

ORIGINAL ARTICLE

Undesirable Knowledge and Practice of Mothers about Under 2 Years Old Children Nutrition are Related to Socio-Economic Factors in Shiraz, Southern Iran

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ARTICLE INFO

Keywords:

Knowledge
Practice
Mother
Socioeconomic
Supplementary nutrition

ABSTRACT

Background: The assessment of mother's knowledge and practice about child nutritional requirement is important in identification of the education needs. This research was conducted to assess the knowledge and practice of mothers about nutrition of children under 2 years of age and its relationship with socioeconomic factors in Shiraz health care centers, southern Iran.

Methods: In this descriptive-analytic cross-sectional study, 201 mothers with at list one under 2 years old child were selected by systematic random sampling from health centers in Shiraz, southern Iran. Knowledge and practice of mothers about the type and time of providing supplementary foods for the infants were assessed using a validated questionnaire via face to face interview. Also demographic and socioeconomic information were asked. Pearson correlation coefficient and ANOVA tests were used for data analysis. All analyses were performed using SPSS version 19.

Results: According to the findings of this study, 11.4% of mothers had a low level of knowledge and 29.4% of them had a desirable practice. We observed significant relationship between knowledge and job ($P=0.002$) and level of education ($P<0.001$), also between practice and job ($P=0.01$) and level of education ($P=0.046$). we observed that mother's knowledge has significant positive correlation with mother's practice ($r=0.6$, $P=0.001$)

Conclusion: Since the knowledge of high percentage of mothers was moderate, and a high percentage of them had undesirable practice, continuing overall effort to increase mother's nutritional knowledge and practice in order to prevention of infants malnutrition seems to be necessary.

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Received: December 23, 2017
Revised: September 9, 2018
Accepted: September 15, 2018

Please cite this article as: Momeni M, Akhlaghi M, Ahmadi A, Faghil S. Undesirable Knowledge and Practice of Mothers about Under 2 Years Old Children Nutrition are Related to Socio-Economic Factors in Shiraz, Southern Iran. Int J Nutr Sci 2018;3(4):192-197.

Introduction

Due to the importance of proper nutrition in the children's growth and development, this issue has become a public health priority in developing countries (1). According to the recommendations of the World Health Organization (WHO) and United Nations International Children's Emergency Fund

(UNICEF), exclusively breast feeding of the infants in the first 4 to 6 months is recommended, after that, along with breast milk, using semi-solid food supplements should be done up to 2 years (2, 3). Supplemental nutrition, along with breast milk helps to provide the infant's needs to extra energy and micronutrients. It has been shown that inappropriate

supplemental nutrition leads to problems such as short stature, persistent diarrhea, micronutrient and macronutrient deficiencies, delayed mental development and movement growth, and weakened the neonatal nervous system (4).

On the other hand, the onset of supplementary food before the end of 6 months can cause infections, allergies, and delayed growth due to the lack of readiness of the gastrointestinal system (5). The study of Fesharakinia et al. showed that lack of appropriate education for mothers is one of the important causes of their low level of knowledge about the importance of supplemental nutrition in infants (6). However, the results of the study by Shahbazi et al. demonstrated that about 23% of the mothers had not started the supplemental nutrition for their newborn children on time, while 97.5% of them had received the necessary training for starting supplementary nutrition (7).

Salarkia et al. found that despite their adequate knowledge of the importance and benefits of supplementary nutrition, most of the mothers, did not function properly due to the existence of cultural barriers in the society. A study by Soheiliazad et al. have shown that there was a significant relationship between the mothers' knowledge and their practice about the nutritional supplements of the infants, the parents' level of education, the source of gaining information, and age of the child (8, 9).

It was shown that Iranian children were born with good weight, but they began to lose weight during the first 4 to 6 months, which could be due to the child's need for supplementary foods, the improper dietary habits, and the use of an inappropriate food pattern for supplementary foods for the infants (10). The nutritional education for the mothers as one of the important factors in improving the abilities and quality of maternal care of the child and other family members was previously identified (11). The importance of measuring the knowledge and performance of the mothers in the field of child nutrition can help to identify their educational needs in this field and to be aware of the feedback provided by the training, which has led us to conduct a study to evaluate the knowledge and practice of the mothers, referring to the health centers in Shiraz, southern Iran regarding the infant supplementary nutrition.

Materials and Methods

The present study was a descriptive-analytic cross sectional one and the participants were mothers with children less than two years old who referred to health care centers in Shiraz, southern Iran. The centers were selected from 3 districts, uptown, city center, and downtown. Sampling was done

randomly and the sample size was estimated based on similar studies (12) with $p=0.6$, estimated error of 0.66, and 95% confidence level, that resulted in a sample size of 165 persons, while finally, the sample size was considered to be 201 persons.

The data collection tool was a questionnaire including demographic information, maternal awareness questions regarding supplementary nutrition and a maternal check list. The questionnaire was completed via face to face interviews with mothers in health care centers. Initially, three questionnaires were designed. A general questionnaire included demographic and socio-economic data of the mothers, such as age, educational level and occupation of parents, household income, family size, birth order, number of children and number of children under the age of 6 years. The nutritional knowledge questionnaire, consisted of 17 multiple choice questions, included 3 sections, questions related to the importance of breast milk, supplementary nutrition questions and questions about nutritional supplements (including the proper time of introducing the multivitamins and iron drops, the amount which is needed, etc).

The nutritional knowledge questionnaire was developed based on Iran Ministry of Health, Treatment and Medical Education protocols, that was available to all health care centers, and the supplements related part was designed based on the WHO standards and guidelines, and Iran Ministry of Health, Treatment and Medical Education protocols. In addition, the mothers performance questionnaire included questions related to the assessment of knowledge about the number of lactations per day, the way of preparing supplementary foods, the first food introduced to the child, the order of adding foods and any other related questions, and included 12 multiple choice questions.

Content validity of the questionnaires was assessed by 10 university professors then content validity index (CVI) and content validity ratio (CVR) were calculated. After collecting the data, the responses were coded. For each correct answer, the score of "1" and to any wrong answer the "0" were allocated, and for evaluation of knowledge and performance the total score of each individual was calculated separately. The mothers' performance score, based on 12 questions, were categorized to 3 categories, including less than 5 (undesirable performance), 5 to 7 (moderate performance) and more than 7 (desirable performance), and the mother's knowledge score, based on 17 questions, were classified to 3 categories of 0 to 10 (undesirable awareness), 11 to 13 (moderate awareness) and more than 13 (desirable awareness).

The data were analyzed using SPSS software (version 21, Chicago, IL, USA). Variables mean, standard deviation, frequency and percentage were calculated. One-way ANOVA was used to examine the relationship between knowledge and practice score with demographic variables and socioeconomic status. In order to determine the relationship between knowledge and practice the Pearson Correlation coefficient was used. A p value less than 0.05 was considered statistically significant.

Results

Totally, 201 mothers with at least one child under the age of two were studied. Out of 201 children, 104 were girls. The mean age of the mothers was 34.2 years. 145 (72.1%) were housewives and 56 were

employed. In terms of educational level, most of the mothers had college and bachelor's degrees (36.6%) (Table 1). As shown in Table 2, the mean score of the mothers' knowledge was 11.83 (SD=2.59) and the mean score of their performance was 5.68 (SD=1.54). In addition, 42.3% of the mothers had undesirable knowledge, 46.3% had moderate and 11.4% had a good knowledge. The table also shows that 44.3% had undesirable performance, 26.4% had moderate and 29.4% had desirable performance.

There was a significant relationship between the knowledge of the mothers with education ($P<0.001$) and their occupation ($P=0.002$) (Table 3). Two by two comparisons of the variables indicated that the knowledge of the mothers with college and bachelor degree were more than the illiterate mothers

Table 1: Demographic variables of the mothers participating in the study

| Variable | | N | % |
|-----------------------------|------------------------------------|-----|------|
| Mother's age (year) | 17-25 | 48 | 24 |
| | 25.1-35 | 125 | 62.5 |
| | 35.1-45 | 27 | 13.5 |
| Mother's occupation | Housewives | 145 | 72.1 |
| | Employed | 56 | 27.9 |
| Mothers' educational degree | Illiterate | 6 | 3 |
| | Elementary and Secondary Education | 39 | 19.4 |
| | High school and diploma | 72 | 35.8 |
| | College and Bachelor Degree | 73 | 36.3 |
| | Master degree or PhD | 10 | 5 |
| The birth rank | First | 97 | 48.3 |
| | Second | 73 | 36.3 |
| | Third or after that | 22 | 10.9 |
| | No response | 9 | 4.5 |

Table 2: Mothers knowledge and performance of supplemental nutrition

| Variable | Knowledge | | Performance | |
|-------------|-----------|------|-------------|------|
| | Number | % | Number | % |
| Undesirable | 85 | 42.3 | 89 | 44.3 |
| Moderate | 93 | 46 | 53 | 26.4 |
| Desirable | 23 | 11.4 | 59 | 29.4 |
| Total | 201 | 100 | 201 | 100 |

Table 3: Mean and standard deviation of the mothers' nutritional knowledge scores by education and occupation

| Variable | | Mean | SD | P value |
|---------------------|------------------------------------|-------|------|---------|
| Level of Education | Illiterate | 8.66 | 2.65 | <0.001 |
| | Elementary and secondary education | 11.2 | 2.69 | |
| | High school and diploma | 11.3 | 2.37 | |
| | College degree and bachelor degree | 12.9 | 2.3 | |
| | Master degree and PhD | 12.00 | 2.78 | |
| Mothers' occupation | Employee | 13.62 | 1.83 | 0.002 |
| | Instructor | 12.00 | 2.60 | |
| | Student | 13.10 | 1.37 | |
| | Freelance | 11.60 | 2.50 | |
| | Housewife | 11.00 | 2.63 | |

Table 4: Mean and standard deviation of mothers' performance scores by their level of education and occupation

| Variable | | Mean | SD | P value |
|---------------------|------------------------------------|------|------|---------|
| Level of education | Illiterate | 5.16 | 1.6 | 0.046 |
| | Elementary and secondary education | 5.17 | 1.62 | |
| | High school and diploma | 5.56 | 1.51 | |
| | College degree and bachelor degree | 6.07 | 1.49 | |
| | Master degree and PhD | 6.1 | 1.28 | |
| Mothers' occupation | Housewife | 5.55 | 1.54 | 0.01 |
| | Employee | 6.33 | 1.23 | |
| | Instructor | 83.6 | 2.04 | |
| | Student | 6.3 | 1.49 | |
| | Freelancer | 4.6 | 1.42 | |

($P=0.003$), those with elementary or secondary education ($P=0.018$), and those with high school or diploma ($P=0.005$). Also, there was a significant relationship between the mothers' performance and their job ($P=0.01$) and education ($P=0.046$) (Table 4). In this study, there was a significant relationship between the knowledge and the practice of mothers ($P<0.001$, $r=0.6$) also between the mothers' knowledge and their income ($r=0.005$, $r=0.24$). Moreover, there was no statistically significant relationship between the mothers' performance and income ($P=0.052$, $r=0.29$)

Discussion

In this study, the knowledge and practice of 201 mothers with infants under 2 years, regarding the supplementary nutrition of newborn children, who referred to Shiraz health care centers, were evaluated. The results showed that nutritional knowledge of the most of the mothers were moderate, which was in the same line with the results obtained by Khoshnevis-asl et al. in Zanjan Community Medicine Center (13), Sharifi et al. in the rural health centers of Babol (14), Brak et al. in the health centers of Hir, Ardebil (15) and the results of Fesharakinia et al. in Birjand (16).

However, the results of the current study were not in compliance with Soheiliazad et al.'s (9) study which was undertaken in Boroujerd and showed that the mothers' knowledge about children supplementation in 12% of cases was poor, 27% were moderate and 61% were good. In another study by Panahandeh et al. investigating the mothers' knowledge of the supplemental nutrition of infants in rural district of Rasht indicated that 93% of the mothers had desirable level of knowledge (17) which shows that the mothers' knowledge in Shiraz was in a lower level.

Compared to the study of Rashadat et al., 53% of the mothers had a low level of knowledge about supplementary nutrition of children under the age of one year, and only 9.6% had a good level of knowledge, while the mothers' awareness level

in Shiraz was in a better status. In the present study, the correlation between the level of mother's education and their occupation with their knowledge of supplementary feeding was significant ($P=0.01$, $P=0.46$) and it was in agreement with the results of the other study (6). Therefore, it seems that raising the level of maternal education can be an efficient and important way to improve the nutritional status of children. The justification for the desired level of knowledge in working mothers is that these mothers receive more information due to their presence in the work place and in the community (6).

There was a significant relationship between mother knowledge and education in the study of Fesharakinia et al. and Soheiliazad et al. (6, 9), which are consistent with the study by Liagat et al. in Islamabad, Pakistan (18). Also in our study, there was a significant relationship between the performance and education of mothers. It is clear that educated mothers are less influenced by the inappropriate recommendations of the people around them and are more reliant on their own knowledge (9).

In Soheiliazad et al.'s study that examined the nutritional knowledge and practice of the mothers referring to health care centers in Boroujerd (9), also in a study conducted among Japanese mothers in Hawaii about early weaning of infants (19) and also in a study conducted in Tisa Kenya (20), there were significant relationships between maternal education and their performance in this regard. In the present study, there was a significant relationship between knowledge and practice of the mothers, in the way that by increasing the knowledge of the mothers, their performance on infant supplementation improved. In the studies conducted in this area, including the study of Soheiliazad et al. in Boroujerd (9) and Sharifi in the city of Babol (13), the same relationship has been mentioned.

There was a significant relationship between knowledge and income of the mothers participating in the present study. In the study of Mardani et al. (21) and Hemtyar et al. (22), knowledge and income

level had a significant relationship with each other. In contrast, in a study by Majidimehr et al. which was designed in order to assess the knowledge, attitude and practice of the mothers about proper nutrition of children aged 6-36 months in Khorramabad (22), no significant relationship was found between knowledge, attitude, performance and the income level. It seems that since nowadays, the health services are widely available to all segments of the society; the impact of income on the level of knowledge has been diminished (22).

In the study by Nojavan Shapur et al. (23) which was conducted to assess mothers' knowledge and practice of feeding babies during diarrhea in Ardebil, significant relationship was found between the mother's residency place and their knowledge about lactation and oral rehydration solution (ORS) preparation. However, in the study done by Khoshnevis-asl et al. (12) and Kirkling in Ghana et al. (24), there was no significant relationship between maternal knowledge and residence status, as criterion for a relative assessment of the economic situation. However, the important point observed in the results of this study was that there was no meaningful relationship between income and performance despite a significant relationship between income and knowledge, that is, by increasing income, there was no improvement in the performance of the mothers. Therefore, other factors may be involved in improving their function, which has not been studied in this research. In the study of Majidimehr et al. (25), income, attitude and practice did not have a significant relationship, which can point to the subject that poverty alone does not lead to malnutrition (13).

Conclusion

The results of this study indicate that constant efforts are needed to rise knowledge and improve the performance of mothers in order to prevent malnutrition and impairment in infants' growth and the consequences that families and society will face in the future.

Acknowledgment

The authors thank all participants for their cooperation.

Conflict of Interest

None declared.

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