

Parents' Health Beliefs Influence Breastfeeding Patterns among Iranian Women

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ARTICLE INFO

Article history:

Received: 22 December 2014

Accepted: 1 April 2015

Online:

DOI 10.5001/omj.2015.40

Keywords:

Breast Feeding; Beliefs; Mothers; Postpartum Period; Parents; Iran.

ABSTRACT

Objectives: To determine factors related to breastfeeding and its perceived health benefits among Iranian mothers. **Methods:** A cross-sectional study was performed using 240 postpartum women who were selected randomly from eight public health care centers in Hamadan, Iran, in 2012. Mothers who breastfed (BF) and mothers who never breastfed (NBF) were given a structured questionnaire to collect their demographic data and information regarding their health beliefs and attitude towards child-rearing. Descriptive and logistic regression were used for data analysis. **Results:** The mean length of breastfeeding was 11.6 (standard deviation=12.5) weeks. There was no difference in demographic variables, such as age, type of medical insurance, number of living children, employment, education, and household income ($p>0.050$), between mothers that breastfed and those that did not. Mothers' perception of the severity of child illness was higher in those who breastfed than those who never breastfed ($p=0.050$). In contrast, BF mothers had higher perceived confidence of medical care to prevent diseases ($p<0.050$) and a higher perception of reverse parent-child roles than NBF mothers ($p<0.050$). **Conclusion:** Mothers' health beliefs and attitude to parenting has a significant role in choosing to breastfeed. Physicians and healthcare providers may provide supportive information that influence a mother's breastfeeding behavior.

Breastfeeding has physical and emotional advantages for both mothers and infants.¹⁻⁴ Studies looking at the rates of breastfeeding were not consistent when looking at socioeconomic status and across cultures.⁵⁻⁷ Previous studies have shown some of the factors attributed with breastfeeding were social support,⁸ prenatal care,⁹ birth spacing,¹⁰ support from spouse,¹¹ and religion.¹² In addition, good prenatal habits and birth interval have been related with the decision to breastfeed.¹³

Despite a relatively high breastfeeding initiation rate in Iran, the duration of breastfeeding, particularly the exclusive breastfeeding rate, has decreased during the last decade.¹⁴⁻¹⁷ The rate of exclusive breastfeeding at six months decreased from 44% in 2000 to 27% in 2004.^{14,15} Similarly, a study in 2006 across 30 provinces of Iran, showed that only 57% and 28% of Iranian infants were exclusively breastfed at four and six months of age, respectively.¹⁶ However, a prospective study with a six-month follow-up in 2008 showed a high exclusive breastfeeding rate (61%) until six months after delivery.¹⁷

In previous research, a lack of appropriate education, the need for social support,¹⁰ cultural factors,¹² physicians' neglect to recommend breastfeeding, mothers' perception that their milk was insufficient, and the need for family to support and encourage breastfeeding have been reported as barriers to breastfeeding the reasons for discontinuing exclusive breastfeeding.¹⁶ A low level of mother's education was given as a predictor of cessation of exclusive breastfeeding.¹⁸

Strategies for promoting breastfeeding must consider the mother's environment and needs a collaborative effort with family and employers as well as an understanding by mothers of the nutritional benefits. The aim of this study was to determine factors (including demographics, health beliefs, and attitude to parenting) related to breastfeeding.

METHODS

This study used a cross-sectional approach for research. Although a qualitative data approach may have provided in-depth evidence of breastfeeding

behaviors, due to limitations of performing a qualitative study we used a quantitative data approach. The limitations of quantitative studies include that the data collection and analysis process are time consuming, participants had a lack of time for face-to-face interviews, effect of individual skills of the researchers and the potential for a researcher's personal bias affecting the participants responses, and that it is a difficult approach to maintain, assess and demonstrate data, and challenging for other researchers to repeat. Therefore, using a validated questionnaire, quantitative research was helpful in testing predictions and replication of findings, which were reliable, independent of the researcher, and less time consuming.¹⁹⁻²¹

Eligible participants were postpartum women who attended the selected health care centers up to six weeks after delivery. They were 18 years old and above, had no history of mental illness, and delivered live births to infants' with a gestational age ≥ 38 weeks that had a normal birth weight ($>2500\text{g}$) and no congenital anomalies.

The two-stage cluster sampling method was used. Firstly, a list of all public health care centers in Hamadan was provided and then using a map of the city, two health care centers were selected randomly in each region of the city (North, South, East, and West). Overall, eight health care centers were selected by a simple random sampling method and eligible postpartum women were selected by stratified random sampling in each center.

G*Power version 3.1 software (Heinrich-Heine-Universität, Düsseldorf) was used to calculate the sample size. A priori power analysis was performed to calculate the required sample size for multiple regression analysis as 56 for each group. However, in order to increase the power of statistical analysis, a greater number of women enrolled in the study.

Among eligible women, 316 were recruited in this study. All participants signed consent forms prior to enrollment in the study. At the health care centers, midwives offered support and individual teaching of breastfeeding techniques during the postpartum period (with the aim of increasing the rate). Participants were provided with educational materials, such as books and pamphlets, and a telephone number to receive breastfeeding consultation as needed. History and breastfeeding pattern were collected by interview during the postpartum period. A structured questionnaire

was used to collect data including demographic information, health beliefs related to breastfeeding, and parenting practices. A total of 240 (75%) women completed the questionnaires (184 mother who breastfed and 56 mothers who never breastfed).

The mothers' health beliefs (MHB) scale was used, which includes 48 items to assess mother's health beliefs regarding breastfeeding. This scale included four subscales: perceived childhood susceptibility to a variety of illnesses; perceived severity of those illness; perceived ability of medical care to prevent illness; and perceived barriers to and benefits of healthcare. This scale was a reliable and valid tool in a previous study.²²

The adult-adolescents parenting inventory (AAPI) scale was used to evaluate child-rearing practices and mothers' parenting knowledge. In this study, the 32 AAPI items assessed the power and limitation of parenting attitudes associated with appropriate child developmental outcomes, understanding child's need, parent-child roles, and beliefs in physical punishment. The AAPI has shown a desirable level of validity and reliability in previous research.^{23,24}

The MHB and the AAPI questionnaires were translated to Persian (by two experts in English) and retranslated to English by two other people who were experts in both English and Persian. The questionnaire consisted of six constructs of MHB and four constructs of AAPI. Each construct underwent reliability testing before being administered to the participants. Factor loadings, or the indicators of the pattern matrix, operationally defined each latent variable within the final model. Factor loadings, Eigenvalues, variance extracted for each factor, and reliability results have been explained in Table 1. Most factor loadings were above 0.70 and all were above 0.30, a commonly accepted minimum cut-off criterion for accepting a subscale as operationally defining a construct.²⁵ These factors in conjunction with the internal consistency of the reliability analysis of the scales indicate that the quality of the measurement of these latent constructs range from appropriate to excellent.

A pilot study was performed using 30 eligible subjects. Cronbach's alpha coefficients were calculated in the pilot and actual study, as 0.782 and 0.822 for MHB, and 0.760 and 0.795 for AAPI, respectively. These represented the appropriate levels of internal consistency for the questionnaire.

Table 1: Factor analysis and reliability of the scales used.

Scale	Subscales	No. of items	Eigenvalue (% of variance)	Factor loading	Reliability
Mothers' health beliefs (MHB)	Childhood susceptibility to illnesses	12	8.12 (32.4%)	0.84	0.82
	Severity of illnesses	6	3.29 (13.1%)	0.73	0.82
	Ability of medical care to prevent illnesses	12	2.89 (11.5%)	0.61	0.74
	Barriers to health care	2	1.02 (5.2%)	0.32	0.70
	Facilitators to health care	2	1.01 (5.0%)	0.31	0.71
	Health motivator	8	1.89 (7.6%)	0.51	0.81
Adult-adolescents parenting inventory (AAPI)	Appropriateness of developmental expectations	6	8.54 (34.1%)	0.77	0.75
	Empathy towards child's needs	8	2.21 (8.8%)	0.63	0.79
	Belief in use of physical punishment	10	1.63 (6.5%)	0.72	0.81
	Reversing parent-child roles	8	1.46 (5.6%)	0.68	0.75

Descriptive analysis was used to determine the demographic characteristics of participants and logistic regression applied to discover the effects of demographics, health beliefs and parenting attitudes. In our study, breastfeeding (BF) mothers were compared to mothers who never breastfed (NBF).

RESULTS

Out of 240 participants, 23% never breastfed their infants. The mean length of breastfeeding was 11.6 (standard deviation (SD) \pm 12.5) weeks. Most mothers were aged between 20 to 30 years old (mean age 25.3 \pm 3.8 years). Most mothers had a secondary school education level. However, our study revealed that the mothers' education level was unrelated to their breastfeeding behavior. There were no significant differences between BF and NBF mothers on variables such as age, type of medical insurance, number of living children, employment, education, and household income [Table 2].

Women having their first (38%) or second (40%) child were more likely to breastfeed than women having their third or fourth child (22%; $p < 0.040$). Perceptions of social support were not significantly different between the two groups. The two groups were statistically different in terms of empathy towards their child's needs and reversing parent-child roles ($p < 0.050$) [Table 3]. The mothers' perception of the illness severity was higher in BF mothers than NBF mothers ($p = 0.050$) [Table 3].

Logistic regression revealed that BF mothers had a lower perceived severity of childhood illnesses (OR=0.830; CI=0.813, 0.928; $p < 0.005$) and higher perceived confidence of medical care to prevent

diseases (OR=1.075; CI=1.024, 1.117; $p < 0.050$). In addition, BF mothers had a higher perception of reverse parent-child roles than NBF mothers (OR=1.182; CI=1.018, 1.267; $p < 0.001$) [Table 4].

DISCUSSION

Our study investigated the effect of health beliefs and parents' attitude on breastfeeding behaviors. The health belief model (HBM) suggests individuals keep healthy behaviors to prevent disease and health problems if they believe they are susceptible to the problem, believe in the severity of the problem, and if they perceived a benefit of an action and good outcome related to their health. Additionally, accessibility to healthcare and motivation for an individual's health will promote health and reduce disease. According to the HBM, a mother who believes there are benefits of breastfeeding for her infant is more likely to breastfeed.²² Researchers have shown the significant role of health beliefs among BF mothers.^{18,24,26} Mothers breastfed their infants if they perceived that there were benefits to their child's health, nutrition, and bond with their babies.²⁶ In addition, breastfeeding helps mothers bond with their baby and increases the mother-child relationship. Children who have a better attachment with their parents during infancy are more likely to have successful social and emotional development, in particular, learning how to regulate their feelings.^{27,28}

Using valid and reliable research tools showed that BF mothers were less likely to have perceived severity of illness for their child and more likely to have confidence to perform medical care compared to NBF mothers. Therefore, to promote breastfeeding,

Table 2: Comparison of demographic characteristics between mothers who breastfed (BF) and never breastfed (NBF) (n=240).

Characteristics	BF (n=184)	NBF (n=56)	Statistics
Age (years)**			
<20	10 (5.4)	4 (7.1)	Chi-square=0.486; p=0.921
20-30	85 (46.2)	25 (44.6)	
30-40	70 (38.1)	20 (35.7)	
>40	19 (10.3)	7 (12.5)	
Total	184 (100.0)	56 (100.0)	
Education (years completed)	10.01 (1.18)	10.27 (1.24)	t=1.404, p=0.161 (NS)
Employment**			
Not employed	128 (69.6)	41 (73.2)	Chi-square=0.274; p=0.600
Employed	56 (30.4)	15 (26.8)	
Total	184 (100.0)	56 (100.0)	
Number of pregnancy*	2.85 (1.24)	2.66 (1.38)	t=0.977; p=0.329 (NS)
Number of children*	2.55 (1.56)	2.42 (1.46)	t=0.554; p=0.580 (NS)
Use of contraception**			
Yes	110 (59.8)	42 (75.0)	Chi-square=4.281; p=0.038
No	74 (40.2)	14 (25.0)	
Total	184 (100.0)	56 (100.0)	
Type of insurance**			
Self-insured	22 (12.0)	6 (10.7)	Chi-square=0.093; p=0.954
None	95 (51.6)	30 (53.6)	
Government	67 (36.4)	20 (35.7)	
Total	184 (100.0)	56 (100.0)	
Household income (USD)**			
<500	120 (65.2)	38 (67.8)	Chi-square=0.172; p=0.917
500-1000	52 (28.3)	15 (26.8)	
>1000	12 (6.5)	3 (5.4)	
Total	184 (100.0)	56 (100.0)	

*Mean \pm SD; ** number (%); NS: non-significant

physicians and other healthcare providers should consider parents' health beliefs.²⁹⁻³¹

On the other hand, the perception parents have of breastfeeding seems to be a fundamental factor in their decision to breastfeed³ and establishes the link between the decision to breastfeed with parent's behaviors and attitudes.³² It has been shown that

mothers breastfed for a longer time when they had support from family, community health nurses/midwives, and health counselors.³³ In addition, studies have shown a positive relationship between social support (e.g. support by community members, employers, and friends and the availability of facilities to encourage breastfeeding) with duration of

Table 3: Comparison of maternal characteristics and parenting behaviors among mothers who breastfed (BF) and never breastfed (NBF) (n=240).

Scale and subscales	Range	BF* (n=184)	NBF* (n=56)	t-test	p-value
Maternal health beliefs questionnaire					
Childhood susceptibility to illness	12,48	26.6 \pm 5.2	26.2 \pm 5.4	0.499	0.617
Severity of illness	6,30	84.4 \pm 7.3	79.2 \pm 10.2	4.225	<0.001
Ability of medical care to prevent illness	12,48	29.4 \pm 9.7	28.0 \pm 9.3	0.957	0.340
Barriers to health care	2,10	4.2 \pm 1.7	4.1 \pm 1.6	0.390	0.696
Facilitators to health care	2,10	7.5 \pm 1.5	7.7 \pm 1.7	0.846	0.398
Health motivator	8,40	32.0 \pm 4.6	31.3 \pm 4.2	1.016	0.310
Adult-adolescent parenting inventory					
Appropriateness of developmental expectations	6,30	24.4 \pm 2.7	25.1 \pm 2.3	1.755	0.080
Empathy towards child's needs	8,40	24.7 \pm 4.8	29.5 \pm 5.1	6.456	<0.001
Belief in use of physical punishment	10,50	36.2 \pm 5.1	37.1 \pm 4.8	1.171	0.242
Reversing parent-child roles	8,40	25.8 \pm 5.5	29.7 \pm 5.1	4.723	<0.001

*(mean \pm SD)

Table 4: Logistic regression analysis comparing those who breastfed to those who never breastfed (n=240).

Variable	Odds ratio	95% confidence interval	p-value
Employed before birth	1.09	0.67, 4.27	0.601
Number of living children	0.65	0.54, 1.03	0.309
Education (years)			
<12	0.87	0.12, 2.66	0.568
12	1.63	0.42, 4.88	0.145
>13	1.00	-	-
Age (years)			
<20	0.35	0.08, 1.45	0.308
20–30	0.67	0.17, 2.64	0.247
>30	1.00	-	-
Maternal Health Belief Questionnaire			
Severity of illness	0.83	0.81, 0.93	0.020
Ability of medical care to prevent illness	1.08	1.02, 1.12	0.030
Barriers to health care	0.79	0.68, 1.23	0.143
Adult–adolescent Parenting Inventory			
Belief in use of physical punishment	0.90	0.68, 1.12	0.127
Reversing parent–child roles	1.18	1.02, 1.27	0.010

$R^2=0.652$

breastfeeding.^{3,24,33} Thus for promoting breastfeeding programs the impact of social support especially by family and health counselors needs to be considered.

The assessment of breastfeeding practices in our study may have been inadequate. Participants were asked only once about their breastfeeding patterns. Why and how their breastfeeding likely changed over time was not considered. Furthermore, participants were asked to recall their breastfeeding patterns for the past month, which may be a long recall period and introduces significant recall bias.

There was also a large variation in how family beliefs influenced the women's breastfeeding practices, which makes the data less accurate. Additionally, one in four women failed to complete the study, which has the potential to introduce self-selection bias. The questionnaire used to determine breastfeeding practices and parenting in the study was self-administered, again introducing the potential for recall bias.

In our study, most mothers had only one or two children. Previous studies have shown multipara women were more likely to breastfeed their babies.^{10,11} Most mothers were below the age of 30 years and we did not find an association between the mother's age and breastfeeding, which may be due to the small age variation. Mothers who believed that their breast milk was insufficient to meet their infants' needs intended to breastfeed for less than six months, and those mothers with late onset of lactogenesis were more likely to stop breastfeeding. Younger maternal

age, employment, and suffering from illness have also been associated with a shorter duration of breastfeeding.^{26,31} External factors such as these may likely have influenced the results in our study.

Furthermore, the findings may not be generalized to all Iranian mothers due to the small sample size, self-administrated method of data gathering, and the location of study. Using a cross-sectional approach may not consider cultural, social, and religious backgrounds. We were also unable to provide answers for questions about breastfeeding such as why mothers were breastfeeding their infants and how they breastfed. A future qualitative study would enhance our awareness of breastfeeding practices.

CONCLUSIONS

Our study showed that mothers' beliefs regarding infant health play an important role in their decision to breastfeed. Mothers who believed that breastfeeding could prevent disease during childhood breastfed for longer than others. In addition, BF mothers had confidence in their ability to care for their child to prevent childhood illnesses. Breastfeeding provides various health advantages to children, mothers, and society and increasing breastfeeding rates in Iran would reduce Ministry of Health costs by decreasing infants' infections and problems related to formula-feeding.

Health policy makers, pediatric physicians, and midwives should provide appropriate information,

social support, and counselling for mothers' breastfeeding, and improve parents' attitudes towards breastfeeding by promoting awareness of the benefits of breastfeeding by educating the community through social events.

Disclosure

The authors declared no conflict of interests. No funding was received for this work.

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