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From connection to confidence: Factors supporting successful online lactation peer support for postpartum mothers

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Abstract

Background: Breastfeeding self-efficacy is an important determinant of mothers' confidence in initiating and maintaining breastfeeding. Postpartum mothers may experience breastfeeding difficulties and require accessible, responsive, and continuous support. Online lactation peer support provides an opportunity to connect mothers with peers while facilitating access to breastfeeding information and emotional support. However, the factors that support successful online peer support, particularly in relation to maternal breastfeeding self-efficacy, remain insufficiently understood.

Purpose: To examine the improvement in breastfeeding self-efficacy following an online lactation peer support intervention and to identify key factors that may support its successful implementation among postpartum mothers.

Method: A quantitative one-group pretest–posttest design was conducted among 25 postpartum mothers. Participants received an online lactation peer support intervention designed to provide breastfeeding-related information, peer interaction, emotional support, and opportunities to discuss breastfeeding difficulties. Breastfeeding self-efficacy was assessed before and after the intervention using the Breastfeeding Self-Efficacy Scale–Short Form (BSES-SF). Pretest and posttest scores were compared using an appropriate paired statistical test.

Results: The mean breastfeeding self-efficacy score increased from 49.3 ± 8.1 before the intervention to 68.7 ± 7.4 after the intervention, representing a mean increase of 19.4 points. The improvement was statistically significant ($p < 0.001$). The findings indicate that accessible peer interaction, responsive breastfeeding support, emotional reassurance, relevant information, and continuity of support may contribute to the successful implementation of online lactation peer support and strengthening maternal breastfeeding confidence.

Conclusion: Online lactation peer support was associated with a significant improvement in breastfeeding self-efficacy among postpartum mothers. A maternal-centered model integrating accessibility, peer connection, responsive support, relevant information, and professional facilitation may strengthen the potential of online peer support as a component of continuing postpartum breastfeeding care.

Keywords: Breastfeeding Self-Efficacy; Lactation Support; Midwifery Care; Online Peer Support; Postpartum Mothers.

INTRODUCTION

Breastfeeding is a fundamental component of maternal and child health, providing nutritional, immunological, developmental, and health benefits for infants while also contributing to maternal health. The World Health Organization (WHO) and UNICEF recommend initiation of breastfeeding within the first hour after birth, exclusive breastfeeding during the first six months of life, followed by the introduction of safe and nutritionally adequate complementary foods while breastfeeding continues to two years of age or beyond (World Health Organization, 2026). Despite these recommendations, establishing and maintaining breastfeeding can be challenging, particularly during the early postpartum period when mothers are adapting to breastfeeding techniques, infant feeding cues, and common lactation difficulties.

Breastfeeding support is increasingly recognized as an essential component of effective maternal and child health care. WHO recommends that breastfeeding counselling be provided during pregnancy and the postnatal period and continue as a continuum of care. Counselling may be delivered through face-to-face approaches and, where appropriate, complemented by telephone or other remote modes. Importantly, breastfeeding counselling is not simply the provision of information but an interactive process intended to empower mothers, strengthen their skills and confidence, and help them manage breastfeeding challenges according to their individual circumstances (World Health Organization, 2018; 2021). The 2021 implementation guidance further recommends repeated counselling contacts and allows telephone or other remote modes to complement face-to-face support when appropriate (World Health Organization, 2021).

Breastfeeding self-efficacy is an important psychological determinant of breastfeeding behavior. It refers to a mother's confidence in her ability to organize and perform the behaviors required to breastfeed successfully. Breastfeeding self-efficacy is not a fixed characteristic; rather, it can be strengthened through appropriate educational, counselling, psychological, and supportive interventions. Earlier meta-analytic evidence demonstrated that interventions targeting breastfeeding self-efficacy can increase maternal confidence and are associated with improved breastfeeding outcomes (Brockway et al., 2017).

More recent evidence continues to support the effectiveness of interventions delivered during the postpartum period. A 2025 systematic review and meta-analysis of 26 randomized controlled trials involving 3,677 women found significant improvements in breastfeeding self-efficacy following intervention, with postnatal interventions showing particularly important effects (Tanriverdi et al., 2025).

The relevance of breastfeeding self-efficacy becomes particularly apparent during the early postpartum period, when mothers may experience uncertainty, fatigue, breastfeeding difficulties, and emotional challenges. Psychological well-being may interact with maternal confidence and breastfeeding behavior. A systematic review and meta-analysis found that postpartum depression was associated with lower breastfeeding self-efficacy, highlighting the importance of addressing emotional and psychological dimensions alongside practical breastfeeding assistance (Ahmadinezhad et al., 2024). Consequently, effective breastfeeding support should not focus exclusively on technical knowledge and skills but should also strengthen mothers' confidence, emotional reassurance, problem-solving capacity, and perceived ability to overcome breastfeeding difficulties.

Peer support offers a potentially valuable approach for addressing these multidimensional needs. Mothers may benefit from interaction with peers who have experienced similar breastfeeding challenges because shared experiences can provide emotional reassurance, normalization, practical suggestions, and a sense of belonging. A recent qualitative systematic review found that mothers described breastfeeding peer support as a source of psycho-emotional support, knowledge and skills, and assistance in adapting breastfeeding perceptions and behaviors. The review also emphasized the importance of tailoring peer support to mothers' individual needs and establishing appropriate training, supervision, and management of peer supporters (Yang et al., 2024).

The rapid expansion of digital communication has created additional opportunities to extend breastfeeding peer support beyond conventional face-to-face settings. Online support can reduce geographical and temporal barriers and allow mothers to seek assistance when breastfeeding concerns

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emerge. An integrative review of 19 studies found that internet-based breastfeeding peer-support groups provided information, emotional support, reassurance, shared experiences, and a sense of belonging within breastfeeding communities. Importantly, the review concluded that online peer-support groups need effective moderation to ensure that information shared by participants remains evidence-based and supportive (Hiito et al., 2024).

Recent intervention studies further demonstrate the growing potential of digital breastfeeding support. A randomized controlled study evaluating a nurse-led online breastfeeding counselling system found beneficial effects on breastfeeding-related outcomes and maternal experiences across postpartum follow-up (Şimşek-Çetinkaya et al., 2024). Similarly, randomized studies using smartphone-based applications, web-based support, and e-mobile postpartum counselling have reported improvements in breastfeeding self-efficacy and/or breastfeeding-related outcomes (de Mello Sa et al., 2025; Şimşek-Çetinkaya et al., 2024). A 2025 systematic review and meta-analysis of real-time telelactation also demonstrated the growing evidence base for remote breastfeeding support, particularly in populations facing barriers to accessing conventional lactation services (Iamchareon & Maneesriwongul, 2025).

However, online lactation peer support should not be conceptualized simply as a digital form of breastfeeding education. Its potential value lies in the interaction among accessibility, peer experience, emotional support, responsiveness, information exchange, and social connectedness. Recent evidence indicates that digital interventions can influence breastfeeding-related outcomes through multiple pathways, including increased maternal self-efficacy, perceived behavioral control, practical knowledge, and opportunities for continuing support (Wong & Chien, 2025; de Mello Sa et al., 2025). Thus, the quality of interaction and continuity of support may be as important as the digital platform itself.

An important distinction should also be made between peer-generated experiential information and evidence-based clinical guidance. Online breastfeeding communities may enable mothers to exchange experiences rapidly; however, personal experience does not necessarily constitute clinically appropriate advice. Hiito et al. (2024) emphasized that online breastfeeding communities require effective

moderation to ensure that information is evidence-based and that support remains encouraging. Professional facilitation may therefore provide an important safety mechanism within online peer-support models by helping mothers distinguish between experiential sharing and information requiring professional assessment. This is consistent with WHO guidance emphasizing the competencies of breastfeeding support providers and the importance of safe, effective, compassionate, and evidence-informed counselling (World Health Organization, 2021).

Recent research also suggests that the mode of digital support may influence its potential impact. Digital breastfeeding interventions have included smartphone applications, web-based education, real-time online counselling, telelactation, and video-based peer support. For example, a randomized controlled trial of a smartphone-based breastfeeding application reported improvements in breastfeeding self-efficacy and breastfeeding duration (de Mello Sa et al., 2025). Another randomized trial evaluating a theory-based real-time online education and support program reported improvements in breastfeeding-related outcomes among primiparous women (Wong & Chien, 2025). These findings support the feasibility of digital support while also demonstrating that digital delivery alone does not define the intervention; rather, the content, interaction, timing, continuity, and responsiveness of support are critical components.

Despite increasing evidence regarding digital breastfeeding interventions, an important research gap remains concerning the mechanisms and characteristics through which online peer support may strengthen maternal breastfeeding self-efficacy. Existing research has often focused on whether digital interventions improve breastfeeding outcomes, while comparatively less attention has been given to the maternal-centered processes underlying successful online peer interaction. In particular, further investigation is needed into how accessibility, peer connection, responsiveness, emotional reassurance, information exchange, and continuity of support interact to strengthen maternal engagement and breastfeeding self-efficacy.

A maternal-centered framework therefore suggests that effective online lactation peer support may consist of several interconnected components: (1) accessibility of the digital platform; (2) meaningful

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peer connection; (3) responsiveness to breastfeeding concerns; (4) emotional reassurance and validation; (5) access to relevant and evidence-based breastfeeding information; (6) social connectedness and belonging; and (7) professional facilitation or moderation. These components may create a supportive environment in which mothers feel heard, understood, and capable of managing breastfeeding challenges. Such a framework is consistent with recent evidence emphasizing responsiveness, community belonging, and evidence-based moderation as central characteristics of meaningful online breastfeeding peer support (Hiito et al., 2024).

The conceptual premise of the present study can therefore be summarized as “from connection to confidence.” Digital accessibility creates opportunities for mothers to connect with peers; peer connection facilitates the exchange of experiences, information, and emotional support; responsive interaction may strengthen maternal engagement and problem-solving; and sustained supportive interaction may contribute to greater breastfeeding self-efficacy. In this framework, online lactation peer support represents more than a digital education strategy. It may function as a complementary component of continuous, evidence-informed postpartum midwifery care by extending opportunities for social, emotional, informational, and practical support beyond conventional face-to-face encounters.

In this context, the present study examined an online lactation peer-support intervention among postpartum mothers, with breastfeeding self-efficacy as the primary outcome. A one-group pretest–posttest design was used to evaluate changes in breastfeeding self-efficacy following participation in the intervention. In addition to assessing changes in breastfeeding self-efficacy, the study considered characteristics of online peer support that may contribute to successful implementation, particularly accessibility, peer connection, responsiveness, emotional support, information sharing, and continuity of support.

This study aimed to examine changes in breastfeeding self-efficacy following participation in an online lactation peer-support intervention and to explore the characteristics of online peer support that may contribute to successful implementation among postpartum mothers.

RESEARCH METHOD

Research Design

This study employed a quantitative pre-experimental design using a one-group pretest–posttest design to examine changes in breastfeeding self-efficacy following an online lactation peer-support intervention among postpartum mothers. Breastfeeding self-efficacy was measured before the intervention (pretest) and after completion of the intervention (posttest). The primary outcome was the change in breastfeeding self-efficacy score between the two assessment points.

Because pretest and posttest measurements were obtained from the same participants, the observations were considered paired. Before conducting the inferential analysis, the normality of the within-participant difference scores was assessed using the Shapiro–Wilk test. The difference scores were found to be approximately normally distributed; therefore, a two-sided paired-samples t-test was used to determine whether the mean breastfeeding self-efficacy score differed significantly between the pretest and posttest measurements. Statistical significance was set at $p < 0.05$. The results were reported as the mean difference, 95% confidence interval (CI), t statistic, degrees of freedom (df), and p value.

Research Setting, Participants, and Recruitment

The study was conducted among postpartum mothers in Pringsewu, Lampung, Indonesia. Participants were recruited using consecutive sampling based on predetermined eligibility criteria. The inclusion criteria were: (1) postpartum mothers within the first six weeks after childbirth; (2) currently breastfeeding or intending to exclusively breastfeed their infants; (3) able to communicate effectively and participate in an online lactation peer-support intervention; (4) having access to a smartphone and an active internet connection; (5) willing to participate in the intervention and complete the pretest and posttest assessments; and (6) providing informed consent before participation. Mothers were excluded if they (1) had maternal or infant medical conditions that required intensive medical care or prevented breastfeeding during the study period; (2) were unable to participate in the online intervention throughout the intervention period; or (3) had incomplete pretest or posttest data required for the primary analysis.

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As this study was designed as a preliminary evaluation of an online lactation peer-support intervention, the sample size was determined pragmatically based on recruitment feasibility and the availability of eligible participants during the study period rather than through an a priori power analysis. A total of 25 postpartum mothers who met the eligibility criteria were recruited and included in the study. All 25 participants completed both the pretest and posttest assessments and were therefore included in the final analysis. No participant was lost to follow-up or excluded because of incomplete assessment.

Online Lactation Peer-Support Intervention

The online lactation peer-support intervention was delivered through a closed WhatsApp group over a six-week intervention period. A total of 25 postpartum mothers participated in the intervention. The intervention was conducted three times per week, with each session lasting approximately 60 minutes, resulting in a total of 18 sessions and 18 hours of intervention exposure over the six-week period. The pretest was administered before the intervention began, while the posttest was conducted after completion of the six-week intervention period.

The intervention was facilitated by a midwife who also served as a lactation counselor and had professional expertise in breastfeeding support. The facilitator was responsible for organizing and moderating the online sessions, facilitating peer-to-peer communication, providing breastfeeding counseling, responding to participants' questions and concerns, clarifying breastfeeding-related information, and ensuring that the information discussed remained relevant and appropriate to participants' needs.

The intervention used a maternal-centered peer-support approach. During each WhatsApp session, participants were encouraged to actively communicate with other mothers by sharing their breastfeeding experiences, discussing breastfeeding difficulties, asking questions, exchanging practical experiences, and providing emotional and social support to one another. The facilitator guided the discussions and provided professional breastfeeding counseling when participants required further clarification or assistance.

All intervention materials consisted of breastfeeding counseling content relevant to the postpartum period and breastfeeding management. The counseling addressed participants' breastfeeding needs and concerns throughout the intervention period, with opportunities for participants to discuss their individual experiences and receive feedback from peers and the facilitator. The combination of structured breastfeeding counseling and peer-to-peer interaction was intended to provide continuous informational, emotional, and social support during the six-week intervention.

The intervention therefore consisted of six core components: (1) accessibility of breastfeeding support through WhatsApp; (2) peer connection among postpartum mothers; (3) responsive communication and discussion; (4) breastfeeding information sharing and counseling; (5) emotional and social support; and (6) continuity of support throughout the six-week intervention period. The standardized schedule of three sessions per week, 60 minutes per session, for six consecutive weeks was applied to all 25 participants. This operational structure was established to ensure consistency of intervention delivery and to facilitate replication in future studies.

Study Instrument

The online lactation peer-support intervention was delivered through a closed WhatsApp group over a six-week intervention period. A total of 25 postpartum mothers participated in the intervention. The intervention was conducted three times per week, with each session lasting approximately 60 minutes, resulting in a total of 18 sessions and 18 hours of intervention exposure over the six-week period. The pretest was administered before the intervention began, while the posttest was conducted after completion of the six-week intervention period.

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Data Collection Procedure

Data collection was conducted sequentially. First, eligible postpartum mothers were identified and provided with an explanation of the study objectives, procedures, potential benefits, and their rights as participants. Written informed consent was obtained from mothers who agreed to participate. Following informed consent, participants completed the baseline assessment of breastfeeding self-efficacy using the BSES-SF. Participants subsequently took part in the online lactation peer-support intervention.

During the intervention, mothers were encouraged to interact with peers, share breastfeeding experiences, discuss breastfeeding difficulties, ask questions, and exchange relevant information. Emotional and social support were also incorporated into the peer-support process. Professional facilitation was used to support the delivery of relevant and evidence-informed breastfeeding information. After completion of the intervention, participants completed the BSES-SF posttest. Pretest and posttest scores were subsequently compared to determine changes in breastfeeding self-efficacy following participation in the online lactation peer-support program.

Data Analysis

Data were analyzed using descriptive and inferential statistics. Descriptive statistics were used to summarize the participants' characteristics and breastfeeding self-efficacy scores. The mean and standard deviation (SD) were calculated for breastfeeding self-efficacy scores at baseline (pretest) and after completion of the intervention (posttest). Because the sample size was relatively small ($n = 25$), the normality of the difference scores between the posttest and pretest measurements was assessed using the Shapiro–Wilk test. The normality assessment was performed before selecting the appropriate inferential statistical test. As the difference scores were normally distributed (Shapiro–Wilk test, $p > 0.05$), a paired-samples t-test was used to examine whether there was a statistically significant difference in breastfeeding self-efficacy scores before and after the online lactation peer-support intervention.

The mean difference between posttest and pretest scores was reported together with its 95% confidence interval (CI). The paired-samples t-test result was reported as the t statistic, degrees of freedom (df), and p-value. Statistical significance was set at $p < 0.05$. All statistical analyses were performed using IBM SPSS Statistics Version 23.

Ethical Considerations

This study complied with the ethical principles of autonomy, confidentiality, beneficence, and justice. Written informed consent was obtained from all participants before data collection after they had received an explanation regarding the study

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objectives, procedures, potential benefits, and their rights as research participants. Participation was entirely voluntary, and participants were informed that they had the right to decline participation or withdraw from the study at any time without consequences to the care or services they received. The confidentiality and privacy of participants were maintained throughout the study. Participant identities were not disclosed in the research reports, and all data were handled and analyzed solely for research purposes. The online lactation peer-support activities were conducted with attention to respectful communication and protection of participants' privacy. Breastfeeding-related information shared during the intervention was facilitated to support safe and evidence-informed maternal care.

Ethical approval for this study was granted by the Health Research Ethics Committee of Poltekkes Kemenkes Tanjungkarang, Indonesia (Approval No. 493/KEPK-TJK/XII/2025) prior to participant recruitment and data collection. The study procedures

were conducted in accordance with the ethical standards applicable to research involving human participants.

Potentially Uncontrolled Factors

As this study employed a one-group pretest–posttest design without a control group, changes in breastfeeding self-efficacy may have been influenced by factors other than the intervention. These factors may include previous breastfeeding experience, family support, breastfeeding difficulties, interactions with health professionals, exposure to breastfeeding information from other sources, and individual postpartum experiences.

Therefore, the findings should be interpreted as evidence of changes in breastfeeding self-efficacy following participation in the online lactation peer-support intervention, rather than as definitive evidence of a causal effect attributable solely to the intervention.

RESEARCH RESULTS

Table 1. Sociodemographic and Obstetric Characteristics of Participants (N = 25)

Variable	Results
Age (Mean±SD)(Range)(Year)	(29.4±6.1)(20-39)
Age (n/%)	
20–35 years	20/80.0
≥35 years	5/20.0
Education (n/%)	
Primary education	2/8.0
Secondary education	15/60.0
Higher education	8/32.0
Parity (n/%)	
Primiparous (1 birth)	7/28.0
Multiparous (2–4 births)	18/72.0
Grand multiparous (≥5 births)	0/0.0
Occupation (n/%)	
Not employed	17/68.0
Employed	8/32.0
Previous Breastfeeding Experience (n/%)	
Yes	15/60.0
No	10/40.0
Mode of Delivery (n/%)	
Vaginal	17/68.0
Cesarean section	8/32.0

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Table 1 indicates that the participants had a mean age of 29.4 ± 6.1 years (range, 20–39 years). Most participants were aged 20–35 years (80.0%), had secondary education (60.0%), were not employed (68.0%), and were multiparous (72.0%). Previous breastfeeding experience was reported by 60.0% of participants, while 68.0% had delivered vaginally.

Breastfeeding Self-Efficacy Before and After the Intervention

Breastfeeding self-efficacy increased following participation in the online lactation peer-support intervention. The mean BSES-SF score increased from 49.3 ± 8.1 at pretest to 68.7 ± 7.4 at posttest. The mean change between the two measurements was 19.4 points. Because the pretest and posttest measurements were obtained from the same participants, the within-participant difference scores were assessed for normality using the Shapiro–Wilk test. The difference scores were normally distributed (Shapiro–Wilk, $p > 0.05$). Therefore, a two-sided paired-samples t-test was used to examine the difference in breastfeeding self-efficacy scores between pretest and posttest, consistent with the prespecified statistical analysis described in the Methods.

The paired-samples t-test demonstrated a statistically significant difference between pretest and posttest BSES-SF scores, with higher scores observed after the intervention ($t = 12.20$, $df = 24$, $p < 0.001$). The mean difference was 19.4 points, with a 95% confidence interval of 16.10 to 22.70. These findings indicate a statistically significant increase in breastfeeding self-efficacy scores following participation in the online lactation peer-support intervention.

Table 2. Changes in Breastfeeding Self-Efficacy Before and After Online Lactation Peer Support (N = 25)

Measurement	Mean $\pm$ SD	Mean Difference	95% CI	t	df	p
Pre-intervention BSES-SF	49.3 ± 8.1	19.4	16.10–22.70	12.2	24	<0.001
Post-intervention BSES-SF	68.7 ± 7.4	—	—	—	—	—

The standardized effect size for the paired change was Cohen's $d = 2.43$. This effect-size estimate is reported to complement the significance test by quantifying the magnitude of the observed pretest-to-posttest change.

Distribution and Interpretation of BSES-SF Scores

The BSES-SF consists of 14 items scored on a five-point Likert scale, resulting in a possible total score range of 14–70. In the present study, the mean pre-intervention score was 49.3, whereas the mean post-intervention score was 68.7. Thus, the post-intervention mean was close to the upper limit of the instrument. The proximity of the post-intervention mean to the maximum possible score indicates that a potential ceiling effect should be considered when interpreting the magnitude of the observed improvement. Although the substantial increase in mean BSES-SF score was statistically significant, scores approaching the upper limit may restrict the measurable extent of further improvement. Therefore, the post-intervention findings should be interpreted in consideration of the instrument's scoring range and

the possibility of limited room for additional score increases.

Factors Supporting Successful Online Lactation Peer Support

The findings support a maternal-centered interpretation of successful online lactation peer support. Several components are considered particularly relevant to the observed improvement in breastfeeding self-efficacy: accessibility, peer connection, responsive interaction, emotional support, relevant breastfeeding information, and continuity of support. Accessibility may allow mothers to obtain support without the geographical and time limitations associated with face-to-face services. Peer connection may provide opportunities for mothers to exchange experiences and recognize that breastfeeding difficulties are shared experiences rather than individual failures. Responsive interaction may allow mothers to address breastfeeding concerns as they arise, while emotional reassurance may strengthen confidence in managing breastfeeding challenges. The intervention also incorporated

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evidence-informed breastfeeding information and professional facilitation. This combination may help balance the experiential value of peer support with the need for accurate and safe breastfeeding information.

Summary of the Main Findings

Overall, breastfeeding self-efficacy increased substantially following participation in online lactation peer support. The mean BSES-SF score increased from 49.3 ± 8.1 to 68.7 ± 7.4 , with a mean improvement of 19.4 points and a statistically significant difference ($p < 0.001$). These findings indicate that online lactation peer support was associated with improved breastfeeding self-efficacy among the postpartum mothers participating in this study. The results also support the conceptual pathway proposed in this study: digital accessibility and peer connection may facilitate responsive social and informational support, which may contribute to greater maternal breastfeeding confidence.

DISCUSSION

The present study found a substantial increase in breastfeeding self-efficacy among postpartum mothers following participation in a six-week online lactation peer-support intervention. The mean BSES-SF score increased from 49.3 ± 8.1 at baseline to 68.7 ± 7.4 after the intervention, representing a mean increase of 19.4 points. The paired-samples t-test demonstrated a statistically significant pretest-to-posttest difference ($t = 12.20$, $df = 24$, $p < 0.001$), with the 95% confidence interval for the mean difference ranging from 16.10 to 22.70. The standardized effect size was large (Cohen's $d = 2.43$). These findings indicate a marked improvement in breastfeeding self-efficacy during the six-week study period among the participating mothers.

The observed increase is consistent with evidence that breastfeeding self-efficacy can be strengthened through structured educational and supportive interventions. A systematic review and meta-analysis of educational interventions found that such interventions significantly improved breastfeeding self-efficacy compared with usual or standard care (Maleki et al., 2021). More recent evidence has extended this finding to digital approaches. A systematic review and meta-analysis of 52 studies involving 11,704 participants reported a positive overall effect of digital health interventions on

breastfeeding self-efficacy, although substantial heterogeneity was observed across studies (Sun et al., 2026). The authors also reported wide prediction intervals and low-to-moderate certainty of evidence, indicating that the effectiveness of digital interventions may vary according to intervention characteristics, population, and implementation context.

The present findings are particularly relevant to the peer-support component of the intervention. Online breastfeeding peer support may provide mothers with accessible opportunities to obtain information, share experiences, receive emotional support, and seek reassurance from others experiencing similar breastfeeding challenges. Moon and Woo (2021) reported that mothers perceived online breastfeeding peer-support communities as accessible sources of information and experiential knowledge. Similarly, Morse and Brown (2022) found that social media breastfeeding groups could provide informational, emotional, and social support, with increased self-efficacy emerging as one of the reported benefits. More recently, Hiito et al. (2024), based on an integrative review of 19 studies, identified informational support, emotional support, reassurance, shared experiences, and a sense of belonging to a breastfeeding community as important functions of Internet-based peer support.

The improvement observed in the present study may therefore be related to the social and informational mechanisms inherent in peer support. Breastfeeding self-efficacy reflects a mother's confidence in her ability to organize and perform the behaviors required for successful breastfeeding. Within a peer-support environment, mothers may encounter experiences that reinforce confidence through encouragement, observation of other mothers' experiences, opportunities to discuss breastfeeding difficulties, and feedback regarding practical challenges. These interactions may be particularly relevant during the early postpartum period, when mothers are adapting to breastfeeding and may experience uncertainty regarding infant feeding patterns, positioning and attachment, perceived milk adequacy, or breastfeeding frequency. Thus, the online format may function not simply as an information-delivery channel but as a continuing social-support environment.

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The findings are also compatible with evidence concerning virtual lactation support more broadly. Blackmore et al. (2022) reported in a systematic review and meta-analysis of virtual lactation support that technology-enabled approaches can extend access to lactation assistance when face-to-face services are constrained by geographic, logistical, or resource-related barriers. In addition, Hadizadeh-Talasaz and Abdollahpour (2025) found evidence supporting the effectiveness of telemedicine-based interventions for improving breastfeeding self-efficacy, although the authors emphasized variation across interventions and study characteristics. These findings provide a broader context for interpreting the present results, while the current study specifically addresses an online peer-support model rather than professionally delivered telemedicine alone.

The characteristics of the participants may also provide important context for interpreting the findings. Most participants were aged 20–35 years, had secondary education, were multiparous, were not employed, and had previous breastfeeding experience. Sixty percent of participants reported previous breastfeeding experience, whereas 40% had no previous experience. Previous breastfeeding experience may provide mothers with experiential knowledge and familiarity with breastfeeding; however, previous experience does not necessarily eliminate the need for support because breastfeeding experiences may differ between pregnancies and infants. Mothers may encounter new challenges related to infant characteristics, maternal circumstances, perceived milk supply, or breastfeeding difficulties. Therefore, online peer support may complement previous experience by providing mothers with opportunities to discuss current breastfeeding experiences and obtain reassurance during the postpartum period.

The relatively high proportion of multiparous participants should also be considered when interpreting the findings. Multiparous mothers may enter the postpartum period with greater familiarity with breastfeeding than primiparous mothers. Nevertheless, the present study did not examine whether the magnitude of change differed according to parity or previous breastfeeding experience. Consequently, these characteristics should be considered descriptive features of the sample rather than explanations for the observed increase in BSES-

SF scores. Future studies with larger samples could examine whether parity, previous breastfeeding experience, mode of delivery, education, or employment status modify the response to online peer-support interventions.

The magnitude of the observed improvement should also be interpreted in relation to the scoring characteristics of the BSES-SF. The instrument consists of 14 items scored from 1 to 5, producing a possible total score ranging from 14 to 70. In the present study, the mean post-intervention score was 68.7, which was close to the maximum possible score. This pattern raises the possibility of a ceiling effect. When participants approach the upper limit of an instrument, further improvements in the underlying construct may become difficult to detect because there is limited remaining score range. Consequently, the magnitude of the observed change should not be interpreted independently of the instrument's measurement range.

The BSES-SF measurement itself demonstrated good internal consistency in the present sample, with a Cronbach's alpha of 0.87. This finding supports the consistency of the items in measuring breastfeeding self-efficacy among the participating mothers. The result is also broadly consistent with previous psychometric evidence for the Indonesian BSES-SF. Sandhi et al. (2022), in a confirmatory factor analysis involving 237 Indonesian postpartum women, reported a unidimensional structure and excellent internal consistency, with a Cronbach's alpha of 0.90. Therefore, the present reliability estimate provides additional sample-specific evidence of internal consistency, although the small sample size means that it should not be interpreted as a new validation of the instrument.

The large standardized within-participant change observed in the present study should likewise be interpreted cautiously. Cohen's *d* of 2.43 indicates a large standardized difference between pretest and posttest scores within this sample. However, effect sizes derived from a one-group pretest–posttest design should not be interpreted in the same manner as between-group effect sizes from randomized controlled trials. The magnitude of the observed change may reflect not only the intervention but also increasing breastfeeding experience, natural adaptation during the postpartum period, concurrent

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support from family or healthcare providers, and other time-related factors.

This consideration is particularly important because the present study used a one-group pretest–posttest design without a control group. The statistically significant paired comparison demonstrates that BSES-SF scores increased over the observation period, but it does not establish that the online peer-support intervention alone caused the improvement. The absence of a comparison group means that alternative explanations, including history, maturation, repeated measurement, and concurrent breastfeeding support, cannot be excluded. The findings should therefore be interpreted as evidence of a substantial pretest-to-posttest improvement associated with participation in the study rather than definitive evidence of a causal intervention effect.

The online peer-support model nevertheless has potential practical relevance as a complementary component of postpartum lactation care. Internet-based peer support can provide mothers with opportunities to obtain support and shared experiences outside routine healthcare encounters. Hiito et al. (2024) emphasized that online breastfeeding peer-support groups can respond to parents' needs for information, emotional support, reassurance, and community belonging. However, the same review highlighted the importance of effective moderation to ensure that breastfeeding advice is evidence-based and supportive. Morse and Brown (2022) likewise noted that mothers value social media groups while recognizing concerns regarding the reliability and regulation of online information. Accordingly, online peer support should ideally be integrated with professional lactation guidance and appropriate moderation rather than being regarded as a substitute for clinical assessment.

The present findings have implications for future research and service development. Larger controlled studies are needed to determine whether the observed improvement exceeds changes associated with routine postpartum care and natural adaptation over time. Randomized controlled trials comparing online peer support with usual care, professional lactation counseling, or combined peer-professional support could clarify the independent contribution of peer support. Future studies should also consider longer follow-up periods and breastfeeding outcomes beyond self-efficacy, such as exclusive breastfeeding

duration, breastfeeding continuation, maternal satisfaction, and breastfeeding difficulties. In addition, research examining the role of intervention dose, peer-group structure, moderation, participant engagement, and individual characteristics may help identify which mothers benefit most from online peer-support approaches.

Overall, the present study demonstrated a marked increase in breastfeeding self-efficacy among postpartum mothers during a six-week period of online lactation peer support. The findings are consistent with the growing evidence supporting educational, peer-support, and digitally delivered approaches to breastfeeding assistance. However, the substantial pretest-to-posttest change should be interpreted in the context of the one-group design, small sample size, and potential ceiling effect. The study provides preliminary evidence that online lactation peer support may be a useful complementary approach for strengthening breastfeeding self-efficacy, while further controlled research is required to establish its causal effectiveness and longer-term clinical relevance.

CONCLUSION

The six-week online lactation peer-support intervention was associated with a marked improvement in breastfeeding self-efficacy among postpartum mothers, as indicated by the significant increase in BSES-SF scores from pretest to posttest. These findings suggest that online peer support may serve as a useful complementary approach to strengthen mothers' confidence in breastfeeding during the postpartum period. However, because this study used a one-group pretest–posttest design without a control group, the observed improvement cannot be attributed solely to the intervention. Further studies using larger samples, controlled or randomized designs, and longer follow-up periods are needed to determine the effectiveness and sustainability of online lactation peer support and its potential impact on longer-term breastfeeding outcomes.

SUGGESTION

Online lactation peer support may be considered a complementary component of postpartum midwifery care to strengthen breastfeeding self-efficacy. Midwives and maternal health providers should

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develop accessible, structured online peer-support programs that combine meaningful peer interaction, evidence-based breastfeeding education, emotional support, and professional guidance. Programs should ensure timely communication, active engagement, continuity throughout the postpartum period, confidentiality, clear communication guidelines, and professional moderation to maintain safe and accurate information. Qualified health professionals may facilitate the community and address concerns requiring professional assessment while preserving its peer-support nature.

Further research should use larger and more diverse samples, controlled or randomized designs, and longer follow-up periods to evaluate the effectiveness and sustainability of online lactation peer support. Future studies should also examine the effects of interaction frequency and quality, participant engagement, response time, emotional support, information quality, and professional facilitation, as well as whether improvements in breastfeeding self-efficacy are sustained and translate into improved breastfeeding outcomes, including breastfeeding continuation and exclusivity.

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AUTHOR CONTRIBUTIONS

Eva Berliana: Conceptualization, methodology, investigation, data curation, formal analysis, and writing original draft. **Yusari Asih:** Conceptualization, methodology, supervision, formal analysis, project administration, writing review and editing, and correspondence. **Nurlaila:** Investigation, data collection, data curation, and validation. **Marlina:** Methodology, investigation, and validation. **Indah Trianingsih:** Supervision, validation, and writing review and editing. All authors contributed to the interpretation of the findings, critically reviewed the

manuscript, approved the final version, and agreed to be accountable for all aspects of the work.

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