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EVIDENCE BASED CARE



## Relations between Breastfeeding Self-efficacy and Maternal Health Literacy among Pregnant Women

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### Abstract

**Background:** The World Health Organization have undertaken efforts to protect, promote and support exclusive breastfeeding, many researches show Breastfeeding self-efficacy is important for improving breastfeeding outcomes, Although other factors can affect it.

**Aim:** The purpose of this study was to investigate relationships between breastfeeding self-efficacy and maternal health literacy among pregnant women referred to health centers of Mashhad in 2015.

**Method:** This cross-sectional study was carried out in Mashhad health center in 2015. 185 pregnant women with primiparous women were selected multistage cluster method. Data were collected through health literacy maternal questionnaire and breastfeeding self-efficacy questionnaire and analyzed by Chi-square, student's t-test, one-way ANOVA, Pearson's correlation coefficient and general linear model in the SPSS/16.

**Results:** The mean age of the participants was  $24.9 \pm 5.0$  years. The mean and standard deviation score of women's breastfeeding self-efficacy were  $120.5 \pm 11.7$  respectively. No significant relationship was observed between the mean score of breastfeeding self-efficacy and educational level, monthly income, occupational status, as well as educational level and occupational status of spouses. The results general linear model showed that the only variable that significantly associated with breastfeeding self-efficacy was maternal health literacy ( $B=0/94$ ,  $SE=0/14$ ,  $P<0.001$ ).

**Implications for Practice:** Given the results of the present study, implementing training programs incorporating self-efficacy and strategies of health literacy in health centers can promote the abilities of mothers regarding exclusive breastfeeding.

**Keywords:** Health literacy, Mother, Self-efficacy

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## Introduction

Exclusive breastfeeding plays an important role in saving the lives of newborns and is considered as one of the most effective strategies to reduce disease and mortality among neonates (1, 2). According to the recommendations by the World Health Organization (WHO), breastfeeding should be initiated within the first hour after birth and exclusive breastfeeding is recommended up to six months of age, along with appropriate complementary foods up to two years of age (3, 4). Breastfeeding protects neonates against diseases, such as respiratory tract infections, allergies, gastroenteritis (5, 6). The benefits of breastfeeding are not just for newborns (7); not only breastfeeding improves the growth, health, immunization and psychological development of infants (8), but it also leads to decreased possibility of diabetes, as well as ovarian and breast cancers in mothers (6, 9). In addition, breastfeeding contributes to the nation's economy, community and environmental benefits (10). Therefore, the need to promote and support breastfeeding for the health and development of neonates is undeniable, and breastfeeding is one of the most important goals of global public health (11, 12). Self-efficacy is an important variable used in the prediction of breastfeeding duration and early termination of breastfeeding by mothers. Breastfeeding self-efficacy is crucial for its continuity (13). The concept of self-efficacy is included among the key variables in Social Cognitive Theory (SCT) as well as the most important prerequisite to changes in behavior, which was first presented by Albert Bandura in 1977 (14, 15). Moreover, self-efficacy is known as people's beliefs about their capabilities to perform a certain task (16). However, breastfeeding self-efficacy is defined as a mother's confidence in her ability to breastfeed her newborn (17).

One of the most important elements in the ability of a woman to engage in health promotion behaviors to protect their neonates and themselves is maternal health literacy (18). Health literacy is recognized as the capacity of individuals to obtain, process, and understand basic health information and services needed to make appropriate health decisions (19). It also involves obtaining a level of knowledge, personal skills and confidence to carry out activities to promote personal and social health through the modification of living conditions and lifestyles (20). Cross-sectional studies have revealed that inadequate health literacy could be associated with adverse effects on health knowledge, preventive behaviors, the ability to move towards the healthcare system, use of preventive services and the ability of mothers to care for their infants (21, 22). According to a study conducted in five provinces of Iran, adequate level of health literacy was observed in only 28.1% of the study population (23).

Maternal health literacy is defined as women employing cognitive and social skills based on experience to access, understand and evaluate information to promote health for themselves and their children (24). This type of literacy is important since the health status of a woman and her understanding of health information before and during pregnancy, as well as during the growing and evolving years of infants have a significant impact on the health of these children (25). Therefore, women have been identified as primary focused population for improving health literacy. Given the importance of maternal health literacy and breastfeeding self-efficacy, identification of predictive and risk factors could significantly contribute to improved maternal and child health. Former studies investigated the association between various factors and breastfeeding self-efficacy. In some of these studies, no significant relationship was noted between demographic characteristics and breastfeeding self-efficacy (26-28). In some studies, maternal age at pregnancy and educational level had a significant association with breastfeeding self-efficacy (27). Herein, we examined the relationship of breastfeeding self-efficacy with some demographic characteristics and maternal health literacy. It seems that one of the influential factors for breastfeeding self-efficacy is maternal health literacy. With this background in mind, the purpose of this study was to investigate breastfeeding self-efficacy and maternal health literacy and their association in pregnant women, referring to healthcare centers of Mashhad, Iran in 2015.

## Methods

This descriptive and analytical cross-sectional study was conducted on 185 pregnant women, referring to the healthcare centers of Mashhad in 2015, Iran. The standard sample size was calculated to be 123, based on mean estimation formula of a quantitative variable, the self-efficacy variable, and considering the mean $\pm$ SD of 130 $\pm$ 8.4 in a similar study (29), with confidence interval of 95% and accuracy of 1.5. To be more accurate, we increased the sample size to 185.

Inclusion criteria were Iranian nationality, Having basic education, being primigravida, gestational age of 32 weeks on more and willingness to participate in the study. Since perceptions of multiparous and primiparous mothers regarding breastfeeding and its success are different, in the current study, we enrolled primiparous mothers to eliminate factors such as previous experience and perceptions.

In this study, three questionnaires were used; the first was related to demographics of the participants, while the second and third were the breastfeeding self-efficacy scale and maternal health literacy scale, respectively. The demographics questionnaire consisted of data on educational level of the participants and their spouses, occupational level of the samples and their spouses and monthly income of the family.

The breastfeeding self-efficacy scale is a standard questionnaire, designed by Bandura in 1997 and used by Fax and Dennis (2003) for the first time. In addition, reliability and validity of this scale has been assessed for Iranian population (2010) (27). This scale consists of 33 items and uses a five-point Likert-scale, ranging from “strongly agree” (five points) to “strongly disagree” (one point). The total score is indicative of breastfeeding self-efficacy, with the least and highest possible scores of 33 and 165, respectively. reliability of this questionnaire was also confirmed at the Cronbach's alpha coefficient of 0.82 (27).

On the other hand, the maternal health literacy scale was first developed by Mojinyinola,(2011) (30) and translated to persian, tested for validity and reliability by Peyman & et al (2016) for Iranian population (31). It is composed of 14 items is scored within the range of “strongly agree” (four points), “agree” (three points), “disagree” (two points) and “strongly disagree” (one point). The total score shows the health literacy score of the participants, with the least and highest possible scores of 14 and 56, respectively. Content validity of this questionnaire was 0.96 and reliability of this questionnaire was also confirmed at the Cronbach's alpha coefficient of 0.89 (31).

Official referrals were obtained from faculty's authorities of the healthcare center of Khorsan Razavi province followed by multistage cluster method selection of four healthcare centers out of five. Referrals were sent to the selected healthcare centers one, two, five and the same letters were obtained at the healthcare centers in order to enter the place. In total, 16 healthcare centers were evaluated, which resulted in the extraction of a list of eligible mothers to be invited to the study through phone calls.

questionnaires were completed Self-report. Willing mothers either referred to one of the healthcare centers or received questionnaire at their house by our researcher (if desired). At first, the research objectives were explained to the participants and written informed consents were obtained prior to the study, followed by the completion of questionnaires by the samples.

Scales were provided for the participants and they were assured of confidentiality terms regarding their personal information. In addition, samples were free to withdraw from the study and discontinue their participation at any time. Sampling was performed 3 months. Data analysis was performed in SPSS version 16 using kolmogrov-smirnov, chi-square, student's t-test, one-way ANOVA, Pearson's correlation coefficient, general linear model and descriptive statistics.

## Results

According to the results, mean score of maternal breastfeeding self-efficacy was estimated to be (120.5±11.7), with the lowest and highest breastfeeding self-efficacy scores of 77.0 and 140.0, respectively. On the other hand, mean maternal health literacy score was (42.7±5.6), with the lowest and highest scores of 29.0 and 55.0, respectively. A significant linear correlation was observed between breastfeeding self-efficacy and maternal health literacy of the participants ( $P < 0.001$ ). In other words, improved maternal health literacy will be associated with increased breastfeeding self-efficacy. (Table 1). As presented in Table 2.68 (36.8%) and 50 (27.0%) cases had education level of below and above high school diploma, respectively. in addition, other participants had high school diploma. One-way ANOVA did not show a statistically significant association between the mean score of breastfeeding self-efficacy and educational level of the participants ( $P = 0/056$ ). In terms of educational

**Table 1. Mean±SD of breastfeeding self-efficacy and maternal health literacy and their correlation**

Variables	Mean ±SD	Pearson Correlation Coefficient	P-value
Breastfeeding Self-efficacy	120.5±11.7	0.45	<0.001
Maternal Health Literacy	42.7±5.6		

level of spouses, 86 (46.5%) and 42 (22.7%) of the participants' spouses had education level of below and above high school diploma, respectively. Moreover, other spouses had high school diploma. One-way ANOVA did not show a statistically significant association between the mean score of breastfeeding self-efficacy and educational level of spouses ( $P=0/11$ ). In terms of occupational status, 165 (89.2%) of the participants were housewives and the rest were employed. T Test did not show a statistically significant association between the mean score of breastfeeding self-efficacy and occupational status of the participants ( $P=0/21$ ). Meanwhile, 26 (14.1%), 48 (25.9%) and 104 (56.2%) of the participants' spouses were employees, workers and self-employed, respectively. Moreover, the remaining spouses had other occupations. One-way ANOVA did not show a statistically significant association between the mean score of breastfeeding self-efficacy and occupational status of spouses. ( $P=0/17$ ). Evaluation of monthly income of families revealed five million rial to ten million rial salary in 94 (50.8%) cases. One-way ANOVA did not show a statistically significant association between the mean score of breastfeeding self-efficacy and household monthly income ( $P=0/17$ ). According to the results of Table 2, no significant association was observed between the mean score of breastfeeding self-efficacy and variables of educational level of the participants and their spouses, occupational status of the samples and their spouses and household monthly income. Mean age of the participants was  $24.9 \pm 5.0$  years, with the lowest and highest ages of 16 and 41 years, respectively. Evaluation of quantitative variables via Pearson's correlation coefficient revealed that while no linear correlation was found between breastfeeding self-efficacy and age of the participants ( $P=0.33$ ) (Table 2)

Ultimately, all the variables were entered into a linear model. We manually ruled out the variables that had the slightest relationship with the dependent variable through backward elimination method. Husband's educational level and occupation, as well as maternal health literacy level had the lowest P-value, which are presented in Table 3. According to the results, the total breastfeeding self-efficacy score of mothers with better-educated spouses (above diploma degrees) was 1.6 points lower, compared to the participants with not-educated spouses (education level below diploma). In addition, samples with employed spouses had 8.4 self-efficacy scores less than mothers, whose spouses had other occupations. The results general linear model were indicative of a significant relationship only between breastfeeding self-efficacy and maternal health literacy ( $B=0/94$ ,  $SE=0/14$ ,  $P<0.001$ ) (Table 3).

**Table 2. Mean±SD of breastfeeding self-efficacy based on demographic characteristics**

Variables	Number (Percentage)	Breastfeeding Self-efficacy Mean±SD	P- value
Education Level			0.056*
Below High school Diploma	68 (36.8)	120.2±12.0	
Diplom	67 (36.2)	118.4±11.3	
Above High School Diploma	50 (27.0)	123.7±11.5	
Education Level of spouses			0.11*
Below High school Diploma	86 (46.5)	119.3±11.6	
Diplom	57 (30.8)	119.8±10.7	
Above High School Diploma	42 (22.7)	123.8±12.9	
Occupational Status			0.21**
Housewife	165 (89.2)	120.1±11.4	
Employed	20 (10.8)	123.6±14.0	
Occupational Status of Spouses			0.17*
Office Worker	26 (14.1)	121.5±14.3	
Laborer	48 (25.9)	121.2±11.4	
Self-employed	104 (56.2)	119.4±11.1	
Other	7 (3.8)	129.1±10.8	
Household Monthly Income			0.17*
5000,000 rial≤	53 (28.6)	120.9±12.7	
5000,000-10,000,000 rial	94 (50.8)	119.1±10.8	
10,000,000-15,000,000 rial	26 (14.1)	121.7±13.1	
≥15,000,000 rial	12 (6.5)	126.7±9.4	
Age Mean±SD	24.9±5.0		0.33***

\*One-Way ANOVA

\*\*Independent-Sample T Test

\*\*\* Pearson Correlation Coefficient

**Table 3. The obtained results from the general linear model for the effect of husband's educational level and occupation, as well as maternal health literacy on breastfeeding self-efficacy**

Variables		B	SE	t	P value
Education Level of Spouses	Under Diploma	-1.1	2.4	0.4	0.64
	Diploma	-1.6	2.3	0.6	0.49
	High School Diploma*	0			
Occupational Status of Spouses	Office Worker	-8.4	4.4	1.8	0.06
	Laborer	-4.9	4.4	1.1	0.26
	Self-employed	-7.5	4.2	1.7	0.07
	Other*	0			
Health Literacy		0.9	0.1	6.5	<0.001

## Discussion

According to the results of the current research, the only association, observed in the general linear model analysis, was between maternal health literacy and breastfeeding self-efficacy. In other words, enhanced maternal health literacy will be associated with improved breastfeeding self-efficacy. In a study by Peyman et al (2016) conducted to evaluate the relationship between self-efficacy physical activity and health literacy in postpartum women, a significant association was found between self-efficacy and health literacy (32). Positive correlations were also observed between self-efficacy and health literacy of patients with diabetes (33, 34) and chronic diseases (35). And cardiac diseases (22). The results of the present study indicated that maternal health literacy must be raised among the women of our society to improve breastfeeding self-efficacy. In this regard, the results by Poorman et al (2014) were indicative of a significant correlation between inadequate health literacy and never breastfeeding (36). In another study by Kohan et al (2006) a significant difference was found between mothers with adequate health literacy and time of breastfeeding initiation (37). The results by Mojoyinola (2011) indicated significant positive relationships among maternal health literacy, antenatal care, healthy pregnancy and pregnancy outcomes (30). Kaufman et al (2001) conducted a study to evaluate the effect of functional health literacy on the initiation time and results of breastfeeding in New Mexico, America. According to the results of the mentioned study, a significant correlation was observed between functional health literacy and breastfeeding (38). Today, the act of breastfeeding promotion has been highlighted as one of the most challenging aspects of health literacy (how to encourage individuals to use information in health decision making) (39).

According to the results of this study, no significant relationship was observed between the mean score of breastfeeding self-efficacy and the evaluated variables (e.g., age, educational level, monthly income, occupational status, as well as educational level and occupational status of spouses). In studies by Hassanpour et al (2010) (27) and Bastani et al (2009) (28) no significant association was observed between mean score of breastfeeding self-efficacy and variables of age, educational level and occupational status. In addition, Otsuka et al (2008) (29) indicated that no significant relationship was observed between self-efficacy and variables of maternal age, educational level and income, which is in line with our findings. However, Varaei et al (2009) (26) demonstrated a statistically significant association between breastfeeding self-efficacy and educational level, which is inconsistent with the results of the present study. This discrepancy could be due to differences in demographics of the samples; in this regard, the samples of the mentioned study included both multipara and primigravida women, whereas only primigravida women with no breastfeeding experience were enrolled in the present research. In another study by Mir Mohammad Aliyi (2014) a significant correlation was found between breastfeeding self-efficacy and occupational status of spouses, which is not in congruence with our findings (29). This lack of consistency between the results might be due to differences in methods used to describe the occupational status of participants' spouses. In the aforementioned study, the occupational status of spouses was assessed based on economic sentiment indicator, whereas the occupational status of spouses was just described with titles in the present study. Zubaran et al (2013) conducted a study in Southern Brazil and indicated that mothers with exclusive breastfeeding had higher breastfeeding self-efficacy, compared to those who were feeding their newborns with complementary foods and liquids along with breastfeeding (40).

Therefore, improved maternal health literacy could have a positive impact on children nutrition promotion by breastfeeding. It is suggested that health literacy strategies be used to improve maternal

health literacy in the community. The most important strength of this study was the evaluation of relationship between breastfeeding self-efficacy and maternal health literacy in Iran for the first time. It is worth mentioning that this significant relationship could be used as a useful strategy in planning educational interventions.

One of the major drawbacks of this study was conducting the research in healthcare centers, which led to less participation of employed or student mothers. Another limitation of the present research was its cross-sectional nature, which did not facilitate the process of interpreting time sequence of relationships between the variables.

### **Implications for Practice**

According to the results of the present study, the only modifiable factor associated with breastfeeding self-efficacy has been identified as maternal health literacy. Therefore, maternal health literacy must be improved in order to enhance breastfeeding self-efficacy in the society. In this regard, educational interventions must be designed based on the self-efficacy theory and health literacy strategies to enhance breastfeeding.

It is recommended that longitudinal studies be conducted in the future for more accurate results. Since the present study was only performed on primigravida women, it is also suggested that further studies be conducted on multipara women as well.

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### **Conflict of interest**

The authors declare no conflict of interest in this study.

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