## **Original Article**

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Website: www.jehp.net

DOI:

10.4103/jehp.jehp\_19\_20

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Received: 01-07-2020 Accepted: 19-04-2020 Published: 31-08-2020

# The Iranian female high-school student's knowledge and attitude toward breastfeeding

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#### **Abstract:**

**BACKGROUND:** Breastfeeding is not only a perfect food for the infant but also is a living fluid with many features. It provides the infant's physical growth and is responsive to its emotional needs. Since determining the knowledge and attitude of girls in this period and promoting, it is considered as the main principle in motivating them for choosing this method in future.

**MATERIALS AND METHODS:** This descriptive-correlational study was conducted to determine the knowledge and attitude of 630 high-school students on breastfeeding at a selected public high school in Tehran, Iran in 2018. A researcher-made questionnaire was administered to collect the data, to determine the validity of the tool; content validity was used and to determine its reliability, a test re-test method was applied. Data were analyzed by the nonparametric tests of Chi-square, multiple comparisons, and Spearman correlation coefficient.

**RESULTS:** The results showed that 80.3% had moderate knowledge. The mean score of knowledge in the human sciences group was significantly higher than others. Furthermore, the attitude of 22.5% of girls was positive, 77.5% had no idea, none of them had negative attitudes. There was a statistically significant difference between the mean score of attitude of the students in groups of knowledge (good, moderate, and weak) (P < 0.01), and multiple comparison tests showed that the positive attitude score in the moderate knowledge group was more than the attitude score in weak and good knowledge.

**CONCLUSION:** The results indicate that there is an unbiased attitude about the moderate knowledge of different aspects of breastfeeding among pre university students, although they have a moderate knowledge on a complete and successful breast feeding.

#### **Keywords:**

Attitude, breastfeeding, knowledge

#### Introduction

Breastfeeding has been accepted as the most desirable way of feeding the baby worldwide. This method has many benefits to the mother in addition to important benefits for the infant. Considering that much of the physical and brain development and psychological development of the child occurs in the first 2 years of life, and this development in the 1st year, especially the first 6 months of life, occurs faster; therefore, the infant is more vulnerable

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than each other ectopic stage. Breast milk is not only useful for nutrition and provides proper physical growth but also satisfies the infant's emotional needs and plays a vital role in the prevention of various infections, in particular respiratory and digestive infections. <sup>[2,3]</sup> In fact, breast milk is most valuable for societies with low income, literacy, and poor health. Under these conditions, the growth of children will be threatened by reducing breastfeeding. <sup>[4]</sup> With the increase of breastfeeding, worldwide, it can be prevented from the 823,000 deaths of children under the age of 5 and 20,000 deaths from breast cancer each year. Despite

How to cite this article: Jannesari S, Hosseini MA, Khodakarami N. The Iranian female high-school student's knowledge and attitude toward breastfeeding. J Edu Health Promot 2020;9:219.

the emphasis of the World Health Organization (WHO) and UNICEF on starting breastfeeding in the 1st h of life and exclusive breastfeeding for the first 6 months after birth; however, many infants and children do not receive a healthy diet. [5] Moreover, only 36% of infants in the 0 to 6 months of age have been exclusively breastfed worldwide in 2007–2014. Positive knowledge and attitude about breastfeeding are one of the most important factors that will choose this method as a child's feeding method. [3,4,6]

So far, studies have been conducted to assess the level of knowledge of mothers about breastfeeding. There are also plans to increase the knowledge of mothers in hospitals as "breastfeeding training" immediately after birth. Due to the brevity of these programs, they need to be implemented in a systematic way from the point of view of education.<sup>[6,7]</sup> On the one hand, mothers who decide on their child feeding method before pregnancy, choose three times more breastfeeding than mothers who choose their child's nutrition during pregnancy and after it. Selecting the girls as one of the most important target groups and determining their knowledge and attitude in this period and promoting it is the main principle to create an incentive for their breastfeeding behavior.[8] Given that almost all women are capable of breastfeeding, and despite the cultural, social, health, and religious context of preparation, unfortunately, many infants are still fully fed with infant formula or receive supplemental milk and supplemental fluid from the 1st months of life. Since adolescence is a turning point in a teenager's life and an important step in their development, research has shown that this stage has been the most appropriate time to promote positive attitudes. Determining the awareness and attitude of girls about breastfeeding as one of the most important target groups and promoting motivation to develop breastfeeding behavior is one of the health priorities in society.

By determining the awareness and attitude of girls who are future mothers and encouraging and motivating them to breastfeed, we have found the most appropriate and least costly way to reduce malnutrition and its consequences in children. Considering the WHO's emphasis on research about breastfeeding into low age groups in all societies, and so far, no such study has been conducted in Iran. Therefore, we aimed to investigate the knowledge and attitude of high-school girls toward breastfeeding in the selected state high schools in Tehran in 2018, so that a small step toward the health of mothers and children as the vulnerable stratum of society is taken.

#### **Materials and Methods**

This is a descriptive correlational study. The knowledge and attitude of 630 high school girls in preuniversity in the field of breastfeeding in the state high schools in Tehran, Iran was investigated in 2018. Randomized selection of schools from state schools in five districts of north, south, east, west, and center of Tehran province was conducted based on the list of schools. List of all-female high schools in Tehran was prepared and divided into five groups (north, south, east, west, and center), then according to the random digits table, high schools were randomly chosen. From each school, two classes were selected using the clustering and randomized sampling method, and from each class, the students were selected by the random digits table and using the randomized sampling method from among the single Iranian female students aged 16-19 years old who studied at preuniversity course. A researcher-made questionnaire was used to collect the data in three parts. The first part consisted of demographic data of the research units; the second part consisted of 14 questions on knowledge about breastfeeding; and the third part consisted of 11 items on attitude. Each correct answer was scored 1 and each incorrect answer or "I don't know" answer was scored zero. The maximum score obtained from this section was 14. Finally, the knowledge responses were categorized into the low, moderate, and good knowledge, so that all knowledge scores in the knowledge section were based on zero to 100%, and based on this conversion, scores of 0% –33% were considered for the low knowledge group, 34% to 66% in the moderate knowledge group, and 67% to 100% in the knowledge group. For the measurement of attitude, each item was scored using the Likert scale from 0 to 4 as strongly agree, agree, no idea, disagree, and strongly disagree. Ultimately, in order to measure the attitudes, after matching the items, the statements indicating a positive attitude were scored as strongly agree as 4, agree as 3, no idea as 2, strongly disagree as 1, and strongly disagree as zero. On the other hand, statements indicating a negative attitude was scored as strongly agree as zero, agree as 1, no idea as 2, strongly disagree as 3, and strongly disagree as 4. The validity of the questionnaire was assessed by content validity method, and its reliability was confirmed by test-retest method (r = 0.84). Cronbach's alpha coefficient was also calculated for attitude items (r = 0.76). Before the study, all participants informed about all the necessary ethical recommendations inherent to a project developed with humans, such as aims of the study, confidentiality of their data, and their right to withdrawal in any time of the study. After obtaining participants consent, they completed the questionnaires. This design was approved by the 45th session of the Ethics Committee on Medical Research of the Shahid Beheshti University in Tehran. SPSS-18 was used for the data analysis. Data were analyzed by nonparametric tests of Chi-square, multiple comparisons, and Spearman correlation coefficient.

#### Results

The mean age of the samples was  $17.52 \pm 0.72$ , the minimum age was 16, and maximum age was 19 years old. Moreover, 25.7% of the participants were studying mathematics and 35.4% were studying natural sciences and 38.9% were studying human sciences. Furthermore, 21.9% of the samples were the first child of the family and 33% were the second child of the family and 27.5% were the third child, 13.2% were the fourth child and 4. 4% were the fifth child or older and 43.3% of them was contacting the mothers who used the breastfeeding. Figure 1 shows the information sources for samples on breastfeeding.

The results indicate that, in general, 10.8% of the samples had good knowledge, 80.3% had moderate knowledge, and 8.9% had low knowledge on breastfeeding. Figure 2 shows total knowledge.

The results showed that 2.4% of the samples knew that breast milk was the best milk for the child. Only 19.4% of the samples had knowledge on feeding during lactation; however, 71.6% had knowledge on the intervals between the lactation periods.

Moreover, the results showed that 22.2% of girls had no positive attitude toward breastfeeding (77.5%); however, none of them had a negative attitude. The more positive attitude suggested breastfeeding preferences to communicate more effectively with the infant, and less positive attitude was related to the attitude that led to the deformation of breasts due to long breastfeeding. The overall attitude is shown in Table 1.

There was a statistically significant relationship between the field of study and student's knowledge (P < 0.001) so that the mean score of knowledge in the units of the human sciences was significantly higher than that of other groups (P < 0/001). There was also a significant relationship between the field of study and student's attitude (P = 0.07).

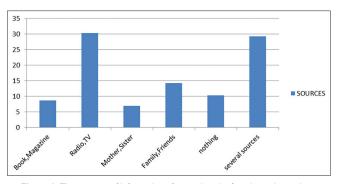


Figure 1: The sources of information of pre-university female students about breastfeeding

There was also a statistically significant relationship between age and knowledge (P < 0.001), so that as their age increased, their level of knowledge increased, too ( $\chi^2 = 39.843$ ). There was a statistically significant difference between the mean level of knowledge in different groups of samples' fathers and mothers' educational status (P < 0.001,  $\chi^2 = 216.908$ ).

Furthermore, there was a significant difference between the mean scores of attitudes in different groups of mothers' educational status. The attitude level of samples with mothers with secondary and high-school educational level was higher than that of other cases (P < 0.00,  $\chi^2 = 168.432$ ), so that the knowledge level of the students with homemaker mothers was higher than that of others. Furthermore, 62.4% of the samples knew that breast milk was the best milk for the infant; however, only 19.4% of the samples had knowledge on breastfeeding.

The results of the study revealed that the mean score of attitude of the samples was significantly different in the three knowledge groups (low–moderate–high) (P < 0.001) and multiple comparison tests indicated that the positive attitude score in the moderate knowledge group was higher than that of attitude in two groups of low and good knowledge. The type of attitude according to the level of knowledge is shown in Table 2.

#### Discussion

Since the majority of students are aware of the fact that breastfeeding is the best kind of nutrition for babies and infants, there is a need to raise their knowledge of a comprehensive lactation program.

Table 1: Attitude of 630 preuniversity female students in breastfeeding in the selected state high schools of Tehran in 2018

Attitude	n (%)
Positive	142 (22.5)
No idea	488 (77.5)
Negative	0
Total	630 (100)

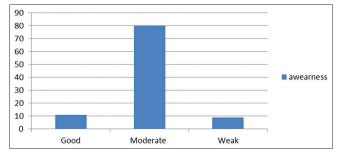


Figure 2: Knowledge of preuniversity female students about breastfeeding

Table 2: The attitudes of the 630 samples according to their knowledge

Knowledge/attitude	Negative (%)	No opinion (%)	Positive (%)	Average grade (%)
Weak	0 (0)	56 (100)	0 (0)	22.01
Moderate	0 (0)	364 (71.9)	142 (28.1)	26.32
Good	0 (0)	68 (100)	0 (0)	20.94

 $\chi^2$ =44/92, *P*<0/001

According to UNICEF, only 40% of children under six are exclusively breastfed. <sup>[5]</sup> This shows a slight improvement over the past 15 years. Only 74% of children under 1 year and 46% of 1–2 years old children are breastfeeding, mostly by women in low-income families. <sup>[9]</sup>

The WHO explicitly recommends exclusive breastfeeding as the best child nutrition strategy for all and recommends to all those involved that extensive studies should be conducted to support and encourage breastfeeding as priorities of their health plans. Despite many efforts to strengthen the motivation and programs to promote breastfeeding, the choice of this method and its full and proper implementation by mothers are not expected. The Worldwide Scorecard for Breastfeeding found that breastfeeding was more than 60% in only 23 countries in the assessment of 194 countries. [10,11]

Therefore, the results indicate that for the development of lactation in societies, only planning to encourage positive attitude and raising the level of knowledge of the married couple is not enough and systematic planning at all levels of society is needed. [12]

According to a study conducted in Iran, the exclusive breastfeeding index (53.13%) was reported in urban areas (47.79%) and in rural areas (67.76%). The continuation of breastfeeding has been from 12 to 15 months old (84.22%), and in children, it has been 20–23 month old (51%). Since having good knowledge about breastfeeding makes mothers more selective in choosing this method,[11] the decision to feed the baby with breastfeeding traces back to prepregnancy, while heavily influenced by the knowledge and attitude of women. Therefore, the identification of the existing gaps in this field is very important for young people. [12,13] In this study, the majority of students had received information about breastfeeding from radio and television, and the official educational resources were not the only source of their information. The results of this study were consistent with a study conducted in Sana'a, Yemen in 2016. The WHO officially explains that training the students is one of the best opportunities for raising knowledge and positive attitudes toward breastfeeding.[14]

On the other hand, since in this study, radio and television were the most sources of information for students (30.3%), and these media can, due to their breadth, play a very important role in raising knowledge

about breastfeeding; therefore, investing and planning for training by these two media can also be very important.

The results of this study indicate that knowledge of the students who studies human sciences is statistically significantly higher than other groups (P < 0.001). It is probably expected that due to the nature of the some disciplines or the content of the courses in the field of natural sciences, the average score of the knowledge of students in natural sciences is higher; however, the results are contradictory and show that content of courses in these fields also does not increase the knowledge on breastfeeding, and there is a need to increase the knowledge of girls in all disciplines in this field. The results of this study revealed that there is a statistically significant difference between the mean level of knowledge in different groups of mothers and fathers of the samples (P < 0.001). The mean level of attitude of the samples with under diploma parents was higher than that of others. Furthermore, there was a significant difference between the mean level of knowledge of the samples and the job of the mothers (P < 0.001), so that the knowledge of the students with homemakers mother was higher than that of others. Furthermore, there was a significant correlation between age and knowledge (P < 0.001). As their age increased, their level of knowledge increased. This is consistent with the findings of a study conducted in 2013 in the American context. The results of this study showed that young mothers had little knowledge and weak performance on breastfeeding compared the old mothers and few young mothers exclusively breastfed their infants.[10,15]

The results of this study showed that 62.4% of samples knew that breast milk was the best food for the babies. This is consistent with the findings of Vijayalakshmi *et al*. They concluded that 89.3% of respondents considered that breastfeeding is ideal for the baby, although only 27% of their infants exclusively breastfed and 36.9% of their newborn infants breastfed at the 1st h of their life. In the present study, only 26.8% of the samples knew that breastfeeding should begin as soon as possible after birth.

Postpartum period is critical to the success of breastfeeding. Many studies have shown that the mother's contact with the baby immediately after birth contributes to the establishment of an emotional bond between them and the successful and permanent breastfeeding. <sup>[17]</sup> In the present study, the most positive attitude is about the items that state "I prefer to feed my child with breast milk to establish a stronger emotional connection with him," which is consistent with the results of the study conducted by Vijayalakshmi *et al.* In this study, 97/5% of samples believed that breastfeeding contributed to emotional communication between mother and child. <sup>[16]</sup>

The results of a study by Ebrahim *et al.* about the knowledge and incorrect beliefs of female students about breastfeeding showed that most of them knew that breastfeeding is the best type of nutrition for infants. However, only a few of them knew that exclusive breastfeeding for the first 6 months after birth was necessary. In the present study, only 42.7% of the samples had knowledge on the benefits of breast milk. Educational programs for primary and secondary schools should work towards improving awareness of breastfeeding in general and address areas shown as lacking in student knowledge such as the specific benefits of breastfeeding for the mother, the infant, and their relationship. [18,19]

Yimyam concluded that the main reason for the simultaneous feeding of breast milk and bottle-fed artificial nutrition was that mothers were worried about the inadequacy of their milk to feed their children. The most common cause for breastfeeding infants, especially in the 1<sup>st</sup> day of the birth, is that the cholesterol secretion is low, or babies are fed with early supplementary foods since the mothers are worried about the inadequacy of their milk to feed the child. This lowers the secretion of breast milk.<sup>[20]</sup>

Bonyata noted that having no enough milk is not the problem of most mothers, but the doubt and lack of confidence cause to be seriously worried, and these inactivate the oxytocin reflectance and decrease milk leakage.<sup>[21]</sup>

This study showed that there is a significant difference between the mean score of attitude of the samples and the three groups of weak, moderate, and good knowledge (P < 0.01), so that there was a relationship between moderate knowledge score and positive attitude towards mother's breastfeeding. These results were not consistent with those of the study conducted by Laanterä *et al.* In this study, young women with moderate knowledge about breastfeeding did not have a positive attitude and expressed their concern about feeding their baby only with breastfeeding. The present study emphasizes on lactation and promotion of knowledge in this regard, especially for this group of women. [22]

On the other hand, the results of the study are similar to those of Padmanabhan *et al.* Agunbiade and Ogunleye. The results of these studies indicate that samples with a good knowledge about breastfeeding preferred to choose the breastfeeding for their infants in future.<sup>[6,19]</sup>

#### Conclusion

Basically, decision making for choosing the method of feeding a child after birth depends on the individuals' attitude toward breastfeeding and the formation of this attitude depends on the adolescence and youth. [18] When the young girls learn on breastfeeding in their adolescence many ambiguities and anxieties about breastfeeding in future are reduced. The lack of participation of people in the design and the statistical society was one of the limitations of the present study. [6]

This is a descriptive study on the knowledge and attitude of female students about breastfeeding, however, many factors affect the knowledge and beliefs of individuals that their role is very important and nonnegligible. Therefore, further studies should be carried out to investigate the role of the factors affecting the knowledge, attitude, and practice of young people about breastfeeding. Furthermore, the role of interventional factors in enhancing the level of youth's knowledge and changing negative attitudes is another issue that should be considered in future studies.

#### Acknowledgments

Hereby, the cooperation of all the authorities of the Men's Health and Reproductive Health Research Center and students who have contributed to this study is appreciated.

Financial support and sponsorship Nil.

Conflicts of interest
There are no conflicts of interest.

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### Questionnaire

Section A: Questions about student's knowledge	Section A	<b>Questions</b>	about	student's	knowle	dge
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- 1. Age □□years old
- 2. Discipline:

Math, physics □ Natural Sciences □ Human Sciences □

- 3. Parents' educational level
  - A. father

Illiterate  $\square$  elementary school  $\square$  middle school or high school  $\square$  undergraduate or post-graduate  $\square$ 

B. Mother

Illiterate □ elementary school □ middle school or high school □ undergraduate or post-graduate □

- 4. Parents' occupation
  - A. Father

Worker □ Clerk □ Self-employed □ Retired □ unemployed □

B. Mother

Housewife □ Worker □ Clerk □ Self-employed □ Retired □

- 5. Where do you come in your family?
- 6. Which one is the source of your information on breastfeeding?
  - A. Books, Magazines, Newspapers

Radio and Television

Mother or Sister□

Relatives and friends □

I have not received any information

Other items

7. Have you ever contacted a mother who fed her child with her milk?

Yes □ No □

#### Section B: Questions about knowledge on breastfeeding.

1. When do you think the best time for breastfeeding?

few minutes after birth □

Several hours after birth □

Days after birth □

I do not know □

2. What is the duration of each breastfeeding from each breast?

The maximum of 5 minutes  $\square$ 

5–10 minutes □

It depends on baby's need □

I do not know □

3. What is the interval between the frequencies of breastfeeding?

Whenever a baby cries and feels hunger, it should be breastfed \( \preceq \)

Once a week  $\square$ 

Every 3-4 hours □

I do not know □

4. How should the baby be placed next to the breast when breastfeeding?

In a comfortable position for the mother and the child, it should be held with one hand and arm so that his or her face is close to the mother's breast and nipple as well as areola should be placed in the mouth of the baby  $\Box$  Half-seated so that the mother's breasts cover the baby's face  $\Box$ 

Mother should bend on her baby and the nipple should be placed in the child's mouth □D) I do not know □

5. What do you think is the best milk for a child?

Powdered milk

Milk of cow □

Breast milk □

Dairy milk and powdered milk □

6. Is it necessary to give colostrum to a child?

Yes □ No □ I don't know □

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7.	What substance should be used to clean the breasts before starting milking?
	There is no need for washing breast □
	Disinfectant □
	Lukewarm water
	I do not know □
8.	What is the order of breastfeeding?
	The child should be fed with both breasts on each meal. After discharge of one breast, it should be fed with
	another breast, and in the next meal; he or she should be first fed with the breast that was previously used for
	feeding foe the second time $\Box$
	It does not differ □
	I do not know □
9.	Why do some beat slowly on the back of child?
	Better digestion □
	Gastric emptying □
	Cushioning the child □
	I don't know □
10	. What is the best way to recognize the adequacy of breast milk for breastfeeding?
	gaining weight and having at least 6 completely wet baby diapers in 24 hours □
	Non-crying regularly □
	Mother feels that the milk is sufficient □
	I do not know □
11	. In your idea, How long is mother's milk useful to child?
	The first six months of birth $\Box$
	Up to one year □
	Up to 18 months □
	up to 24 months □
12	. In your idea, how long do you think breastfeeding alone meets the child's nutritional needs?
	4-6 months □
	2-3 months □
	6-8 months □
	I do not know □
13	. In your ideas, what do you think should be the mother's nutrition during breastfeeding?
	she should receive 500 k of extra calories □
	She does not need additional calories □
	She should receive 200 kilo of extra calories □
	I do not know □
14	. How should medication be used during breastfeeding?
	According to doctor's advice on taking any medication □
	Drugs usually do not transfer into the breast milk and should not stop the breast milk when taking the medication $\square$
	I do not know □

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#### Section B: Questions about the students' attitude toward breastfeeding

11. In my opinion, long-term breastfeeding causes the malformation of the breast

Questions	Strongly agree	Agree	No idea	Disagree	Strongly disagree
I prefer to breast feed my child in the future					
2. I think that lactation will strengthen my relationship with my husband					
3. I prefer to feed my child with bottle in public places					
4. I believe that the peak of the pleasure of being mother is when she breastfeed her child					
5. I prefer to breastfeed my baby to have a stronger emotional connection with him or her					
6. Breast milk is not comparable to any milk in terms of combination, immunization, and socioeconomic benefits					
7. Because breastfeeding causes the child to be completely dependent on the mother, I prefer to feed my baby both with breast and bottle					
8. I think that the benefits of breastfeeding to mother and child are limited to the time of lactation					
9. I prefer to feed my baby with breast milk because the milk is better digested and the child becomes sick less					
10. Since lactation is very tedious for the mother during the night, I prefer to feed my baby at night with a bottle					