



Predictors of Exclusive Breastfeeding Based on the Theory of Planned Behavior: A Descriptive-Analytical Study Among Mothers in Ahvaz, Iran

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Abstract

Background: Exclusive breastfeeding is vital for optimal infant growth and development. Understanding the predictive factors influencing exclusive breastfeeding can improve targeted interventions. This study thus aimed to identify the predictive factors of exclusive breastfeeding based on the Theory of Planned Behavior (TPB) pattern in mothers referred to Ahvaz city health centers in 2024.

Methods: This descriptive-analytical study was conducted from October to December 2024, involving 215 mothers and their infants (0-24 months old) who were referred to health centers in Ahvaz, Iran. Multistage random sampling was used to select participants. Data collection tools included a demographic questionnaire and an exclusive breastfeeding questionnaire based on the TPB model. Statistical analyses, including Chi-square, independent t-test, Mann-Whitney U, and Pearson correlation, with a significance level of P -value<0.05, were performed using SPSS software version 22.

Results: A significant relationship was found between exclusive breastfeeding status and mothers' attitudes (P -value<0.01), subjective norms (P -value<0.05), perceived behavioral control (P -value<0.05), and behavioral intention (P -value<0.01). Correlation analysis indicated positive relationships among these constructs. Multiple logistic regression identified attitude and behavioral intention as significant predictors of exclusive breastfeeding.

Conclusion: Maternal attitudes and behavioral intentions significantly influence exclusive breastfeeding practices. Interventions focused on enhancing these factors can improve exclusive breastfeeding rates and infant health outcomes.

Keywords: Exclusive breastfeeding, Theory of planned behavior, Maternal attitude, Perceived behavioral control, Behavioral intention, Breastfeeding predictors.

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Introduction

Breastfeeding is one of the most vital ways to boost infant health across different societies ¹. As the most complete nutritional source for babies, breast milk packs over 400 beneficial, natural, and easily absorbable substances. It not only provides the energy infants need for growth but also shields them from illnesses like childhood obesity, cardiovascular disease, childhood cancer, and asthma ¹. Beyond disease prevention, breastfeeding also contributes to

improved bone density, mental development, and enhanced cognitive abilities in children ². Breastfeeding also benefits maternal health by promoting uterine involution, reducing postpartum bleeding, aiding weight loss, and lowering the risk of osteoporosis, breast, and uterine cancer ³. Conversely, infants, particularly those born prematurely, who are not breastfed, face an increased risk of infectious diseases. These include serious conditions like necrotizing enterocolitis, otitis media (ear infections), urinary tract infections, and lower respiratory tract infections ⁴. Given these profound advantages for both mother and child, the World Health Organization (WHO) strongly recommends exclusive breastfeeding for the first six months of an infant's life. This means providing only breast milk, with no other liquids or foods, including water. Following this period, breastfeeding should continue, supplemented with appropriate complementary foods, until the child reaches two years of age ¹⁻⁵.

According to WHO reports, only 39% of all infants under six months in developing countries are exclusively breastfed. While this figure is 70.9% in the United States, only 36.2% of mothers continue this practice, and 17.2% breastfeed their children with solid and complementary foods until 12 months of age ^{6, 7}. Within Iran, the rate of exclusive breastfeeding shows significant regional variation, ranging from 17-33% ⁸. For instance, reported statistics include 54% in Khorasan Razavi Province, 12.8% in East Azerbaijan Province, and 19.5% in Khuzestan Province ^{8, 9}. Early initiation of breastfeeding within the first hour of birth reduces infant mortality by 19-22% ¹⁰. Research in Iran indicates that the lack of exclusive breastfeeding is a contributing factor in 11.6% of deaths among children under five years old ¹¹.

Several factors influence breast milk supply. These include demographic factors (such as mother's age, education, type of delivery, and employment status) and psychosocial factors (like previous breastfeeding experience, breastfeeding self-efficacy, mother-infant separation, and breastfeeding intention) ⁵. For instance, a mother's perception of insufficient milk, inadequate family support for breastfeeding, the use of bottles and pacifiers, the promotion of breast milk substitutes, and the increasing trend of maternal employment can all discourage women from breastfeeding. This, in turn, can negatively impact milk supply and ultimately lead to breastfeeding cessation ^{1, 6, 12}. Rigoni et al. reported that returning to work before six months postpartum reduces the chance of exclusive breastfeeding by up to 31% ¹². However, the precise



relationship between these factors remains unclear, suggesting a need for further research⁵. Therefore, healthcare providers must investigate factors influencing breastfeeding behavior using empirically validated theories¹³. Studies show that promoting breastfeeding can be strengthened using the Theory of Planned Behavior (TPB)^{13,14}. The most critical determinant of behavior in this theory is an individual's intention, which is influenced by three constructs:

1. Attitude: An individual's favorable or unfavorable evaluation of a behavior, comprising personal beliefs and behavioral evaluations.

2. Subjective norms: The perceived social pressure an individual experiences, encompassing abstract beliefs and motivation to comply.

3. Perceived behavioral control: An individual's feeling about the extent to which performing or not performing a behavior is under their control, described by control beliefs and perceived power¹⁵.

Thus, TPB can consider the effects of social, attitudinal, and behavioral factors in promoting breastfeeding¹⁶. While a recent Iranian study titled "Investigating the Factors Affecting the Tendency Towards Exclusive Breastfeeding Based on the TPB" focused on maternal intention⁵, the present study examines actual exclusive breastfeeding behavior—a critical distinction, as intention does not always translate into practice. Conducted in Ahvaz, where exclusive breastfeeding rates are notably low (19.5%)^{8,9}, this research assesses the simultaneous predictive power of all TPB constructs using multivariate regression. The findings are intended to inform the development of theory-based interventions tailored to high-risk, low-resource settings. Therefore, this study aimed to investigate the predictive factors of exclusive breastfeeding based on the TPB model in mothers attending health centers in Ahvaz in 2024.

Materials and Methods

This descriptive-analytical study was conducted from October to December 2024. It involved 215 mothers of infants aged 0–6 months who attended health centers in East and West Ahvaz. The sample size of 215 participants was calculated based on a previous study, with 80% power, a 5% error margin, and a P-value of 0.19¹⁷.

Inclusion criteria were as follows: (1) being the mother of a healthy infant aged 0–6 months, (2) having completed at least elementary education, and (3) having an active health record at one of the health centers in Ahvaz. Participants were excluded if they withdrew from the study or failed to complete more than 20% of the questionnaire.

$$n = \frac{(z_{1-\alpha/2} + z_{\beta})^2}{(0.5 \ln \frac{1+r}{1-r})} + 3$$

$$\alpha = 0.05 \gg z_{1-\alpha/2} = 1.96$$

$$\beta = 0.1 \gg z_{\beta} = 1.645$$

$$r = 0.19$$

The study utilized a multi-stage sampling method. Initially, Ahvaz's health and medical centers and health bases were categorized into 22 clusters (13 in the East and 9 in the West). Subsequently, one center or base was randomly selected from each cluster using a random number table; specifically, centers #10 and #12 from the East, and centers #2, #3, #4, and #5 from the West were chosen. From each of these selected centers, eligible mothers of infants aged 0–6 months were identified through systematic random sampling based on their household file numbers, until the required sample size was reached.

The data collection tool comprised two sections: a researcher-developed demographic questionnaire and a standardized questionnaire based on the TPB. Data were gathered through written, self-reported completion of these questionnaires.

1. Researcher-developed demographic questionnaire:

This researcher-developed questionnaire consisted of 19 questions covering age, education level, occupation, income level, gravidity, parity, number of abortions, type of delivery, birth order of the infant, infant's gender, infant's birth weight, gestational age at birth, presence of exclusive breastfeeding, history of previous breastfeeding, history of diseases, history of surgery, and more. Its content validity was confirmed by 10 faculty members from Ahvaz University of Medical Sciences.

2. A standardized questionnaire based on the TPB:

This questionnaire included 25 questions structured around four components: attitude, measurement of subjective norms, measurement of perceived behavioral control, and measurement of behavioral intention. Specifically, the attitude component had 11 questions, subjective norms had 7 questions, perceived behavioral control had 4 questions, and behavioral intention had 3 questions. Respondents answered each question on a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree," with scores of 1 to 5 assigned, respectively. Therefore, a respondent could achieve a total score between 25 and 125 across all 25 questions. The validity and reliability of this instrument were confirmed in a prior Iranian study by Pakpour et al. In that study, content validity was evaluated by expert panel review, and reliability was assessed using the test-retest method with a one-week interval, resulting in a correlation coefficient of 0.96, demonstrating excellent temporal stability¹⁷.

Before questionnaire completion, mothers were provided with written consent forms. After obtaining consent, they were assured of the confidentiality of their information. Subsequently, the researcher and an assistant researcher fluent in Arabic were present at physically suitable locations within the health and medical centers for sampling. They distributed the questionnaires to the mothers for completion. The questionnaires were completed by the research participants themselves.

Quantitative variables were reported as mean, standard deviation (SD), minimum, and maximum values. Qualitative variables were reported as frequency (percentage). The normality of quantitative variables was assessed using the Shapiro-Wilk test. To examine the association between qualitative variables, the Chi-square test (or Fisher's exact test) was used. For comparing quantitative variables between two independent groups, the independent t-test or its non-



parametric equivalent (Mann-Whitney test) was employed. Pearson correlation was used to assess the relationship between quantitative variables. A significance level of $P\text{-value} < 0.05$ was set for all tests. Data analysis was performed using SPSS software version 22.

Results

Our sample of 215 mothers revealed several key demographic characteristics. The majority (61.9%, $n=133$) had given birth via C-section, and just over half (51.6%, $n=111$) had a male last child. Encouragingly, 60.0% ($n=129$) of these mothers practiced exclusive breastfeeding. Most participants were homemakers (78.6%, $n=169$). In terms of socioeconomic

status, 34.0% ($n=73$) had a bachelor's degree, and 39.5% ($n=85$) reported an income ranging from 100-200 million IRR. Health-wise, 19.1% ($n=41$) had a history of illness, and a substantial 68.4% ($n=147$) had undergone surgery. Furthermore, 76.7% ($n=165$) reported no history of abortion, and 36.7% ($n=79$) were primiparous (had given birth once).

The mean age of mothers was 31.69 ± 6.28 years, the mean gestational age at birth was 37.98 ± 2.16 months, and the mean birth weight of infants was 3163.15 ± 590.39 grams. The mean duration of breastfeeding was 4.88 ± 5.98 months, and the mean duration of the previous child's breastfeeding was 10.23 ± 10.48 months (Table 1).

Table 1. Demographic information (qualitative and quantitative) of participating mothers

Variable	Levels	Count (%)	Variable	Mean $\pm$ SD
Type of delivery	Natural	82 (38.1)	Age	31.69 $\pm$ 6.28
	C-section	133 (61.9)	Gestational age	37.98 $\pm$ 2.16
Last child's gender	Female	104 (48.4)	Infant's weight (g)	3163.15 $\pm$ 590.39
	Male	111 (51.6)	Duration of breastfeeding (months)	4.88 $\pm$ 5.98
Exclusive breastfeeding	Yes	129 (60.0)	Duration of previous child's breastfeeding (months)	10.23 $\pm$ 10.48
	No	86 (40.0)	Number of abortions; count (%)	
Occupation	Homemaker	169 (78.6)	0	165 (76.7)
	Employee	32 (14.9)	1	35 (16.3)
	Student or self-employed	14 (6.5)	2	12 (5.6)
	Illiterate	9 (4.2)	3	3 (1.4)
Education level	Middle school	35 (16.3)	Number of deliveries; count (%)	
	Diploma	58 (27.0)	1	79 (36.7)
	Associate degree	20 (9.3)	2	82 (38.1)
	Bachelor's degree	73 (34.0)	3	39 (18.1)
	Master's degree and higher	20 (9.3)	4	12 (5.6)
Income	Below 10 million	55 (25.6)	5	3 (1.4)
	10 – 20 million	85 (39.5)		
	20 – 30 million	55 (25.6)		
	Above 30 million	20 (9.3)		
History of illness	Yes	41 (19.1)		
	No	174 (80.9)		
History of surgery	Yes	147 (68.4)		
	No	68 (31.6)		

The mean attitude score regarding exclusive breastfeeding was 45.60 ± 6.12 , indicating that mothers had a positive attitude towards exclusive breastfeeding. The mean subjective norm score regarding exclusive breastfeeding was 31.22 ± 3.76 , indicating that mothers had high subjective norms regarding exclusive breastfeeding. The mean perceived behavioral

control score regarding exclusive breastfeeding was 14.28 ± 2.74 , indicating good perceived behavioral control regarding exclusive breastfeeding. The mean behavioral intention score regarding exclusive breastfeeding was 11.97 ± 2.99 , indicating that mothers had a high behavioral intention regarding exclusive breastfeeding (Table 2).

Table 2. Descriptive statistics of theory of planned behavior components

Component	Minimum – Maximum	Median	Mean $\pm$ SD
Attitude	29 – 55	46	45.60 $\pm$ 6.12
Subjective norm	19 – 35	32	31.22 $\pm$ 3.76
Perceived behavioral control	5 – 20	15	14.28 $\pm$ 2.74
Behavioral intention	3 – 15	12	11.97 $\pm$ 2.99

A statistically significant but weak positive correlation was observed between maternal attitude toward exclusive breastfeeding and several variables, including mother's age (Shahroud Journal of Medical Sciences 2026;12(5) | 64

($r=0.123$), number of previous abortions ($r=0.145$), birth order of the last child ($r=0.158$), infant's birth weight ($r=0.149$), and duration of exclusive breastfeeding for the previous child



($r=0.238$) ($P\text{-value}<0.05$). These findings suggest a slight tendency for more positive attitudes among mothers with higher values in these variables, although the low magnitude of correlations indicates limited practical significance. Statistically significant but weak to moderate positive correlations were observed between the constructs of the TPB and several demographic variables (Table 3). Specifically, subjective norms showed weak positive correlations with maternal age ($r=0.147$), number of deliveries ($r=0.175$), and birth order of the last child ($r=0.162$) ($P\text{-value}<0.05$). Perceived behavioral control was weakly correlated with number of

deliveries ($r=0.158$), number of abortions ($r=0.200$), and birth order ($r=0.162$) ($P\text{-value}<0.05$). Behavioral intention demonstrated a moderate positive correlation with current duration of exclusive breastfeeding ($r=0.305$) and a weak correlation with duration of exclusive breastfeeding for the previous child ($r=0.232$) ($P\text{-value}<0.05$). These findings suggest slight tendencies for higher TPB construct scores among mothers with greater parity or longer breastfeeding histories, though the low-to-moderate effect sizes indicate limited practical significance (Table 3).

Table 3. Correlation between the theory of planned behavior components and quantitative demographic variables

Variable	Behavioral intention	Perceived behavioral control	Subjective norm	Attitude
Age	0.061	0.116	0.147*	0.123*
Number of deliveries	0.111	0.158*	0.175*	0.132
Number of abortions	0.06	0.200*	0.03	0.145*
Birth order of last child	0.099	0.161*	0.162*	0.158*
Infant's weight	-0.005	0.104	0.028	0.149*
Gestational age	0.087	0.025	0.019	0.017
Duration of exclusive feeding (months)	0.305	0.056	0.051	0.092
Duration of previous child's exclusive feeding (months)	0.232	0.125	0.1	0.238

* $P\text{-value}<0.05$ (significance level); ** $P\text{-value}<0.01$ (significance level)

A statistically significant difference was observed between the mean attitude scores of mothers who practiced exclusive breastfeeding (46.72 ± 5.09) and those who did not (43.91 ± 7.12) ($P\text{-value}=0.002$). Similarly, mothers who exclusively breastfed reported significantly higher perceived behavioral control (14.93 ± 2.23 vs. 13.32 ± 3.13 ; $P\text{-value}<0.001$) and higher behavioral intention (13.35 ± 1.75 vs. 9.90 ± 3.28 ; $P\text{-value}<0.001$) compared to non-exclusive breastfeeding

mothers. In contrast, no significant association was found between exclusive breastfeeding status and subjective norms ($P\text{-value}=0.48$). Furthermore, none of the TPB constructs showed statistically significant differences across other qualitative demographic variables (e.g., type of delivery, infant's gender, maternal occupation, education level, income, history of illness, or surgery) (Table 4).

Table 4. Comparison of the theory of planned behavior component scores with qualitative demographic variables

Variable name	Levels	Attitude Mean $\pm$ SD	P-value*	Subjective norm Mean $\pm$ SD	P-value*	Perceived behavioral control Mean $\pm$ SD	P-value*	Behavioral intention Mean $\pm$ SD	P-value*
Type of delivery	Natural	46.30 $\pm$ 6.09	0.186	31.47 $\pm$ 3.40	0.45	14.30 $\pm$ 2.80	0.945	12.32 $\pm$ 2.86	0.176
	C-section	45.16 $\pm$ 6.13		31.07 $\pm$ 3.97		14.27 $\pm$ 2.71		11.75 $\pm$ 3.06	
Last child's gender	Female	45.52 $\pm$ 5.99	0.87	31.26 $\pm$ 3.78	0.877	14.32 $\pm$ 2.63	0.842	12.11 $\pm$ 2.89	0.513
	Male	45.66 $\pm$ 6.27		31.18 $\pm$ 3.75		14.25 $\pm$ 2.85		11.84 $\pm$ 3.09	
Exclusive breastfeeding	Yes	46.72 $\pm$ 5.09	0.002	31.37 $\pm$ 3.48	0.48	14.93 $\pm$ 2.23	<0.001	13.35 $\pm$ 1.75	<0.001
	No	43.91 $\pm$ 7.12		31.00 $\pm$ 4.15		13.32 $\pm$ 3.13		9.90 $\pm$ 3.28	
Occupation	Homemaker	45.67 $\pm$ 6.04	0.65	31.18 $\pm$ 3.71	0.955	14.27 $\pm$ 2.81	0.675	12.17 $\pm$ 2.96	0.183
	Employee	45.84 $\pm$ 5.53		31.40 $\pm$ 3.61		13.78 $\pm$ 2.43		11.18 $\pm$ 2.98	
	Student or self-employed	44.14 $\pm$ 8.41		31.28 $\pm$ 4.82		13.78 $\pm$ 2.54		11.42 $\pm$ 3.27	
Education level	Illiterate	44.22 $\pm$ 6.13	0.819	31.11 $\pm$ 2.71	0.642	14.55 $\pm$ 3.32	0.587	12.77 $\pm$ 2.90	0.462
	Middle school	46.77 $\pm$ 5.16		30.74 $\pm$ 4.02		14.57 $\pm$ 2.86		12.51 $\pm$ 2.77	
	Diploma	45.36 $\pm$ 6.42		30.76 $\pm$ 4.20		14.06 $\pm$ 2.81		12.03 $\pm$ 3.18	
	Associate degree	45.95 $\pm$ 6.16		31.30 $\pm$ 3.83		13.80 $\pm$ 2.74		11.40 $\pm$ 2.99	
	Bachelor's degree	45.52 $\pm$ 5.95		31.84 $\pm$ 3.30		14.61 $\pm$ 2.58		12.00 $\pm$ 2.87	
	Master's degree and higher	44.80 $\pm$ 7.60		31.05 $\pm$ 3.91		13.60 $\pm$ 2.86		11.00 $\pm$ 3.27	



Income	Below 100 million IRR	45.81±6.37	0.094	30.52±3.89	0.249	14.00±2.84	0.826	12.01±2.72	0.07
	100 – 200 million IRR	46.17±5.74		31.77±3.38		14.32±2.84		12.49±2.71	
	200 – 300 million IRR	43.90±6.72		30.96±4.20		14.43±3.01		11.14±3.68	
	Above 300 million IRR	47.20±4.54		31.55±3.53		14.50±2.82		11.70±2.34	
History of illness	Yes	45.34±6.96	0.787	31.24±4.43	0.976	14.97±2.67	0.074	11.43±3.32	0.202
	No	45.66±5.93		31.22±3.60		14.12±2.73		11.43±2.91	
History of surgery	Yes	45.46±6.12	0.63	31.12±3.83	0.573	14.28±2.64	0.983	11.79±3.04	0.194
	No	45.89±6.16		31.44±3.62		14.29±2.95		12.36±2.87	

*T-test and one-way ANOVA; P-value<0.05 (significance level)

Statistically significant positive correlations were observed among all constructs of the TPB (Table 5). Specifically, behavioral intention was positively correlated with attitude ($r=0.363$, $P\text{-value}<0.01$), subjective norms ($r=0.265$, $P\text{-value}<0.01$), and perceived behavioral control ($r=0.294$, $P\text{-value}<0.01$).

In univariate linear regression analyses, all three constructs significantly predicted behavioral intention ($P\text{-value}<0.001$). For every one-point increase in attitude, behavioral intention increased by 0.178 units ($B=0.178$, 95% CI: 0.116–0.239). A

one-point increase in subjective norms was associated with a 0.211-unit increase in behavioral intention ($B=0.211$, 95% CI: 0.107–0.315), and a one-point increase in perceived behavioral control predicted a 0.322-unit increase in behavioral intention ($B=0.322$, 95% CI: 0.181–0.463).

However, in the multiple regression model (Table 6), only attitude ($B=0.120$, $\beta=0.254$, $P\text{-value}=0.001$) and perceived behavioral control ($B=0.168$, $\beta=0.153$, $P\text{-value}=0.030$) remained significant predictors, with attitude showing a stronger standardized effect than perceived behavioral control.

Table 5. Correlation matrix between constructs of the theory of planned behavior

Column 1	Behavioral intention	Perceived behavioral control	Subjective norm	Attitude
Behavioral intention	1			
Perceived behavioral control	0.294*	1		
Subjective norm	0.265*	0.263*	1	
Attitude	0.363*	0.439*	0.399*	1

*Pearson correlation test; P-value<0.01 (significance level)

To assess the simultaneous effect of attitude, subjective norm, and perceived behavioral control on behavioral intention, a multiple linear regression model was employed. The results indicated that attitude ($\beta=0.254$, $P\text{-value}=0.001$) and perceived behavioral control ($\beta=0.153$, $P\text{-value}=0.030$) were significant predictors of behavioral intention, while

subjective norm was not ($\beta=0.127$, $P\text{-value}=0.067$). The standardized regression coefficient (Beta) for attitude was larger than that for perceived behavioral control, suggesting that attitude had a stronger relative influence on behavioral intention (Table 6).

Table 6. Predictors of exclusive breastfeeding behavioral intention

Predictor	B	SE	Beta	t	95% CI B	P-value
Univariate regression						
Attitude	0.178	0.031	0.363	5.682	0.116 – 0.239	<0.001
Subjective norm	0.211	0.053	0.265	4.006	0.107 – 0.315	<0.001
Perceived behavioral control	0.322	0.072	0.294	4.493	0.181 – 0.463	<0.001
Multiple regression						
Attitude	0.12	0.036	0.254	3.311	0.048 – 0.191	0.001
Subjective norm	0.101	0.055	0.127	1.839	-0.007 – 0.209	0.067
Perceived behavioral control	0.168	0.077	0.153	2.181	0.016 – 0.319	0.03

Discussion

This study aimed to pinpoint the predictive factors of exclusive breastfeeding among mothers visiting Ahvaz health centers in 2024, utilizing the TPB model. Our findings highlight the significant roles of attitude, perceived behavioral control, and behavioral intention in predicting exclusive breastfeeding, which aligns well with the TPB's theoretical framework.

Our results are consistent with several previous studies. For instance, research conducted in Qom, Iran, similarly demonstrated that attitude and perceived behavioral control were crucial predictors of exclusive breastfeeding. Mothers who held positive attitudes towards breastfeeding and felt a strong sense of control over their ability to breastfeed were more likely to continue exclusively breastfeeding¹⁷. Furthermore, a comprehensive scoping review highlighted that theory-based interventions, particularly those employing the TPB model, are effective in promoting exclusive breastfeeding, emphasizing the pivotal role of behavioral intention in achieving successful breastfeeding outcomes¹⁸.

Recent studies also report that perceived breastfeeding control is the best predictor of breastfeeding intention, and the pivotal role of perceived breastfeeding control reflects participants' realistic understanding of the limitations imposed on the likely success of breastfeeding efforts^{1, 5, 19, 20}. The results of Bajoulvand et al.'s study indicated that perceived behavioral control was the strongest predictor of behavioral intention¹⁹. Another study in Shanghai, China, examined breastfeeding behavior among mothers of premature infants and found that breastfeeding intention fully mediated the effects of attitude, social support, and perceived control on breastfeeding behavior⁵. This finding corroborates our study's conclusion that attitude has a stronger impact than perceived behavioral control. Early intervention to promote breastfeeding could include strategies to increase perceived breastfeeding control, practice correct breastfeeding techniques, and address breastfeeding problems that are beyond one's control²¹.

Notably, our study revealed a weak but statistically significant positive correlation between the number of previous abortions and maternal attitude toward exclusive breastfeeding ($r=0.145$, $P\text{-value}<0.05$). Although the clinical relevance of this association is limited due to the small effect size, it may reflect a psychological or behavioral shift among mothers with prior pregnancy losses. It is plausible that such experiences heighten health awareness or strengthen motivation to optimize care—including breastfeeding practices—for subsequent children. However, given the cross-sectional design of this study and the absence of qualitative data, this interpretation remains speculative. Future mixed-methods or longitudinal studies are needed to explore whether pregnancy loss influences maternal health behaviors in a meaningful or sustained way.

Some studies suggest that while attitude and perceived behavioral control influence breastfeeding intention, social support and cultural norms significantly impact breastfeeding practices, sometimes even overriding individual attitudes. For example, a study examining cultural and social beliefs affecting breastfeeding in two low-income urban neighborhoods in Nairobi, Kenya, found that negative beliefs, such as

considering colostrum "dirty" or associating breastfeeding with sagging breasts, led to unfavorable breastfeeding practices. Conversely, positive beliefs, like linking breast milk to intellectual development, encouraged breastfeeding²².

Research funded by the Bill and Melinda Gates Foundation tracked 2,000 infants in eight low- and middle-income countries, including Bangladesh, Brazil, India, Nepal, Pakistan, Peru, South Africa, and Tanzania. This study revealed that despite WHO recommendations for exclusive breastfeeding for the first six months, 81% of infants transitioned to other forms of feeding earlier. Cultural practices, such as pre-lacteal feeding (giving honey or sugar water before breastfeeding), were prevalent and influenced breastfeeding duration²³.

A review published by the Larson-Rosenquist Family Foundation explored how social and cultural factors shape mothers' attitudes toward breastfeeding. This review emphasized that breastfeeding is not merely a biological act but is deeply influenced by cultural norms, family support, and societal expectations. The study highlighted that mother empowerment and informed decision-making are crucial for improving breastfeeding rates²⁴.

Subjective norm, primarily considered as social and professional support, was also a significant factor in breastfeeding intention in the current study. Research indicates that breastfeeding decisions are largely influenced by intimate partners, especially the infant's father²⁵⁻²⁷. Modak et al. showed that a lack of emotional support from family and friends, as well as their misguided opinions on infant care, can lead to decreased maternal self-esteem and instability in breastfeeding²⁸.

Study strengths and limitations: This study boasts several strengths, including its reliance on the TPB model, a well-established theoretical framework that provides a robust foundation for understanding breastfeeding behaviors. The sample size of 215 mothers further enhances the reliability of our findings. Moreover, by examining multiple predictive factors, this research offers a comprehensive analysis of the various influences on exclusive breastfeeding. Crucially, the insights garnered from this study can directly inform the development of targeted health promotion strategies aimed at improving breastfeeding rates within the community.

However, the study is not without its limitations. Its cross-sectional design precludes the establishment of causal inferences. The reliance on self-reported data introduces potential for bias or social desirability effects. Additionally, the sample was confined to mothers attending health centers in Ahvaz, which may limit the generalizability of the findings to broader populations. Finally, as the study was conducted in 2024, it's important to acknowledge that cultural or policy changes occurring over time could influence the long-term applicability of these results.

Suggestions for future research: Future research should prioritize longitudinal studies to definitively establish causal relationships between these factors and breastfeeding outcomes. It's also crucial to broaden the scope by investigating additional influences like social support, cultural beliefs, and the impact of healthcare interventions. Evaluating targeted interventions designed around the TPB model and extending



studies to more diverse populations will significantly enhance the applicability of findings. Furthermore, exploring how shifts in policies and health education programs affect attitudes and perceived control could offer even deeper insights into promoting exclusive breastfeeding.

Conclusion: This study indicates that among mothers in Ahvaz, higher levels of attitude, perceived behavioral control, and behavioral intention are associated with exclusive breastfeeding. Specifically, attitudes and perceived behavioral control significantly impact mothers' intention to exclusively breastfeed, with attitude having a more substantial influence. These findings suggest that interventions aimed at improving mothers' attitudes and empowering their perceived control over breastfeeding can increase exclusive breastfeeding rates. The application of the TPB model provides a valuable framework for understanding and promoting exclusive breastfeeding practices in this population.

Ethical Considerations

This study was approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran (Ethics Code: IR.AJUMS.REC.1403.373; Project No. 03s45). All participants were fully informed about the study's objectives and methods, and written informed consent was obtained from all individuals prior to their enrollment in the study.

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Conflict of Interest

The authors state there is no conflict of interest.

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