International Journal of Nutrition Sciences

Journal Home Page: ijns.sums.ac.ir

ORIGINAL ARTICLE

The Knowledge of Medical Students on Practical Aspects of Exercise in Prevention and Treatment of Diseases

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ARTICLE INFO

Keywords:
Knowledge
Medical student
Physical activity
Disease
Iran

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Received: November 6, 2017
Revised: October 2, 2018
Accepted: October 9, 2018

ABSTRACT

Background: Humans now face epidemics of non-infectious diseases such as obesity, diabetes, hypertension and cardiovascular disease, as the main cause sedentary life style. Therefore, the aim of this study was to investigate the knowledge of medical students about practical aspects of exercise in prevention and treatment of diseases.

Methods: One hundred and fifty interns of Iran University of Medical Sciences who were graduated during 2007-2008 were enrolled. The average age of participants was 26±5 years including 65 men (49%) and 67 woman (51%). A validated and reliable questionnaire with 20 questions was designed and based on the correct response of each intern; a score of 0-20 was considered.

Results: The average scores determined by interns in the first study with standard deviations, modes and median were 2.7, 9.5 and 9.75, respectively and the minimum, maximum and average score of interns were 2, 16 and 9.75, respectively with standard deviation of 3.12 in the second study. There was a 3-hour course for medical students in sport medicine in the second study, but the results did not show significant differences with the first study.

Conclusion: The knowledge of these students was not sufficient about practical aspects of exercise in prevention and treatment of diseases, and it is suggested that medical education authorities prepare this field by providing at least one multi-day training workshop during an internship and or providing students in hospital departments or an independent sports unit at the end of a medical training course.

Please cite this article as: Mojab SV, Amini M, Sobhani Z, Moein Vaziri N. The Knowledge of Medical Students on Practical Aspects of Exercise in Prevention and Treatment of Diseases. Int J Nutr Sci 2018;3(4):216-220.

Introduction

Sport has been known to be one of the most important factors in preventing disorders and diseases (1). According to the World Health Organization (WHO), lack of physical inactivity has been identified as the fourth leading risk factor for global mortality, causing an estimated 3.2 million deaths annually (2). Physical activity is an important behavior that leads to body weight regulation (3(and reduces the risk of death due to its positive influence on a variety of health conditions, such as disorders of metabolism, cardiovascular disease, diabetes,

as well as neurological diseases, sarcopenia, osteoporosis and cancer (4, 5). The Surgeon General's Report on Physical Activity and Health (6) underscores the importance of activity in health promotion and disease prevention. It suggests that individuals should undertake 30 min of moderate physical activity on most days of the week (5).

Structured physical activity, such as aerobic exercise, resistance training or both of them, is associated with HbA1c reductions of 0.73%, 0.57% and 0.51%, respectively, in patients with type 2 diabetes and also, if it lasts more than 150 min a week was associated with HbA1c reductions of 0.89% (7). Additionally, evidence has recommended that structured exercise could substantially reduce the incidence of type 2 diabetes (8). Some studies suggest its role in preventing neurodegenerative diseases too (1). The physical activity counselling and interventions that involve written advice by a health professional can increase the daily time that patients spend on exercise-related activities should be clarified (9).

A meta-analysis showed that higher levels of physical activity (3000–4000 MET min/week) are remarkably associated with a lower risk for ischemic heart disease, ischemic stroke and breast and colon cancers and diabetes (10). The evidence of the effect of each kind of physical activity might help to establish activity specified to characteristics of each person and the proposed objectives (5). Physicians can be effective in increasing patients' health-promoting behaviors, including physical activity (11). However, less than half of physicians screen patients for physical inactivity and less than one third of patients report receiving exercise advice in the last year (12).

The main factors associated with the increased possibility of physicians presenting physical inactivity advice include physicians' beliefs, knowledge, and attitudes toward physical inactivity advising, their confidence and prior training in physical inactivity advising and also their personal lifestyle (13). For example, in a randomized controlled trial, Lautenschlager et al. tested the effects of increased physical inactivity levels on cognition among persons with subjective cognitive decline (SCD) and mild cognitive impairment (MCI) and showed a significant improvement in cognition as measured by the Alzheimer's Disease Assessment Scale-Cognitive subscale (ADAS-Cog) (14, 15).

,suoicac**fif**e fIMedical Students Learning Weight Management Counseling Skills (MS Weight) can have an important public and clinical health effect by providing basic education to enable physicians-in-training to help patients who have overweight to achieve a healthier weight (16). Physicians' knowledge, confidence, and prior training will influence physical activity counselling in general practice (13). Considering the key role of physicians in public health, it is important to train medical students to use physical inactivity as a medical therapeutic option and to provide individualized PA advice to their patients (13). In addition, regularly active medical students felt more confident in providing physical inactivity advice and perceived a greater impact of physical inactivity advising on patients' quality of life (17). So, the aim of this study was to investigate the knowledge of medical students about practical aspects of exercise in prevention and treatment of diseases.

Materials and Methods

The statistical population of this study was 150 interns of Iran University of Medical Sciences, Tehran, Iran who were graduated in the academic year of 2007-2008. The main variable was the awareness of medical interns about the practical aspects of exercise in the prevention and treatment of diseases and the underlying variable included age, gender, type of sports activity, and the history of participation in the official sports competition. In order to collect and evaluate the variables, a questionnaire was developed which consisting of two parts. The first part of questionnaire was demographic information including name, age, gender, grade, academic year, remaining of education, history of sports activities, favorite sports, the desire to continue studying in sports medicine and daily physical activity; and the second part of questionnaire was the awareness about prescribe a written physical activity advice.

Due to the lack of a standardized questionnaire regarding the main variables of this research, a questionnaire including 20 questions was developed using accessible scientific literature and according to the minimum level of knowledge of an intern in relation to treatment and prevention of diseases and sport. The validity of the questionnaire was determined using guidance of experts in this field; also its reliability was approved by presenting the questionnaire to 15 persons of the population randomly (10% of the research population) and re-submitting it with a 2 week interval to same individuals. Obtained scores were assessed using the Cronbach's alpha test, which was correlated more than 0.8 in the first and second stages (18).

The questionnaire was distributed through direct delivery to all interns working in all the hospitals covered by the university, and after collecting the answers, based on the correct answers of each intern, the scores (0 to 20) were registered to each

answer. Questionnaire information was collected confidentially, anonymously and optionally. The data were statistically analyzed through the SPSS software (Version 20, Chicago, IL, USA) and EPI software and then t test was used to compare the mean of scores obtained. The score obtained by the students must be at least 14 for the desired amount of awareness. A p value less than 0.05 was statistically considered significant.

Results

From 150 interns employed in university hospitals, 132 had a tendency to participate in the study, which included 88% of all employed interns (Figure 1). The study population included 67 women (51%) and 65 men (49%). The average age of participants was 265± years. Swimming (27%), soccer (17%) and tennis (15%) were the most popular sport fields of participants and other sports were ranked next. Forty-seven persons (36%) had a history of sporting events and 85 persons (64%) had no history. One hundred and eleven participants were aware of the establishment of sports medicine (84%) and 31 (16%) were unaware.

Thirty-one subjects (24%) were interested in continuing their education in sport medicine and 76 (76%) were not. In relation to the duties and work of the sport medicine, 53 individuals had correct answers, 29 presented incomplete responses and 49 were with no answers or false ones. Twenty

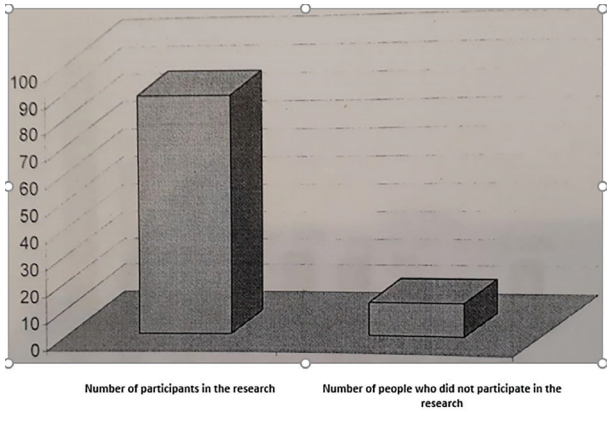

Figure 1: Comparison of the total population of medical interns in academic year of 2007-2008.

persons (15%) reported that they had the ability to prescribe a sports version and 112 (85%) responded negatively. The average scores obtained by interns from the interns' scientific test in the current study and based on the score system from 0 to 20, was 9.57. The standard deviations was 2.2, median was 9.5 and mode was 9. The maximum score was 16 and minimum was 5. Sixty-four persons scored below 10 points (52.2%). Scores were classified by grouping the 5 units into four groups were shown in a continuous and linear plot.

The average score of girls and boys was 9.38, 9.73, respectively which was not significant according to t test and α of 0.05 (P=0.41). The average scores of those with a history of participation in the official tournament and the championship were 10.06 and those without a record was 9.31, which was not statistically significant too (P=0.07). The average scores obtained by those who claimed that they had the ability to provide a sports prescription was 10.45 and others 9.41, which was not also significant (P=0.06). The difference between these groups and the obtained results were shown in Table 1.

Discussion

Lack of physical activity and sedentary lifestyles among all strata of society represent global public health problems in both developed and developing countries (19). So physical activity is becoming an integral part of health-related initiatives across all population and in various settings consisting communities, workplaces, and schools, as well as extending into the fields of urban design, transportation and policy development. Considering the importance of doctors in the public health, so the medical student ´s education is important to use sport as a treatment (13). Learning is optimal when knowledge is acquired and experience occurs early, skills are reinforced consistently, and teaching is integrated into all aspects of a curriculum (20).

The results of our study showed that although the awareness of medical students about the importance of sports activities in the faster recovery of various

Table 1: Comparison of mean scores and correlation of independent groups in the research

No	Groups	Average	P value	Statistical evaluation
1	Female interns	9.38	0.411	Not significant
	Male interns	9.73		
2	Medical students with sport events	10.06	0.069	Not significant
	Medical students without sport events	9.31		
3	Interns who said they can prescribe sport treatment	10.45	0.056	Not significant
	Interns who said they can not prescribe sport treatment	9.45		

types of diseases, they did not feel sufficient confidence to prescribe a suitable sports version for patients due to lack of sufficient information and practical experience in this field. Also the comparison of two study showed that despite the fact that there was a 3-hour course for medical students in sport medicine, the results did not show significant difference with the results of the first study. According to study of Mandic et al. passing appropriate sport courses, it could significantly increase the awareness of medical students about sports guidelines and related programs that sowed our course to be very short and not applicable for interns (i.e. Green Prescription Initiative in New Zealand) and also the awareness of the other health professionals who can assist in providing further physical activity advice, which were in consistency with our findings (13) and with the results of Dacey et al. findings on physical activity counselling in medical school education (21, 22).

The findings of Mandic et al. indicated that physical activity learning module in the undergraduate curriculum significantly increased medical students' awareness of the competent health professionals who could assist in proving specific sports exercises advice for their patients (13). taht detroper seiduts lareveS dekcal snaicisyhp tnediser dna (32) stneduts lacidem ecniS .esicrexe gnibircserp rof ecnetepmoc physicians' confidence in physical activity-advising skills was significantly influenced by prior training (24) that were in consistency with our findings and it is essential to provide opportunities for medical students to develop effective skills in sport advising as a part of their undergraduate training and also a long lasting course should be provided that lead to empowered interns.

A systematic review found that the inclusion of exercise advising in medical school curriculum increased students' knowledge, skills, and self-efficacy to conduct physical activity A counselling (21). Therefore, more extensive training in exercise advising may be necessary as a part of the undergraduate medical curriculum to develop medical students' skills, knowledge and confidence for providing effective physical activity advice in future. As suggested previously, improving medical students' knowledge of and confidence regarding PA promotion is a step forward and may increase the rates and effectiveness of physicians' PA counselling in the future (22). The findings of Elley et al.'s study had significant implication for future undergraduate medical curriculums. Given the effectiveness of the physical activity advising in general practice (11), the multiple benefits of physical activity in healthy individuals and clinical populations and global efforts to reduce physical inactivity by 10% worldwide (25), it is essential to equip future physicians with the skills, and knowledge for physical activity A advising.

Conclusion

To perform a proper and effective physical activity and educate it to patients and other people in community requires a set of knowledge and information about the sport and its accompanying processes. Despite the knowledge of medical students about the beneficial effects of exercise on the rapid recovery of disease symptoms, but due to lack of scientific and practical knowledge in this regard, they did not accept the exercise as an effective treatment and could not provide appropriate sports therapies for any illness.

So it is suggested that the units to be considered for training a variety of sporting activities and their application and efficacy and also, assignment of part of internship health clinics program to sports and health clinics. Setting up a workshops on sports medicine for clinical practitioners and familiarizing them with the sports medicine subjects can promote the development of a sports culture among medical students as the front line of health providers in the community. Finally, the establishment of sports medicine clinics with the help of medical sports professionals can be a place to refer patients for treatment.

Acknowledgement

This study is the result of a research project done through the financial support of Iran University of Medical Sciences.

Conflict of Interest

None declared.

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