

# Analyzing the level of knowledge and attitude of the mothers referring the urban health centers of Birjand about nutritional behaviors

Omolbanin Motamed Rezaei, Mitra Moodi, Nahid Moazam<sup>1</sup>

Department of Public Health, School of Health, Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, <sup>1</sup>Department of Nutrition, School of Nutrition and Food Sciences, Isfahan University of Medical Science, Isfahan, Iran

## ABSTRACT

**Background:** Achieving a balanced and proper nutrition is one of the most important health objectives in the early years of the child's life. The aim of this study is to determine the level of knowledge and attitude of the mothers covered by the urban health centers of Birjand about nutritional behaviors. **Materials and Methods:** This descriptive-analytical study was conducted on the mothers with children less than five years referring the health centers of Birjand, in 1387. A questionnaire was prepared for data collection. Data were analyzed using SPSS software, Chi square, ANOVA, Tukey's *post hoc* and Pearson correlation coefficient statistical tests with an accuracy level of  $P < 0.05$ . **Results:** Two hundred ninety four patients were studied. A meaningful difference was observed between the knowledge and attitude scores in terms of the mothers' education stand ( $P = 0.002$ ). Eighty three point seven percent, 65.6%, 82.7% and 64.6% of mothers were aware about the importance of iron absorption, the onset of iron supplement drop, the minerals and vitamins in the body, and the effects of vitamin A deficiency, respectively. The mothers' knowledge and attitude about the nutritional behavior was evaluated at the average and good level, respectively. **Conclusions:** Considering the average level of the mothers' knowledge and attitude about children's nutritional behaviors, the retraining of family physicians and health centers staff about the importance of nutritional behaviors is recommended.

**Key words:** Attitude, Birjand, knowledge, mothers, nutrition

## INTRODUCTION

Achieving a balanced and suitable nutrition is one of the most

**Address for correspondence:** Dr. Mitra Moodi, Department of Public Health, School of Health, and Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, Faculty of Public Health, Health school, Birjand University of Medical Sciences, Irjand, Iran.  
E-mail: mitra\_m2561@yahoo.com

important health objectives in the early years of the child's life.<sup>[1]</sup> The role of nutrition in healthiness, effectiveness, learning and its relationship with economic development has been confirmed. Several factors are involved in providing nutritional health of the household, known as the household food security. A household is a place where the food security and nutrition develops in the daily life. In fact, the mother is the main key for the nutrition of children.<sup>[2]</sup> Teaching good eating habits and proper nutritional behaviors result in the persistence of these habits into adulthood.<sup>[3]</sup>

The parents should receive necessary education about the proper child nutritional behavior and provide a suitable environment for nutrition of the child.<sup>[4]</sup> Therefore, the childhood is a critical period in the term of establishing suitable patterns of nutritional behaviors. In this period, the nutritional behaviors of the child are directly affected by the

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family and interactions with the environment.<sup>[5]</sup> The child is directly affected by the family's beliefs, attitudes, culture, and traditions, in the early years of life. Thus, investigation of the proper patterns of the parents' nutrition behaviors, especially mothers, has a significant role in children's nutrition.<sup>[6]</sup> Mothers' awareness of the proper developing nutritional behaviors has a direct effect on the nutritional quality of the children.<sup>[7]</sup>

Many attempts have been done to promote community health level worldwide. These measures have reduced the children death and increased the longevity in most countries. However, protein-energy malnutrition remains a major nutritional problem in most developing countries including Iran. Nowadays, although the knowledge and experience in the prevention of malnutrition is available, about 150 million of children less than five years old suffer from malnutrition in the world.<sup>[8]</sup>

In our country, an average of 30% of children between one to three years old suffer of mild to moderate degrees of malnutrition. National survey results (ANIS) in 1,377 shows that 15.4% of children below five years of age suffer from nutritional stunting, 10.9% have moderate and severe underweighting, and 4.9% suffer from impotence. These are only moderate and severe cases. If the mild cases also be added, the extent of the problem will be more visible.<sup>[9,10]</sup>

Improving the mothers' nutritional knowledge, in addition to help reducing the malnutrition in children, can cause changes in their nutritional behavior. The aim of this study is to determine the level of knowledge and attitude of the mothers covered by the urban health centers of Birjand about nutritional behaviors.

## MATERIALS AND METHODS

This descriptive-analytical study was conducted on 294 of mothers with children less than five years old referring the health centers of Birjand, using a simple non-probability sampling method.

A questionnaire included two sections were used to conduct the research. The Section I consists of 21 questions about the knowledge and attitudes. The Section II included nine questions of the nutritional behaviors. The questionnaire was filled out after interviewing with the mothers by the experienced staff of nine health centers of Birjand.

Content validity of the questionnaire was confirmed by a number of expert faculty members. The questionnaire contained personal characteristics (age, occupation,

mother's education stand) and attitudinal information about the nutritional behaviors. Thus, 33 questionnaires were completed in each health center.

Twenty-one questions were about the mother's knowledge level. A score of 0 and one was given to the wrong and correct answers, respectively. Score less than 10 indicated poor knowledge. A score of 10 to 15 and 15 to 21 was considered as moderate and good knowledge level, respectively. The knowledge questions were (the main food groups, nutritional value of each food group, who are at risk of anemia, the iron content of the food, what food is causing iron absorption, the prevention of iron deficiency among mothers and children, and the effects of iodine, vitamins and minerals deficiency).

Nine questions were designed to evaluate the mother's attitude level. A score of one to five was given to the answers based on the Likert scale. The attitude level was classified based on the attained score in three levels, i.e. poor (less than 50% of total score), moderate (a score between 50 to 75% of total score) and good attitude (scores higher than 75% of total score). Data were analyzed using SPSS software and Chi-square, ANOVA, Tukey's *post hoc* and Pearson correlation coefficient statistical tests with a accuracy level of  $P < 0.05$ .

## RESULTS

A total of 294 subjects (mothers referring the health centers of Birjand) were studied. The average age of the mothers was  $27.7 \pm 5.8$ . Seven point one percent of these people were illiterate or poorly educated, 65.6% were diploma and below, 12.9% were technicians and 14.4% had higher education stand (B.Sc and higher). Fifty nine point nine percent and 80.6% of the mothers had moderate knowledge and good attitude level, respectively [Table 1]. Pearson correlation test showed a meaningful correlation between the knowledge score ( $r = 0.2$ ) ( $P = 0.000$ ) and the mothers' age. However, no significant correlation was observed between the attitude and the mothers' age ( $r = 0.05$ ) ( $P = 0.3$ ).

Sixty five point six percent, 47%, 82.7%, 64.6%, 91.5%, 38.4% and 29.3% of the mothers were aware of the onset and the amount of iron drop, the food groups that are a good source of iron, the iodine-containing foods, minerals and vitamins beneficial to the body, the effects of deficiency of vitamin A, the anemia caused by iron deficiency, the role of iron in the body and the best way to prevent iodine deficiency, respectively [Table 2].

**Table 1: Frequency distribution of the mothers based on the knowledge and attitude level**

Knowledge level	Frequency	Percentage	Attitude level	Frequency	Percentage
Poor	65	22.1	Poor	0	0
Moderate	176	59.9	Moderate	57	19.4
Good	53	18	Good	237	80.6
Total	294	100	Total	294	100

ANOVA statistical test showed a significant difference between the knowledge scores of the mothers in terms of education stand ( $P = 0.00$ ) [Table 3]; The Tukey's *post hoc* test indicated a difference between the knowledge scores of the mothers with diploma and associate education stand ( $P = 0.003$ ), diploma and bachelor ( $P = 0.00$ ), associate and illiterate ( $P = 0.001$ ), bachelor and illiterate ( $P = 0.00$ ). The difference between the other education stands was not meaningful.

The one-way ANOVA also showed a meaningful difference between the attitude scores of the mothers in terms of the education stand ( $P = 0.002$ ) [Table 3]. Furthermore, Tukey's *post hoc* test showed this difference between the attitude scores of the mothers with below diploma and associate education stands ( $P = 0.002$ ). The Chi-square statistical test showed a meaningful relationship between the knowledge level and the age group of the mothers ( $P = 0.01$ ) [Table 4]. In addition, a significant correlation between the attitude level and the age group was observed. The mothers of the 25 to 35 years of age group had a good attitude level about nutritional behaviors.

## DISCUSSION

Recent studies (and studies conducted in other universities) indicate that people (especially women) have low awareness of the principles of nutrition. Nutrition principles and nutritional behaviors consist of fine and accurate aspects which should be noted.<sup>[11]</sup> The results showed that the knowledge of the most mothers about micronutrients (iron, iodine, vitamin A and D), their role in the body, food sources and deficiency symptoms is at desirable level. This finding is consistent with the results of a study on 160 mothers referring the urban centers of Babol.<sup>[12]</sup>

The present study showed that the knowledge level of the mothers increases by increasing the age. An investigation was conducted on the knowledge level and the performance of 120 mothers about the child nutrition during diarrhea at the Ardebil University of Medical Sciences. The obtained results showed a meaningful relationship between the mother's education stand and the nutritional information with increasing the age and the knowledge of the mothers.<sup>[13]</sup>

**Table 2: Frequency distribution of the mothers in terms of answers to the attitude questions**

Frequency knowledge questions	Right		Wrong		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
The main groups of foods	203	69	91	31	294	100
Nutritional value of bread and cereals	129	43/9	165	56/1	294	100
People who are at the risk of anemia	212	72/1	82	27/9	294	100
What food has better iron	203	69	91	31	294	100
What is important for iron absorption?	246	83/7	48	16/3	294	100
The role of iron in the body	113	38/4	181	61/6	294	100
Causes of iron deficiency anemia	269	91/5	25	8/5	294	100
Action to prevent iron deficiency in pregnant women	208	70/7	86	29/3	294	100
How children under six months can be retained from the risk for anemia?	152	51/7	142	48/3	294	100
Starting iron drop in children. How many drops and how much months?	193	65/6	101	34/4	294	100
Effects of iodine deficiency	146	49/7	148	50/3	294	100
Food group, which is a good source of iron	180	61/2	114	38/8	294	100
Useful minerals and vitamins for the body	243	82/7	51	17/3	294	100
Maintenance of iodized salt	128	43/5	166	56/6	294	100
The best way to prevent iodine deficiency	86	29/3	208	70/7	294	100
Foods that contain iodine	197	67	97	33	294	100
Foods containing vitamin A	143	48/6	151	51/4	294	100
Vitamin A deficiency symptoms	190	64/6	104	35/4	294	100
Prevention of Vitamin A deficiency	178	60/5	116	39/5	294	100
Foods containing vitamin D and calcium	195	66/3	99	33/7	294	100
The time of iodized salt use	146	49/7	148	3/50	294	100

**Table 3: Comparison of the knowledge and attitude scores in terms of the education stand of mothers**

Education stand	Frequency	Average and variance		Statistical test	
		Knowledge	Attitude	Knowledge	Attitude
Illiterate	21	4/4±10/57	5/45±37/9	F=12/8	F=5/1
Below diploma	193	2/7±12/28	5/05±37/4	df=3/290	df=3/290
Technician	38	3/36±13/68	4/74±40/5	$P=0/000$	$P=0/000$
Bachelor and higher	42	2/6±14/69	3/8±39/16		
Total	294	3/1±12/68	4/98±38/09		

**Table 4: Relationship between the knowledge level and the age group of the mothers**

Knowledge level age group	Poor		Moderate		Good		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than 25	30	25.6	77	65/8	10	8/5	117	100
25 to 25	31	21/2	81	55/5	34	23/3	146	100
Above 35	4	12/9	18	58/1	9	29	31	100

$\chi^2 = 9/9$ ,  $df = 3$ ,  $P = 0/01$

Assessment of the nutritional knowledge of 247 of the pregnant mothers in Babol, showed that the nutritional knowledge among pregnant women was at a moderate level of 65.6%. The most important sources of information were through health care staff (32%) and radio and television (29%), which has a significant correlation with current study.<sup>[14]</sup> In the present study, the nutritional knowledge level of the mothers was 59.9% and the most important source of information was through the health care staff (41.2%).

The results of Sharifi *et al.*, at the Ardebil University of Medical Sciences revealed that only 2.1% and 15% of the mothers were aware of the onset of iron drop and the number of iron drops, respectively. This result indicates the low awareness of the mothers for proper nutrition of children.<sup>[15]</sup> But in the present study, 65.6%, 61.2 and 82.7 of the mothers were aware of the onset and amount of iron drops, the dietary sources of iron and the useful minerals and vitamins for the body, respectively. Also, 38.4, 49.7 and 29.3% of the mothers knew the role of iron in the body, iodine deficiency symptom and the best way to prevent iodine deficiency, respectively. Employing effective methods of intervention and training in health centers can be effective in improving knowledge level of the mothers. The result of a study conducted in Gorgan indicated that from 248 of mothers, 62% were aware of the correct time of iron drop<sup>[16]</sup> which is consistent with the results of present study.

In the present study, the nutritional behavior knowledge level of 22.1%, 59.9% and 18% of the mothers was poor, moderate and good, respectively. Increasing the education stand increases the knowledge level, significantly. This result is consistent with the results of Fesharaki-nia *et al.*, in Birjand.<sup>[17]</sup> So, improving the education level of the mothers is one of the most effective methods to improve the nutritional status of the children. In the present study, most of mothers noted the health centers as the major source of information.<sup>[17]</sup> Therefore, the role of health centers' staff in raising the knowledge level of the mothers in various fields, particularly children's nutrition is very important.

## CONCLUSION

Based on the results of the present study, in addition to proper informing of the mothers, continuous re-training of the family physicians and health centers' staff about the importance of nutritional behavior, the following items are recommended:

- Periodic assessments of the mothers about proper nutrition of children (considering the importance of

nutrients and supplements, the role of nutrients in the body) in health centers and health houses

- Periodic and regular assessment of the children's growth can depicts an outlook of the nutritional and health status of the children in the region.
- Conduct a comprehensive functional plan to prevention of malnutrition in the province, with special attention to the high-risk regions.
- Using effective nutritional methods, especially in the case of iron and vitamin nutritional supplement that fits the demands and needs of the target groups.

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