

Postnatal Education on Breastfeeding: Effect on Women's Breastfeeding Self-Efficacy

Zahra Kadai Mohammed Kadai, MSc, IBCLC^{1,2*}, Prof. Dr. Hanan Al-Modallal, PhD³, Dr. Neila Rosales, PhD³

¹Nursing Department, Women's Health Nursing Program, Fakeeh College for Medical Sciences, Jeddah 21461, Saudi Arabia, Fakeeh Care Group

²Breastfeeding Education Department, Dr. Soliman Fakeeh Hospital, Jeddah, Fakeeh Care Group

³Nursing Department, Fakeeh College for Medical Sciences, Jeddah 21461, Saudi Arabia, Fakeeh Care Group

DOI: <https://doi.org/10.36348/sjnhc.2026.v09i08.002>

Received: 13.06.2026 | **Accepted:** 04.08.2026 | **Published:** 06.08.2026

***Corresponding author:** Zahra Kadai Mohammed Kadai

Nursing Department, Women's Health Nursing Program, Fakeeh College for Medical Sciences, Jeddah 21461, Saudi Arabia, Fakeeh Care Group

Abstract

Background: Exclusive breastfeeding (EBF) is crucial for providing infants with optimal nutrition for their health, growth, and cognitive development. Maternal self-efficacy plays a significant role in determining the duration of breastfeeding. To promote breastfeeding initiation, duration, and exclusivity, it is important to understand breastfeeding self-efficacy and implement interventions to enhance it. **Aim:** This study aimed to evaluate the effectiveness of educational interventions on improving breastfeeding self-efficacy in postpartum women. **Method:** One-group pretest–posttest was used for this study. The sample consist of 115 postpartum mothers in the postnatal ward recruited from a private hospital Jeddah, Saudi Arabia. The questionnaire composes of two parts: the socio-demographic section and the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF). Data collection technique was conducted through an interview using a questionnaire. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 23. **Results:** The study revealed a significant improvement in breastfeeding self-efficacy following the educational intervention (p value<0.001). Participants exhibited increased confidence in breastfeeding techniques and intrapersonal thoughts. All items on the BSES-SF showed statistically significant differences in mean scores between the pre- and post-intervention phases, highlighting the effectiveness of the intervention in enhancing breastfeeding self-efficacy. **Conclusion:** Postnatal interventional breastfeeding education was significantly associated with an improvement in maternal breastfeeding self-efficacy. Further, it is recommended to provide postpartum women with breastfeeding health education on regular basis to enhance their knowledge and practices regarding complying with breastfeeding.

Keywords: Breastfeeding Education; Breastfeeding Self-Efficacy; Exclusive Breastfeeding.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Breastfeeding, recommended in the Holy Quran, is a natural response to childbirth. It is providing infants with ideal nutrients (Gianni *et al.*, 2020). Maternal milk is offering complex nutrients that adjust to the changing needs of infants (Perrella *et al.*, 2021). The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months, followed by continued breastfeeding with complementary foods up to two years or beyond (Kebede *et al.*, 2020; World Health Organization (WHO), 2025). The greatest health benefits for infants come from exclusive breastfeeding throughout the first six months of life and early initiation of breastfeeding within the first hour after birth (Habte *et al.*, 2025), as introducing to other foods or water during

the exclusive period may expose infants to illness (Peltzer *et al.*, 2021). Interestingly, the composition of breast milk is not static, but rather dynamically shifts from one feed to another based on the nutritional needs of the infant (Al-Thubaity *et al.*, 2023; Gianni *et al.*, 2020). Breastfeeding is associated with numerous short- and long-term health benefits for infants, mothers and the economy. Szyller *et al.*, (2024) found that human milk's dynamic bioactive components including immunological components, growth factors, vitamins, minerals, lipids, and micronutrients that promote healthy microbiota, immune function, and optimal infant growth and neurodevelopment.

Despite the WHO recommendations, rates of initiation and exclusive breastfeeding remain below

global targets (WHO, 2025). Breastfeeding practices are influenced by a number of factors. Primiparous women are less likely to exclusively breastfeed than multiparous women. Younger maternal age, lower socioeconomic status, and psychosocial factors have been identified as predictors of early breastfeeding discontinuation (Kalhor *et al.*, 2025). Women who deliver by cesarean section are less likely to exclusively breastfeed than those who have vaginal births (Show *et al.*, 2024). Lack of workplace breastfeeding support (Vilar-Compte *et al.*, 2021), lack of partner or family support, negative attitudes toward breastfeeding in public, and difficulty balancing breastfeeding with daily responsibilities has also been identified as a barrier to successful breastfeeding (Moret-Tatay *et al.*, 2025). Additionally, breastfeeding initiation and continuation may be adversely affected by a lack of knowledge about the advantages of breastfeeding (Malekian *et al.*, 2025). In addition, concerns about medication use during breastfeeding may discourage mothers from initiating or continuing breastfeeding, especially if there is a lack of regular professional guidance (Pilgrim *et al.*, 2025).

Early breastfeeding challenges, such as nipple trauma, improper infant latch, and maternal psychological or physical discomfort, can all reduce maternal breastfeeding self-efficacy and contribute to early breastfeeding discontinuation. However, prompt professional evaluation assessment, individualized counseling, correcting breastfeeding techniques, and providing ongoing support and assistance can effectively address these obstacles and enhance the rate and results of breastfeeding continuation and outcomes (Kirimlidou *et al.*, 2026; Lee *et al.*, 2019).

One of the best indicators of breastfeeding success, initiation, exclusivity, duration, and maintenance is maternal breastfeeding self-efficacy (BSE), or the confidence and belief a mother has in her ability to successfully breastfeed her infant (Saavedra Sanchez *et al.*, 2024; Javorski *et al.*, 2018; Rabiipoor *et al.*, 2019). Based on Bandura's self-efficacy theory, while successful breastfeeding experiences increase maternal confidence, higher self-efficacy enhances motivation and performance (Franco-Antonio *et al.*, 2019; Minamida *et al.*, 2020). BSE is influenced by prior breastfeeding experiences, observational learning, verbal support from family members and medical professionals, and physical or mental state (Dennis *et al.*, 2024). It is a modifiable factor that can be improved through training (Piro & Ahmed, 2020). Low self-efficacy women have a greater chance of early child weaning (Javorski *et al.*, 2018), whereas early postpartum breastfeeding initiation combined with high BSE predicts successful in hospital breastfeeding and post-discharge (Selçuk *et al.*, 2025). Higher BSE, health literacy, knowledge, skills, and intention, are positively associated with maintain exclusive breastfeeding for the first six months after birth (Wu *et al.*, 2021; Pádua *et al.*, 2022). To assess maternal confidence, Dennis has devised the Breastfeeding Self-

Efficacy Scale Short Form (BSES-SF), an instrument that has proved useful in assessing the level of confidence of mothers in overcoming breastfeeding hurdles and identifying those who are more likely to discontinue breastfeeding early. The BSES-SF can be effectively integrated into a postpartum breastfeeding support program (Galipeau *et al.*, 2018).

Healthcare professionals especially nurses, play a critical role in promoting breastfeeding through education, individualized counseling, assessment of breastfeeding, training in useful skills, and ongoing support and assistance during antenatal and postpartum periods (Piro & Ahmed, 2020; Patnode *et al.*, 2025; Prasitwattanaseree *et al.*, 2019; Shafaei *et al.*, 2020). While individualized counseling and structured follow-up reduce initiation, continuation, exclusivity, duration, and help mothers to overcome common breastfeeding challenges, positive and supportive provider interactions improve maternal breastfeeding self-efficacy and decisions to initiate and continue breastfeeding (Muda *et al.*, 2019; Lee *et al.*, 2019; Patnode *et al.*, 2025; Shafaei *et al.*, 2020). However, care quality and provider confidence may be compromised by healthcare professionals' inadequate breastfeeding knowledge and lack of lactation training, which is frequently caused by insufficient lactation education in nursing programs (Vizzari *et al.*, 2020; A'aqoulah *et al.*, 2026; Chuisano, & Anderson, 2020; Gianni *et al.*, 2019).

Effective postnatal breastfeeding education programs increase maternal breastfeeding self-efficacy and provide mothers with the knowledge and skills required to prevent and manage common breastfeeding challenges (Abuidhail *et al.*, 2017). Various educational interventions, such as workshops, educational booklets, brochures, and telephone-based support, can improve breastfeeding outcomes, including exclusive breastfeeding rates (Çetindemir & Cangöl, 2024; Chumaira & Fitriani, 2025; Fallah- Karimi *et al.*, 2025). Structured breastfeeding education improves healthcare professionals' knowledge and attitudes toward breastfeeding, allowing them to provide more effective support to mothers and contributing to improved maternal breastfeeding self-efficacy, breastfeeding knowledge, and practical skills, leading to better breastfeeding outcomes, higher exclusive breastfeeding rates, and longer breastfeeding duration (Harris, 2021; Tseng *et al.*, 2020). Partner education, combined with professional breastfeeding counseling, has been shown to increase breastfeeding initiation, continuation, and exclusive breastfeeding rates (Sayres & Visentin, 2018). Patnode *et al.*, (2025) found that individualized antenatal and postnatal breastfeeding support with regular follow-up significantly improves duration, continuation, and maternal confidence, while Javorski *et al.*, (2018) showed that a flipchart-based intervention (I can breastfeed my child) raised BSES-SF scores and improved exclusive breastfeeding up to two months. Notably, most interventions emphasize knowledge over

practical skills like latch-on technique (Abdulahi *et al.*, 2018).

Only 38% of infants worldwide are exclusively breastfed. Rates in Saudi Arabia range from 0.8% to 43.9% both of which are below WHO recommendations (Hegazi *et al.*, 2019). Maternal breastfeeding self-efficacy has been found to be a significant predictor of breastfeeding continuation after hospital discharge (Tseng *et al.*, 2020). Many mothers start breastfeeding while in the hospital but stop after discharge. This emphasizes the necessity of postnatal educational interventions that are effective in boosting knowledge, confidence, and practical skills. These interventions have the potential to increase exclusive breastfeeding rates while reducing early breastfeeding discontinuation (Pádua *et al.*, 2022). This study aimed to evaluate the effectiveness of educational interventions on improving breastfeeding self-efficacy in postpartum women, furthermore, the findings of this study may provide evidence to the development and support of evidence-based breastfeeding education intervention programs.

Study Objectives

1. To measure the level of breastfeeding self-efficacy of the postpartum mothers.
2. To assess the effectiveness of educational interventions on improving breastfeeding self-efficacy in postpartum women.

Research Questions

1. What is the level of breastfeeding self-efficacy in the postpartum women?
2. What are the effects of the interventional breastfeeding health education on breastfeeding self-efficacy in postpartum women?

METHODS & MATERIALS

Research Design

One-group pretest–posttest was used for this study. One-group pretest–posttest is type of quasi-experiment involves group of subjects observed before and after the implementation of an intervention (Capili & Anastasi, 2024). It was chosen to evaluate the effectiveness of the educational intervention on breastfeeding self-efficacy. The pretest was used to establish a baseline level of breastfeeding self-efficacy, and the posttest was used to measure the change in self-efficacy after the educational intervention. This design allows for the comparison of the pretest and posttest results to determine if the intervention had a significant effect on self-efficacy.

Study Participants and Sample

The current study used a convenience sampling of postpartum women recruited from a private hospital in Jeddah, Saudi Arabia. The rationale of choosing this sampling technique was because women do not stay for long in the postnatal ward after giving birth. Most women are discharged one or two days after delivery if

having no complications. Furthermore, convenience sampling is an easy procedure to distribute a questionnaire to a large number of participants at the same time. The estimated sample size of 109 was calculated using the sample size calculator with a confidence level of 0.95, margin of error of 5%, and population proportion of 50%. Larger sample size was needed to compensate for noncompliance. Finally, a sample size 115 postpartum women was used for this study.

Eligibility Criteria

Eligible participants were postpartum mothers aged 18–45 years who were in good health and had healthy newborns. Mothers were excluded if they had received prenatal breastfeeding education or had preterm infants admitted to the neonatal intensive care unit (NICU).

Outcome Measures (Scales/ Instruments)

The questionnaire composes of two parts: the socio-demographic section and the Breastfeeding Self-Efficacy Scale-Short Form. The socio-demographic section includes: mother's age, level of education, occupation, duration of the marriage, and obstetric history. The second part of the questionnaire is the 14-item Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) (Dennis *et al.*, 2024). The BSES-SF is a self-report instrument including 14 items composing two subscales: (1) the technique subscale, where items describe maternal skills and recognition of specific principles required for successful breastfeeding; and (2) the intrapersonal thoughts subscale, where items are related to maternal attitudes and beliefs towards breastfeeding. The technique subscale is composed of 9 items and the intrapersonal thoughts subscale is composed of 5 items (Gonzales Jr, 2020). All items of the two subscales are rated on a 5-point Likert scale ranging from (1 indicating "not confident at all" and 5 indicating "always confident").

The total scale score for the BSES-SF ranges between 14 and 70, where the total score for the technique subscale and the intrapersonal thoughts subscale range between (9 and 45) and (5 and 25), respectively (Gonzales Jr, 2020). The Cronbach's alpha coefficient for internal consistency for the BSES-SF was 0.91 (Amini *et al.*, 2019).

Data Collection Procedure

Data collection technique used in this study was a survey interview conducted by the researcher through a questionnaire. The postpartum mothers were visited individually face-to-face in the mother room at the postnatal ward after they received the usual and necessary postnatal care following birth. If the mothers were not experiencing severe pain, lactating their infants, or sleeping, they were asked about their willingness to participate in the study. The mothers were given an information sheet about the study and a consent form to

be signed before answering the study questionnaire. Next, mothers were asked to answer a two-part questionnaire. The first part of the questionnaire included demographic questions such as age, parity, education level. The second part of the questionnaire contained the BSES-SF tool used to assess women's self-efficacy of performing breast feeding in terms of their thoughts and practices about breastfeeding. After collecting participants' responses, they received a session about postnatal breastfeeding education. The researcher prepared educational material on breastfeeding, including printed booklets and brochures for each participant that were used during the postnatal classes at the hospital. The health education session lasted a maximum of 30 minutes and included topics such as the advantages of breastfeeding for mother and baby, how to wake up the baby for feeding, understanding baby feeding cues and signs, how to determine if the baby is getting enough milk, complications with using bottles, formulas, teats, dummies, and pacifiers, education on maternal nutrition during breastfeeding, storage of breastmilk, common problems with breastfeeding and their treatment and prevention. If mothers expressed having problems with breastfeeding, practical demonstrations and training were conducted, which included demonstrating correct latching, position, breastmilk expression techniques, and also showing how to feed a baby with a cup or spoon if needed. After the sessions, the participants were given printed booklets and brochures to take home and refer to breastfeeding clinic in case they encountered any problems feeding their babies at home. The educational materials were prepared and reviewed by lactation consultant at Dr. Soliman Fakeeh Hospital. Before leaving the women's room, participating mothers were asked to complete the BSES-

SF questionnaire to assess their breastfeeding self-efficacy level following the intervention.

Data Analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics including frequencies, and percentages were used to describe participants' demographic variables. Descriptive statistics including mean and standard deviation was used to describe participants' breastfeeding self-efficacy level. Further, one sample t-test was used to identify whether there is a significant difference in the mean breastfeeding self-efficacy in women before and after receiving educational intervention about the technique, and the intrapersonal thoughts regarding breastfeeding. Significance level of 0.05 was used to identify significant differences in the participants.

RESULTS

Demographic data and participants

The study included 115 participants aged 19 to 42 years, with durations of their marriage ranging from 9 months to 21 years. The majority of participants (69.6%) had a college degree, while 14.8% had a higher degree, 13.9% completed high school, and 1.7% had primary education. Regarding occupation, 69.6% were housewives, 23.5% were employed, and 7.0% were students. The majority (54.8%) had normal vaginal deliveries, 60.9% were primiparous, and 99.1% had one child, with 50.4% having a baby boy. Feeding methods included 51.3% using mixed feeding and 48.7% exclusive breastfeeding. All participants were married. (Table 1)

Table 1: Socio Demographic Characteristics of the study participants

Characteristics	Frequency	Percent (%)
Educational attainment		
Primary school	2	1.7
High school	16	13.9
College	80	69.6
Higher than college (Master and PhD)	17	14.8
Occupation		
Employed	27	23.5
Housewife	80	69.6
Student	8	7.0
Parity		
Multiparous	45	39.1
Primiparous	70	60.9
Delivery mode		
Cesarean section	52	45.2
Spontaneous vaginal delivery	63	54.8
Infant feeding style		
Exclusive breastfeeding	56	48.7
Mixed feeding	59	51.3
Infant gender		
Boy	58	50.4
Girl	57	49.6

Characteristics	Frequency	Percent (%)
Gestational history		
Single	114	99.1
Twins	1	.9

Descriptive Statistics for Total Scale 14 Questions Pre-Post -Intervention

Descriptive analysis revealed that before the intervention, the “confident” response was the most frequent for 3 items in the “technique subscale” and 2 items in the “intrapersonal thoughts” subscale. After the

intervention, the “very confident” response became predominant in 7 items on the “technique subscale” and 3 items on the “intrapersonal thoughts” subscale. There was also a noticeable increase in the percentage of “very confident” responses post-intervention compared to pre-intervention. (Table 2)

Table 2: Descriptive Statistics for Breastfeeding Self-Efficacy Scale Pre and Post -Intervention

Item	Pre-intervention		Post intervention	
	Highest interpretation	Percentage	Highest interpretation	Percentage
Technique Subscale				
1. I can always determine that my baby is getting enough milk	Not very confident	42.6	Confident	47.8
2. I can always ensure that my baby is properly latched on for the whole feeding	Confident	29.6	Very confident	77.4
3. I can always manage the breastfeeding situation to my satisfaction	Not very confident	39.1	Very confident	45.2
4. I can always manage to breastfeed even if my baby is crying	Not very confident	41.7	confident	45.2
5. I can always comfortably breastfeed with my family members present	confident	37.4	Very confident	64.3
6. I can always deal with the fact that breastfeeding can be time consuming	Confident	49.6	Very confident	75
7. I can always finish feeding my baby on one breast before switching to the other breast	Not very confident	33	Very confident	80
8. I can always manage to keep up with my baby's breastfeeding demands	Not very confident	32.2	Very confident	55.7
9. I can always tell when my baby is finished breastfeeding	Not very confident	39.1	Very confident	64.3
Intrapersonal Thoughts Subscale				
1. I can always successfully cope with breastfeeding like I have with other challenging tasks	Not very confident	34.8	Confident	45.2
2. I can always breastfeed my baby without using formula as a supplement	Not very confident	36.5	Very confident	53.9
3. I can always keep wanting to breastfeed	Very confident	38.3	very confident	87
4. I can always be satisfied with my breastfeeding experience	Confident	40	Very confident	73
5. I can always continue to breastfeed my baby for every feeding	Confident	29.6	Very confident	73

T-Test (Significance Pre and Post) For Each Item

The t-test results for all 14 questions on the Breastfeeding Self-Efficacy Scale showed statistical

significance. For instance, question one showed a t-value of -22.743 with a p-value of <0.001. (Table 3)

Table 3: Significance of Responses Pre and Post Intervention for Paired Items

	Item	Mean	Std deviation	t	df	P value
Pair 1	I can always determine that my baby is getting enough milk	-2.130	1.005	-22.743	114	<0.001
Pair 2	I can always successfully cope with breastfeeding like I have with other challenging tasks	-1.496	1.150	-13.948	114	<0.001

	Item	Mean	Std deviation	t	df	P value
Pair 3	I can always breastfeed my baby without using formula as a supplement	-1.739	1.132	-16.470	114	<0.001
Pair 4	I can always ensure that my baby is properly latched on for the whole feeding	-1.991	1.315	-16.245	114	<0.001
Pair 5	I can always manage the breastfeeding situation to my satisfaction	-1.730	1.172	-15.831	114	<0.001
Pair 6	I can always manage to breastfeed even if my baby is crying	-1.583	1.076	-15.774	114	<0.001
Pair 7	I can always keep wanting to breastfeed	-.826	1.070	-8.279	114	<0.001
Pair 8	I can always comfortably breastfeed with my family members present	-1.096	1.076	-10.921	114	<0.001
Pair 9	I can always be satisfied with my breastfeeding experience	-1.252	1.091	-12.308	114	<0.001
Pair 10	I can always deal with the fact that breastfeeding can be time consuming	-1.035	1.123	-9.878	114	<0.001
Pair 11	I can always finish feeding my baby on one breast before switching to the other breast	-2.000	1.235	-17.360	114	<0.001
Pair 12	I can always continue to breastfeed my baby for every feeding	-1.670	1.233	-14.515	114	<0.001
Pair 13	I can always manage to keep up with my baby's breastfeeding demands	-1.722	1.189	-15.532	114	<0.001
Pair 14	I can always tell when my baby is finished Breastfeeding	-2.261	1.132	-21.411	114	<0.001

T-Test Pre and Post Intervention for Total Breastfeeding Self-Efficacy Scale and its Subscales

The t-test showed significant differences in breastfeeding self-efficacy and its subscales before and after health education. The total scale mean increased from 2.91 (SD = 0.64) pre-intervention to 4.52 (SD =

0.38) post-intervention. For the technique subscale, the mean increased from 2.92 (SD = 0.66) to 4.45 (SD = 0.39), and for the intrapersonal thought's subscale, it increased from 2.90 (SD = 0.75) to 4.63 (SD = 0.43). All differences were statistically significant with a p-value <0.001. (Table 4)

Table 4: Difference on the Breastfeeding Self-Efficacy Scale and its Subscales Pre and Post Intervention

BSE		N	Mean	SD	T value	P value
Breastfeeding self-efficacy scale	Pre-intervention	115	2.9118	0.64	-26.752	<0.001
	Post- intervention	115	4.521	0.38		
Technique subscale	Pre-subscale1	115	2.92	0.66	-25.456-	<0.001
	Post- subscale1	115	4.45	0.39		
Intrapersonal thoughts subscale	Pre-subscale 2	115	2.895	0.75	-23.133	<0.001
	Post- subscale 2	115	4.633	0.43		

Reliability of Breastfeeding Self-Efficacy Pre and Post Intervention

The reliability of the Breastfeeding Self-Efficacy Scale (BFSE) and its subscales was evaluated

before and after the health education intervention. Results revealed an increase in reliability, with Cronbach's Alpha values increasing from 0.84 to 0.86 after the intervention. (Table 5).

Table 5: Reliability of Breastfeeding Self-Efficacy Pre and Post Intervention

Scale	Cronbach's Alpha Pre-intervention	Cronbach's Alpha Post-intervention
Total breastfeeding self-efficacy scale	0.84	0.86
Technique subscale	0.76	0.78
Intrapersonal thoughts subscale	0.67	0.75

DISCUSSION

Summary of the Main Results

The study involved a total of 115 postpartum women aged between 19 and 42 who had been married for between 9 months and 21 years. The educational

background of the participants showed that 69.6% of them had attained a college degree, while about 14.8% had a higher level of education such as a Master's or PhD degrees. 13.9% of the respondents had a high school degree, and 1.7% of them had attended primary

education. Regarding occupation, 69.6% were housewives, 23.5% were employed, and 7.0% were students. Most of the women (54.8%) had gone through normal vaginal delivery and were giving birth for the first time. All participants were married, and almost all the women (99.1%) had just one child, with 50.4% of the participants giving birth to a boy. As for feeding, the results show that 48.7% of the participants were exclusively breastfeeding, while 51.3% were having mixed feeding.

The study revealed a significant statistical difference in the mean scores between the pre-intervention and post-intervention stages on the Breastfeeding Self-Efficacy Scale ($p < 0.001$). The t-test results for all 14 items were statistically significant, confirming the impact of health education. The mean score notably increased from 2.9118 ($SD = 0.64$) to 4.521 ($SD = 0.38$), resulting in a significant p-value of less than 0.001 and a t-value of -26.752. These findings indicate that health education significantly improved the participants' breastfeeding self-efficacy.

Further analysis of the subscales revealed a significant statistical difference in mean scores on the technique subscale, which encompasses the first nine items. The mean scores increased from 2.92 ($SD = 0.66$) to 4.45 ($SD = 0.39$) between pre-intervention and post-intervention stages. This finding resulted in a p-value of less than 0.001 and a t-value of -25.456. This suggests that health education interventions that focused on breastfeeding techniques had a significant positive impact on breastfeeding self-efficacy among postpartum women.

The Breastfeeding Self-Efficacy Scale (BFSE) and its two subscales showed an increase in reliability. The Cronbach's Alpha values in the total breastfeeding self-efficacy scale increased from 0.84 to 0.86, in the Technique subscale from 0.76 to 0.78, and in the Intrapersonal Thoughts subscale from 0.67 to 0.75.

Interpretation of the Study Finding

The objective of this research was to measure the level of breastfeeding self-efficacy of the postpartum mothers and to assess the effectiveness of educational interventions on improving breastfeeding self-efficacy in postpartum women. The majority of the respondents were healthy women of reproductive age, which indicates their physical and psychological maturity to support the breastfeeding process. It has been reported that education, support, and psychosocial factors can influence breastfeeding self-efficacy in adult mothers (Puspitasari & Sunarsih, 2021).

The research data showed that 60.9% of the respondents were primiparous, while the remaining were multiparous. Primiparous mothers lack breastfeeding experience and are more likely to encounter problems in starting and continuing breastfeeding. On the other hand,

multiparous mothers have experience in dealing with breastfeeding-related problems and are more responsive to solving issues that arise during breastfeeding. Mothers who have not breastfed before or have failed in their previous attempts are more likely to prepare better for the breastfeeding process, which ultimately has a positive impact on their breastfeeding confidence (Ghasemi *et al.*, 2019).

The study revealed that providing breastfeeding education followed by an intervention had a significant impact on the breastfeeding self-efficacy of postpartum mothers. This finding is consistent with previous research that highlights the positive effect of breastfeeding education on self-confidence and breastfeeding success. The intervention education provided in this study, which involved individual face-to-face sessions during the postnatal period for both primiparous and multiparous women, was found to have a positive effect on breastfeeding self-efficacy. This could be attributed to the fact that participants were encouraged to ask questions and provide answers, which can be a powerful source for increasing self-efficacy.

Effective educational materials, such as booklet media, can improve the understanding of information received by postpartum maternal patients. Communication skills also play a crucial role in the implementation of education. Good communication skills can ensure that breastfeeding education runs smoothly and increases the understanding and trust of mothers to breastfeed their babies (Puspitasari & Sunarsih, 2021).

Mothers with stronger confidence in their breastfeeding capacity were more likely to breastfeed exclusively for longer periods of time. Breastfeeding education and counseling were conducted in the study by Utami and Arief (2023) to help mothers improve their breastfeeding self-efficacy. After the intervention, mothers had significantly higher BSES-SF scores and improved scores on the technique and intrapersonal thoughts subscales. The results suggest that interactive education can improve implementation of exclusive breastfeeding, maternal knowledge, breastfeeding practice management, breastfeeding self-efficacy, and infant growth.

The findings of the current study support the positive impact of postnatal education on breastfeeding self-efficacy. The intervention effectively enhanced women's perceived ability to breastfeed successfully, aligning with previous research emphasizing the importance of comprehensive breastfeeding education for improved outcomes. This study contributes to the existing literature by specifically examining the impact of educational interventions on breastfeeding self-efficacy, an important determinant of breastfeeding success and duration.

The study observed an increase in the reliability of the Breastfeeding Self-Efficacy Scale (BFSE) and its subscales following the education intervention. This suggests that the intervention improved women's understanding of breastfeeding benefits and techniques, such as proper latch and breastfeeding positions. By increasing knowledge and confidence, educational interventions positively influence breastfeeding self-efficacy.

The BFSE is a reliable tool used to measure breastfeeding self-efficacy, which has been shown in previous studies to be associated with continued exclusive breastfeeding. Prenatal and postnatal breastfeeding support, delivered through various educational methods, play a crucial role in predicting breastfeeding self-efficacy.

In conclusion, improving breastfeeding self-efficacy through interventions like face-to-face education is a modifiable factor that can enhance breastfeeding success. This study provides evidence-based insights into effective interventions and highlights important predictors of breastfeeding self-efficacy that should be considered during educational interventions.

Recommendations

The study provides valuable recommendations and future directions. It recommended to establishing clear inclusion and exclusion criteria that effectively differentiate between nulliparous and multiparous women, as this will help understand the impact of previous breastfeeding experience on self-efficacy. Despite past research showing that breastfeeding experience alone doesn't necessary indicate high self-efficacy, it is recommended to incorporate a survey during discharge planning to identify areas requiring support and intervention. The study also suggests forming two nursing focus groups to develop strategies aimed at reducing early cessation of breastfeeding, using the BSES-SF as a guide. Nurses should encourage breastfeeding and utilize tools like the BSES-SF to assess self-efficacy. Face-to-face education may improve breastfeeding rates, and future plans involve expanding the sample size to further validate the findings.

CONCLUSIONS

Breastfeeding education interventions can significantly increase postpartum mothers' breastfeeding self-efficacy. Implementing a postnatal breastfeeding education program is strongly associated with improved breastfeeding self-efficacy towards exclusive breastfeeding. Positive attitudes and social and family support for breastfeeding contribute to increased self-efficacy, while difficulties with breastfeeding can reduce it. Effective strategies are needed to improve support and promote positive attitudes towards breastfeeding, as well as provide education on breastfeeding techniques and solutions to difficulties. Focusing on these critical points can improve breastfeeding practices in Saudi Arabia.

ACKNOWLEDGMENT

The authors would like to express their sincere gratitude to all postpartum mothers who voluntarily participated in this study. Their time and willingness to share their experiences made this research possible.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflicts of interest.

Ethical Considerations

The IRB approval for the study was obtained from Dr. Soliman Fakeeh Hospital. Participation in the study was voluntary, and mothers were given the option to answer the questionnaire or not. The aim of the study was explained to each participant before applying the tool to gain their trust and confidence. The respondents were informed about their confidentiality and privacy rights. Any clarifications related to the study to facilitate easy understanding of the statement in the research instrument was provided. Finally, participants were assured that access to the data will be limit only to the researcher

Consent to Participate

Written informed consent was obtained from all participants prior to their enrollment in the study. Participation was voluntary, and participants were informed of their right to withdraw from the study at any time without any consequences. The confidentiality and anonymity of all participants were maintained throughout the study.

Consent for Publication: Not applicable.

REFERENCES

- A'aqoulah, A., Aldossari, G. B., & Kalmey, F. (2026). Influence of healthcare worker training on support for exclusive breastfeeding: A systematic review. *International Journal of Women's Health*, 18, 559017. <https://doi.org/10.2147/IJWH.S559017>
- Abdulahi, M., Fretheim, A., & Magnus, J. H. (2018). Effect of breastfeeding education and support intervention (BFESI) versus routine care on timely initiation and exclusive breastfeeding in Southwest Ethiopia: study protocol for a cluster randomized controlled trial. *BMC Pediatrics*, 18(1), 313. <https://doi-org.sdl.idm.oclc.org/10.1186/s12887-018-1278-5>
- Abuidhail, J., Odeh, A., Ibrewhish, T., Alqam, B., & Alajrab, I. (2017). Evaluation of postnatal education on breastfeeding technique of Jordanian mothers. *British Journal of Midwifery*, 25(11), 715–722. <https://doi.org/10.12968/bjom.2017.25.11.715>
- Al-Thubaity, D. D., Alshahrani, M. A., Elgzar, W. T., & Ibrahim, H. A. (2023). Determinants of high breastfeeding self-efficacy among nursing mothers in Najran, Saudi Arabia. *Nutrients*, 15(8), 1919. <https://doi.org/10.3390/nu15081919>

- Amini, P., Omani-Samani, R., Sepidarkish, M., Almasi-Hashiani, A., Hosseini, M., & Maroufizadeh, S. (2019). The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF): a validation study in Iranian mothers. *BMC Research Notes*, 12(1), 622. <https://doi.org/10.1186/s13104-019-4656-7>
- Capili, B., & Anastasi, J. K. (2024). An introduction to types of quasi-experimental designs. *American Journal of Nursing*, 124(11), 50–52. <https://doi.org/10.1097/01.NAJ.0001081740.74815.20>
- Çetindemir, E. O., & Cangöl, E. (2024). The effect of breastfeeding education given through the teach-back method on mothers' breastfeeding self-efficacy and breastfeeding success: A randomized controlled study. *BMC Pregnancy and Childbirth*, 24, 453. <https://doi.org/10.1186/s12884-024-06601-0>
- Chuisano, S. A., & Anderson, O. S. (2020). Assessing application-based breastfeeding education for physicians and nurses: A scoping review. *Journal of Human Lactation*, 36(4), 699–709. <https://doi.org/10.1177/0890334419848414>
- Chumaira, R. L., & Fitriani, F. (2025). The effectiveness of booklet-based lactation management education on improving breastfeeding self-efficacy in primipara adolescent mothers. *TSCS1Kep Journal*, 11(1). <https://doi.org/10.35720/tscs1kep.v11i01.943>
- Dennis, C.-L., McQueen, K., Dol, J., Brown, H., Beck, C. T., Shorey, S., *et al.*, (2024). *Psychometrics of the Breastfeeding Self-Efficacy Scale and Short Form: A systematic review*. *BMC Public Health*, 24, 637. <https://doi.org/10.1186/s12889-024-17805-6>
- Fallah-Karimi, S., Robabi, H., & Khalilzadeh-Farsangi, Z. (2025). Impact of web-based breastfeeding education on breastfeeding self-efficacy and exclusive breastfeeding rates among primiparous mothers in Iran: A quasi-experimental study. *BMC Pregnancy and Childbirth*, 25, Article 438. <https://doi.org/10.1186/s12884-025-07955-9>
- Franco-Antonio, C., Calderón-García, J. F., Santano-Mogena, E., Rico-Martín, S., & Cordovilla-Guardia, S. (2019). Effectiveness of a brief motivational intervention to increase the breastfeeding duration in the first 6 months postpartum: Randomized controlled trial. *Journal of Advanced Nursing*, 76(3), 888–902. <https://doi.org/10.1111/jan.14274>
- Galipeau, R., Baillot, A., Trottier, A., & Lemire, L. (2018). Effectiveness of interventions on breastfeeding self-efficacy and perceived insufficient milk supply: A systematic review and meta-analysis. *Maternal & Child Nutrition*, 14(3), e12607. <https://doi.org/10.1111/mcn.12607>
- Ghasemi, V., Simbar, M., Banaei, M., Saei Ghare Naz, M., Jahani, Z., & Nazem, H. (2019). The Effect of Interventions on Breastfeeding Self-efficacy by Using Bandura's Theory in Iranian Mothers: A Systematic Review. *International Journal of Pediatrics*, 7(8), 9939-9954. <https://doi.org/10.22038/ijp.2019.40842.3446>
- Gianni, M. L., Manfra, P., Sorrentino, G., Bezze, E., Plevani, L., Cavallaro, G., Raffaeli, G., Crippa, B. L., Colombo, L., Morniroli, D., Liotto, N., Roggero, P., Mosca, F., Bettinelli, M. E., Villamor, E., & Marchisio, P. (2019). Breastfeeding difficulties and risk for early breastfeeding cessation. *Nutrients*, 11(10). <https://doi.org/10.3390/nu11102266>
- Gianni, M. L., Morniroli, D., Bettinelli, M. E., & Mosca, f. (2020). Human milk and lactation. *Nutrients*, 12(4), 899. <https://doi.org/10.3390/nu12040899>
- Gonzales Jr, A. M. (2020). Breastfeeding Self-Efficacy of Early Postpartum Mothers in an Urban Municipality in the Philippines. *Asian/Pacific Island nursing journal*, 4(4), 135–143. <https://doi.org/10.31372/20190404.1023>
- Habte, M. B., Abdulahi, M., Plusquin, M., & Cosemans, C. (2025). *Effectiveness of Baby-Friendly Hospital Initiative on early initiation and exclusive breastfeeding practice: Systematic review and meta-analysis*. *Nutrients*, 17(14), 2283. <https://doi.org/10.3390/nu17142283>
- Harris, Shalawn F. (2021) "The Effect of Breastfeeding Education in African American Women on Initiation and Duration of Breastfeeding". Digital Commons @ ACU, Electronic Theses and Dissertations. Paper 330. Retrieved from <https://digitalcommons.acu.edu/etd/330>
- Hegazi, M. A., Allebdi, M., Almohammadi, M., Alnafie, A., Al-Hazmi, L., & Alyoubi, S. (2019). Factors associated with exclusive breastfeeding in relation to knowledge, attitude and practice of breastfeeding mothers in Rabigh community, Western Saudi Arabia. *World Journal of Pediatrics*, 15(6), 601–609. <https://doi.org/10.1007/s12519-019-00275-x>
- Javorski, M., Rodrigues, A. J., Leal, L. P., Dodt, R. C. M., Ximenes, L. B., & de Almeida, P. C. (2018). Effects of an educational technology on self-efficacy for breastfeeding and practice of exclusive breastfeeding. *Revista Da Escola de Enfermagem da USP*, 52, e03329. <https://doi.org/10.1590/S1980-220X2017031803329>
- Kalhor, M., Yazdkhasti, M., Simbar, M., Hajian, S., Kiani, Z., Khorsandi, B., Sattari, M., Ezadi, Z., Nazem, H., & Jafari, M. (2025). Predictors of exclusive breastfeeding: A systematic review and meta-analysis. *International Breastfeeding Journal*, 20, 52. <https://doi.org/10.1186/s13006-025-00744-2>
- Kebede, T., Woldemichael, K., Jarso, H., & Bekele, B. B. (2020). Exclusive breastfeeding cessation and associated factors among employed mothers in Dukem town, Central Ethiopia. *International Breastfeeding Journal*, 15(1). <https://doi.org/10.1186/s13006-019-0250-9>
- Kirimidou, S., Dagla, M., Palaska, E., Gourounti, K., Sarella, A., Orovou, E., & Iliadou, M. (2026).

- Interventions for the prevention and management of nipple trauma in breastfeeding women: A systematic review. *Healthcare*, 14(11), 1546. <https://doi.org/10.3390/healthcare14111546>
- Lee, Y.-H., Chang, G.-L., & Chang, H.-Y. (2019). Effects of education and support groups organized by IBCLCs in early postpartum on breastfeeding. *Midwifery*, 75, 5–11. <https://doi.org/10.1016/j.midw.2019.03.023>
 - Malekian, M., Irving, M., & Hundley, V. (2025). *Factors associated with breastfeeding knowledge and attitudes among non-pregnant, nulliparous women of reproductive age: A scoping review*. *Midwifery*, 148, 104511. <https://doi.org/10.1016/j.midw.2025.104511>
 - Minamida, T., Iseki, A., Sakai, H., Imura, M., Okano, T., & Tani, H. (2020). Do postpartum anxiety and breastfeeding self-efficacy and bonding at early postpartum predict postpartum depression and the breastfeeding method? *Infant Mental Health Journal*, 41(5), 662–676. <https://doi.org/10.1002/imhj.21866>
 - Moret-Tatay, A., Pérez-Bermejo, M., Asins-Cubells, A., Moret-Tatay, C., & Murillo-Llorente, M. T. (2025). *A systematic review of multifactorial barriers related to breastfeeding*. *Healthcare*, 13(11), 1225. <https://doi.org/10.3390/healthcare13111225>
 - Muda, C. M. C., Ismail, T. A. T., Jalil, R. A., Hairon, S. M., Sulaiman, Z., & Johar, N. (2019). Postnatal breastfeeding education at one week after childbirth: What are the effects? *Women Birth*. <https://doi.org/10.1016/j.wombi.2018.07.008>
 - Pádua, A. R., Melo, E. M., & Alvarelhão, J. J. (2022). An Intervention Program Based on Regular Home Visits for Improving Maternal Breastfeeding Self-efficacy: A Pilot Study in Portugal. *Maternal and Child Health Journal*, 1–12. <https://doi.org/10.1007/s10995-021-03361-7>
 - Patnode, C. D., Senger, C. A., Coppola, E. L., & Iacocca, M. O. (2025). Interventions to support breastfeeding: Updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*, 333(17), 1527–1537. <https://doi.org/10.1001/jama.2024.27267>
 - Peltzer, N. K., Olson, K., Williams, S., Hansen-Smith, H., Elia, J., & McGurk, M. D. (2021). Exploring Challenges and Opportunities for Breastfeeding in Hawai'i During the COVID-19 Pandemic. *Hawai'i Journal of Health & Social Welfare*, 80(10 Suppl 2), 25–29.
 - Perrella, S., Gridneva, Z., Lai, C. T., Stinson, L., George, A., Bilston-John, S., & Geddes, D. (2021). Human milk composition promotes optimal infant growth, development and health. *Seminars in Perinatology*, 45(2), 151380. <https://doi.org/10.1016/j.semperi.2020.151380>
 - Pilgrim, R., Kwok, M., May, A., & Chapman, S. (2025). *The effect of medication use on breastfeeding continuation: A systematic review with narrative synthesis*. *International Breastfeeding Journal*, 20, 59. <https://doi.org/10.1186/s13006-025-00756-y>
 - Piro, S. S., & Ahmed, H. M. (2020). Impacts of antenatal nursing interventions on mothers' breastfeeding self-efficacy: an experimental study. *BMC Pregnancy and Childbirth*, 20(1). <https://doi.org/10.1186/s12884-019-2701-0>
 - Prasitwattanaseree, P., Sinsuksai, N., Prasopkittikun, T., & Viwatwongkasem, C. (2019). Effectiveness of Breastfeeding Skills Training and Support Program among First Time Mothers: A Randomized Control Trial. *Pacific Rim International Journal of Nursing Research*, 23(3), 258–270. Retrieved from <https://he02.tci-thaijo.org/index.php/PRIJNR/article/view/154845>
 - Puspitasari, D., & Sunarsih, T. (2021). The effectiveness of education video and booklet media for pregnant mothers knowledge on preparation of breastfeeding practice. International Conference on Health and Medical Sciences (AHMS 2020). *Atlantis Press*, 34, 2468-5739. <https://doi.org/10.2991/ahsr.k.210127.049>
 - Rabiepoor, S., Khodaei, A., & Valizadeh, R. (2019). Husbands' participation in prenatal care and breastfeeding self-efficacy in Iranian women: A randomized clinical trial. *Medical Journal of the Islamic Republic of Iran*, 33(1), 58. <https://doi.org/10.34171/mjiri.33.58>
 - Saavedra Sanchez, S., Rodríguez-Gallego, I., Leon-Larios, F., Andina-Diaz, E., Perez-Contreras, R., & Gonzalez-Sanz, J. D. (2024). *Influence of perceived maternal self-efficacy on exclusive breastfeeding initiation and consolidation: A systematic review*. *Healthcare*, 12(23), 2347. <https://doi.org/10.3390/healthcare12232347>
 - Sayres, S., & Visentin, L. (2018). Breastfeeding: uncovering barriers and offering solutions. *Current opinion in pediatrics*, 30(40), 591–596. <https://doi.org/10.1097/MOP.0000000000000647>
 - Shafaei, F.S., Mirghafourvand, M., & Havizari, S. (2020). The effect of prenatal counseling on breastfeeding self-efficacy and frequency of breastfeeding problems in mothers with previous unsuccessful breastfeeding: a randomized controlled clinical trial. *BMC Women's Health*, 20(1), 1–10. <https://doi.org/10.1186/s12905-020-00947-1>
 - Show, K. L., Jampathong, N., Aung, P. L., Win, K. M., Ngamjarus, C., Pattanittum, P., Maung, T. M., Tin, K. N., Myat, S. M., Bohren, M. A., Chairunnisa, N., & Lumbiganon, P. (2024). *Does caesarean section have an impact on exclusive breastfeeding? Evidence from four Southeast Asian countries*. *BMC Pregnancy and Childbirth*, 24(1), 822. <https://doi.org/10.1186/s12884-024-07024-7>
 - Szyller, H., Antosz, K., Batko, J., Mytych, A., Dziedziak, M., Wrześniewska, M., Braksator, J., & Pytrus, T. (2024). Bioactive components of human milk and their impact on child's health and

- development: Literature review. *Nutrients*, 16(10), 1487. <https://doi.org/10.3390/nu16101487>
- Tseng, J.-F., Chen, S.-R., Au, H.-K., Chipojola, R., Lee, G. T., Lee, P.-H., Shyu, M.-L., & Kuo, S.-Y. (2020). Effectiveness of an integrated breastfeeding education program to improve self-efficacy and exclusive breastfeeding rate: A single-blind, randomised controlled study. *International Journal of Nursing Studies*, 111, 103770. <https://doi.org/10.1016/j.ijnurstu.2020.103770>
 - Utami, R., & Arief, Y. S. (2023). The effectiveness of breastfeeding self-efficacy intervention on implementation of breastfeeding in low-birth-weight infants: A systematic review. *JPMA. The Journal of the Pakistan Medical Association*, 73(2), S153-S157. <https://doi.org/10.47391/JPMA.Ind-S2-35>
 - Vilar-Compte, M., Hernández-Cordero, S., Ancira-Moreno, M., *et al.*, (2021). Breastfeeding at the workplace: A systematic review of interventions to improve workplace environments to facilitate breastfeeding among working women. *International Journal for Equity in Health*, 20, 110. <https://doi.org/10.1186/s12939-021-01432-3>
 - Vizzari, G., Morniroli, D., Consales, A., Capelli, V., Crippa, B. L., Colombo, L., Sorrentino, G., Bezze, E., Sannino, P., Soldi, V. A., Plevani, L., Mosca, F., & Gianni, M. L. (2020). Knowledge and attitude of health staff towards breastfeeding in NICU setting: are we there yet? An Italian survey. *European Journal of Pediatrics*, 179(11), 1751–1759. <https://doi.org/10.1007/s00431-020-03678-5>
 - World Health Organization. (2025). Infant and young child feeding. <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>
 - Wu, W., Zhang, J., Silva Zolezzi, I., Fries, L. R., & Zhao, A. (2021). Factors influencing breastfeeding practices in China: A meta-aggregation of qualitative studies. *Maternal & Child Nutrition*, 17(4), e13251. <https://doi.org/10.1111/mcn.13251>