

## Analysis of Training Needs of Mothers on Exclusive Breastfeeding; a Study in Health Care Centers

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### Abstract

#### Background

Breastfeeding is a natural way to provide nutrients required for proper growth and development of infants. In view of that, it is of great importance to enhance the knowledge of mothers on exclusive breastfeeding in the first six months after birth and the time of starting complementary feeding. This study aimed to assess the training needs of mothers on exclusive breastfeeding, was conducted in the city of Qom, Iran.

#### Materials and Methods

This cross-sectional study was conducted on 292 mothers who had children aged 6 to 12 months old. The subjects were selected via multistage sampling method. Using a researcher made questionnaire, the required data was collected via face-to-face interviews. The collected data were analyzed via descriptive and analytical tests. The significance level was set at 0.05

#### Results

Of all, 42.5% (n=124) of the children were exclusively breastfed. The mean of knowledge of mothers on exclusive breastfeeding was  $10.3 \pm 1.5$  (of a total score of 12), their mean of maternal attitudes was  $38.7 \pm 3.3$  (of a total score of 44), and their mean score of performance was  $6.5 \pm 1.8$  (of a total score of 9). There was a significant and direct relationship between maternal education level and their knowledge and attitude scores ( $P < 0.001$ ). Moreover, there was a significant correlation between maternal knowledge ( $P < 0.001$ ,  $r = 0.311$ ), attitude ( $P < 0.001$ ,  $r = 0.304$ ) and performance.

#### Conclusion

The results showed that mothers had a desirable level of knowledge, attitude, and performance in terms of exclusive breastfeeding. With promoting knowledge, mothers had a more favorable attitude and a higher score of breastfeeding performance.

**Key Words:** Exclusive breastfeeding, Infants, Mothers, Training.

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## 1- INTRODUCTION

Breastfeeding is a natural way to provide nutrients required for proper growth and development of infants (1). Because of the proven health benefits of breastfeeding, it has been recognized as an ideal food for infants (2), for example antibodies existing in breast milk protect infants against diarrheal diseases and acute respiratory infections (which are known as the two major causes of mortality among children) (3, 4). Studies have shown that infants who are not breastfed are more at risk of middle ear infections (otitis media), inflammation of the stomach (gastritis), lower respiratory tract infection, obesity, diabetes, childhood leukemia, sudden infant death syndrome, and necrotizing enterocolitis. In addition, type II diabetes, myocardial infarction, breast and ovarian cancer are more common in mothers who do not breastfeed their children (5).

The most common and widely used definition for exclusive breastfeeding is as follows: "exclusive breastfeeding is to give newborn infants only breast milk and not feeding them with other foods and even water except for drugs, vaccines, vitamins, and dietary supplements" (6). According to the World Health Organization and the American Academy of Pediatrics, newborn infants must be exclusively breastfed for the first six months of their life and complementary foods must be started since the end of the sixth month of life (7). In the first six months of life, breast milk alone is the ideal food for children, because it contains all the nutrients, including vitamins and minerals needed for children growth; in other words, children need no food and even water up to the sixth month of life (3). According to previous studies, good breastfeeding performance, especially exclusive breastfeeding could help to prevent the mortality of children aged under five years in developing countries by about 12% (6.9 million deaths), because

nutritional deficiencies and infectious diseases are the most common causes of mortality among children living in these countries (8, 9). According to some global data, it is estimated that in 2016 only 40% of infants under six months of age in developing countries had been exclusively breastfed (3). Moreover, half of all deaths of children under five years of age occur in five countries including India, Nigeria, Pakistan, the Democratic Republic of Congo, and China (10). The under-five mortality rate in Iran varies from 23% to 47% (11), for example, in studies conducted in the cities of Arak (11), Mashhad (12), Gorgan (13), and Fars (14), it was reported as 41.5%, 72.4%, 66.4%, and 50.7%, respectively. In 2012, during the sixty-fifth meeting of the World Health Organization, it was decided to promote the rate of exclusive breastfeeding so that it will have reached 50% by 2025 (15).

Studies have shown that several factors are associated with exclusive breastfeeding; for instance, in developed countries some factors such as social status, education level, mother age, employment status, number of delivery (parity), place of delivery, and smoking during pregnancy are linked with poor breastfeeding performance while in developing countries demographic factors such as mother age, education, employment, cultural status and religious performance, and antenatal care services are associated with poor breastfeeding performance (8).

In recent years many attempts have been made in the national health network to promote exclusive breastfeeding however mother's intention for breastfeeding depends on mother's level of knowledge and attitude toward breastfeeding (1); thus, this study aimed to assess the training needs of mothers on exclusive breastfeeding in Qom city.

## 2- MATERIALS AND METHODS

### 2-1. Study design and Procedure

This cross-sectional study was conducted on Iranian mothers who had children aged 6 to 12 months old and referred to health care centers in Qom city, Iran to monitor the growth of their children.

## 2-2. Methods

Using multistage sampling method, the eligible persons were enrolled into the study. In order to select the samples, first different regions of Qom (based on the five municipal areas) were divided into 5 clusters, and the health care centers were selected from each cluster using simple random sampling method. At the end, the samples were selected via simple random sampling method and then were interviewed and questioned at each health care center. After making coordination with the authorities of each health care centers, the researcher selected Iranian mothers who had children, aged 6 to 12 months old. Taking into account maternal performance in previous studies, type I error of 0.05, and an accuracy of 2.5%, we used the sample size formula used in prevalence studies and the sample size was calculated to be at least 292 persons.

## 2-3. Measuring tools

Data was collected by a researcher made questionnaire. The validity of the questionnaire was approved by experts based on the available books, manuals, and papers. Its reliability was tested and approved using internal consistency test (Cronbach's alpha coefficient); as the results showed, Cronbach's alpha coefficient was 0.79, 0.81 and 0.85 for knowledge, attitude, and performance, respectively. The questionnaire was consisted of demographic questions (8

questions about mother and infant) and questions related to mothers' knowledge, attitude, and performance on exclusively breastfeeding. Mothers' knowledge was assessed by 12 questions (benefits of breastfeeding, duration of exclusive breastfeeding, breastfeeding and its role in protecting infants, infants' need for drinks during the time of exclusive breastfeeding, risk of early initiation of complementary foods, signs of adequacy of breast milk, methods of breastfeeding at different times of the day); these questions were measured in terms of wrongness and rightness, so that the right answer was scored one point and the wrong answer was scored zero point (scores ranged from 0 to 12).

In order to assess the attitudes of mothers, 11 questions (four-point Likert scale) were designed and used (benefits of breastfeeding for mother and baby as compared with the benefits of powdered milk, use of medicinal plants at birth, giving table food to a child); the minimum and maximum score obtained at this part were 11 and 44 points, respectively. The options of strongly agree, agree, disagree, or strongly disagree, respectively, were scored 4, 3, 2, and 1 point. We used nine self-report questions to assess the performance of mothers (placing mother and baby at the same room after birth, using colostrum, method of breastfeeding, using sugar water and herbal medicines, duration of exclusive breastfeeding, time of starting complementary feeding); the score obtained was ranged from 0 to 9 points. Taking into account the obtainable scores for the three domains of knowledge, attitude, and performance, in order to interpret their condition better we used the following classification (**Table.1**).

**Table-1:** Classification of the factors of knowledge, attitude and performance of exclusive breastfeeding

Variables	Poor	Moderate	Good
Knowledge	0-4	4-8	8-12
Attitude	11-22	22-33	33-44
Performance	0-3	3-6	6-9

#### 2-4. Inclusion and Exclusion criteria

Inclusion criteria were: having children aged six to 12 months, having health records in health centers in Qom, having a healthy baby, and lack of specific diseases in mother and infant. Non-Iranian mothers, mothers with specific diseases, and mothers who were prohibited from breastfeeding (as prescribed by a physician), were excluded from the study.

#### 2-6. Ethical consideration

In order to observe ethical issues, the objectives of the study were explained to the participants, informed consent was obtained, and the subjects were ensured about the confidentiality of the data collected during data collection process.

#### 2-7. Statistical analyses

At the end, the collected data were entered into SPSS software version 21 and were analyzed using descriptive indices (mean  $\pm$  standard deviation [SD] and frequency distribution table). Therefore, the Pearson correlation coefficient was used to evaluate the correlations between variables of knowledge, attitude, and performance. In addition, ANOVA test and Duncan test were used to determine the difference between the scores of knowledge, attitude, and performance in terms of education, parity, and number of children. The significance level was set at 0.05.

### 3- RESULTS

A total of 292 mothers with a mean age of  $27.97 \pm 5.27$  years, were enrolled into the study. Of all mothers, 2.4% ( $n = 7$ ) were illiterate, 12.7% ( $n = 37$ ) had a primary school education level, 14.7% ( $n = 43$ ) had a junior high school education level, 38% ( $n = 111$ ) had a senior high school education level, and 32.2% ( $n = 94$ ) had an academic education level. It was also found that 95.2% of mothers ( $n = 278$ ) were housewives and 4.8% ( $n = 14$ ), were employed. In this study, 51% of babies

were the first child and were born through a normal delivery. Other related information are presented in **Table.2**.

The mean scores of knowledge, attitude, and performance of mothers on exclusive breastfeeding were  $10.3 \pm 1.5$  (of a total score of 12),  $38.7 \pm 3.3$  (of a total score of 44), and  $6.5 \pm 1.8$  (of a total score of 9), respectively.

In other words, only 13% of mothers had a moderate level of knowledge and the rest had a good level of knowledge about exclusive breastfeeding. Concerning the changes in attitude, it was observed that the majority of mothers (92.8%), had a good attitude towards exclusive breastfeeding. Concerning the variable of performance, 3.4% of mothers had a poor performance and nearly half of them (49%), had a good performance (**Table.3**).

Of all samples, 92.1% of mothers and newborns were placed at the same room after childbirth and immediately started breastfeeding. Moreover, 56.2% of mothers reported that they breastfed their infants only when they were hungry; while the rest (43.8%), breastfed their infants at certain times of the day. We also assessed the type of feeding infants up to 6 months of age, and the results showed that only 42.5% of mothers practiced exclusive breastfeeding. The assessment of maternal knowledge showed that 97.6% of mothers knew that children should be exclusively breastfed up to six months of age (**Table.4**). In this study, it was found that 76.7% of mothers knew that breast milk could fulfill newborns' feeding needs up to six months of age. Moreover, 91.1% of women had knowledge about the signs of adequacy of breast milk. In addition, 21.2% of mothers thought that breast milk is not enough to feed the baby and they said that children under 6 months of age need not only breast milk, but also other types of liquids (**Table.4**). The results of Pearson's test indicated a significant direct correlation between maternal knowledge

and performance ( $P < 0.001$  and  $r = 0.311$ ). Moreover, there was a significant direct correlation between attitude and performance ( $P < 0.001$  and  $r = 0.304$ ). Furthermore, there was a significant relationship between knowledge and attitude and maternal education levels ( $P < 0.001$ ), so that based on the results of Duncan test, the mean scores of knowledge and attitude were significantly lower in illiterate women than the women

with other education levels. However, there was no statistically significant difference between groups with different education levels in terms of the mean scores of performance ( $P > 0.05$ ) (Table.5). Based on the results of ANOVA test, the variables of parity and the number of children had not significant effect on the three variables of knowledge, attitude, and performance of mothers ( $P > 0.05$ ).

**Table-2:** The frequency distribution of some demographic variables examined samples

Variables	Frequency	Percentage
Age (month)	6	19.5
	7	11
	8	4.8
	9	11
	10	6.5
	11	10.6
	12	36.6
Birth order	First	51
	Second	33
	Third	12.3
	Fourth and more	3.7
Type of delivery	Natural	51
	Cesarean	49
Type of maternal gestation	Intended	80.5
	Unintended	19.5

**Table-3:** Comparison of mean scores of knowledge, attitude, and performance of mothers on exclusive breastfeeding

Variables	Mean $\pm$ SD	Range of obtainable scores	Minimum	Maximum	Frequency (%)		
					Good	Moderate	Poor
Knowledge	10.31 $\pm$ 1.48	0-12	5	12	254 (87)	38 (13)	0 (0)
Attitude	38.72 $\pm$ 3.29	11-44	27	44	271 (92.8)	21 (7.2)	0 (0)
Performance	6.48 $\pm$ 1.75	0 - 9	2	9	143 (49)	139 (47.6)	10 (3.4)

SD: Standard deviation.

**Table-4:** The frequency distribution of the factors affecting the maternal performance and knowledge of exclusive breastfeeding

Variables	Items	Situation	Number (%)
Performance	Placing mother and baby at the same room after birth	Yes	269 (92.1)
		No	23 (7.9)
	Giving table food to the infant before the sixth month of age	Yes	37 (12.7)
		No	255 (87.3)
What has been feeding practices up to 6 months?	Exclusive breastfeeding	124 (42.5)	
	Breast milk + different liquids	54 (18.5)	
What was the first infant feeding at birth?	Breast milk + complementary food	Breast milk + powdered milk	69 (23.6)
		Powdered milk	39 (13.4)
	Only breast milk	Breast milk + herbs	6 (2.1)
		Breast milk + sugar and water	209 (72)
Knowledge	Is the baby's weight gain a signs of adequate breast milk?	Yes	266 (91.1)
		No	26 (8.9)
	Does an infant need other liquids - in addition to breast milk-before the six months of age?	Yes	62 (21.2)
		No	230 (78.8)
Is daily breastfeeding based on an infant demand?	Yes	193 (66.1)	
	No	99 (33.9)	
Does breast milk alone provide all the feeding needs of a baby up to six months of age?	Yes	285 (97.6)	
	No	7 (2.4)	

**Table-5:** Comparison of mean scores of knowledge, attitude, and performance of exclusive breast feeding mothers, especially in terms of education, job, type of delivery and type of gestation

Variables		Mean	SD	P-value	
Knowledge	Education	Illiterate	8.71	2.42	0.001
		Primary school	9.62	1.81	
		Junior high school	10.27	1.27	
		Senior high school	10.35	1.29	
		University	10.69	1.42	
	Job	Employed	10.41	1.09	0.463
		Housewife	10.19	2.31	
	Type of delivery	Natural	10.35	1.26	0.533
Cesarean		10.25	1.21		
Type of gestation	Intended	10.33	1.25	0.621	
	Unintended	10.27	1.29		
Attitude	Education	Illiterate	34	3.65	0.001
		Primary school	38.05	3.10	
		Junior high school	38.72	3.14	
		Senior high school	38.72	3.38	
		University	39.32	3.01	
	Job	Employed	35.35	3.26	0.115
		Housewife	40.05	4.14	
	Type of delivery	Natural	39.16	2.12	0.523
		Cesarean	38.24	2.61	
	Type of gestation	Intended	39.87	3.01	0.506
Unintended		37.53	2.26		

Performance	Education	Illiterate	6	2	0.322
		Primary school	5.94	2.06	
		Junior high school	6.81	1.67	
		Senior high school	6.42	1.73	
	Job	University	6.64	1.63	0.097
		Employed	5.94	1.93	
	Type of delivery	Housewife	7.06	0.98	0.362
		Natural	6.86	1.72	
	Type of gestation	Cesarean	6.14	1.73	0.409
		Intended	6.72	1.90	
		Unintended	6.28	1.73	

SD: Standard deviation.

#### 4- DISCUSSION

In this study, the prevalence of exclusive breastfeeding in the target group was 42.5% which is higher than the results of other studies (28%) in Iran (16). Our finding is consistent with the results of some other studies in Iran such as Mohammadbeigi's study in Arak and Tehranian's study in Mashhad which reported (11, 12). However, the prevalence of exclusive breastfeeding in some studies including Gelaw's study in Ethiopia (82.2%) (17), Sapna's study in India (61%) (18), Khassawneh's study in Jordan (59%) (19), and Chatman's study in Jamaica (98.2%) (20), are higher than the prevalence observed in the present study. However, in some studies including Al-Binali's study in Saudi Arabia (8.3%) (6), Al-Sahab's study in Canada (13.8%) (20), Khazaei study in Iran (23.8%) (8), and Choudhary's study in India (33%) (1); the prevalence of exclusive breastfeeding is reported to be low and alarming. According to some studies, the low prevalence of exclusive breastfeeding is attributed to mother's infection with some diseases including human immunodeficiency virus (HIV), insufficient breast milk, cultural and socio-economic differences, and the level of health literacy of people in different communities (19, 22).

The results of this study reported that of all mothers, 87% had a good and 13% had a moderate knowledge on exclusive breastfeeding. In addition, of all mothers,

92.8% had a positive and sufficient attitude. Our findings are consistent with the results of some studies by Gelaw (17), Choudhary (1), and Mbada (22), which were respectively conducted in Ethiopia, India, and Nigeria. Despite these promising results, some studies suggest that mothers have inadequate information on exclusive breastfeeding. For example in a study, it was found that 20% of mothers believed that exclusive breastfeeding was a threat to their health (23). Moreover, in Leshi's study, more than half of the studied mothers had poor knowledge and attitudes toward breastfeeding (24).

The results of this study showed that mean scores of knowledge and attitude were significantly different among mothers with various levels of education. There was also a positive and direct relationship between maternal attitude and their levels of knowledge; this finding is consistent with the results of Esfandtari's study (25). According to the results of Ego's study in France (26), Sheehan's study in Canada (27), and Lanting's study in the Netherlands (28), education level is a factor affecting maternal knowledge on breastfeeding. It should be noted that, in Hoseini's study there was a significant relationship between parents' education level and maternal attitude toward exclusive breastfeeding (29). Inconsistent with the present study, the results of studies by Choudhary (1), Colaizy (30), Rahimi (31), Sisk (32), and Smith (33), showed that education level had a direct

effect on the performance of mothers who breastfed their child. However, a number of studies such as a study by Vohr et al. (34) and Persad and Mensinger's study (35), have reported that education level disrupted exclusive breastfeeding. We assessed the performance of mothers in Qom city and it was found that the prevalence of mixed feeding (breast milk and powdered milk) and formula feeding, were 13.4% and 2%, respectively; in comparison with the results of studies in Jordan (30.3% and 11.4%), and New York (46.1% and 0.8%), our finding is promising (5, 19).

In the present study, we did not observe any relationship between the number of children and the performance of mothers on exclusive breastfeeding; it is consistent with the results of studies by Persad and Mensinger's study (35) and Griffiths et al. (36). However, in a study by Veghari and Rahmati (13), there was a significant relationship between two variables of the number of children and maternal performance; the difference in the results of the mentioned study might be attributed to its large sample size.

#### **4-1. Limitations of the study**

Our study was a cross-sectional study, therefore it cannot demonstrate the causal relationships between studied variables. As the results were obtained based on mothers' self-reports on exclusive breastfeeding, they might have some bias. The two mentioned items were the most important limitations of this study.

#### **5- CONCLUSION**

Based on the results of the study, mothers had a desirable level of knowledge, attitude, and performance in terms of exclusive breastfeeding. However, illiterate mothers had lower mean scores of knowledge and attitude, so this group should receive more attention, and they should be trained about exclusive

breastfeeding. This study showed a significant positive correlation between knowledge, attitude, and performance; moreover, with improving knowledge, mothers will develop better attitude and performance. Hence, it is recommended to make more efforts to improve the level of knowledge and attitude of mothers and utilize theoretical and pattern-based performance change models in this field.

**6- CONFLICT OF INTEREST:** None.

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