

The Effect of Exclusive Breastfeeding Counseling on Self-Efficacy Among Nursing Mothers: A Pre-Experimental Study

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ABSTRACT Exclusive breastfeeding is essential for infant health and development during the first six months of life. However, various maternal challenges such as low self-confidence, inadequate knowledge, and insufficient support hinder optimal breastfeeding practices. This study addresses the critical issue of maternal self-efficacy in breastfeeding and investigates the impact of exclusive breastfeeding counseling on enhancing the self-efficacy of nursing mothers. The primary objective was to determine whether structured counseling interventions could significantly improve breastfeeding self-efficacy. A pre-experimental study with a one-group pretest-posttest design was conducted at the Karangrejo Health Center in 2024. A total of 33 breastfeeding mothers with infants aged ≤ 6 months were recruited as the study sample. The intervention consisted of two sessions of exclusive breastfeeding counseling, and self-efficacy was measured using the Breastfeeding Self-Efficacy Scale – Short Form (BSES-SF), which consists of 14 items scored on a 5-point Likert scale. Data analysis was performed using the Wilcoxon Signed Rank Test to assess differences in self-efficacy before and after the intervention. Results showed a statistically significant improvement in maternal self-efficacy scores following the counseling sessions, with a mean rank change of 15.50 and a p-value of 0.000 ($p < 0.05$). Prior to the intervention, the majority of mothers (90.9%) exhibited moderate self-efficacy, which increased to 100% reporting high self-efficacy post-intervention. These findings demonstrate that exclusive breastfeeding counseling has a positive and significant effect on the self-efficacy of nursing mothers. The study underscores the importance of integrating structured breastfeeding counseling into routine maternal health services to promote confidence and persistence in exclusive breastfeeding. Future research should explore additional factors influencing self-efficacy, such as partner and family support, maternal mental health, and socioeconomic variables, to develop more comprehensive intervention models.

INDEX TERMS exclusive breastfeeding counseling, self-efficacy, breastfeeding mothers, maternal confidence, health education

I. INTRODUCTION

Exclusive breastfeeding for the first six months of life is universally acknowledged as the optimal nutritional practice for infant growth, development, and immunity [1]–[3]. The World Health Organization (WHO) and UNICEF emphasize that exclusive breastfeeding (EBF) can reduce infant morbidity and mortality by preventing infections, improving cognitive development, and strengthening the mother–infant bond [4], [5]. Despite these well-documented benefits, global rates of exclusive breastfeeding remain suboptimal. According to the WHO, only 44% of infants worldwide are exclusively breastfed for the first six months, far below the global target of 70% by 2030 [6]. In Indonesia, the 2022 Basic Health Research Report indicated that only 52% of infants under six months received exclusive breastfeeding, with wide disparities across regions [7], [8].

Numerous factors contribute to the low rates of exclusive breastfeeding, including maternal age, education level, socioeconomic status, lack of support from healthcare

providers, and insufficient knowledge about breastfeeding practices [9]–[11]. One critical yet often overlooked psychological factor is **breastfeeding self-efficacy**, which refers to a mother's confidence in her ability to successfully breastfeed her infant [12], [13]. Self-efficacy plays a central role in shaping maternal attitudes and behaviors toward breastfeeding, influencing initiation, duration, and exclusivity [14], [15].

To address this issue, several interventions have been developed, including structured breastfeeding education programs, peer support groups, and professional lactation counseling. Among these, exclusive breastfeeding counseling has shown promise in enhancing maternal self-efficacy and breastfeeding outcomes [16]–[18]. Such counseling is typically delivered by trained health workers using educational tools, direct guidance, and personalized support. The Breastfeeding Self-Efficacy Scale – Short Form (BSES-SF), a validated 14-item Likert-scale instrument, is

commonly used to evaluate changes in maternal self-efficacy pre- and post-intervention [19], [20].

While previous research has demonstrated the effectiveness of breastfeeding counseling in improving outcomes, most studies focus on urban populations or hospital settings. There is limited empirical evidence on the effectiveness of such interventions in primary healthcare centers or community-based settings, especially in semi-rural areas of Indonesia where access to lactation support is often limited [21]–[24]. Additionally, existing studies rarely examine the magnitude of change in self-efficacy scores and their statistical significance after counseling interventions, creating a gap in evidence-based practice.

Therefore, this study aims to evaluate the impact of exclusive breastfeeding counseling on the self-efficacy of breastfeeding mothers in a primary care setting. Conducted at the Karangrejo Health Center, this study involved 33 postpartum mothers of infants under six months. Self-efficacy levels were assessed using the BSES-SF before and after a structured counseling program. Statistical analysis was performed using the Wilcoxon Signed Rank Test to identify significant changes.

This study offers three primary contributions to the literature:

1. Contextual Contribution: It provides region-specific data from a community health center, filling the gap in studies focused on rural or semi-rural populations.
2. Methodological Contribution: It applies a validated self-efficacy instrument (BSES-SF) in a pretest-posttest design, ensuring objective and standardized evaluation of counseling effectiveness.
3. Practical Contribution: It offers actionable recommendations for integrating exclusive breastfeeding counseling into maternal and child health services, particularly at the primary care level.

II. METHODS

A. STUDY DESIGN

This research employed a pre-experimental study design with a one-group pretest-posttest approach, aimed at evaluating the effectiveness of exclusive breastfeeding counseling in improving maternal self-efficacy. This design was selected for its practicality in assessing short-term behavioral or psychological outcomes within a single group without a control counterpart [31]. The study did not involve randomization or blinding, making it suitable for primary health care settings where access to control populations is limited.

B. STUDY LOCATION AND PERIOD

The study was conducted at the Karangrejo Health Center, a government primary health facility located in Magetan, East Java, Indonesia. The data collection period spanned from February to March 2024, after obtaining ethical approval and administrative permissions.

C. STUDY POPULATION AND SAMPLE

The target population consisted of postpartum mothers currently breastfeeding infants aged 0 to 6 months who visited the Karangrejo Health Center for routine maternal and child health services. Inclusion criteria were:

1. Mothers aged 18 years or older
2. Exclusively breastfeeding an infant under six months
3. Willing to participate and provide informed consent

Exclusion criteria included:

1. Mothers with psychiatric illness or postpartum complications
2. Infants with congenital abnormalities affecting feeding
3. Incomplete pretest or posttest responses

Based on eligibility screening, 33 respondents met the criteria and were enrolled in the study using total sampling where all eligible individuals during the study period were included [32].

D. RESEARCH INSTRUMENT

Maternal self-efficacy was measured using the Breastfeeding Self-Efficacy Scale – Short Form (BSES-SF), a validated instrument developed by Dennis and Faux [33]. The BSES-SF consists of 14 items, each rated on a 5-point Likert scale (1 = not at all confident to 5 = always confident), yielding total scores ranging from 14 to 70. Scores were categorized as:

1. Low self-efficacy: ≤ 32
2. Moderate self-efficacy: 33–51
3. High self-efficacy: ≥ 52 [34]

The Indonesian-translated version of the BSES-SF was previously tested for validity and reliability in similar populations, with a Cronbach's alpha of 0.91, indicating excellent internal consistency [35].

E. INTERVENTION PROCEDURE

The intervention consisted of two individual exclusive breastfeeding counseling sessions provided over a two-week period. Each session lasted approximately 30–45 minutes, conducted by certified midwives trained in lactation counseling. The sessions followed a structured module adapted from the Indonesian Ministry of Health guidelines and covered the following topics:

1. Benefits of exclusive breastfeeding
2. Breastfeeding techniques and positioning
3. Management of common breastfeeding challenges
4. Strategies to increase confidence and coping skills

Counseling was delivered face-to-face in a private setting to maintain confidentiality and optimize participant comfort. Printed educational materials and demonstration tools (e.g., baby dolls, breast models) were used to enhance learning engagement [36].

F. DATA COLLECTION PROCESS

Data were collected in two stages:

1. Pretest: Mothers completed the BSES-SF questionnaire before the first counseling session.
2. Posttest: The same instrument was administered one week after the second counseling session to assess changes in self-efficacy.

G. DATA ANALYSIS

Data were entered into Microsoft Excel and analyzed using IBM SPSS version 26.0. Descriptive statistics were used to summarize demographic characteristics and self-efficacy scores. The Wilcoxon Signed Rank Test was applied to compare pre- and post-intervention scores, given the non-

parametric distribution of the ordinal data. A p -value < 0.05 was considered statistically significant [37].

H. ETHICAL CONSIDERATIONS

This study received ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Surabaya. Participants were provided with a detailed explanation of the study objectives, procedures, potential benefits, and the right to withdraw at any time. Written informed consent was obtained from all respondents before participation. Confidentiality was maintained by assigning anonymous codes to each participant's data set [38].

I. LIMITATIONS OF THE METHOD

Although the pre-experimental design allows for an initial assessment of intervention effectiveness, the absence of a control group limits causal inference. Other potential confounders such as maternal motivation, support systems, and infant feeding difficulties were not controlled for. Furthermore, the short duration between intervention and posttest may not fully capture long-term behavioral changes [39], [40].

III. RESULT

A. CHARACTERISTICS OF RESEARCH SUBJECTS

TABLE 1 presents the demographic characteristics of the breastfeeding mothers involved in the study, which includes age, education level, number of biological children, and occupational status. The majority of respondents were between 26–35 years old (60.6%), held a secondary education (69.7%), had 1–2 children (78.8%), and were not employed (78.8%). These findings indicate that most participants were within the optimal reproductive age and educational background necessary to comprehend the counseling provided. This distribution is important as age, parity, education, and employment are known to influence breastfeeding practices and self-efficacy levels among mothers.

TABLE 2.

Cross Tabulation of Exclusive Breastfeeding Counseling on Breastfeeding Mothers' Self-Efficacy in the Karangrejo Health Center Work Area in 2024.

Category of Counseling Self-efficacy	Pemberian Konseling			
	Before		After	
	f	%	f	%
Low	0	0	0	0
Medium	30	90,9	0	0
High	3	9,1	33	100
Total	33	100	33	100

B. FREQUENCY DISTRIBUTION OF SELF-EFFICACY OF BREASTFEEDING MOTHERS BEFORE AND AFTER GETTING EXCLUSIVE BREASTFEEDING COUNSELING.

TABLE 2 illustrates a clear shift in breastfeeding self-efficacy levels before and after exclusive breastfeeding counseling. Initially, 90.9% of mothers exhibited medium self-efficacy and only 9.1% showed high self-efficacy. Following the counseling intervention, all participants (100%) moved into the high self-efficacy category. This substantial improvement

reflects the effectiveness of the counseling sessions in enhancing maternal confidence in breastfeeding.

TABLE 1.

Characteristics of Respondents by Age, Education, Number of Siblings, and Occupation in the Karangrejo Health Center Working Area in 2024.

Respondent Characteristics	Frequency (f)	Percentage (%)
Age		
12-15 years	0	0
17-25 years	5	15,2
26-35 years	20	60,6
36-45 years	8	24,2
46-55 years	0	0
Total	33	100
Education		
SD - SMP (Primary Education)	4	12,1
SMA/SMK/MA (Secondary Education)	23	69,7
Diploma/Bachelor/Master (Higher Education)	6	18,2
Total	33	100
Number of biological children		
1-2	26	78,8
3-3	5	15,2
>4	2	6,0
Total	33	100
Occupation		
Not working	26	78,8
Working	7	21,2
Total	33	100

Source: primary data, 2024

TABLE 3.

Wilcoxon Signed Rank Test Statistical Test Results

Variable	n	Mean Rank	sig
Before counseling and After counseling	33	15,50	0,000

C. ANALYSIS OF THE EFFECT OF EXCLUSIVE BREASTFEEDING COUNSELING ON BREASTFEEDING MOTHERS' SELF-EFFICACY

TABLE 3 shows the change in efficacy after counseling of 15.50 with a significance value (Sig.) of 0.000, the significance (Sig.) (0.000) < 0.05 or indicates that hypothesis 0 is rejected. That is, there is an effect of exclusive breastfeeding counseling on the self-efficacy of breastfeeding mothers in the working area of Karangrejo Health Center, Magetan Regency.

IV. DISCUSSION

A. INTERPRETATION OF RESULTS

The findings of this study demonstrated a significant effect of exclusive breastfeeding counseling on the self-efficacy of breastfeeding mothers. Prior to the intervention, 90.9% of participants exhibited moderate levels of self-efficacy, while 9.1% had high self-efficacy. After participating in two sessions of structured breastfeeding counseling, all respondents (100%) showed an increase in self-efficacy,

reaching the high category. This improvement was statistically significant, with a Wilcoxon Signed Rank Test p-value of 0.000, indicating that the intervention was effective in enhancing maternal confidence in breastfeeding. Self-efficacy plays a critical role in shaping maternal behavior. According to Bandura's social cognitive theory, self-efficacy reflects an individual's belief in their ability to perform specific tasks, which in turn influences motivation, perseverance, and eventual behavior [41]. Mothers with higher breastfeeding self-efficacy are more likely to initiate and sustain exclusive breastfeeding practices, overcome breastfeeding challenges, and seek support when needed [42].

The structured counseling sessions in this study likely contributed to increased knowledge, skill confidence, and emotional readiness, all of which are known to influence self-efficacy. The sessions focused not only on technical knowledge (e.g., latching techniques, milk expression) but also on motivational and problem-solving strategies. This multidimensional approach aligns with previous findings that educational interventions incorporating both cognitive and affective components are more effective in modifying health-related behaviors [43].

The use of validated instruments such as the BSES-SF ensured objective assessment of maternal self-efficacy. Furthermore, the delivery of counseling by trained midwives within a primary health care setting ensured cultural appropriateness and accessibility, thereby increasing the intervention's acceptability and effectiveness.

B. COMPARISON WITH PREVIOUS STUDIES

The results of this study are consistent with a growing body of evidence that supports the positive impact of exclusive breastfeeding counseling on maternal self-efficacy. For instance, a quasi-experimental study by Wahyuni et al. [44] reported significant improvements in BSES-SF scores among postpartum mothers who received peer-supported lactation education in community health centers in Yogyakarta. Similarly, research by Lestari et al. [45] in East Java demonstrated that a structured health education module delivered by midwives significantly improved maternal attitudes, intentions, and self-efficacy toward exclusive breastfeeding.

A study conducted by Mahendra et al. [46] emphasized that mothers who received at least two antenatal and postnatal breastfeeding counseling sessions were more likely to initiate and maintain exclusive breastfeeding, highlighting the importance of repetitive engagement to strengthen maternal confidence. These findings align with the present study, which provided two rounds of counseling to reinforce learning and build trust.

International studies also corroborate these findings. In a randomized controlled trial in Bangladesh, Rahman et al. [47] found that women who received professional breastfeeding counseling scored significantly higher on the BSES-SF and were more likely to practice exclusive breastfeeding at six months postpartum compared to those in the control group. Similarly, a systematic review by Santika and colleagues [48] confirmed that interventions incorporating breastfeeding education and counseling

significantly improved both breastfeeding outcomes and maternal self-efficacy across diverse settings.

However, contrasting evidence exists. Some studies have reported minimal or nonsignificant improvements in self-efficacy following counseling interventions, particularly when counseling was delivered in a one-time, brief format or by personnel lacking adequate training [49]. These discrepancies underscore the importance of content quality, frequency, and the interpersonal dynamics of the counseling process. The success of this study may, therefore, be attributed to its structured, repeated, and personalized counseling model.

Furthermore, unlike some prior studies limited to tertiary hospital settings, this study was conducted at the community health center level, reinforcing the feasibility and effectiveness of integrating such interventions into routine primary health care services. This distinction is critical for resource-limited settings, where hospital-based programs may not be accessible to most postpartum mothers [50].

C. LIMITATIONS AND IMPLICATIONS

Despite yielding valuable insights, this study is not without limitations. First, the pre-experimental design with no control group limits the ability to establish a direct causal relationship between the counseling intervention and the improvement in self-efficacy. Without a comparison group, it is difficult to rule out the influence of other confounding factors such as informal family support, peer influence, or external health information sources that may have occurred concurrently.

Second, the small sample size ($n = 33$) and the use of total sampling at a single health center may reduce the generalizability of the findings. Regional cultural differences, socioeconomic factors, and variations in health care access across other settings may influence the effectiveness of similar interventions. Future studies should employ randomized controlled trials with larger, more diverse populations to strengthen external validity.

Third, the study relied on self-reported measures, which are subject to social desirability bias. While the BSES-SF is a validated tool, respondents may overreport their confidence levels, particularly post-intervention, due to perceived expectations from the counselor or researcher. Objective measures, such as actual breastfeeding behavior tracked over time, would provide a more comprehensive understanding of the counseling's long-term impact.

Fourth, the short interval between intervention and posttest (approximately one week) only allows for an assessment of immediate changes in self-efficacy. Longer follow-up periods are essential to determine whether these effects are sustained and whether they translate into improved breastfeeding practices and infant health outcomes.

Despite these limitations, the study offers several important implications. First, it confirms that exclusive breastfeeding counseling is an effective, low-cost, and scalable intervention that can be implemented at the community level, particularly in primary health care settings where early postpartum support is often limited. This finding is especially relevant in the Indonesian context, where health

centers (puskesmas) serve as the first point of contact for maternal care in rural and semi-urban areas.

Second, the results underscore the need for capacity building among midwives and community health **workers**, equipping them with counseling skills and standardized modules to deliver effective breastfeeding support. Ongoing training and supervision can help maintain the quality and consistency of counseling services.

Third, the study highlights the value of monitoring maternal self-efficacy as an indicator of breastfeeding intervention effectiveness. Health programs may benefit from including the BSES-SF or similar tools in their routine evaluation protocols to identify mothers at risk of early cessation and provide timely support.

Finally, future research should explore the integration of digital health interventions, such as mobile applications or tele-counseling platforms, which may enhance the reach and frequency of breastfeeding counseling, particularly in remote or underserved regions. Combining face-to-face counseling with digital follow-up may offer a hybrid model with improved outcomes.

V. CONCLUSION

This study aimed to evaluate the effectiveness of exclusive breastfeeding counseling in enhancing the self-efficacy of breastfeeding mothers whose infants were aged 0–6 months and receiving care at the Karangrejo Health Center. Using a pre-experimental, one-group pretest-posttest design, maternal self-efficacy was measured through the validated Breastfeeding Self-Efficacy Scale–Short Form (BSES-SF) before and after two structured counseling sessions. The findings revealed a significant improvement in self-efficacy levels following the intervention. Prior to counseling, 90.9% of mothers were categorized as having moderate self-efficacy, and only 9.1% demonstrated high self-efficacy. Post-intervention, all 33 participants (100%) reported high levels of breastfeeding self-efficacy. Statistical analysis using the Wilcoxon Signed Rank Test yielded a p -value of 0.000 ($p < 0.05$), confirming that the change in self-efficacy scores was both statistically and practically significant. These results underscore the value of structured, evidence-based counseling as a practical, low-cost strategy for enhancing maternal confidence in exclusive breastfeeding practices. The increase in self-efficacy observed in this study reflects not only improved knowledge but also strengthened emotional preparedness and problem-solving ability among mothers. These outcomes highlight the need to incorporate systematic breastfeeding counseling into routine maternal and child health services at the primary care level. Nevertheless, further research is recommended to evaluate long-term impacts of such interventions on breastfeeding duration and exclusivity. Future studies should include randomized controlled trials with larger sample sizes, longer follow-up periods, and additional variables such as family support, socio-economic status, and maternal mental health. It is also suggested that technology-based interventions such as mobile apps or tele-counseling be explored to expand reach and sustainability. In conclusion, this study contributes empirical evidence to support the integration of structured breastfeeding counseling

in community health settings to improve maternal self-efficacy and, ultimately, exclusive breastfeeding outcomes.

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DATA AVAILABILITY

The anonymized dataset and study materials are available from the corresponding author upon reasonable request, subject to ethical restrictions.

AUTHOR CONTRIBUTIONS

All authors made substantial contributions to this work. Intan Dwi Puspitasari led the study conceptualization, methodology development, investigation, and original draft preparation. Nurlailis Saadah (corresponding author) supervised the research project, provided critical revisions to the manuscript, and managed funding acquisition. Rahayu Sumaningsih contributed to data curation, validation, and resource coordination. Teta Puji Rahayu conducted formal analysis including statistical evaluation and visualization. All authors participated in study design, interpretation of results, manuscript review and editing, and approved the final version for publication. Each author agrees to be accountable for all aspects of the work.

DECLARATIONS

ETHICAL APPROVAL

This study was reviewed and approved by the Ethics Ethical clearance was obtained from the Health Research Ethics Committee of Poltekkes Kemenkes Surabaya. The study protocol complied with the Declaration of Helsinki ethical principles for medical research involving human subjects.

CONSENT FOR PUBLICATION PARTICIPANTS.

Written informed consent was obtained from all participants, which included permission for anonymous data publication. For minor participants, consent was obtained from their legal guardians.

COMPETING INTERESTS

The authors declare no financial or non-financial conflicts of interest related to this work.

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