

Effect of Perception and Anxiety of Breastfeeding Mothers on the Success of Exclusive Breastfeeding

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ABSTRACT

The success of exclusive breastfeeding remains a major issue in the working area of Panekan Health Center, driven by psychosocial factors such as mothers' inaccurate perceptions and anxiety. Exclusive breastfeeding coverage has fluctuated significantly, rising from 22.8% (2023) to 98.8% (2024), then declining again to 47.9% (2025). This study aimed to analyze the influence of perception and anxiety among breastfeeding mothers on the success of exclusive breastfeeding. A quantitative study with a cross-sectional design was conducted on 152 breastfeeding mothers with infants aged 6–11 months, selected using proportional simple random sampling from 17 villages. The perception was measured using a 24-item Health Belief Model (HBM) Likert-scale questionnaire, anxiety was measured using the 14-item Hamilton Anxiety Rating Scale (HARS), and the success of exclusive breastfeeding was measured using a structured ordinal questionnaire. Data were analyzed using an logistic regression test. Most respondents were of healthy reproductive age (86.2%), had a secondary education (62.5%), were unemployed (83.6%), and had one child (51.3%). The majority of mothers had a good level of perception (61.8%) and mild anxiety (38.8%), and 75% of respondents successfully exclusively breastfed for 6 months. The ordinal logistic regression test showed that perception had a significant effect on the success of exclusive breastfeeding (p less than 0.001), while anxiety had no significant effect (p more than 0.05). Breastfeeding mothers' perception was the dominant factor influencing the success of exclusive breastfeeding. Efforts to improve positive perceptions through lactation counseling and ongoing health education are urgently needed to increase exclusive breastfeeding coverage. In conclusion, mothers' perception plays a crucial and statistically significant role in determining the success of exclusive breastfeeding, whereas anxiety does not demonstrate a meaningful influence.

Keywords: perception; anxiety; exclusive breastfeeding; Health Belief Model

INTRODUCTION

Exclusive breastfeeding is the provision of breast milk without any additional intake for 6 months, as recommended by WHO and UNICEF, as it is the safest and healthiest option for infants worldwide [1]. This practice provides optimal nutrition, immunological protection, and developmental benefits, making it a cornerstone of early-life health promotion. The success of exclusive breastfeeding is largely determined during the postpartum period, a critical phase in which mothers undergo substantial hormonal changes that influence their physical, psychological, and social condition. During this period, mothers often face challenges related to self-efficacy, emotional stability, and social expectations. Negative maternal perceptions, such as the belief that breast milk is insufficient, that infants require additional fluids, or that breastfeeding is physically exhausting can hinder exclusive breastfeeding and encourage the early introduction of formula milk [2]. These perceptions are frequently shaped by cultural norms, family advice, and misinformation, making them a significant barrier to optimal breastfeeding practices.

In addition to perception, maternal anxiety may also interfere with breastfeeding. Anxiety can disrupt the let-down reflex, reduce breast milk flow, and diminish maternal confidence in breastfeeding ability [2-9]. Physiologically, stress-related hormones such as cortisol and adrenaline can inhibit oxytocin release, thereby affecting milk ejection. Psychologically, anxious mothers may interpret normal infant behavior, such as crying or cluster feeding as signs of hunger or inadequate milk supply. Previous studies have reported associations between maternal anxiety and breastfeeding outcomes, although the strength and consistency of these associations vary across populations, measurement tools, and study designs [8-12]. These findings suggest that psychosocial factors are important to consider alongside breastfeeding coverage data, as they may explain why breastfeeding rates fluctuate even when health services are available.

At the population level, the WHO and UNICEF target for exclusive breastfeeding coverage is 80%, yet Indonesia has not fully met this benchmark. Nationally, exclusive breastfeeding coverage reached only 69.26% in 2024. The Indonesian Nutrition Status Survey (SSGI) even recorded a decline from 68.6% (2023) to 66.4% (2024), indicating persistent challenges in sustaining breastfeeding practices. In contrast, East Java Province reported an increase to 78.82% in 2024 [4], suggesting regional variations in breastfeeding support systems, cultural norms, and health service performance. In Magetan Regency, exclusive breastfeeding coverage increased significantly from 57.2% (2023) to 82.8% (2024), but declined again to 75.74% in 2025 [5]. These fluctuations highlight the dynamic nature of breastfeeding behavior and the influence of contextual factors such as health promotion programs, community support, and maternal psychosocial conditions.

At the local level, the working area of Panekan Health Center showed even more pronounced fluctuations: from 22.8% (2023), achievement surged dramatically to 98.8% (2024), then fell again to 47.9% (2025). Such extreme variations suggest underlying issues beyond service coverage alone. Problems occurring in this area include the highest infant mortality rate in the regency, with 9 infant deaths due to infection, and 244 cases of diarrhea among toddlers. These health outcomes may be linked to suboptimal breastfeeding practices, as inadequate breastfeeding increases vulnerability to infection and gastrointestinal illness. The perspectives of breastfeeding mothers also indicate that exclusive breastfeeding is not yet optimal. Many mothers report feeling anxious when their infants are fussy and assume that their milk supply is insufficient, leading them to add formula milk [3]. These behavioral patterns reflect gaps in maternal knowledge, confidence, and emotional regulation.

These local conditions can be understood through the Health Belief Model (HBM), which posits that a mother's decision to exclusively breastfeed is influenced by her perception of the benefits, threats, and barriers associated with breastfeeding [4,13,14]. Within the HBM framework, perceived susceptibility and severity relate to mothers' understanding of the risks of not breastfeeding, perceived benefits relate to the advantages of exclusive breastfeeding, and perceived barriers include physical discomfort, social pressure, and emotional challenges. Psychological factors such as anxiety may also become barriers that affect breast milk production and the consistency of breastfeeding behavior [3,8-12]. Previous HBM-based research has similarly emphasized that perceived seriousness, benefits, and barriers are related to breastfeeding behavior [14-17]. Therefore, examining perception and anxiety together is relevant to understanding exclusive breastfeeding success in this setting, particularly in areas with fluctuating breastfeeding coverage and notable infant health problems.

Based on these considerations, this study aimed to analyze the influence of perception and anxiety among breastfeeding mothers on the success of exclusive breastfeeding in the working area of Panekan Health Center, Magetan Regency.

METHODS

This study used a cross-sectional approach, in which the independent and dependent variables were observed at the same point in time [18–20]. The study was conducted throughout the working area of Panekan Health Center, Magetan Regency, covering 17 villages, from February to March 2026. The study population consisted of all breastfeeding mothers with infants aged 6–11 months in the working area of Panekan Health Center, totaling 241 people. A sample of 152 respondents was calculated using the Slovin formula (95% confidence level, 5% margin of error) and selected using proportional simple random sampling proportionally from 17 villages. Inclusion criteria included: mothers with infants aged 6–11 months, having breastfeeding experience, residing in the working area of Panekan Health Center, able to communicate and complete the questionnaire, and willing to sign informed consent. Exclusion criteria included mothers or infants with contraindications to breastfeeding, cognitive or communication impairments, incomplete questionnaires, or change of residence.

The independent variables consisted of: (1) breastfeeding mothers' perception, measured using a 24-item HBM questionnaire with a 4-point Likert scale covering four components: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers, categorized as good (73–96), moderate (49–72), and poor (24–48); and (2) anxiety, measured using the 14-item HARS scale, categorized as normal (0–13), mild (14–20), moderate (21–27), severe (28–41), and very severe (42–56). The dependent variable was the success of exclusive breastfeeding, measured using a structured ordinal questionnaire based on the duration of exclusive breastfeeding (1–6 months).

Data analysis was performed descriptively for the frequency distribution of respondent characteristics and study variables [21], and inferentially using logistic regression test [22] to determine the influence of perception and anxiety on the success of exclusive breastfeeding and the dominant variable. Data processing used SPSS with a significance level of 0.05.

RESULTS

Based on Table 1, most respondents were of healthy/reproductive age (86.2%), had a secondary education (62.5%), were unemployed (83.6%), and had one child (51.3%). Based on Table 2, most mothers had a good perception (61.8%) and experienced mild anxiety (38.8%). A total of 75% of respondents successfully exclusively breastfed for the full 6 months.

Based on Table 3, breastfeeding mothers' perception had a significant influence on the success of exclusive breastfeeding. Compared with mothers with good perception, mothers with poor perception had $B = -6.555$ ($p < 0.001$), corresponding to an odds ratio (OR) of 0.001 (95% CI 0.00005–0.044), while mothers with moderate perception had $B = -4.324$ ($p < 0.001$), corresponding to an OR of 0.013 (95% CI 0.002–0.113). Thus, the odds of being in a higher exclusive-breastfeeding success category were substantially lower among mothers with poor or moderate perception than among those with good perception. Anxiety showed no significant influence in any category ($p > 0.05$); its ORs ranged from 0.215 to 1.256, with all confidence intervals including 1. These findings indicate a strong association between perception and breastfeeding success, whereas the observed anxiety categories did not provide statistically significant evidence of an effect in this sample.

Table 1. Distribution of demographic characteristics of respondents

Demographic characteristic	Frequency	Percentage
Age		
Unhealthy (<20 or >35 years)	21	13.8
Healthy (20–35 years)	131	86.2
Education		
Basic (elementary and junior high school)	33	21.7
Secondary (senior high school)	95	62.5
Higher (diploma/bachelor's/master's)	24	15.8
Occupation		
Unemployed	127	83.6
Self-employed	11	7.2
Private employee	12	7.9
Civil servant/military/police	2	1.3
Number of children		
1 child	78	51.3
> 2 children	74	48.7

Table 2. Distribution of perception level, anxiety, and success of exclusive breastfeeding

Variable	Frequency	Percentage
Perception		
Good (score 73–96)	94	61.8
Moderate (score 49–72)	40	26.3
Poor (score 24–48)	18	11.8
Anxiety		
Normal (score 0–13)	38	25.0
Mild (score 14–20)	59	38.8
Moderate (score 21–27)	30	19.7
Severe (score 28–41)	8	5.3
Very severe (score 42–56)	17	11.2
Success of exclusive breastfeeding		
Exclusive breastfeeding 1 month	20	13.2
Exclusive breastfeeding 2 months	3	2.0
Exclusive breastfeeding 3 months	3	2.0
Exclusive breastfeeding 4 months	9	5.9
Exclusive breastfeeding 5 months	3	2.0
Exclusive breastfeeding 6 months	114	75.0

Table 3. The results of logistic regression stage 1: influence of perception and anxiety on the success of exclusive breastfeeding

Variable	Category	B	SE	p-value	95% CI
Perception (X1)	Poor	-6.555	1.749	<0.001	-9.983 to -3.126
	Moderate	-4.324	1.096	<0.001	-6.472 to -2.176
	Good (ref)	0a	-	-	-
Anxiety (X2)	Normal	0.022	1.612	0.989	-3.138 to 3.181
	Mild	0.228	1.459	0.876	-2.631 to 3.088
	Moderate	-0.424	1.428	0.767	-3.222 to 2.375
	Severe	-1.536	1.357	0.258	-4.195 to 1.124
	Very Severe (ref)	0a	-	-	-

Table 4. The final results of logistic regression stage 2: perception as the dominant variable

Variable	Category	B	SE	p-value	95% CI
Perception (X1)	Poor	-6.555	1.749	<0.001	-9.983 to -3.126
	Moderate	-4.324	1.096	<0.001	-6.472 to -2.176
	Good (ref)	0a	-	-	-

In the final model (Table 4), after the anxiety variable was removed through the elimination procedure, perception remained highly significant ($p < 0.001$). The coefficients and effect sizes were unchanged: poor perception had $B = -6.555$, $OR = 0.001$ (95% CI 0.00005–0.044), and moderate perception had $B = -4.324$, $OR = 0.013$ (95% CI 0.002–0.113), compared with good perception. These estimates indicate that poorer perception was associated with markedly lower odds of being in a higher breastfeeding-success category. Thus, breastfeeding mothers' perception was the dominant variable influencing the success of exclusive breastfeeding.

DISCUSSION

Characteristics of breastfeeding mothers

Most respondents were of healthy reproductive age (20–35 years), which may support breastfeeding success physiologically and psychologically. Women in this age range generally have optimal hormonal balance, stronger physical endurance, and better emotional regulation, all of which contribute to breastfeeding stability. Older age is associated with better ability to manage anxiety and stress, enabling mothers to respond more calmly to breastfeeding challenges such as infant fussiness, perceived milk insufficiency, or physical discomfort [6]. This age-related maturity often translates into higher breastfeeding self-efficacy, a key predictor of exclusive breastfeeding success.

Most respondents had secondary education, which may facilitate access to health information and shape health perceptions and behavior in accordance with HBM principles [14,15]. Education influences how mothers interpret health messages, evaluate risks, and make decisions about infant feeding. Mothers with higher education levels are more likely to understand the benefits of exclusive breastfeeding, recognize the risks of early formula introduction, and seek credible health information from health workers or digital sources. Educational attainment also enhances critical thinking, enabling mothers to filter misinformation and resist social pressure that discourages exclusive breastfeeding.

The predominance of housewives may also provide more flexible time for breastfeeding, reducing perceived barriers to exclusive breastfeeding [5]. Mothers who do not work outside the home typically have more opportunities for direct breastfeeding, more time to respond to infant cues, and fewer constraints related to workplace policies or commuting. This aligns with HBM's perceived barriers construct, where time availability and environmental support play important roles in shaping breastfeeding behavior. Housewives may also receive more family support at home, which can reduce stress and facilitate consistent breastfeeding.

Level of perception and its relationship with exclusive breastfeeding

The majority of mothers had a good perception (61.8%). Perception was measured using four HBM components: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. These constructs collectively shape how mothers evaluate the importance of exclusive breastfeeding and the consequences of not practicing it. Mothers with good perception tend to believe that infants are susceptible to illness without exclusive breastfeeding, understand the severity of potential health risks, recognize the substantial benefits of breast milk, and perceive fewer barriers to breastfeeding.

This finding is consistent with previous study, that reported that positive perceptions were more common among mothers practicing exclusive breastfeeding, whereas negative perceptions were associated with non-exclusive breastfeeding (24.2% versus 59.7%) [5]. Perceived insufficient milk supply was identified as an important barrier because mothers who believed their milk was insufficient were more likely to switch to formula milk [5]. This perception often arises from misinterpretation of normal infant behavior, such as frequent crying or cluster feeding, which mothers may mistakenly attribute to hunger.

Similar findings have been reported in studies examining maternal perception, social support, and health-provider support, which indicate that positive perceptions are associated with better exclusive breastfeeding practices [13,14]. Mothers who perceive strong benefits and low barriers are more likely to persist through breastfeeding challenges. HBM-based studies further support the importance of perceived seriousness and other perceived constructs in shaping breastfeeding-related behavior [14,15]. These findings support the role of maternal perception as an important determinant of breastfeeding behavior, reinforcing the need for interventions that strengthen mothers' understanding of breastfeeding physiology, benefits, and common misconceptions.

Level of anxiety and its relationship with exclusive breastfeeding

Most respondents experienced mild anxiety (38.8%). Although anxiety may theoretically affect breast milk flow by inhibiting the release of oxytocin and prolactin [2], this study found no statistically significant effect on exclusive breastfeeding success. Mild anxiety may not be strong enough to disrupt hormonal processes or breastfeeding commitment. Mothers experiencing mild anxiety may still be able to regulate their emotions, seek support, and maintain breastfeeding routines.

However, 11.2% of respondents experienced very severe anxiety, indicating a subgroup that still requires attention because severe anxiety may interfere with breastfeeding behavior [3]. Severe anxiety can lead to avoidance behavior, reduced breastfeeding frequency, or early introduction of formula milk. It may also impair maternal-infant bonding, further complicating breastfeeding efforts.

Previous studies have produced mixed findings: Octaviani et al. reported a significant relationship between maternal anxiety and exclusive breastfeeding, while other study found an association between anxiety and smooth breast milk production [8,9]. Karmelia also reported a significant relationship between anxiety and exclusive breastfeeding [10], whereas Dewi identified a negative relationship between anxiety and breastfeeding self-efficacy that approached the conventional significance threshold [11]. These differences suggest that anxiety may operate differently depending on severity, social support, breastfeeding self-efficacy, and the outcome being measured. Variations in measurement tools, cultural context, and sample characteristics may also contribute to inconsistent findings across studies.

Influence of perception on the success of exclusive breastfeeding

The ordinal logistic regression showed that perception was the dominant variable significantly influencing exclusive breastfeeding success ($p < 0.001$). Compared with good perception, poor perception had $B = -6.555$ with $OR = 0.001$ (95% CI 0.00005–0.044), while moderate perception had $B = -4.324$ with $OR = 0.013$ (95% CI 0.002–0.113). This means that mothers with poor or moderate perception had markedly lower odds of being in a higher exclusive-breastfeeding success category than mothers with good perception. The extremely low odds ratios indicate that perception is a powerful predictor of breastfeeding behavior, far stronger than anxiety in this study.

The result reinforces HBM theory that perceptions of benefits, barriers, susceptibility, and severity are important determinants of health behavior [5,14,15]. It is also consistent with previous researchers, who found a significant relationship between breastfeeding perception and exclusive breastfeeding ($p = 0.000$) [7]. Similar evidence from Contesa and colleagues and other studies in the thesis literature indicates that positive maternal perceptions are associated with exclusive breastfeeding practices [13,14].

The stronger role of perception than anxiety suggests that interventions aimed at correcting breastfeeding beliefs may be particularly useful in improving exclusive breastfeeding success. Lactation counseling should therefore focus on realistic information about milk adequacy, breastfeeding benefits, perceived barriers, and management of common breastfeeding concerns. Prenatal classes, continuous postpartum education, and empowerment of posyandu cadres can complement these efforts. Evidence from studies on maternal support and breastfeeding counseling also emphasizes the importance of social and professional support in strengthening breastfeeding practices [12,13].

Nevertheless, the findings should be interpreted within the study context because family support, husband's involvement, cultural norms, and other contextual factors were not measured. These unmeasured variables may interact with perception and anxiety, influencing breastfeeding behavior in complex ways. Future studies incorporating these factors may provide a more comprehensive understanding of exclusive breastfeeding determinants in this population.

CONCLUSION

Breastfeeding mothers' perception emerged as the most influential factor in determining exclusive breastfeeding success in the working area of Puskesmas Panekan, Magetan Regency, while maternal anxiety did not show a meaningful effect. Most mothers were able to maintain exclusive breastfeeding for 6 months and generally demonstrated positive perceptions with low levels of anxiety.

Strengthening maternal perception through intensive lactation counseling and continuous health education from pregnancy through the postpartum period is recommended. Routine psychological screening may also help identify mothers who require additional support. This study has several limitations, including its cross-sectional design, which cannot establish causality, and reliance on self-reported questionnaires that may introduce reporting bias. Contextual factors such as family support, husband's involvement, and cultural norms were not assessed, even though they may influence breastfeeding behavior and local coverage fluctuations. Future research should incorporate mixed-methods approaches, larger and more diverse samples, and additional psychosocial and cultural variables to provide a more comprehensive understanding of exclusive breastfeeding determinants.

Ethical consideration, competing interest and source of funding

-This study received ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Surabaya, Number: EA/4460/KEPK-Poltekkes_Sby/V/2026.

-There is no conflict of interest related to this study.

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