

## Research Article

### Breastfeeding self-efficacy: relationship with planned behaviors in mothers of NICU newborn Breastfeeding self-efficacy in NICU.

Ali Mohsenzadeh <sup>1</sup>, Monirsadat Nematollahi <sup>1</sup>, Roghayeh Mehdipour Rabory <sup>1</sup>, Mansooreh Azzizadeh forouzi <sup>1</sup>

#### Author's Affiliation:

1- Kerman Medical University, Nursing Research Center, Iran Kerman, Iran.

#### Correspondence:

Mansooreh Azzizadeh Forouzi, Email: forozy@gmail.com

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### ABSTRACT

**Background:** This study aimed to investigate the relationship between self-efficacy and planned behaviors of exclusive breastfeeding in mothers of newborns admitted in NICU's, in 2018. Breastfeeding self-efficacy is defined as a mother's ability to breastfeed her newborn. The theory of planned behavior is a cognitive-social decision-making model, which is a useful framework for predicting and explaining healthy behaviors. If mothers have limited self-efficacy in exclusive breastfeeding and also planned behaviors – how they can take care of an immature and ill neonate at home. This gap can be fully explored when measuring exclusive breast self-efficacy and relationship with planned behavior.

**Method:** This is a cross-sectional study, the population included mothers of the newborns hospitalized in newborns intensive care unit. The sample size was 150 subjects based on a pilot study. A demographic, breastfeeding self-efficacy scale and planned behavior questionnaire was used for data collection. The data were analyzed using SPSS software.

**Results:** The mean score of breastfeeding self-efficacy and exclusive breastfeeding planned behavior were  $46.84 \pm 11.44$ , and  $90.12 \pm 8.89$  respectively. There was a direct and significant correlation between the self-efficacy and planned behaviors ( $r=0.32$ ,  $p<0.001$ ).

**Limitation:** The findings of this research do not represent all Iranian mothers of infants in the NICU, most of the time either the mother was taking care of the infant or resting in the mother's room, did not have much time to respond and cooperate.

**Conclusion:** Based on the result there was direct and significant correlation between the self-efficacy and planned behaviors

**Keywords:** Exclusive Breastfeeding, Newborn, NICU, Planned Behavior, Self-efficacy

### INTRODUCTION

The World Health Organization recommends mothers throughout the world to exclusively breastfeed neonates up to six months of age to achieve optimal growth, development, and well-being. Breastfeeding initiation and continuation in preterm newborns are significantly lower than that of the term newborns <sup>1</sup>, however exclusive breastfeeding practices has reduced gradually. Barti (2011) argues that exclusive breastfeeding behavior will reach 23.1% at six months of age and 17.6% at one-year-old age <sup>2</sup>. In Iran, the exclusive breastfeeding rate was 45% in 2001, and it was 28% in 2006, which was significantly less than the objectives of the WHO <sup>3</sup>.

One of the factors affecting exclusive breastfeeding is the mother's self-efficacy in breastfeeding <sup>4</sup>, which means one's confidence and belief in her ability for healthy behaviors, including successful exclusive breastfeeding <sup>5, 6</sup>. Lawrence (2015) stated that breastfeeding self-efficacy reflects the mother's self-confidence in her ability to breastfeed her newborn and also predicts the mother's desire for breastfeeding. <sup>7</sup>

Loke (2013) reported that mothers needed to improve their self-efficacy for exclusive breastfeeding, and self-confidence is an essential condition for it <sup>8</sup>. The results of a study in Cyprus showed that mothers' self-efficacy of exclusive breastfeeding was low during the first 48 hours after birth and suggested interventions to increase

the self-efficacy of breastfeeding and empowerment of mothers<sup>8</sup>. The results of the study of Varae et al. (2009) on 198 pregnant women showed that breastfeeding self-efficacy was one of the important variables affecting the continuation of breastfeeding and predicted breastfeeding duration<sup>9</sup>.

Theory of planned behaviors (TPB) is also a socio-cognitive decision-making model that provides a useful framework for predicting and explaining health behaviors, and it is possible to predict optimal behavior by measuring behavioral intention<sup>4,10</sup>. McMillan and et al stated the TPB asserts that behavior is determined by the intention to engage in that behavior and perceived behavioral control (PBC). Intention reflects an individual's decision to exert effort to perform the behavior. Intention is held to be determined by attitudes, subjective norms (SN), and PBC. Attitudes are conceptualized as the overall evaluation of the behavior. The attitudinal component is a function of a person's salient behavioral beliefs about the likely outcomes of the behavior. SNs reflect the perceived pressure from significant others to perform or not perform a particular behavior. The planned behavior control is based on an evaluation of the power of factors likely to facilitate or inhibit the performance of the behavior each weighted by their frequency of occurrence<sup>11</sup>.

The results of Rahimi et al. on the application of the theory of planned behavior and the prediction of exclusive breastfeeding intention showed that 92.5% of pregnant mothers intended to breastfeed exclusively until the end of six months. All three constructs (attitude, subjective norms, and perceived behavioral control) had a significant correlation<sup>12</sup>. A study by Hamilton et al. on primiparous women showed that attitudes and subjective norms were proper predictors for breastfeeding exclusively<sup>13</sup>. Studies on breastfeeding self-efficacy have been very limited in Iran, and few reports have been published in this regard<sup>9</sup>.

Based on the literature review, most of the studies pointed to the annual rate of exclusive breastfeeding are declining by mothers. On the other hand, if mothers have limited self-efficacy in exclusive breastfeeding and also planned behaviors – how they can take care of an immature and ill neonate in home. This gap can be fully explored when measuring exclusive breast self-efficacy and relationship with planned behavior. This study aimed to investigate the relationship between self-efficacy and planned behavior of exclusive breastfeeding in mothers of the newborns admitted to the NICUs of southeast of Iran.

## METHOD

### Design, Sample And Setting

This study had a cross-sectional design and setting included the biggest NICU in southeast Iran. ( Kerman is the largest city in the southeast of Iran, with a population of more than 722,000.

The study population consisted of mothers whose newborns were admitted after birth to NICU. The sample size was determined by administer a pilot study on 20 eligible mothers. Based on  $\alpha$  of 5%, and  $\beta$  of 20% in the study, 150 mothers participated in the study in 2018.

Inclusion criteria were Iranian nationality, ability to fill out the questionnaire, and a lack of mental or physical disorder.

Exclusion criteria were mothers prohibited from breastfeeding with health conditions, such as infectious breast diseases, diseases that may interfere with breastfeeding, maternal use of antidepressants and psychotropic drugs and maternal hospitalization.

The convenience method was used for sampling. Consent to participate in the study was obtained from mothers. Sampling was done until the final sample number was reached.

## Measurements

Demographic information form (mother and neonate), breastfeeding self-efficacy, and planned behavior questionnaires were used for data collection. Demographic and background information of the newborns included the age of the newborn, the birth weight, the feeding type, gender, the cause of admission, and the Apgar score; and for mothers included age, marital status, occupation, education level, income.

### Breastfeeding self-efficacy

Wheeler (2013) developed the questionnaire to evaluate breastfeeding self-efficacy, which included 13 items. The items begin with the prefix "I can always" based on the 5-point Likert scale. The range of scores is between one, indicating "I am not sure at all" to five, indicating "I am absolutely sure". The minimum score was 13, the maximum was 65, and the highest score showed the highest breastfeeding self-efficacy score. The face and content validity of the questionnaire was confirmed by calculating the validity and the validity, index of 1, and also calculating the item impact factor of 5, and the reliability of this questionnaire was confirmed with alpha coefficient = 0.70<sup>14</sup>.

### Planned behavior theory questionnaire

This questionnaire consisted of 25 items, and three subscales, attitude (11 items), subjective norms (7 items), perceived behavioral control (4 items), and behavioral intention<sup>3</sup>. A 5-point Likert scale was used (totally agree = 5, totally disagree). The score range was between 25 and 125<sup>15</sup>.

The validity of the questionnaire was calculated by Alemi (2014) and CVI = 0.81. The reliability of the questionnaire was also calculated to be 0.79 by calculating Cronbach's alpha and intraclass correlation coefficient (ICC) = 0.8. Test-retest reliability and internal consistency of the questionnaire were 0.84 and 0.86, respectively<sup>16</sup>. Also, the results of the confirmatory factor analysis showed that the four-factor model of the planned behavior theory fit with Iranian society<sup>9</sup>.

### Ethical issues

The Kerman University of Medical Sciences approved this project (IR.KMU.REC.1396.1500). After approval, permission was issued to the management of the Afzalipour Hospital. The researcher provided some oral information, including the goals and objectives of the study, the confidentiality and anonymity of the data, and that the participants were free to withdraw from the study at any time. Written Informed consent was obtained from all individual participants included in the study. The sampling process lasted from October to March 2018.

### Statistical analysis

Data were analyzed using SPSS 19, descriptive statistics were used to describe demographic & background, breast-feeding self-efficacy, and breast-feeding planned behavior scores of participants. Pearson correlation was used to determine the correlation between self-efficacy and planned behaviors of exclusive breastfeeding, and linear regression were used to determine the relationship between demographic variables with self-efficacy of exclusive breastfeeding. Significance level was considered as 0.05.

## RESULTS

The age range of the mothers was between 16-58 years. 39.7% of the mothers had diploma degrees, 85.9% were housewives, and most participants 69.9% had average income. (Table1).

The age range of neonates was between 19-41 weeks. The Majority of them (39.7%) had >2000 grams. 78.2% were breastfed exclusively and 58.3% were boys.

Table 1. Socio-demographic characteristics of the mother

Variable	Frequency/Number (percentage)	
Age (yr.)	15-30	97 (62.17)
	31-45	58 (37.17)
	46-60	1 (0.64)
Education	Middle/High school	50 (32.1)
	Diploma	62 (39.7)
	B.A and higher	44 (28.2)
Job	Housewife	134 (85.9)
	Worker	5 (3.2)
	Employed	13 (8.3)
	Self-employed	2 (1.3)
	Others	2 (1.3)
<b>Total</b>	156 (100)	

The mean score of breastfeeding self-efficacy was  $46.84 \pm 11.44$ , which was at the moderate level; The mean score of breastfeeding planned behavior was  $90.12 \pm 8.89$ , which indicated the moderate level. Regarding the determination of dimensions, the highest mean score was related to attitudes  $36.44 \pm 4.22$ , and the lowest mean score was related to behavioral intention  $1.97 \pm 2.96$  (Table 2). The total score of planned behavior was positively correlated with breastfeeding self-efficacy ( $r = 0.32$ ,  $P < 0.001$ ). In addition, the components of planned behavior (subjective norm ( $r = 0.33$ ,  $P < 0.001$ ) and behavioral intention ( $r = 0.33$ ,  $P < 0.001$ ), were positively correlated with self-efficacy. (Table 2).

Table 2. Mothers breastfeeding self-efficacy and planned behaviors of exclusive breastfeeding

Variable	Minimum	Maximum	Mean	SD	
<b>Breastfeeding self-efficacy</b>	22	65	46.84	11.44	
<b>Planned behaviors of exclusive breastfeeding</b>	Attitude	23	52	36.44	4.22
	Subjective norm	16	35	29.24	3.15
	Perceived behavioral control	4	52	12.44	3.88
	Behavioral intention	3	15	11.97	2.96
	Total score	67	126	90.12	8.89

The results of regression analysis showed that the number of children and the age of the newborn with beta coefficients of 0.25 and 0.22 were predictors of the mothers' self-efficacy of breastfeeding, so that the higher the number of children and the older the age of the newborn at the birth, the higher the self-efficacy (Table 3). There was no relationship between the planned behaviors of exclusive breastfeeding and maternal and neonate demographic variables ( $P > 0.05$ ).

Table 3. Regression model for demographic variables related to self-efficacy of exclusive breastfeeding

Variable	Standard error	Beta coefficient	T	P-value
<b>Constant number</b>	10.285		1.144	
<b>Children No.</b>	0.993	0.258	2.889	0.004
<b>Neonate's age</b>	0.336	0.220	2.333	0.027
<b>Neonate's weight</b>	1.381	0.143	1.417	0.158
<b>The previous children feeding type</b>	1.177	- 0.076	- 0.870	0.386

## DISCUSSION

There was a positive correlation between breastfeeding self-efficacy and planned behaviors scores, such that the higher the score of planned behaviors, the higher the self-efficacy scores. The results of Bai (2010) showed that planned behaviors played a significant role in the breastfeeding behavior of the mother<sup>17</sup>. Brian et al. (2016) also reported that planned behaviors were predictors of exclusive breastfeeding<sup>18</sup>. The results of Jameie et al. (2017) also showed the relationship between planned behaviors and exclusive breastfeeding<sup>19</sup>. Thulier et al. (2009) also

reported that some factors, such as self-efficacy, are effective in promoting breastfeeding behaviors<sup>20</sup>. Regarding the similarity of the three studies mentioned with the results of the present study, it seems that the theory of planned behaviors is a suitable framework for increasing exclusive breastfeeding. Since the pattern of breastfeeding differs in different societies and because the rate of exclusive breastfeeding of mothers is about 28% in the first six months in Iran<sup>10</sup>, this theory as an intervention can help increase maternal self-efficacy in breastfeeding. Ajzen (2011) writes that the theory of planned behaviors can well show one's behavior according to his beliefs. Therefore, the importance of this theory as an intervention in the self-efficacy of exclusive breastfeeding is confirmed<sup>21</sup>.

The finding of the relationship between the exclusive breastfeeding self-efficacy of mothers and the constructs of planned behaviors showed that the higher the score of subjective norm and behavioral intention, the higher the self-efficacy score. The results of Jameie (2017) also showed that the behavioral intention predicted exclusive breastfeeding in studied mothers<sup>19</sup>. The intention is the central construct in the theory of planned behavior and includes thinking for doing behavior and direct determinant of certain behavior. Meanwhile, the intention reflects one's level of motivation and will for trying to perform the behavior. Therefore, judgment and confidence which is self-efficacy in breastfeeding should be increased in mothers who intend to breastfeed. If a mother intends to breastfeed her newborn exclusively after giving birth, she will more likely reach the correct behavior which is exclusive breastfeeding for up to six months. As mentioned, there was a direct and significant relationship between the subjective norm, one of the dimensions of planned behavior, and exclusive breastfeeding self-efficacy of the mothers, so that the higher the score of the subjective norm and behavioral intention, the higher the self-efficacy scores. Hill, Arnett, and Mauk (2008) also found that subjective norm was a predictor of intention to breastfeed<sup>22</sup>. Subjective norms are a function of beliefs, namely the person's beliefs that specific referents think that she should or should not perform a behavior and her motivation to comply with those normative beliefs<sup>23</sup>. In this study, subjective norm refers to the mother's perception of their significant other's preferences or expectations to perform her EBF and her motivation to comply with each of their expectations. According to subjective norms, mothers must breastfeed their newborn, and the health of the newborn is very important to the mother. Therefore, the level of confidence of mothers for exclusive breastfeeding increases as a result of high subjective norms; self-efficacy gives self-confidence to a person when doing something.

The results of the current study showed that which mothers breastfeeding self-efficacy was higher than the average based on scoring. Consistent with the results of this study, the study finding of Hamid (2018), mothers had average breastfeeding self-efficacy in Malaysia<sup>24</sup>. Also, the results of the study by Hadjiona (2016) on breastfeeding self-efficacy of mothers, showed that breastfeeding self-efficacy in the first 48 hours after birth was higher than the average<sup>10</sup>. Rahmatnejad and Bastani (2011) reported that exclusive breastfeeding in primiparous mothers was higher than the average<sup>25</sup>. United Nations of Children's Fund (UNICEF), Indonesia, reported that only 42% of infants in Indonesia of up to six months old are exclusively breastfed<sup>26</sup>. Tuthill (2016) reported that Breastfeeding practices in the United States (US) are suboptimal<sup>27</sup>. In the current study and mentioned literature review, breastfeeding self-efficacy is not at optimal levels. Many factors affect breastfeeding self-efficacy, such as lack of knowledge and training of mothers, partners and significant. Awaliyah et.al. (2019) claimed knowledge of the women, partners, family members, healthcare providers and policymakers about the appropriate methods for, and the risks associated with, non-exclusive breastfeeding is low<sup>26</sup>. Ultimately, the average level of breastfeeding self-efficacy hinted that education may need to be reinforced before and after delivery or encouraged in the clinical setting in order to increase and improve the success of breastfeeding and breastfeeding self-efficacy.

The results of the current study showed that the mean total score of planned behaviors was higher than the average level based on the questionnaire scoring. The results of the study by Arshad et al. (2017) showed that the planned behaviors of exclusive breastfeeding in these participants were moderate<sup>28</sup>. The mother's interest in the baby and the desire to maintain the newborn's health in any situation prepare her for exclusive breastfeeding. In other words, according to the theory of planned behaviors, the mothers have had an average intention for breastfeeding, and those who intend a behavior are more likely to reach that behavior which is exclusive breastfeeding in the current study. Mahboobi et al. (2014) write that if a mother intends to breast-feed her

newborn exclusively before pregnancy, she will more likely to perform the behavior. Therefore, regarding newborns' need for the breast milk in one hand, and healthiness and other benefits of breast milk on the other hand, such behaviors must prevail before the birth of the newborn<sup>29</sup>.

Also, regarding the determination of the dimensions of planned behaviors, the results showed that the highest mean score was related to the attitude. The results of a study show that the highest mean was related to the attitude. Corel (2001) also believed the attitude was the most important aspect of the theory of planned behavior in breastfeeding in mothers in his study<sup>30</sup>. Attitude, one of the constructs of the theory of planned behavior, refers to the evaluation of behavior that has been shaped by past experiences<sup>31</sup>. Mothers might be affected by the training received in the field of breastfeeding. Their increased awareness and access to information have also influenced their attitude. The influence of mothers' relatives regarding the importance of breastfeeding can also affect their attitude<sup>32</sup>. Aderajew et al. (2013) write that more than half of pregnant women are under social pressure to breastfeed exclusively, and some of them have been affected by their mothers and husbands for exclusive breastfeeding. On the other hand, they believed that the comprehensive social support for breastfeeding influenced the attitude of mothers<sup>33</sup>. Although the mothers in present study were those who had a newborn in the NICU, they had a moderate attitude compared to scoring. Despite the condition of the newborn, mothers did not have a bad attitude toward breastfeeding. However, in order to solidify the behavior, these mothers must receive more training about exclusive breastfeeding during their newborns hospitalization in the NICU. Kristen Mitchell-Box (2013) stated education is an important component in increasing positive attitudes<sup>34</sup>.

The results of regression analysis showed that the number of children and the age of the newborn with beta coefficients of 0.25 and 0.22 were predictors of the mothers' breastfeeding self-efficacy variable, such that the higher the number of children and the older the age of newborn at birth, the higher the self-efficacy of exclusive breastfeeding (Table 5). Given the fact that older newborns have developmentally better status, mothers may be more self-confident for exclusive breastfeeding. The newborn's weight is the first component the mother is paying attention to. If the newborn's weight is less than normal, the mother will be more concerned about touching, holding and breastfeeding her newborn (35). Unfortunately, mothers cannot judge correctly about breastfeeding and, breastfeeding may be insufficient for a low-birthweight newborn.

## CONCLUSION

The results showed increasing the self-efficacy of breast-feeding could accelerate the behavior of exclusive breastfeeding in mothers with newborn babies. In conclusion the use of education based on increasing the self-efficacy of breastfeeding is an effective step to increase planned behavior of exclusive breast feeding. An important factor for mothers when establishing breastfeeding self-efficacy and planned behavior regarding breast feeding is support from well-trained professionals. Health care professionals in NICUs need to increase their efforts to support breastfeeding. Also monitor the self-efficacy of exclusive breastfeeding behavior of mothers and not only provide accurate information on breastfeeding but help also them to develop planned behaviors in breastfeeding.

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