and an AUC of 0.97. In external validation, EyePACS (8,000 images) had 84.8% accuracy, 86.2% sensitivity, 83.3% specificity, AUC of 0.92, and 2.03% ungradable data. GAMMA (66 images) demonstrated 93.2% accuracy, 91.6% sensitivity, 94.0% specificity, AUC of 0.95. Clinical Data (44 images) showed 90.09% accuracy, 90.0% sensitivity, 95.0% specificity, and AUC of 0.92. RETINEX-GL demonstrated robust performance across diverse datasets, highlighting its reliability for automating glaucoma detection.

Conclusion: It offers potential to reduce specialist workload and streamline an early diagnosis that is critical for preserving vision. RETINEX-GL was shown to improve glaucoma care and expand screening accessibility, particularly in resource-limited regions.

Please cite this article as: Fathollahi Z, Shahparast S, Sadeghi V, Khalaf N, Mahmoudi T, Parsaei H, Khalili MR, Nowroozzadeh H, Khalilipour E, Yousefi S. RETINEX-GL: An Artificial Intelligence-Powered System for Screening Glaucoma. Int J Nutr Sci. 2025;10(2-Supplement):S407.

POSTER

The Impact of Telehealth on Secondary Prevention in Management of Coronary Artery Disease: A Review

Sara Jameei*, Fatemeh Lak, Elnaz Hajian

Critical Care Nursing Department, Faculty of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ABSTRACT

Coronary artery disease (CAD) remains a major global health concern and is a leading cause of death worldwide. To prevent CAD, revascularization, pharmacological interventions, dietary modifications, regular physical exercise, smoking cessation, psychosocial support, and comprehensive rehabilitation were recommended. Barriers such as geographic limitations and resource constraints can hinder access to these essential healthcare services. Telehealth by delivery of healthcare services using digital technologies like mobile phones, smart devices, and computers can be a promising solution to s these challenges, particularly in remote and underserved areas. This study assessed the impact of telehealth on secondary prevention in management of coronary artery diseases by a comprehensive review of relevant literature published between 2020 and 2024. Databases including Google Scholar, PubMed, Medline, Science Direct, Coherence, Scopus, and SID were searched using keywords such as "telehealth" , "coronary artery disease" , "telemedicine" , "secondary prevention" , and "ischaemic heart disease" . Fifteen studies and clinical trials were analyzed. The findings demonstrated the efficacy of telehealth in improving critical health metrics, including adherence to medications and dietary recommendations, physical activity levels, systolic blood pressure, smoking cessation, triglyceride and total cholesterol levels. Furthermore, telehealth interventions were associated with reduced hospital readmissions, fewer in-person consultations, and lower healthcare costs. Telehealth was shown to significantly enhance secondary prevention outcomes in CAD patients by supporting lifestyle modifications, improving adherence to treatment regimens, and enabling timely adjustments to care plans. In conclusion, by leveraging telehealth, healthcare providers can deliver more accessible, efficient, and patient-centered care, ultimately contributing to better health outcomes.

*Corresponding author:
Sara Jameei, MSc;
Faculty of Nursing and Midwifery,
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Sarajameei1378@gmail.com

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

The Role of Digital Health Interventions in Enhancing Self-Care among Children with Cystic Fibrosis: A Review

Laaya Joudivand[1,2,3], Bahlol Rahimi[2,3]*, Mozghan Rassoulian[1,2,3]

1. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Medical Informatics, Urmia University of Medical Sciences, Urmia, Iran
3. Health and Biomedical Informatics Research Center, Urmia University of Medical Sciences, Urmia, Iran

ARTICLE INFO

Keywords:
Cystic fibrosis
Self-care
Digital health
Children

Corresponding author:
Bahlol Rahimi, PhD;
Department of Medical Informatics,
Urmia University of Medical
Sciences, Urmia, Iran.
Email: Bahlol.rahimi@gmail.com

ABSTRACT

Cystic fibrosis (CF) is a progressive, multifaceted genetic disorder that primarily affects the lungs and gastrointestinal system. It is recognized as the leading cause of chronic lung disease in children. Given the gradual progression of the disease, ongoing management through self-care strategies; such as adherence to prescribed medications, symptom monitoring, and nutritional management is crucial for improving life expectancy and enhancing the quality of life for affected individuals. This narrative review explored the effectiveness of digital health interventions in promoting self-care among children with CF. A comprehensive literature search was conducted across well-established electronic databases, including PubMed, Web of Science, and Scopus, for studies published between 2012 and 2024. The search utilized key terms such as "cystic fibrosis", "self-care"," self management" and "digital health". Articles were screened for relevance at the title, abstract, and full-text level, resulting in the selection of seven studies for further analysis. The findings suggested that digital health tools effectively improved various aspects of self-care, including medication adherence, symptom tracking, nutritional monitoring, and psychological support. These tools also facilitated stronger communication between patients, their families, and healthcare providers, ultimately enhancing the self-management of the condition. Digital health interventions had the potential to empower both families and healthcare providers, playing a vital role in enhancing self-care among children with CF. In conclusion, for these tools to reach their full potential, personalization, increased user engagement, and seamless integration of real-time health data seem essential.

Please cite this article as: Joudivand L, Rahimi B, Rassoulian M. The Role of Digital Health Interventions in Enhancing Self-Care among Children with Cystic Fibrosis: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S409.

International Journal of Nutrition Sciences

POSTER

The Role of Telemedicine in Gestational Diabete Management and Reduction of Maternal and Fetal Disorders: A Review

Seyede Zahra Jafari[1]*, Mohaddeseh Askari[2], Maryam Omidi[3]

1. Student Research Committee, Department of Midwifery, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Midwifery, School of Nursing and Midwifery, Estahban Branch, Islamic Azad University, Estahban, Iran
3. Student Research Committee, Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Seyede Zahra Jafari, MSc;
Student Research Committee, School
of Nursing and Midwifery, Shiraz
University of Medical Sciences,
Shiraz, Iran.
Email: Bahareh.jfr75sun@gmail.com

ABSTRACT

Gestational diabetes mellitus (GDM) defined by WHO as a hyperglycemia occurring during pregnancy (24-28 weeks) with blood glucose level above normal but below the diagnostic level for diabetes. GDM incurs maternal and fetal risks and prenatal care might be improved via telemedicine (TM) that is defined as a distant communication technology. It includes different forms of mobile health (mHealth), videoconferences, Short Message System (SMS), game-based support, and social platforms to deliver health care or transfer some information. Therefore, the aim of this study was to investigate the effectiveness of telemedicine in managing GDM and reduce maternal and fetal complications resulting from improving the care process by TM. The keywords "Telemedicine","Gestational Diabetes Mellitus", and "Maternal and Fetal outcomes" were searched through PubMed, Google Scholar, Scopus, and Cochrane Library databases. The most relevant articles published from 2014 to 2024 were investigated. The search result included 6010 studies, of which, we used 24 related studies. The results from all studies showed the decreasing of two-hour postprandial glucose level of GDM patients and lowering of the rate of cesarean section, but no differences was noticed in the HbA1c level, preterm birth, fasting blood glucose level, postprandial hypertension or preeclampsia rates, fetal macrosomia, neonatal intensive care unit admissions, or hypoglycemia. In conclusion, screening and managing GDM by telemedicine are important for healthcare providers to improve their prenatal care. It seems that further studies are required to investigate the impact of different TM modalities on GDM management and comparison of costs of different TM methods.

Please cite this article as: Jafari SZ, Askari M, Omidi M. The Role of Telemedicine in Gestational Diabete Management and Reduction of Maternal and Fetal Disorders: A Review. Int J Nutr Sci. 2025;10(2-Supplement):S410.

POSTER

Artificial Intelligence and Healthcare System: A Review on Concerns and Challenges

Mohammadmostafa Ghanbari Maharlouei, Shahab Behroozi, Asieh Noormandi, Ehsan Ebrahimnia Shirazi, Mohammadhasan Dehghani, Sina Feyli

Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Shahab Behroozi, MSc;
Shiraz University of Medical Sciences, Shiraz, Iran.
Email: Mohammad.ghanbari85@gmail.com

ABSTRACT

It is a general fact that Artificial Intelligence (AI) has made substantial changes in the field of medicine and healthcare. This study tried to take an overlook upon the role of AI in medicine and healthcare systems, specifically when it makes challenges. The researchers aimed to have an overview on critical ethical and regulatory concerns entangled with the development of AI systems in clinical practice too. The relevant keywords were searched in this review through PubMed, Google Scholar, Scopus, Web of Science and Cochrane Library databases that were published up to 2024. AI was shown to improve the patient outcome, recognize the processes, and enhance the clinical decision-making. Despite the inclusion of such potential benefits as the optimization of healthcare operations and public health, the integration of AI has encountered significant challenges too, such as risks to patient safety, injury and errors, and privacy concerns. In conclusion, it not only provides a comprehensive overview of the role of AI technologies but also offers an insightful perspective on the ethical and regulatory challenges, making a pioneering contribution to the field.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

POSTER

Artificial Intelligence as a New Horizon to Improve Health Perspectives: A Review

Shahab Behroozi*, Asieh Noormandi, Mohammadmostafa Ghanbari Maharlouei, Ehsan Ebrahimnia Shirazi, Mohammadhasan Dehghani, Sina Feyli, Hamed Asnafi

Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Shahab Behroozi, MSc;
Shiraz University of Medical
Sciences, Shiraz, Iran.
Email: Behroozish@sums.ac.ir

ABSTRACT

Unquestionably, it is a fact that artificial intelligence (AI) is a new leading tool in healthcare, offering vast potential to improve quality of care, patient satisfaction, and enhancing operational efficiency. This review evaluated AI as a new horizon to improve health perspectives. . In this article, the researchers tried to investigate the positive impacts of AI in healthcare systems. Therefore, a library method was used in the present study to provide a practical analysis of the role of AI in medicine. A comprehensive literature search was undertaken across databases of PubMed, Web of Science, and Scopus, for studies published between up to 2024 using relevant keywords. Articles were screened for relevance at the title, abstract, and full-text level. It seems that AI has provided a condition in which the present and future of medicine would progress by freeing up valuable time for healthcare professionals and yielding better medical outcome. Although integrating AI into healthcare is a tough task, it has many advantages as screening and diagnosis, with future potential for greater contributions. The researchers would rely upon the outlines of a comprehensive questionnaire completed by some renowned physicians work in Shiraz University of Medical Sciences, Shiraz, Iran.

International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

Encouraging Blood Donors with Nudges: A Grounded Theory Study in Shiraz, Iran Encouraging Blood Donors with Nudges: A Grounded Theory Study in Shiraz, Iran

Mansour Farzadfard[1], Alireza Sadeghi[2]

1. Public Administration Department, Yasuj Islamic Azad University, Yasuj, Iran
2. Clinical Psychology Department, Islamic Azad University, Science and Research Branch, Tehran, Iran

ARTICLE INFO

Corresponding author:
Mansour Farzadfard, PhD Candidate;
Yasuj Islamic Azad University,
Yasuj, Iran.
Email: Masoodfarzad91@yahoo.com

ABSTRACT

Background: Blood donation is a vital act of humanitarianism, yet many regions, including Shiraz, Iran, face low donation rates due to barriers such as lack of awareness, cultural misconceptions, and health-related anxieties. This study investigated the application of nudge theory to enhance blood donation participation by identifying key motivators, barriers, and effective strategies.

Methods: Employing the grounded theory method, data from 30 articles were analyzed using MAXQDA software, with a focus on open, axial, and selective coding. The research highlighted the effectiveness of personalized campaigns, educational initiatives, and social nudges such as inspirational donor stories and mobile blood donation units in increasing donor engagement. A paradigmatic model was developed to illustrate the relationships between causal, contextual, and intervening factors influencing blood donation behavior.

Results: Findings indicated that addressing common misconceptions, collaborating with social and religious leaders, and creating welcoming environments at donation centers can significantly boost participation rates. This study offered practical recommendations for designing targeted interventions to promote blood donation, emphasizing the role of awareness, community engagement, and donor convenience.

Conclusion: By implementing these strategies, healthcare organizations can foster a culture of regular blood donation, ultimately improving public health outcomes and ensuring a stable blood supply for medical needs.

Please cite this article as: Farzadfard M, Sadeghi AR. Encouraging Blood Donors with Nudges: A Grounded Theory Study in Shiraz, Iran. Int J Nutr Sci. 2025;10(2-Supplement):S413.

International Journal of Nutrition Sciences

POSTER

Revolutionizing Telemedicine with Painverse: A Review on the Role of Telerobotics in Addressing the Physician Shortage

Behnam Rahnama[1], Fatemeh Heiran[1]*, Aliasghar Karimi[2], Mohamad Radmehr[2], Habibollah Zakeri[2]

1. Medis Holding, Semantic Robotics Lab., Shiraz, Iran
2. Research Center for Neuromodulation and Pain, NAB Pain Clinic, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Corresponding author:
Fatemeh Heiran, MSc;
Medis Holding, Semantic Robotics
Lab., Shiraz, Iran.
Email: fatemeh.heiran@medis.land

ABSTRACT

Global healthcare system faces a critical physician shortage, particularly in rural and underserved areas, limiting access to specialized care. The World Health Organization (WHO) estimated a shortage of 4.3 million healthcare professionals, with demand for physicians outpacing supply by 2030. Telemedicine has been a key in addressing this shortage, but traditional methods are limited by the inability to perform physical examinations, creating diagnostic challenges. This review presents Painverse, a novel telemedicine robotics system designed to overcome these limitations. Using related keywords, databases of Scopus, PubMed and Google Scholar were searched up to 2024. Painverse integrates artificial intelligence (AI), extended reality (XR), and robotic assistance to enable real-time remote medical examinations. The system comprises Vira Humanoid Robot, which serves as the physician's physical presence, and Hira Control System, which facilitates immersive remote operation with haptic feedback, motion execution, and speech recognition. Painverse enhances healthcare delivery by allowing physicians to perform precise remote assessments with high diagnostic accuracy. Its potential applications extend beyond conventional telemedicine, improve access to specialists in rural areas, provide critical care in emergency situations, and support healthcare in biohazard environments. The integration of AI and XR ensures seamless, near-human interaction between physicians and patients. Painverse represents a transformative approach to addressing the global physician shortage and revolutionizing remote healthcare. In conclusion, by providing a scalable, cost-effective solution, it can bridge healthcare gaps, improve accessibility, and reduce the burden on healthcare professionals. As telemedicine and robotics evolve, systems like Painverse can play a pivotal role in future of healthcare.