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Effectiveness of a breastfeeding self-efficacy intervention on BSES-SF scores and exclusive breastfeeding: a quasi-experimental study in postpartum mothers

Arifarahmi[1], Asrial Asrial[2], Muhammad Rusdi[2], Solha Elrifda[3]
[1]Department of Midwifery, University of Baiturrahim, Jambi, Indonesia
[2]Department of Chemistry Education, Faculty of Teacher Training and Education, University of Jambi, Jambi, Indonesia
[3]Department of Public Health Sciences, Poltekkes Kemenkes Jambi, Jambi, Indonesia

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ABSTRACT

Despite Indonesia's national breastfeeding promotion efforts, exclusive breastfeeding rates remain below the 80% target, with limited evidence on structured breastfeeding self-efficacy (BSE) interventions in low-resource Indonesian settings. To evaluate the effectiveness of a BSE intervention on BSES-SF scores and exclusive breastfeeding continuation during the first six months postpartum. A quasi-experimental pretest-posttest design with a control group was conducted on 104 postpartum mothers (52 intervention, 52 control). Measurements were conducted longitudinally at baseline, weeks 2, 6, 12, and 24 postpartum. Data were analyzed using independent t-test, Chi-square, Cox proportional hazard regression, and linear mixed model (LMM). The intervention group's BSES-SF score increased significantly from 42.35 to 59.73 compared to the control group (41.88 to 48.06, $p < 0.001$). Exclusive breastfeeding at 24 weeks was significantly higher in the intervention group (71.2% vs. 40.4%, RR = 1.76, $p = 0.001$). Cox analysis identified the intervention as the strongest protective factor (HR = 0.41, $p = 0.001$), followed by husband's support (HR = 0.54, $p = 0.039$), while employment was a risk factor (HR = 1.72, $p = 0.034$). The non-randomized design and single-site setting may limit generalizability. The BSE intervention effectively increased self-efficacy scores and exclusive breastfeeding rates, suggesting integration into routine postpartum care as a scalable public health strategy.

Corresponding Author:

Arifarahmi
Department of Midwifery, University of Baiturrahim
Jambi, Indonesia
Email: arifarahmi18@gmail.com

1. INTRODUCTION

Providing only breast milk during the initial half-year of an infant's life represents one of the most impactful public health strategies for decreasing illness and death among infants worldwide [1], [2]. In the United States, for example, only about a quarter of mothers and babies successfully reached the six-month milestone of exclusive breastfeeding [3]. A prospective cohort study in the United Arab Emirates (UAE) found that despite near-universal breastfeeding initiation during hospitalization, only 26.7% of mothers maintained exclusive breastfeeding at six months postpartum [2]. Similarly, research in Shanghai, China, reported that the exclusive breastfeeding rate in premature babies dropped drastically to only 10.4% six months after discharge [4]. Another cohort study in China noted that exclusive breastfeeding rates declined from 91% at discharge to 58% at six months postpartum [5]. The low rate of exclusive breastfeeding is influenced by various sociocultural, economic, and individual factors, where breastfeeding self-efficacy (BSE) has been identified as one of the most crucial psychological and motivational determinants [1], [6]-[8].

In Indonesia, exclusive breastfeeding coverage for infants aged 0-5 months remains relatively low and has not yet reached the national target. Data show that exclusive breastfeeding coverage in Indonesia in 2018 was only 37.3% [9]. More recent data show a slight improvement, with only 51.5% of infants under six months being exclusively breastfed [10]. This low figure is caused by various factors, including the lack of information mothers receive about breastfeeding, which impacts their knowledge and beliefs [9]. Chuektong *et al*. [11] reported that a breastfeeding self-efficacy enhancement program combined with the LINE application in mothers with cesarean sections resulted in higher breastfeeding self-efficacy scores and exclusive breastfeeding rates at four weeks postpartum. However, successful self-efficacy improvement in the hospital does not always guarantee continued exclusive breastfeeding for up to six months, as new breastfeeding-related issues can arise in the first weeks postpartum and lead to a decline in self-efficacy [12], [13]. Second, the BSES-SF (breastfeeding self-efficacy scale-short form) score was a strong predictor of feeding patterns at three and six months postpartum [14], [15].

This study aims to evaluate the effectiveness of a BSE intervention on BSES-SF scores and exclusive breastfeeding continuation during the first six months postpartum using a quasi-experimental design with longitudinal measurements at baseline, weeks 2, 6, 12, and 24. The study's novelty lies in the use of multiple evaluation points to capture the dynamics of BSE changes and breastfeeding behavior over time. This approach provides stronger evidence for integrating such interventions into routine postpartum care in Indonesian settings.

2. METHOD

2.1. Research design

This research was conducted in Jambi City. This study used a quasi-experimental design with a pretest-posttest with a control group design to evaluate the effectiveness of an intervention to improve breastfeeding self-efficacy. Measurements were conducted longitudinally at five time points: before the intervention (baseline/pre-test), week 2 (post-test 1), week 6 (post-test 2), week 12 (post-test 3), and week 24 (post-test 4) postpartum. These repeated measures approach was chosen to comprehensively monitor the dynamics of changes in breastfeeding self-efficacy and the proportion of exclusive breastfeeding throughout the first six months postpartum, as recommended by WHO.

2.2. Population, sample, and sample size

The target population was all postpartum mothers with newborns. The sampling technique used was consecutive sampling. Inclusion criteria included: postpartum mothers with a single liveborn infant, term gestational age (≥37 weeks), infants without congenital abnormalities that hinder breastfeeding (such as cleft lip/palate), mothers without medical contraindications to breastfeeding, and willingness to sign an informed consent. Exclusion criteria included: mothers with severe psychiatric disorders, infants requiring NICU care for more than 48 hours, and mothers planning to move during the study period.

The sample size was calculated using the two-proportion difference hypothesis test formula with $\alpha = 0.05$, 80% power, and effect size estimates based on previous research. A minimum sample size of 52 respondents per group was obtained, resulting in a total of 104 postpartum mothers allocated to the intervention group (n = 52) and the control group (n = 52). Allocation was based on the health service unit or recruitment time to minimize cross-group contamination.

2.3. Respondent allocation procedure and bias minimization strategies

Respondent allocation to the intervention and control groups was conducted using a cluster allocation method based on primary health care units (*Puskesmas*) to minimize cross-group contamination. Eligible health care units were purposively selected based on comparable regional characteristics and service coverage, then randomly assigned via coin tossing into intervention and control clusters. All postpartum mothers meeting inclusion criteria within each cluster were consecutively recruited until the required sample size was achieved. Baseline homogeneity between groups was statistically verified using independent t-tests and Chi-square tests.

Several strategies were implemented to minimize research bias. Selection bias was mitigated through strict application of inclusion and exclusion criteria and statistical verification of baseline equivalence. Performance bias was reduced through geographical separation of intervention and control clusters. Detection bias was minimized by employing trained enumerators blinded to group allocation (single blinding). Attrition bias was anticipated through regular telephone communication and home visits to maintain participant retention throughout the 24-week follow-up period. Furthermore, multivariate analyses using Cox proportional hazard regression and linear mixed models (LMM) were employed to statistically control for potential confounding variables.

2.4. Research variables

The independent variable was the type of treatment group (intervention versus control). The main dependent variables consisted of: i) breastfeeding self-efficacy scores measured using the breastfeeding self-efficacy scale - short form (BSES-SF), and ii) the proportion of exclusive breastfeeding at each measurement time point. Controlled confounding variables included maternal age, education level, employment status, parity, type of delivery, husband's support, and baseline BSES-SF scores.

2.5. Research instruments

The main instrument is the BSES-SF consisting of 14 items with a 5-point Likert scale (1 = very certain to 5 = very certain), with a score range of 14-70. The instrument has been translated into Indonesian through the back-translation method and has been tested for validity and reliability in the Indonesian breastfeeding mother population with a Cronbach's alpha of 0.83. Demographic data were collected using a structured questionnaire covering age, education, employment status, parity, type of delivery, and husband's support. Exclusive breastfeeding status was measured through a structured interview and infant feeding recall referring to the WHO definition. The type of recall used was cumulative prevalence (since birth).

2.6. Data collection procedures

Data collection began with respondent screening and recruitment, followed by baseline measurements including a demographic questionnaire and the BSES-SF. The intervention group received a breastfeeding self-efficacy improvement program, while the control group received standard care. Follow-up measurements were conducted at weeks 2, 6, 12, and 24 through home or health facility visits, supported by telephone communication to minimize loss to follow-up. All data collection was conducted by trained enumerators.

2.7. Data analysis

Data analysis used statistical software with $\alpha = 0.05$. Descriptive analysis presents frequencies and percentages for categorical data and means and standard deviations for numerical data. Homogeneity of characteristics between groups was tested using the independent t-test (numerical variables) and the Chi-square test (categorical variables) to ensure equality of initial characteristics. Bivariate analysis compared BSES-SF scores between groups using an independent t-test with mean difference and 95% confidence interval (CI). The proportion of exclusive breastfeeding was compared using a Chi-square test with relative risk (RR) calculations and 95% CI. Multivariate analysis used Cox proportional hazard regression to identify factors that independently influence the cessation of exclusive breastfeeding for 24 weeks while simultaneously controlling for confounding variables. The Cox model was chosen because it is appropriate for time-to-event data and is able to accommodate censored data. Results are presented as a hazard ratio (HR) with 95% CI, where HR <1 indicates a protective factor and HR >1 indicates a risk factor for cessation of exclusive breastfeeding. Linear mixed model (LMM) analysis for changes in BSES-SF Scores by Time and Group.

3. RESULTS AND DISCUSSION

Table 1 presents the demographic characteristics of the intervention (n = 52) and control (n = 52) groups. The mean maternal age was 27.46 ± 4.82 and 28.12 ± 5.14 years, respectively, with most respondents aged 20-35 years. The majority had a high school education, were housewives, multiparous, delivered vaginally, and received their husband's support. Demographic characteristics were comparable between the two groups.

Table 2 demonstrates equivalent baseline BSES-SF scores between groups (42.35 ± 8.72 vs 41.88 ± 9.14, p = 0.786), confirming initial homogeneity. Significant between-group differences emerged at 1-week post-test (mean difference = 5.35, p = 0.002) and progressively increased through the 4-week post-test (mean difference = 11.67, p < 0.001). The intervention group demonstrated a 17.38-point increase (42.35 to 59.73), substantially exceeding the control group's 6.18-point increase (41.88 to 48.06).

Table 3 shows the proportion of exclusive breastfeeding in both groups at the four measurement time points. At 2 weeks postpartum, the proportion of exclusive breastfeeding in the intervention group (92.3%) was higher than in the control group (82.7%), but this difference was not statistically significant (p = 0.143). A significant difference began to appear at week 6, where the intervention group (86.5%) was significantly higher than the control group (69.2%), with an RR of 1.25 (p = 0.032). This trend strengthened at week 12 (80.8% vs. 55.8%, RR = 1.45, p = 0.005) and reached its largest difference at week 24 or 6 months (71.2% vs. 40.4%, RR = 1.76, p = 0.001).

Cox proportional hazard regression (see Table 4) identified four significant predictors of exclusive breastfeeding cessation ($p < 0.05$). The intervention group demonstrated the strongest protective effect, reducing discontinuation risk by 59% (HR = 0.41, 95% CI: 0.24–0.70, p = 0.001). Husband's support (HR = 0.54, p = 0.039) and higher baseline BSES-SF scores (HR = 0.96, p = 0.018) were also protective. Conversely, maternal employment increased discontinuation risk 1.72-fold (HR = 1.72, 95% CI: 1.04–2.84, p = 0.034). Maternal age, education, parity, and delivery type were non-significant ($p > 0.05$).

Table 1. Demographic characteristics of respondents

Characteristics		Intervention group (n = 52)	Control group (n = 52)	p-value
Mother's age (years)	Mean ± SD	27.46 ± 4.82	28.12 ± 5.14	0.487[a]
	<20 years	3 (5.8)	2 (3.8)	
	20-35 years	43 (82.7)	42 (80.8)	0.762[b]
	>35 years	6 (11.5)	8 (15.4)	
Education	Elementary and junior high school (low)	8 (15.4)	10 (19.2)	
	Senior high school (low)	26 (50.0)	24 (46.2)	0.684[b]
	Diploma/bachelor's degree (higher)	18 (34.6)	18 (34.6)	
Employment status	Work	22 (42.3)	24 (46.2)	0.697[b]
	Housewife	30 (57.7)	28 (53.8)	
Parity	Primipara	23 (44.2)	21 (40.4)	0.694[b]
	Multipara	29 (55.8)	31 (59.6)	
Types of delivery	Vaginal	38 (73.1)	36 (69.2)	0.665[b]
	Caesarean section	14 (26.9)	16 (30.8)	
Husband's support	Support	41 (78.8)	39 (75.0)	0.641[b]
	Less supportive	11 (21.2)	13 (25.0)	

Description: [a] Independent t-test, [b] Chi-square test, SD = Standard Deviation. A p-value > 0.05 indicates no significant difference between the two groups (homogeneous)

Table 2. Breastfeeding self-efficacy scores (BSES-SF) in the intervention and control groups at various measurement times

Measurement time	Intervention group (n = 52) Mean ± SD	Control group (n = 52) Mean ± SD	Mean difference	95% CI	p-value
Pre-test (baseline)	42.35 ± 8.72	41.88 ± 9.14	0.47	-2.97 - 3.91	0.786[a]
Post-test 1 (2 weeks)	49.62 ± 7.84	44.27 ± 8.96	5.35	2.10 - 8.60	0.002*[a]
Post-test 2 (6 weeks)	54.81 ± 7.21	46.15 ± 8.53	8.66	5.62 - 11.70	<0.001*[a]
Post-test 3 (12 weeks)	57.94 ± 6.58	47.42 ± 8.87	10:52	7.52 - 13.52	<0.001*[a]
Post-test 4 (24 weeks)	59.73 ± 6.12	48.06 ± 9.24	11.67	8.63 - 14.71	<0.001*[a]

Description: [a] independent t-test, significant at α = 0.05, BSES-SF = breastfeeding self-efficacy scale - short form (score range 14-70), SD = standard deviation, CI = confidence interval*

Table 3. Proportion of exclusive breastfeeding at each measurement time

Measurement time	Intervention group (n = 52) n (%)	Control group (n = 52) n (%)	RR (95% CI)	p-value
Exclusive breastfeeding at 2 weeks	48 (92.3)	43 (82.7)	1.12 (0.97 - 1.28)	0.143[a]
Exclusive breastfeeding at 6 weeks	45 (86.5)	36 (69.2)	1.25 (1.02 - 1.53)	0.032[a]
Exclusive breastfeeding at 12 weeks	42 (80.8)	29 (55.8)	1.45 (1.10 - 1.90)	0.005[a]
Exclusive breastfeeding at 24 weeks (6 months)	37 (71.2)	21 (40.4)	1.76 (1.22 - 2.55)	0.001[a]

Description: [a] Chi-square test, significant at α = 0.05, RR = relative risk, CI = confidence interval, ASI = breast milk

Table 4. Cox proportional hazard regression analysis for factors influencing discontinuation of exclusive breastfeeding

Variables	B	SE	Wald	HR	95% CI	p-value
Group (intervention vs control)	-0.892	0.274	10.61	0.41	0.24 - 0.70	0.001*
Mother's age (years)	-0.024	0.031	0.60	0.98	0.92 - 1.04	0.438
Education (high vs low)	-0.386	0.268	2.07	0.68	0.40 - 1.15	0.150
Employment status (working vs not)	0.542	0.256	4.48	1.72	1.04 - 2.84	0.034*
Parity (multipara vs primipara)	-0.478	0.261	3.36	0.62	0.37 - 1.03	0.067
Type of delivery (cs vs. Vaginal)	0.324	0.284	1.30	1.38	0.79 - 2.41	0.254
Husband support (yes vs no)	-0.614	0.298	4.25	0.54	0.30 - 0.97	0.039*
BSES-SF baseline score	-0.038	0.016	5.64	0.96	0.93 - 0.99	0.018*

Description: B = Regression coefficient, SE = standard error, HR = hazard ratio, CI = confidence interval, SC = section Caesarea. HR < 1 indicates a protective factor against discontinuing exclusive breastfeeding; HR > 1 indicates a risk factor. *Significant at α = 0.05.

The results of the LMM analysis (see Table 5) showed that there was a significant interaction between group and time on changes in BSES-SF scores ($F(4, 472) = 9.53$, $p < 0.001$), which indicated that the trajectory of breastfeeding self-efficacy improvement was significantly different between the intervention and control groups throughout the measurement period. Although the main effect of group at baseline was not significant (B = 1.24, p = 0.567), indicating equality of the initial conditions of both groups, the group × time interaction effect increased progressively from week 2 (B = 4.26, p = 0.002), week 6 (B = 6.83, p < 0.001), week 12 (B = 8.94, p < 0.001), to week 24 (B = 11.58, p < 0.001). Table 5 also shows that the analysis used a linear mixed model with an unstructured covariance structure for random effects. The control group and baseline time were used as reference categories. Estimates were obtained using the restricted maximum-likelihood (REML) method. A significant group × time interaction indicated that the increase in BSES-SF scores over time was significantly greater in the intervention group than in the control group.

The results showed that both groups had homogeneous demographic characteristics, with no significant differences across all demographic variables (p > 0.05). This homogeneity is a critical prerequisite in quasi-experimental designs to ensure that observed outcome differences are attributable to the intervention rather than confounding factors. The majority of respondents were of reproductive age (20-35 years), comprising 82.7% in the intervention group and 80.8% in the control group. The proportion of working mothers (42.3% vs. 46.2%) reflects the sociodemographic reality where most mothers remain housewives. This finding is particularly relevant, as maternal employment status has been identified as a significant risk factor for discontinuing exclusive breastfeeding [16]-[18].

The main findings of this study indicate that the breastfeeding self-efficacy enhancement intervention significantly improved BSES-SF scores in the intervention group compared to the control group, with the difference widening over time. At baseline, both groups showed equivalent scores (42.35 ± 8.72 vs. 41.88 ± 9.14, p = 0.786), indicating good initial homogeneity. These baseline scores fall within the moderate self-efficacy category according to the BSES-SF classification, where a score of 33-53 is categorized as moderate self-efficacy [19]. Significant differences began to emerge at the 2nd week post-test (mean difference = 5.35, p = 0.002) and continued to increase consistently until the 24th week post-test (mean difference = 11.67, p < 0.001). This pattern of progressive increase is in line with the findings of Saeed *et al*. [20], who reported significant differences in breastfeeding self-efficacy scores between the intervention and control groups at day 15 (p < 0.001), 2 months (p < 0.001), and 4 months (p < 0.001) postpartum [6].

The intervention group showed a 17.38-point increase (42.35 to 59.73), while the control group increased only 6.18 points (41.88 to 48.06). The intervention group's final score of 59.73 is clinically significant, reaching the high self-efficacy category (53-70) per BSES-SF classification. The control group's modest improvement can be attributed to breastfeeding practice itself, which naturally enhances maternal confidence through performance accomplishments, as supported by previous research [21]-[23]. The meta-analysis findings by Rahmadani and Rahmawati [24] also support these results, where pregnant women who received breastfeeding education interventions had self-efficacy scores 0.43 times higher than the control group (SMD = 0.43; 95% CI: 0.27-0.60; p < 0.001).

Table 5. LMM analysis for changes in BSES-SF scores by time and group

Fixed effects	Estimate (B)	SE	95% CI	p-value
Intercept	46.32	1.84	42.71-49.93	<0.001*
Group (intervention vs control)	1.24	2.16	-3.01-5.49	0.567
Time (week 2 vs baseline)	3.18	0.92	1.38-4.98	0.001*
Time (week 6 vs baseline)	5.47	1.04	3.43-7.51	<0.001*
Time (week 12 vs baseline)	6.82	1.18	4.51-9.13	<0.001*
Time (week 24 vs baseline)	8.14	1.45	5.30-10.98	<0.001*
Group interaction × time (week 2)	4.26	1.34	1.63-6.89	0.002*
Group interaction × time (week 6)	6.83	1.48	3.93-9.73	<0.001*
Group interaction × time (week 12)	8.94	1.62	5.76-12.12	<0.001*
Group interaction × time (week 24)	11.58	1.91	7.84-15.32	<0.001*
Random effects	Variance			SE
Intercept (between subjects)	28.64			5.12
Time slope (between subjects)	1.86			0.74
Residual (intra-subject)	14.23			1.68
Omnibus Test (Type III)	F	df1	df2	p-value
Group	12.84	1	118	<0.001*
Time	24.67		472	<0.001*
Group × time	9.53	4	472	<0.001*
Goodness of fit	Mark			
-2 Log Likelihood	3.842.6			
AIC	3.862.6			
BIC	3.901.3			

*Significant at α = 0.05.

The smartphone-based intervention conducted by Seyyedi *et al*. [25] also showed consistent results, where the increase in breastfeeding self-efficacy scores in the intervention group was 26.85 ± 7.13 compared to only 0.40 ± 5.17 in the control group ($p < 0.001$). Although the magnitude of improvement varies across studies depending on the type and intensity of intervention, a consistent general pattern is that interventions designed based on self-efficacy theory effectively improve BSES-SF scores [10], [19], [24], [26]. This is supported by a scoping review by Aboul-Enein *et al*. [27], [28], which found that educational interventions positively influenced mothers' breastfeeding self-efficacy.

The results showed that the proportion of exclusive breastfeeding in the intervention group was consistently higher than in the control group at each measurement point, with the difference widening over time. At week 2, although the proportion of exclusive breastfeeding in the intervention group (92.3%) was higher than in the control group (82.7%), this difference was not statistically significant ($p = 0.143$). This may be explained by the fact that in the early postpartum period, most mothers are still highly motivated to breastfeed and have not yet faced significant challenges that could interfere with exclusive breastfeeding [29].

Significant differences began to emerge at week 6 (86.5% vs. 69.2%, RR = 1.25, $p = 0.032$), which is a critical period when many mothers begin to experience breastfeeding difficulties and consider supplementing with formula. This finding is consistent with the study by Antoñanzas-Baztán *et al*. [16], who reported that the breastfeeding self-efficacy promotion program (SIALAC) achieved a significant difference in breastfeeding continuity between the intervention and control groups ($X^2 = 4.94$, $p = 0.026$). This finding has important clinical implications, given that breastfeeding education programs improve exclusive breastfeeding practices [30], [31].

Cox proportional hazards regression analysis identified four variables that significantly influenced exclusive breastfeeding cessation. Intervention was the strongest protective factor in the model, with the intervention group having a 59% lower risk of exclusive breastfeeding cessation compared to the control group (HR = 0.41; 95% CI: 0.24–0.70; $p = 0.001$). This finding is consistent with a study by Antoñanzas-Baztán *et al*. [16], which reported that breastfeeding cessation in the control group was 3.3 times higher than in the intervention group at 6 months (CI 1.1–10.1). Similarly, Karimian-Marnani *et al*. [32] found that higher breastfeeding self-efficacy significantly reduced the risk of discontinuing exclusive breastfeeding (HR = 0.87; 95% CI: 0.77-0.98; $p = 0.02$).

Husband's support as a protective factor (HR = 0.54; $p = 0.039$), which reduced the risk of discontinuation by 46%, is a highly relevant finding. A study in Ethiopia by Adugnaw *et al*. [33] reported that family support for exclusive breastfeeding was significantly associated with discontinuation of exclusive breastfeeding before 6 months (HR = 3.99; 95% CI: 1.9-8.3). Mothers who receive support from their partners are more likely to have the intention to provide exclusive breastfeeding [34]. A higher baseline BSES-SF score significantly reduced the risk of discontinuation (HR = 0.96; $p = 0.018$), meaning that each one-point increase in the baseline BSES-SF score reduced the risk of discontinuation by 4%. This finding is consistent with Wang and Chang's [35] report that breastfeeding self-efficacy in the hospital was a significant risk factor contributing to breastfeeding duration at 6 months postpartum (HR = 0.98).

3.1. Epidemiological and public health clinical implications

The study findings demonstrate substantial epidemiological significance. The progressive increase in relative risk (RR) from 1.12 to 1.76 yields an NNT of 3.25, with an absolute risk difference of 30.8% points at 6 months. The hazard ratio of 0.41 indicates that mothers in the intervention group had less than half the risk of discontinuing exclusive breastfeeding compared to controls. Maternal employment (HR = 1.72) and husband's support (HR = 0.54) represent modifiable determinants that could yield synergistic improvements alongside self-efficacy enhancement. Clinical implications include integrating breastfeeding self-efficacy interventions into routine postpartum care, early identification of mothers with low self-efficacy through BSES-SF screening, and prioritizing husband involvement in breastfeeding promotion programs.

4. CONCLUSION

The results of this study provide strong evidence that a breastfeeding self-efficacy intervention is effective in increasing BSES-SF scores and the proportion of exclusive breastfeeding during the first six months postpartum. The increasing effect of the intervention over time suggests that enhancing self-efficacy creates a self-perpetuating positive cycle. These findings are consistent with international evidence demonstrating that breastfeeding self-efficacy is a strong predictor of breastfeeding success and a modifiable variable through targeted intervention. From a public health perspective, this study contributes meaningful evidence that low-cost, theory-driven self-efficacy interventions can address suboptimal exclusive breastfeeding rates, thereby reducing infant morbidity and mortality and alleviating healthcare burdens associated with preventable childhood illnesses. Regarding policy implications, health policymakers should consider integrating self-efficacy-based breastfeeding support into routine antenatal and postnatal care protocols. Furthermore, policies that facilitate husband engagement and provide workplace accommodations for breastfeeding mothers are essential to achieving the WHO global target of 70% exclusive breastfeeding. Future research should examine the long-term sustainability of self-efficacy gains beyond six months, explore scalability across diverse healthcare settings, investigate the cost-effectiveness of such interventions, and assess the moderating roles of socioeconomic factors and cultural contexts in intervention effectiveness. Randomized controlled trials with larger, multi-site samples are warranted to strengthen generalizability.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Arifarahmi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asrial Asrial	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓
Muhammad Rusdi	✓	✓	✓			✓		✓	✓	✓			✓	✓
Solha Elrifda	✓	✓	✓	✓	✓	✓			✓	✓				

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

ETHICAL APPROVAL

This study was approved by the Poltekkes Kemenkes Jambi (approval number: LB.02.06/2/1015/2025).

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [A], upon reasonable request.

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BIOGRAPHIES OF AUTHORS

Arifarahmi is an academic faculty member affiliated with the Department of Midwifery, University of Baiturrahim, Jambi, Indonesia. She serves as a lecturer and researcher in the field of midwifery, contributing to the advancement of maternal and reproductive health education and research within the Indonesian academic context. Based at the University of Baiturrahim, a private higher education institution located in Jambi Province, Sumatra. She is engaged in teaching, research, and community service activities aligned with the Three Pillars of Higher Education framework in Indonesia. Her scholarly work centers on midwifery science, encompassing areas relevant to maternal health, women's health, and midwifery practice. As a member of the midwifery academic community, she contributes to the professional development of future midwives and the body of knowledge in midwifery sciences in Indonesia. She can be contacted at email: arifarahmi18@gmail.com.

Asrial Asrial is a faculty member at the Department of Chemistry Education, Faculty of Teacher Training and Education (FKIP), University of Jambi, Jambi, Indonesia. He specializes in chemistry education, with research interests encompassing pedagogical approaches, curriculum development, and the improvement of science education practices. The University of Jambi is a prominent public university located in Jambi Province, Sumatra, and its FKIP plays a significant role in preparing future educators across various disciplines. His scholarly contributions address challenges and innovations in chemistry teaching at both secondary and tertiary levels, advancing the broader discourse on science education in Indonesia. He can be contacted at email: asrial@unja.ac.id.

Muhammad Rusdi is an academic affiliated with the Department of Chemistry Education, Faculty of Teacher Training and Education (FKIP), University of Jambi (Universitas Jambi/UNJA), Jambi, Indonesia. As a faculty member, he is dedicated to chemistry education, contributing to the preparation of future chemistry educators through teaching, research, and academic service. Based at one of Indonesia's prominent public universities in Jambi Province, Sumatra, his work focuses on advancing pedagogical practices, curriculum development, and improving the quality of chemistry instruction. His institutional role underscores his commitment to enhancing science education at both secondary and tertiary levels in Indonesia. He can be contacted at email: rusdimuhammad@unja.ac.id.

Solha Elrifda is a faculty member in the Department of Public Health Sciences at Poltekkes Kemenkes Jambi (Health Polytechnic of the Ministry of Health Jambi), Indonesia. This institution operates under the Indonesian Ministry of Health, focusing on vocational education and applied research to produce competent health professionals. Her academic work encompasses public health education, research, and community health development, contributing to strengthening the public health workforce in Jambi province and addressing regional and national health challenges in Indonesia. She can be contacted at email: solha@poltekkesjambi.ac.id.