



## Factors affecting Exclusive breastfeeding in the first six months of birth: An Exploratory-Descriptive Study

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### ARTICLE INFO

*Article type:*  
Original article

*Article History:*  
Received: 31-Oct-2017  
Accepted: 24-Jun-2018

*Key words:*  
Exclusive breastfeeding  
Qualitative research  
Group discussion

### ABSTRACT

**Background & aim:** Considering the important role of exclusive breastfeeding in the first six months of birth and its relation with sociocultural beliefs, this study was conducted to explore the factors affecting exclusive breastfeeding in the first six months of birth in women residing in Neyshabour, Iran.

**Methods:** This qualitative study was based on an exploratory-descriptive design, which was conducted using focus group interviewing based on the PEN-3 model. Thirty-seven women from four groups (i.e., mothers with an infant under six months of age, grandmothers with an infant grandchild, pregnant women in the third trimester of pregnancy, as well as health care providers and health volunteers) participated in group discussions. The interviews were recorded and transcribed. A framework was used to analyze the data including five stages of identifying a thematic framework, indexing, drawing a table, mapping, and interpreting. Also, for better data management, MAXQDA software was employed.

**Results:** Factors affecting exclusive breastfeeding were categorized in three dimensions of the PEN-3 model, namely cultural identity, relationships and expectations, and cultural empowerment and the six main factors of individual factors (factors related to the mother and the child), family, neighborhood, nurturers (influential people), enablers (socially influential), and cultural beliefs. Relaxation and lack of stress, adequate knowledge of the mother and her relatives, adequate lactation skills, desirable growth, lack of crying and restlessness of the child, and support of others were the most important affect successful exclusive breastfeeding.

**Conclusion:** We recommend social and political support of authorities, continuous support for employed mothers during lactation, and the implementation of 10 Steps to Baby-Friendly hospitals. Developing and implementing of educational programs during pregnancy and postpartum period is also suggested for the promotion of exclusive breastfeeding. Monitoring of the breastfeeding process as well as encouraging nursing during the night can also help to maintain exclusive breastfeeding.

► Please cite this paper as:

Nasrabadi M, Vahedian-Shahroodi M, Esmaily H, Tehrani H, Gholian-Aval M. Factors affecting Exclusive breastfeeding in the first six months of birth: An Exploratory-Descriptive Study. Journal of Midwifery and Reproductive Health. 2019; 7(3): 1749-1764. DOI: 10.22038/jmrh.2018.27330.1297

## Introduction

Exclusive breastfeeding immunizes the infant from lower respiratory tract infection, diarrhoea, asthma, and allergy, and this effect will increase by exclusive breastfeeding up to six months of age and decrease the risks of sudden infant death syndrome (SIDS), atopic

diseases, and neonatal mortality (1). Exclusive breastfeeding in the first six months of birth multiplies the benefits of breastfeeding (2). In addition, it will lower the risks of diabetes, ovarian cancer, and breast cancer in the long run and enable mothers to adapt to their

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role (3). The World Health Organization (WHO) has recommended continuing exclusive breastfeeding during the first six months of birth and introducing complementary food from six months old up to the end of two years of age. Meanwhile, to prevent death of children of less than five years old, WHO suggests all countries to achieve 90% exclusive breastfeeding (4).

Despite the fact that breastfeeding is considered as a basic guideline in guaranteeing neonatal growth and survival for WHO and YOUNISEF, still the rate of exclusive breastfeeding is far from the recommendations of WHO and YOUNISEF, and only 53% of nursing mothers in Iran exclusively breastfeed their infants (5). The results of some studies in Iran have shown that in spite of executing the plan of breastfeeding promotion, still there are insufficient knowledge and incorrect beliefs regarding breastfeeding (6,7).

A number of different factors affect mothers' adherence to exclusive breastfeeding and the extent of success in breastfeeding. These factors include mother's age and education, family income, family support, actions taken before birth, decision making for the first breastfeeding, the time of the first feeding, as well as mother's skill and self-efficacy in breastfeeding (8,9). In most of the studies on breastfeeding, quantitative methods have been used, and therefore, the hidden variables and their natural foundation have been neglected, on the other hand, former studies have merely explained the factors and less treated the issue in terms of offering analysis and suggestions for promoting breastfeeding (10).

Qualitative studies pave the way for discovering the neglected variables in their natural foundation and local culture, analyse the current situations, and offer suggestions. Applying this method can provide new approaches for promoting breastfeeding (11). Therefore, considering the important role of exclusive breastfeeding during the first six months of birth and its relationship with social and economic beliefs and recognizing the restrictive and supportive factors, performing this study seems essential.

## Materials and Methods

This qualitative study was based on an exploratory-descriptive design, which was conducted in Neyshabour, Iran, in 2016 through semi-structured interviews in the form of group discussions and based on the structures of PEN-3 model, which is one of the models used in health education. The PEN-3 model contains three dimensions: 1- cultural identity, which is focused on the ability of family members and the neighborhood (neighbors and society); 2- The relationships and expectations, perception in this model includes knowledge, beliefs, attitudes, and values that can facilitate or prevent motivation for behavioural change; encouragements in this model mean that the individual is influenced by people who are important to her and she follows them; enablers are the social forces that can be effective in increasing health behaviours and/or prevent them through restrictions; and 3- The positive or negative cultural beliefs relating to healthy behaviours, meaning that how cultural beliefs in the society can affect behaviour. This model places culture as the basis in preventive behaviours and/or behaviour promoting health level. Using different structures of this model means recognizing cultural and nurturing factors and influential individuals in exclusive breastfeeding in order to improve the rate of exclusive breastfeeding in the society. In this study, for the evaluation of mothers' awareness and attitudes concerning exclusive breastfeeding and its effective factors, we held eight group discussion sessions in which 37 individual participated in four groups of 6-7.

Regarding the fact that in this research, testable knowledge and motivations are important for gaining data, sampling continued until reaching data saturation, that is, not receiving new data anymore. Mothers who had experienced breastfeeding and pregnancy, health volunteers, and those with at least a grandchild could participate in the group

discussions. The health care providers were employees in health deputy, health centres, and breastfeeding clinics; and the health volunteers were those who had received special theoretical and practical trainings on breastfeeding and helped mothers in breastfeeding. Participants' consent and willingness to enrol in the study were also among the inclusion criteria. All the group discussions were semi-structured. The research setting in accordance with the qualitative research was real and natural and the research team consisted of a coordinator, supervisor, and a recorder. Researchers determined the accuracy and integrity of the data based on the homogeneity, acceptability and transferability criteria through regular and precise research and through constructing purposeful questions regarding the study subject. On the other hand, they used supervisor's revision method for evaluating the confirmability of the data. In order for the examinees to completely explain their perception and experiences, the questions were designed in an open-ended form. These types of questions allow the participants to express their attitudes, perceptions, and experiences (11). The guide questionnaire was constructed in accordance with the goals and was examined through some interviews as pre-test in terms of reliability and proper time limit. It consisted of six items for achieving the level of awareness regarding attitude, nurtures, and enabler factors, as well as restrictive factors in exclusive breastfeeding behaviour. In order for analysing the data, the Framework Analysis Method was used including five recognition levels, one subjective framework, indexing, drawing a table, drawing a map, and interpretation. Each interview was prepared in less than 24 hours. In this type of study, the researchers are first introduced with the domain and variety of the data. Then, they determine the key concepts and subjects, based on which they draw a thematic framework. In the next level, all the interviews' transcriptions were revised and annotations were added based on the thematic framework. Afterwards, they are classified based on an appropriate thematic resource. The similar and different concepts and items were compared and the desired models and relationships were concluded. The process of coding was

performed simultaneously with data collection. The main concepts were determined in the format of primary codes, and in the next level, the cods with similar concepts were put together and the subsidiary categories were formed. In order for better data management the MAXQDA Software was used.

Focus group discussion guide (questions):

1. What is exclusive breastfeeding?
2. What age is best for introducing complementary feeding?
3. Express your opinion concerning the benefits and disadvantages of exclusive breastfeeding?
4. How do you realize that your milk supply is adequate for your infant?
5. Who do you most imitate and obey?
6. What are the restrictive and nurturer factors of exclusive breastfeeding in the first six months after birth?
7. Who can present the required trainings in this field and where?

## Results

This qualitative study was conducted for the purpose of recognizing the effective factors in exclusive breastfeeding using PEN-3 cultural model considering the participants' experiences and attitudes. The results of analysis are presented in Table 1.

The demographic characteristics of the participants including age, job status, and the number of children are presented in Table 2. Among all the 37 participants in the group discussion, 15 individuals had the experience of successful exclusive breastfeeding up to 6 months of age, 14 of them had the experience of successful exclusive breastfeeding up to 4 months of age and then started feeding the infant, five of them had the experience of successful exclusive breastfeeding up to 3 months of age and then up to one years old fed the infant with breast milk as well as formula, and three of them exclusively breastfed their infants.

Cultural identity can be defined as a set of cultural components that give personality to the individual or group and distinguish them from others. These components include hidden and explicit signs through which the society differentiates itself from others. In the exclusive breastfeeding discussion, the individual

components of family and neighbourhood such as the following were discussed: mother's personality characteristics, physical-spiritual

**Table 1.** The participants' attitudes toward effective factors in exclusive breastfeeding are presented as the main and subsidiary categories based on structures of the PEN-3 model

Themes	Main categories	Subsidiary categories
Cultural identity	Individual (factors concerning mother and infant)	- The effect of personal characteristics, physical-mental status of the mother, and its role in successful exclusive breastfeeding - The effect of infant's disease, behavioural characteristics and infant's situation at the time of birth, and its role in successful exclusive breastfeeding
	Family	- The effect of husband and family's spiritual, psychological and physical support of the mother and creation of a peaceful environment in the family in successful exclusive breastfeeding
	Neighborhood and society	- The role of intellectual leaders in successful exclusive breastfeeding
Relationships and expectations	Perceptive factors	- Knowledge and awareness of benefits and disadvantages of exclusive breastfeeding and the signs of adequate milk supply for mothers - The role of attitude and positive and negative beliefs of mother and their effect on successful exclusive breastfeeding
	Influential people (nurturers)	- The effect of supporting culture of family in promoting exclusive breastfeeding - The role of health and treatment personnel in promoting exclusive breastfeeding
		-The role of specialists in promoting exclusive breastfeeding
	Effective social forces (the enabler)	- The economic status and its role in promoting exclusive breastfeeding - The role of health policies of exclusive breastfeeding in Iran for promoting exclusive breastfeeding - Sources of information regarding exclusive breastfeeding
Cultural Empowerment	Positive cultural beliefs	- The effect of religious beliefs of family in exclusive breastfeeding - Traditions and the nurturing beliefs in the society and its effect on exclusive breastfeeding
	Negative cultural beliefs	- The effect of customs and traditions as well as superstitious and restrictive beliefs in the society and their effect on exclusive breastfeeding

**Table 2.** Demographic characteristics of the participants

Employed or unemployed		The period of using breastfeeding and maternity leave		Number of children			Mean age	Number of participants
Housewife	Employed	Three days per week	The entire nine months	Three children and more	Two children	One child		
32	5	1	4	11	15	11	32.5	37
Education				The period of exclusive breastfeeding				Having twins
Bachelor's degree and higher degrees		Diploma	Under diploma	Exclusive formula	Three months	Four months	Six months	1

feeding						
19	8	10	3	5	14	15

status and their role in successful exclusive breastfeeding, the effect of infant's disease, natural characteristics and infant's situation at the time of birth and its role in successful exclusive breastfeeding, family's situation and culture and supporting the mother and its role in successful exclusive breastfeeding, and the role of intellectual leaders in successful exclusive breastfeeding.

**The effects of mother's personality characteristics and physical-spiritual status on successful exclusive breastfeeding**

Whether the mother is young or old, the following factors can affect exclusive breastfeeding: experience and skill in breast-feeding, employedness, diseases, difficulties, mother's spiritual and mental status including peace and stress during the period of breastfeeding, self-confidence, former breastfeeding experience, motherly feelings, depression or cheerfulness after childbirth, mother's diligence or patience, mother's conscience and being kind to the infant. Most of the participants considered mother's peacefulness as the most important element in successful exclusive breastfeeding. Breastmilk experts in health deputy declared that mother's peacefulness is the most important factor in breastfeeding:

*"Being relaxed and properly supported, the mother will not have any problems in breastfeeding. Prolactin secretion is directly associated with mother's mental status. When the mother thinks about her infant, her breast leaks milk, even looking at the face of infant with love and sentiment causes prolactin secretion."* A health observer employed in the health centre states that "mother's tiredness contributes to exclusive breastfeeding failure" and stated that: *"Working less and being relaxed and less tired affect breastfeeding. If you are not tired, you will have better emotional relations and prolactin secretion will improve. Mother's relaxation will be conveyed to the infant."*

The next participant referred to patience and

tolerance as another factor: "Breastfeeding needs patience and tolerance. For example, if the infant is formula fed, he will sleep all night and will wake up in the morning and the mother sleeps undisturbed, but when breastfeeding, I wake up seven times a night, so some mothers deprive their infant from breastfeeding for their own relief, and some others refuse to breastfeed their baby to stay fit and start having a diet. I know a mother who weaned her baby to perform a plastic surgery... "

Another important reason for failure in exclusive breastfeeding is facing breastfeeding difficulties such as mothers' low milk supply or oversupply of milk, developing mastitis or breast abscess, breast problems such as breast wound, fissure nipple, breast surgery, maternal long-term hospitalization, consumption of drugs that decrease milk supply, maternal diseases such as anaemia, hypothyroidism, and hyperthyroidism. One of the participants recounted her experience of breastfeeding: *"Breastfeeding must be pleasant and enjoyable for both mother and infant. When the mother suffers from breast wound and breastfeeds in pain, she will be fed up with her own baby. I mostly expressed my breast milk in a bottle and fed my baby with that, until my breast milk gradually dried up."*

**The effects of infant's disease, behavioural characteristics, and infant's situation at the time of birth on exclusive breastfeeding**

Infants' conditions such as prematurity, abnormal birth weight, cleft palate, heart diseases, Down syndrome, infant strong or weak sucking, consciousness or being sleepy, infant's irritability or good temperament, crying and restlessness, desirable growth of the infant, oral candidiasis, colic and reflex, refusing to latch on the breast, and long breastfeeding were among the factors mentioned by the participants. One of the participants expressed her opinion as follows: *"I am a health expert and I was so obsessed with breastfeeding when I had my first girl baby and I fed my infant with milk alternatives in the first*

15 days after her birth since she was immature and could not suck properly. Most of the times she fell asleep under the breast, but I thought that she was breastfeeding because I did not have any experience of that. At that time, I didn't have enough breastfeeding skill, but through the help of breastfeeding consultation I managed to breastfeed my second infant." One of the grandmothers said that her daughter's failure in breastfeeding was due to the infant's reluctance and resentfulness and explained that: "My daughter's child did not latch on her nipple from the third day of birth and was very irritable, so we had to bottle-feed her or gave her a pacifier to calm her."

#### **The effect of husband and family's spiritual, mental and physical support of the mother and creation of a relaxing environment in the family in exclusive breastfeeding**

In different studies, such as the study by Kohan, the role of mother's relatives, especially husband and family, has been approved (12). Most of the participants considered successful experience of breastfeeding to be dependent on family and their awareness of common breastfeeding problems and the required skills for preventing them, tolerance and patience, as well as the spouse's natural skills in creating a peaceful environment, improving self-confidence, and supporting breastfeeding, as effective factors. One of the examinees referred to the effect of creating a peaceful environment by the father and explained: "Most of the mothers are separated from their infant for a while due to quarrel with their husband, which leads to not being able to produce milk anymore." Another examinee added: "I have witnessed some mothers had to formula feed their infant during the night in order to get some sleep and to prevent crying of the infant and waking up the father, however, this is the father who must help the mother to attend herself and take rest to have sufficient energy for breastfeeding when the infant is asleep."

#### **The role of intellectual leaders and their effect on exclusive breastfeeding**

Intellectual leaders are not limited to religious leaders and it can encompass group, local, national, and global leaders that can affect

people in political, economic, cultural, artistic, social, and religious areas. Considering the emphasis on the role of media in public opinion formation, a remarkable position shall be regarded for intellectual leaders (13). Intellectual leaders are those who are aware of a variety of matters and their attitudes are regarded important. Intellectual leaders exist in all groups, they are usually active in social fields and have strong links within the society; in addition, intellectual leaders are influential, they are socially and academically higher than others, but they are almost equal to others in terms of social class (14). In this regard, the participants referred to reliable people, health volunteers, Imams, clergy men in the mosques, and experienced people in the neighbourhood as the influential intellectual leaders. One of the health workers referred to the role of breast milk supporters in this regard and added: "Young mothers are influenced by the society's beliefs. We can back the breastmilk supportive plan among the interested health volunteers to promote exclusive breastfeeding and empower them in terms of theoretical and practical skills of breastfeeding."

**Relationships and Expectations:** The common models based on individual and behavioural change include perceptions such as awareness and attitude, nurturers and enablers who are actually the social forces and can be influential in health behaviours improvement or restrict them through creating obstacles.

#### **Knowledge and awareness of benefits and disadvantages of exclusive breastfeeding and how to ensure adequate milk supply**

Awareness including breastfeeding training, mother's experience in former breastfeeding, mother's knowledge regarding method of breastfeeding, the course of infant's growth, method of expressing milk and storing it. According to many studies, one of the effective factors on exclusive breastfeeding is awareness and attitude of the mother and husband (5). Most of the examinees in different groups had appropriate information regarding the concept of exclusive breastfeeding and they considered exclusive breastfeeding as feeding with breast milk without giving the infant drinking water, herbal drugs, milk powder in combination with

recommended micronutrients. The participants announced the period to be 4 to 6 months according to the Islamic anecdotes and narrations and health care providers' suggestions. Poor weight gain and low milk supply were proposed to be the reasons of early initiation of feeding the infant complimentary foods, and problems such as food allergy and low milk supply were reported as the results of early introduction of complementary feeding to the infant. Problems such as poor feeding are described as the results of late introduction of complementary feeding. A health expert considered mother's appropriate information regarding benefits of breast milk and signs of adequate milk supply as intervening factors in exclusive breastfeeding and explained: *"I always tell mothers that proper and successive breast sucking lead to high milk supply. Low milk leaking from nipples is not due to low milk supply and mothers should pay attention to the infant's growth chart."*

One of the examinees stated: *"If breast milk is good and the infant grows well, it will be better to start complementary feeding from 6 months old to prevent the infant from suffering stomach-ache. I started complementary feeding for my first child at the age of 4 months that led to many problems such as skin allergies."*

Another examinee added: *"I think the best time to introduce complementary feeding is 6 months old. If it is started earlier, it will cause low milk supply. I started complementary feeding from the age of 5 months old during my infant's poor growth."*

Participants in different groups have positive opinions regarding breast milk and referred to breastmilk as being the primary source of nutrition and adequate for the infant. They mentioned that breastmilk ingredients are accordance with the infant's age, it can increase infant's intelligence quotient and immunity and restrict diseases like diarrhoea and digestive system infections. Further, it is cheap, convenient, and sterilized compared with milk powder and cattle milk and improves the emotional relationships between the mother and infant and infant's sleep. It also prevents the mother from developing breast and uterine cancers. The participants referred to

some difficulties of breastfeeding such as breastfeeding in public places, mother's weariness, sleeplessness during nights, problems of low calcium in nursing mothers, diet limitation in nursing mothers, infant's colic and reflex problems, thick or watery breast milk, improper breast milk at the times of stress and grief when losing the loved ones, and not being able to use medications.

As to the signs of adequate breast milk and mother's proper diet most of the participants introduced infant's peace and not being restless, the infant passing urine 6-8 times per day, proper weight gain, unlatching the breast with the infant's desire, proper breastfeeding frequencies, infant's peaceful sleep, mother's calmness, positive psychological atmosphere in the family, mother's adequate sleep and rest, proper and sufficient breastfeeding, infant adequately sucking the breast, positive beliefs about breastmilk, breastfeeding during the night, exclusive breastfeeding during the first 6 months of age, and the effect of genetics. In this regard one of the participants said: *"I realize that my infant has been breastfed adequately from his urinary frequency."*

Another participant added: *"crying of infants is because they are not fully fed, when my baby is breastfed adequately he will unlatch the breast happily."*

The next examinee referred to the size of the breast and mother's type of nutrition and its relationship with breast milk and expressed her opinion as: *"The size of the breast doesn't influence the milk supply, only the infant's proper growth shows that he has been fed adequately. The mother's diet affects her milk supply and healthy foods such as se shireh, local oil, and vegetables increase my milk supply."*

### ***The role of attitude and positive and negative beliefs of the mother in successful exclusive breastfeeding***

Attitude is defined as a combination of beliefs and excitements that prepare the individual not to regard other individuals, objects, and groups positively or negatively. Attitudes summarize the evaluation of objects, and as a result, foresee or direct future actions or behaviours (15). Negative attitudes towards

breastfeeding include difference in the composition of breast milk of poor and rich mothers changes the attitude of mothers, and ultimately, can affect poor mothers' functioning, the negative attitude of health care providers that says there is no difference between breastfeeding and milk powder feeding, and the fact that employed mothers have to feed their infants with milk powder in order for the babysitter to easily feed the baby.

This kind of attitude will lead to health care providers' reluctance to devoting some time for supporting mothers in breastfeeding. The majority of our participants confirmed the mother's attitude and beliefs and its effect on milk supply and period of exclusive breastfeeding and referred to factors such as fear of becoming physically unfit, change in the shape of breasts, prohibition from having diet during the period of breastfeeding, plastic surgery, beliefs like the relationship of breast size and milk supply, that breastmilk tastes bad, watery or thick breastmilk, the effect of foods on milk supply and not leaking milk at times of great sorrow and pain, being ashamed of breastfeeding in public places even by observing Islamic Hijab (covering), fatness of infants who are fed by milk powder compared to infants who are fed by breastmilk, unsuccessful breastfeeding for former infant, and having experience of difficult childbirth and its effect on low milk supply are among the negative attitudes. Among the positive attitudes mentioned by the participants are ease of digestion of breastmilk compared to milk powder, nutritional value, better emotional mother-infant relationship, having higher intelligence compared to infants fed by milk powder, and effect of organized and proper breastfeeding on breast milk. One of the health experts explained: *"mother's positive beliefs and thoughts cause prolactin secretion and this increases milk supply. When the mother repeatedly says that her milk supply is low or thinks that she does not have breast milk because she does not have an appropriate economic situation these thoughts lessen the prolactin secretion, and therefore, her milk supply."*

Nurturers are the influential forces in successful exclusive breastfeeding. They

include husband, family, friends, paediatricians, health personnel, and other influential people within the society. In this study, most of the participants introduced husband, mother-in-law, health personnel, paediatricians, friends, other members of their family, and husband's family as the influential forces, respectively.

#### ***The effect of supporting the culture of family on promoting exclusive breastfeeding***

Supporting the culture of family includes cooperation, encouragement, teamwork, responsibilities, lack of family problems, and creating a happy, stress-free environment at home. The support of family members, especially the father, being supportive plays an important role in successful exclusive breastfeeding, whereas husband not being supportive and having negative attitudes can cause a challenging situation and even decrease the rate of breastfeeding. Most of the participants in this regard emphasized the role of family support culture, especially father's encouragement for continuing breastfeeding. One of the health volunteers said: *"In some of the traditional and patriarchal families, they consider helping the wife in nursing the infant as something inappropriate and all the nursing duties are on the mother's shoulder. How a woman can be awake all night and, in the morning, do the house chores."* Another said: *"my mother has fed her seven children with her breastmilk and they are all healthy and educated, my mother is illiterate yet she has good experiences."* Another pointed out: *"my husband is so important to me and he encourages me very well. What health workers and my midwife told me really influenced me since I believed in them and although everybody around me suggested that I started milk powder feeding I obeyed the health worker and only breastfed my infant."*

#### ***The role of Health and Treatment personnel in promoting exclusive breastfeeding***

The trained Health Centre and hospital Workers that have accepted the concept of breastfeeding can create a strong social supportive system in childbirth department and Health Centres. Some of the health workers



are aware of the importance of breastfeeding and support that, on the other hand those Health Workers who do not have sufficient information concerning breastfeeding may have hidden negative and restrictive attitudes, beliefs and recommend their improper experiences to the mother or they may, in spite of having adequate knowledge, not devote enough time or patience to train mothers which can affect learning and performing the breastfeeding. The breastmilk expert in Health Deputy expressed his opinion in this regard: *'In spite of organizing annual workshop regarding breastfeeding and sending valid resources to the Health centres, unfortunately the personnel of Health centres do not devote adequate time to guide and help mothers in practical form and most of the trainings are performed theoretically and are unproductive.'* One of the examinees said: *'The hospital's personnel do not have adequate information concerning breastfeeding or they do not sympathized with the mothers at the time of my first childbirth I had no experience of breastfeeding the nurse came to me and told me to breastfeed my infant but she didn't teach me how to so, as a result I breastfed my infant with pain for a while they just gave me a book to read I continued to breastfeed with pain up to two months and I have a bitter experience of breastfeeding.'*

#### **The role of specialists in promoting exclusive breastfeeding**

The Paediatricians plays an important role in breastfeeding preservation, promotion and management. They train, support and encourage mothers by explaining the facts in the period of pregnancy, discussing mothers' questions and concerns regarding breastfeeding that will be continued after childbirth whether in hospital or on visits for infant examination during first weeks after birth. The Paediatricians' knowledge, skill and belief in breastfeeding is an important factor in supporting exclusive breastfeeding. Breastfeeding consultant expert determined the unnecessary milk powder prescription by the Paediatricians as one of the main reasons for breasts starting to drying up explained that: *"Mothers trust the Paediatricians and obey them, when the*

*Paediatrician in the first visit tells the mother that her milk supply is low and prescribe a special brand of milk powder. The mother, then, come to the Breastfeeding clinic when the infant is got used to the milk powder and do not latch on and suck the mother's breast any more, therefore the consultation will be difficult and the chance of success will decrease."*

Enablers are the social forces influential on breastfeeding promotion. They include: Family's economic status, health policies regarding breastfeeding in the country and information sources concerning breastfeeding promotion.

#### **The economic status and its role in promoting exclusive breastfeeding**

In this study most of the participants considered a remarkable role for economic factors in successful breastfeeding and believe that within the families who experience bad economic status, the mother has to works for earning a living and supplying the family's demands, therefore she will face problems in breastfeeding her infant, on the other hand, proper nutrition during pregnancy and breastfeeding is considered as the condition for having adequate milk supply and some of the health experts account the high price of milk powder as a stimulus for breastfeeding in poor family. One of the mothers emphasized on the importance of economic status in exclusive breastfeeding: *"When the family suffers from economical problem there are many quarrels and this cause mother to be stressful and eventually lead to low milk supply. Mothers whose husbands are unemployed try to go to work in order to provide their family's demands and be away from their infant for long hours."*

#### **The role of health policies in promoting exclusive breastfeeding**

The breastfeeding health policies of our country are implemented for breastfeeding promotion; therefore, a number of different plans and programs have been executed for breastfeeding expansion. For example, in all hospitals of the countries, the plan tilted 'Child-friendly' is being implemented. Performing 10

steps of Child-friendly hospital, especially the fourth step, skin-to-skin contact, and breastfeeding in the first hour after birth are important steps for successful exclusive breastfeeding. Meanwhile, breastfeeding health policies include establishing breastfeeding clinics, training breastfeeding consultants and supporting them, giving instructions for those who need milk powder feeding, extending the period of maternity leave. In addition, as effective and supporting factors for promoting exclusive breastfeeding they referred to government providing economic support for poor families, especially families with twins, preventing milk powder feeding and bottle feeding, and advertising pacifiers in pharmacies, having kindergartens near their workplace, having an appropriate physical environment for breastfeeding in departments and public places, training breastfeeding skills during pregnancy and after childbirth in hospitals and health centres, observing breastfeeding rules by employers for the employed such as agreement with maternity leave and breastfeeding, and supporting mothers in the workplace after returning to work.

One of the participants said: *"my child was deprived of breastmilk since I was not a salaried employee, the government must consider employees who are not salaried so that infants would not be deprived of their natural right."* Another employed mother added: *"I could not use maternity leave since I wasn't covered by any insurance and after one month I was forced to return to work and this caused me to introduce complementary feeding in combination with breast milk."* A health expert declared that *"despite that we promote exclusive breastfeeding ourselves in the department, there is no place for expressing and storing breastmilk and this leads to low milk supply."*

#### **The information sources in breastfeeding**

The majority of the participants in this study considered health centres, breastfeeding clinics, hospitals, paediatricians, social media like TV, virtual media and the Internet, as well as relatives and friends as the source of information regarding breastfeeding and recounted the role of trainings before pregnancy, receiving correct information from

professional experts, and feeling responsibility and sympathy of health workers as effective in information of mothers. In addition, health centres and breastfeeding clinics are the most important places for providing services. One of them stated: *"Trainings before childbirth in health centres and hospitals increase the mother's self-confidence since she has useful knowledge, she will not obey the incorrect beliefs of other people around her, and she can convince them using scientific responses. These trainings are better to be presented in the presence of the family so that they won't put pressure on the mother."* The next examinee said: *"The role of media is very remarkable now, in most of the films and TV series we see that infants are fed by milk powder, which is a type of advertisement, or you see that dolls have pacifiers and milk bottles, therefore, a woman who has seen these things from childhood considers pacifier and milk bottle as the infant's essential supplies."*

Cultural empowerment is defined as recognizing positive and negative beliefs that are influential forces in healthy behaviour. In this context, they consist of: family religious beliefs, customs and traditions, as well as correct and incorrect beliefs regarding breastfeeding. The popular culture contains religious beliefs and traditional beliefs (traditions prevailing behaviours concerning using milk powder or breast milk) incorrect cultural assumptions, and lack of medical knowledge in breastfeeding mostly leads to emerging obstacles for breastfeeding mothers.

#### **The effect of religious beliefs of family on exclusive breastfeeding**

Mother's breastmilk is an example of God's blessing for human beings and is a manifestation of his wisdom. Quran and narrations indicate the significance of breastfeeding, the period of breastfeeding, traditions of breastfeeding, and rights of breastfeeding mothers. As to the influential factors in successful exclusive breastfeeding, most of our participants referred to religious ideas and beliefs such as performing *Vozu* at the time of breastfeeding and reciting some special prayers for the relaxation of both mother and infant and adequate milk supply.

One of the participants said: "I believe that no other food is needed for my infant except breastmilk since it has been mentioned many times in narrations and Holy Quran and this made me tolerate sleeplessness during the nights since every time of breastfeeding during the night is regarded as releasing a prisoner." A breastmilk expert in Health Deputy referred to verse 233, Baghareh, as the most important chapter in Quran regarding breastmilk and said: "In this chapter, father or head of the family is introduced the person in charge of providing breastfeeding mother's requirements, and considering the physical ability of the mother, she is obliged to breastfeed the infant" and emphasized on the effect of husband and relatives' support for consultation concerning weaning the infant due to mother's inability and said: "If we understand only this verse and Quran culture becomes dominant in the family, then fathers and relatives would not regard successful breastfeeding as the duty of mother and will not disappoint the mother by irrelevant comparisons."

#### **Traditions and the nurturers' beliefs in the society and their effect on exclusive breastfeeding**

Generally, customs and traditions are life styles, habits, and special traditions of a nation, community, or a society. They are an aggregation of behaviours that have become habits that people do within a social class, violation of these conventional traditions and customs cause condemning public opinion and prosecuting people based on civil rules. Some traditions such as reciting *AZAN* and *EGHEMEH* to the ear of the infant, wearing a white dress and avoiding yellow dresses are rooted in religious beliefs. The participants pointed to some positive traditions and beliefs of adults, especially helping and caring for the mother after childbirth up to 10 days and cooking some healthy foods like *Kachi* for the mother, as effective factors in exclusive breastfeeding.

#### **The effect of traditions and superstitions in the society and their effect on exclusive breastfeeding**

Some examples of the misbeliefs and

superstitions existing in the society and family include feeding *Taranjabin* and *Shirkhsht* to the infant after birth to prevent jaundice, throwing foremilk away until jaundice is resolved, all relatives visiting the mother, bottle feeding and using a pacifier, the belief in trying to seem equal to the other members of the society, rivalry, feeding the infant with milk powder as being prestigious, the necessity of making the infants under 6 months old drink water in hot weather, comparing the mother's body with her milk supply, saying that if a mother is in pain and grief her milk is not healthy, as well as preventing mothers from eating some foods and not drinking water during the first days after childbirth. One of the participants said: "One of the irritating traditions is to visit the mother in the first days after childbirth; everybody gathers around the mother and disturb her relaxation and rest, they want to convey their experiences to her, telling improper beliefs to her and cause a sense of hesitation, stress, and perplexity in her."

#### **Discussion**

According to three dimensions of the PEN-3 model, the following six themes were elicited to show the effective factors on exclusive breastfeeding during the first six months of birth: 1. individual factors (factors related to the mother and the infant), 2. family factors, 3. neighbourhood, 4. nurturers (influential people), 5. enablers (influential society), and 6. cultural beliefs. The factors related to mother: 1. mother's peaceful state of mind, 2. self-confidence, 3. knowledge and positive attitude of mother and family, 5. religious beliefs and positive attitude of mother toward breastfeeding, and 6. mother's own desire for breastfeeding. On the other hand, the factors associated with infant are infant's desirable growth and Peacefulness and lack of restlessness of the infant.

As to the influential and nurturing factors affecting exclusive breastfeeding the following can be pointed out: 1. support of husband and relatives, 2. the role of intellectual leaders of the society and neighbourhood, and 3. the support of health care providers. Among the effective social forces, we can mention: 1. the supportive culture of family, 2. supporting employed

mothers, as well as 3. providing training during the pregnancy and postpartum periods in hospitals and health centres. The most important restrictive factors include stress, living conditions, negative attitude of the mother or family toward breastfeeding, employees, infant's poor growth, mother's low milk supply, breast problems like breast wound or nipple fissure, poor performance of hospitals and health centres, uncontrolled administration of formula by paediatricians, financial and family problems, and lack of authorities' support for employed mothers.

According to this study, one of the most important and effective factors in promoting exclusive breastfeeding is considered the mother's peacefulness. The more relaxed the mother is, the more she can breastfeed her baby while having a more relaxed infant. This is the same as the results obtained by Elahidoost in a study entitled as "Women, motherhood and Breastfeeding" performed by anthropological method in Isfahan (2013). In her study, the psychological status of the mother, knowledge and preparation of the mother, mother's beliefs, and the social support of the mother are among the most effective factors in breastfeeding (10).

In the present study, it is shown that the mother's knowledge of the advantages or the appropriate methods of breastfeeding can increase her self-confidence and her desire for breastfeeding. This result was in accordance with the findings of Akaberian (Bushehr, 2003)(16) and Panahi (Karaj, 2015) (5). According to a study conducted by Chezen et al., women who had low self-confidence during their pregnancy are more likable to wean their infants in the first six months after birth.

Believing in creating a stronger emotional relationship with the infant through breastfeeding is one of the most important and positive attitudes that was observed among the pregnant women in this study. Scientific evidence have proved that skin-to-skin contact between the mother and infant breastfeeding releases oxytocin hormone, which causes emotional bond between mother and the infant and boosts the infant's emotional stability (17). Having the same results with the present study, Walingo et al. showed that 76% of mothers

believed that breastfeeding would increase the emotional relationship of mother with her infant (18).

In this study, religious beliefs were proved to be so important in promoting exclusive breastfeeding, while the results of Kumar showed that in India firstly the family restrictions and then the social traditions and religious beliefs play an important role in the mother's delay in starting breastfeeding the infant. Further, 40% of the mothers fed their infants with something other than mother's milk, and it is established that cow milk and honey are the most common things fed to the infant before breast milk (19).

Losing body fitness is shown to be another factor in weaning and having a negative attitude toward this issue. According to some studies, there is a significant relationship between the visual image that a mother has of her body in her mind and breastfeeding. For instance, Huang et al. revealed that those women who fed their infant with their own milk had a positive image of their body before their pregnancy (20).

Low milk supply, as well as crying and restlessness of the baby are considered as restrictive factors in this study, which are in accordance with the study of Peyman and Charoqchian in 2016, Mashhad, Iran (21). Moreover, according to a study conducted in Mexico concerning the influential factors in mothers' lack of breastmilk, 80% of mothers suggested crying of their infant as the main factor in their low milk supply during the first four months after childbirth (27).

In the present study, it was observed that mother's concern about undesirable infant growth is one of the contributing factors to introducing milk powder and weaning, and this was in line with the results obtained by Peyman et al. (21). Therefore, the exact evaluation of the infant's growth by health workers, scheduled paediatrician visits for observing the reasons of loss of weight before starting milk powder, training mothers with the signs of supplement of milk and the best methods of breastfeeding, especially at night, can be helpful for solving this problem.

Mothers being tired and their negative attitude toward breastfeeding in public such as

being observed by other people and being judged by them, lack of self-confidence, and being influenced by others are among other restrictive factors in exclusive breastfeeding, which is in accordance with the results of Dykeys et al. (2003) (22).

Mother's desire for breastfeeding is one of the factors causing the continuation of breastfeeding. Abdollahi conducted a study in Sari and showed that the desire for breastfeeding is higher among mothers who are supported by their husbands than other mothers (23). The results given by Leventhal et al. as well as those by Schawrtz have corroborated that those mothers with longer experience of breastfeeding had more desire to feed their infant than those with limited experiences (24, 25).

Indeed, nipple fissure and wounds are among the restrictive factors, which are the same as the results proved by Rahmatnejad (26). The most important reason of breast wound and fissure is the wrong method of breastfeeding. Therefore, it is suggested that the right methods should be taught by the determined of hospital or health centre personnel during pregnancy, before childbirth, and at the beginning of breastfeeding (34).

Mothers' employment is considered one of the most important restrictive factors in this study. Studies have shown that employed mothers have the same level of breastfeeding until when they have not returned to work, after that, the level of breastfeeding will drastically decline (27). In a study conducted by Ghotbi, the only factor that has a negative effect on breastfeeding is considered their return work; in a way that the level of breastfeeding four months after birth is much less than that in housewife mothers. The more time passed by, this decrease became much more noticeable (28); however, no significant relationship was observed between employed and unemployed mothers in a study conducted by Rahimi (29). Thus, improving the present rules, creating new and appropriate methods, providing facilities at the working place, motivating and informing employed mothers, training them about breastfeeding are suggested regarding this problem (36).

The important role of close relatives (e.g.,

husband, grandmothers, and close friends) in promoting breastfeeding is another result of this study. Being in contact with close relatives before birth of the infant is of great significance as a nurturing factor; this point is in accordance with the results of a study conducted by Abde Yazdan (8). In accordance with the present study, it is actually proved by Olayemi that the support of husband will increase the duration of breastfeeding (30). Also, it is proved in Abdollahi's study that those mothers who are encouraged by their husbands to breastfeed their infant, on average did it 1.69 months more than other women (23). Other people's insistence, especially mother or mother-in-law, to use sugar syrup, manna, or milk powder and early introduction of complementary feeding are among other restrictive factors in breastfeeding. In extended families, the role of grandmother is very effective in the infant's food habits; their recommendations may probably be based on some traditions contrasting health suggestions for the infant. The results of a study performed by Susin et al. concerning the role of grandmothers in food habits of the infant have shown that the advice of grandmothers such as adding water, tea, or other foods to the infant's food is directly related to starting complementary feeding one month after childbirth and to completely weaning the infant six months after birth (31).

In this study, successively, clergy men, health volunteers, as well as senile and experienced people are introduced as the intellectual leaders in the neighbourhood and among neighbours. According to a study by Dorestani on the effect of intellectual leaders on shaping the pattern of common public opinion in Tehran (2014). Moreover, age, education and gender are effective in shaping public opinion of people (32).

Financial factors and their effect on exclusive breastfeeding are considered as another restrictive factor. The relation between exclusive breastfeeding and financial condition is investigated in some studies like the one by Ziaie (33). However, no relationship was observed between these two factors in other countries (34). The relationship between breastfeeding and financial status is unknown; in some parts of Iran, improvement in financial

status had a positive effect on breastfeeding and sometimes this relationship was the opposite (35). It can be concluded that the rate of breastfeeding is more affected by social traditions than financial status.

In many investigations, insufficient training by health workers in hospitals was determined as the main reason for breastfeeding failure, and people's misbeliefs may perplex mothers (36). Appropriate education and empowerment of personnel of health and care departments can be greatly effective in improving the knowledge and attitude of mothers and significant others about exclusive breastfeeding during pregnancy and postpartum. In addition, emphasizing on breastfeeding in the first hours of birth (the fourth step of the baby-friendly hospitals) plays a pivotal role in improving mothers' knowledge of exclusive breastfeeding. The results of the study by Rahmatnejad emphasized the findings of the present study (26). According to the study of Piccado et al. in Nicaragua, social support, behaviours of hospital workers, and job support were considered as the important factors in permanent breastfeeding (37).

As Zanjani showed that excessive prescribing of milk powder by private doctors due to lack of knowledge play a significant role in restricting exclusive breastfeeding. Mothers start feeding their infants with milk powder based on doctors' suggestions, in spite of their own belief about benefits of breastfeeding. Therefore, retraining private doctors and educating them on evaluating the methods of breastfeeding is essential for solving this problem (38).

The diversity of the participants in this study paves the way for vast discussions and arguments, however, similar to other qualitative studies, generalizability of the data, not interviewing hospital and health centre personnel and mothers in rural areas can be considered some of the limitations for this study. Therefore, conducting future studies along with interviewing paediatricians, health care providers, authorities, and politicians on this issue can be helpful in identifying the effective factors of exclusive breastfeeding.

Regarding the findings of the present study, these suggestions can promote exclusive

breastfeeding.

1. Training pregnant mothers on the importance of breastfeeding and its practical methods.
2. Training fathers concerning the significance of breastfeeding and disadvantages of formula feeding and being supportive of the mother during pregnancy and breastfeeding.
3. Distinguishing between wrong and correct beliefs about breastfeeding in every environment and focusing on empowering correct beliefs and eliminating the wrong ones.
4. Recognizing influential individuals in the neighbourhood or family such as grandmother or friends and training them using appropriate instructions for supporting breastfeeding mothers.
5. Training all health workers with theoretical and practical skills of breastfeeding.
6. Creating facilities for employed mothers concerning easy breastfeeding (making especial rooms for mothers in offices, access to electric breast pump, obliging the employers to cooperate with mothers to perfectly use their off hours, and maternity leave for at least six months).
7. Establishing safe places for breastfeeding in public particularly in shopping centres, bus stations, and airports.
8. Promoting breastfeeding through media, advertisements, and local media.
9. Monitoring implementation of ten steps of baby-friendly hospital initiative, particularly the fourth step (skin-to-skin care and the first hour of breastfeeding).
10. Breastfeeding clinics' equipment in baby-friendly hospitals.

## Conclusion

Promoting breastfeeding in the first six months after childbirth is hinged upon improving the knowledge of mothers and their relatives. More opportunities should be provided for mothers to develop their knowledge, positive attitude toward breastfeeding, and breastfeeding skills. Further, mothers should be given a chance to defy their concern about hunger of the infant and resist others' advice. Mothers should receive education regarding these concepts during

pregnancy. Therefore, it is suggested that at the time of enrolling these training programs during pregnancy and postpartum period, a close relative (e.g., husband, a grandmother, or a close friend) accompany the mother as a nurturer. Some of the important factors concerning the continuation of breastfeeding include establishing welfare and social systems by authorities, supporting employed mothers while breastfeeding, embracing the infant immediately after birth, breastfeeding in the first hour of birth, and implementing the ten steps of baby-friendly hospitals. Moreover, supervising and examining the process of breastfeeding as well as encouraging mothers to breastfeed their infants during night can be considered important in maintenance and continuation of exclusive breastfeeding.

### Acknowledgements

This study was derived from an MSc thesis (Code 951187) approved by Mashhad University of Medical Sciences (Mashhad School of Health). We wish to thank the professors, head of the department, experts in Family Health, families, schools in Neyshabour Health Deputy, and other participants who cooperated in conducting this study.

### Conflicts of interest

The authors declare no conflicts of interest.

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