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Effect of Positive Affirmation on Breastfeeding Outcomes among Mothers at Risk of Preeclampsia: A Quasi-Experimental Study

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ABSTRACT

Background: Preeclampsia is associated with increased risk of breastfeeding difficulties, including delayed lactogenesis and reduced exclusive breastfeeding. Psychological factors may influence breastfeeding outcomes, and simple psychosocial interventions such as positive affirmations may offer potential benefits.

Purpose: To evaluate the effectiveness of a positive-affirmation intervention on breastfeeding outcomes among mothers at risk of preeclampsia.

Methods: A quasi-experimental study with a non-equivalent control group design was conducted in Sumenep from November 2025 to January 2026. A total of 98 mothers were recruited using purposive sampling and allocated into intervention (n = 49) and control (n = 49) groups. The intervention consisted of positive affirmations delivered for 10 minutes per session, twice weekly for four weeks. Outcomes included early initiation of breastfeeding, onset of lactogenesis, and exclusive breastfeeding at one month postpartum. Data were analyzed using independent t-tests and Chi-square tests. Effect sizes were reported as odds ratios (OR) with 95% confidence intervals (CI), and multivariate logistic regression was performed to control for confounders.

Results: The intervention group showed a higher rate of successful early initiation of breastfeeding (77.6% vs 55.1%; OR = 2.82; 95% CI: 1.20–6.62; p = 0.018), earlier onset of lactogenesis (42.3 ± 10.5 vs 50.8 ± 12.1 hours; mean difference = −8.5 hours; 95% CI: −13.2 to −3.8; p = 0.001), and higher exclusive breastfeeding rates at one month postpartum (71.4% vs 51.0%; OR = 2.40; 95% CI: 1.08–5.33; p = 0.038). After adjustment, the intervention remained significantly associated with improved breastfeeding outcomes (adjusted OR = 2.40; 95% CI: 1.10–5.50; p = 0.030).

Conclusion: Positive-affirmation intervention is associated with improved breastfeeding outcomes among mothers at risk of preeclampsia. Given its simplicity and feasibility, this intervention may be integrated into postpartum care to support breastfeeding practices in high-risk populations.

Keywords: Breastfeeding Outcomes, Positive Affirmation, Preeclampsia

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BACKGROUND

Preeclampsia is one of the most serious pregnancy complications, characterized by new-onset hypertension after 20 weeks of gestation, often accompanied by signs of organ dysfunction and/or placental complications. This condition contributes significantly to maternal and perinatal morbidity and mortality worldwide, affecting approximately 2–8% of pregnancies and leading to adverse outcomes such as preterm birth and fetal growth restriction. ((ACOG), 2020)

The impact of preeclampsia extends beyond the antenatal and intrapartum periods into the postpartum phase, where mothers often require closer monitoring and may experience mother–infant separation due to neonatal complications. These conditions can disrupt breastfeeding initiation and increase the risk of lactation problems, including delayed onset of lactogenesis and difficulties in maintaining exclusive breastfeeding.

In addition to the clinical burden, mothers at risk of preeclampsia frequently experience psychological distress, including stress, anxiety, and fear of complications. From a psychoneuroendocrine perspective, psychological stress activates the hypothalamic–pituitary–adrenal (HPA) axis and triggers neuroendocrine responses that may influence cardiovascular function and pregnancy outcomes (Yunaningsih, Latifah and Fetriyah, 2024). Furthermore, emotional distress can disrupt lactation-related hormones such as oxytocin and prolactin while increasing cortisol levels, which may inhibit the milk let-down reflex and reduce breast milk production.(Pezley *et al.*, 2022) These mechanisms highlight the importance of integrating psychological aspects into maternal care rather than treating them merely as comorbidities.

In addition, Bandura's Self-Efficacy Theory provides a relevant framework for understanding how maternal beliefs influence health behaviors. Self-efficacy refers to an individual's confidence in their ability to perform specific behaviors necessary to achieve desired outcomes(Bandura, 1986, Bandura, 1997) In the context of breastfeeding, mothers with higher self-efficacy are more likely to initiate breastfeeding, overcome challenges, and sustain exclusive breastfeeding practices. Conversely, mothers experiencing psychological distress may have lower self-efficacy, which can negatively affect their motivation, coping ability, and persistence in breastfeeding. Therefore, interventions that strengthen self-efficacy such as mental suggestion or positive affirmations may enhance both psychological readiness and breastfeeding outcomes.

Empirical evidence shows that mothers with hypertensive disorders of pregnancy tend to have less optimal breastfeeding outcomes compared to those without complications, including challenges in breastfeeding initiation and duration(Burgess, 2020; Nardella, et al, 2025) Delayed lactogenesis has also been reported among mothers with preeclampsia, further compromising early breastfeeding success.(Demirci *et al.*, 2018)

Previous studies have demonstrated that psychosocial and behavioral interventions can improve maternal mental health and breastfeeding outcomes, particularly when they are continuous and individualized.(Zhao et al 2021; Allen et al 2022) Relaxation-based interventions such as mindfulness, guided relaxation, and breathing techniques have also been associated with reduced stress and increased breast milk production.(Li et al., 2023; Levene *et al.*, 2024)

However, despite this growing body of evidence, research specifically examining the effectiveness of mental suggestion interventions (positive affirmations) on breastfeeding outcomes among mothers at risk of preeclampsia remains limited. Existing studies have largely focused on general populations or broader psychosocial interventions, leaving a gap in understanding targeted, simple, and non-pharmacological approaches for this high-risk group. Therefore, this study aims to address this gap by evaluating the effectiveness of mental

suggestion interventions on breastfeeding outcomes such as onset of lactogenesis, early breastfeeding success, and exclusive breastfeeding continuation in mothers at risk of preeclampsia, thereby contributing to more holistic and integrated maternal care.

OBJECTIVE

The aim of this study is to evaluate the effectiveness of a mental suggestion intervention (positive affirmations) on breastfeeding outcomes among mothers at risk of preeclampsia, specifically regarding the onset of lactogenesis, early breastfeeding success, and/or the continuation of exclusive breastfeeding.

METHODS

This study employed a quasi-experimental design using a non-equivalent control group design. The study was conducted in Sumenep from November 2025 to January 2026. The study population included all mothers at risk of preeclampsia who underwent childbirth and received postpartum care in Sumenep.

Participants were selected using purposive sampling based on predefined inclusion and exclusion criteria. Although purposive sampling may introduce selection bias, this risk was minimized by applying consistent eligibility criteria and standardized recruitment procedures for all participants. The sample size was determined based on power analysis with a significance level of 0.05 and statistical power of 80%, ensuring sufficient ability to detect differences between groups.

A total of 98 respondents were enrolled and allocated into an intervention group (n = 49) and a control group (n = 49). Participants were assigned to groups based on recruitment sequence and facility setting, as randomization was not feasible in this study design. To ensure comparability, baseline characteristics between groups were assessed prior to analysis.

Inclusion criteria were: (1) mothers at risk of preeclampsia as documented in medical records; (2) gestational age ≥ 37 weeks; (3) stable maternal and neonatal conditions postpartum; and (4) willingness to participate in the study. Exclusion criteria were: (1) mothers with severe postpartum complications; (2) infants with conditions that hinder breastfeeding; and (3) mothers diagnosed with severe psychological disorders.

The intervention group received a mental suggestion intervention (positive affirmations) aimed at enhancing breastfeeding self-efficacy. The intervention consisted of structured affirmation scripts focusing on maternal confidence, relaxation, and positive breastfeeding expectations. It was delivered through guided sessions by trained healthcare providers, with a duration of 10 minutes per session, twice weekly for four weeks. The control group received standard postpartum care according to the healthcare facility's procedures without additional intervention.

The independent variable was the mental suggestion intervention (positive affirmations), while the dependent variables were breastfeeding outcomes, including early initiation of breastfeeding, onset of lactogenesis, and continuation of exclusive breastfeeding.

Data were collected using structured observation sheets, validated questionnaires, and medical records. Breastfeeding self-efficacy and related psychological variables were measured using standardized instruments with established validity and reliability. Prior to analysis, data quality and completeness were ensured.

Data were analyzed using univariate, bivariate, and multivariate methods. Normality of data distribution was assessed using the Shapiro–Wilk test. For normally distributed data, differences between groups were analyzed using the independent t-test, while non-normally distributed data were analyzed using non-parametric tests. Categorical variables, such as early initiation of breastfeeding and exclusive breastfeeding, were analyzed using the Chi-square or

Fisher's exact test. To control for potential confounding variables (e.g., maternal age, parity, mode of delivery, and severity of preeclampsia risk), multivariate regression analysis was performed. Statistical significance was set at $p < 0.05$.

This study received ethical approval from the Health Research Ethics Committee, Faculty of Health Sciences, University of Wiraraja, under approval number 1150.1/KEPK/XII/2025. All participants were provided with a full explanation of the study and signed written informed consent prior to participation.

RESULTS

Respondent Characteristics

Table 1. Respondent Characteristics

Characteristic	Intervention (n=49)	Control (n=49)	p-value
Maternal age (years), mean ± SD	29.1 ± 5.2	28.7 ± 5.0	0.72
Primiparous, n (%)	21 (42.9%)	23 (46.9%)	0.68
High school education, n (%)	34 (69.4%)	32 (65.3%)	0.67
Cesarean section, n (%)	18 (36.7%)	20 (40.8%)	0.68

Baseline characteristics were comparable between the intervention and control groups ($p > 0.05$), indicating no significant differences at baseline.

Early Initiation Breastfeeding

Table 2. Comparison of early breastfeeding initiation

Outcome	Intervention (n=49)	Control (n=49)	OR (95% CI)	p-value
Successful	38 (77.6%)	27 (55.1%)	2.82 (1.20–6.62)	0.018
Not successful	11 (22.4%)	22 44.9%)		

The success rate of early initiation of breastfeeding was higher in the intervention group compared to the control group. Mothers in the intervention group were 2.82 times more likely to successfully initiate breastfeeding than those in the control group (OR = 2.82; 95% CI: 1.20–6.62; $p = 0.018$).

Onset Of Lactogenesis

Table 3. Comparison of the onset of lactogenesis

Outcome	Intervention (mean ± SD)	Control (mean ± SD)	Mean difference (95% CI)	p-value
Onset of lactogenesis (hours)	42.3 ± 10.5	50.8 ± 12.1	−8.5 (−13.2 to −3.8)	0.001

The onset of lactogenesis occurred significantly earlier in the intervention group compared to the control group, with a mean difference of −8.5 hours (95% CI: −13.2 to −3.8; $p = 0.001$).

Exclusive Breastfeeding

Table 4. Comparison of Exclusive Breastfeeding

Outcome	Intervention (n=49)	Control (n=49)	OR (95% CI)	p-value
Yes	35 (71.4%)	25 (51.0%)	2.40 (1.08–5.33)	0.038
No	14 (28.6%)	24 (49.0%)		

The proportion of exclusive breastfeeding was significantly higher in the intervention group compared to the control group. Mothers in the intervention group were 2.40 times more likely to exclusively breastfeed than those in the control group (OR = 2.40; 95% CI: 1.08–5.33; p = 0.038)

Multivariate Analysis (Adjusted Analysis)

Tabel 5. Multivariate Logistic Regression Analysis

Variable	Adjusted OR	95% CI	p-value
Intervention (yes vs no)	2.40	1.10–5.50	0.030
Maternal age	1.02	0.95–1.08	0.520
Parity (primiparous)	0.85	0.40–1.80	0.670
Cesarean section	0.75	0.35–1.60	0.450

Multivariate logistic regression analysis was performed to control potential confounders. The results showed that the intervention remained significantly associated with breastfeeding outcomes after adjustment (adjusted OR = 2.40; 95% CI: 1.10–5.50; p = 0.030), while other variables were not statistically significant.

DISCUSSION

This study assessed whether a positive-affirmation intervention (10 minutes per session, twice weekly for four weeks) improves breastfeeding outcomes. Compared with the control group, mothers receiving positive affirmations had a significantly higher rate of successful early initiation of breastfeeding (77.6% vs 55.1%; p = 0.018), an earlier onset of lactogenesis (42.3 ± 10.5 vs 50.8 ± 12.1 hours; mean difference −8.5 hours; p = 0.001), and a higher proportion of exclusive breastfeeding at one month postpartum (71.4% vs 51.0%; p = 0.038). Baseline characteristics were broadly comparable between groups, reducing the likelihood that the observed differences were driven by major baseline imbalances.

The higher IMD success in the intervention group suggests that positive affirmations may support maternal engagement during the immediate postpartum period, when emotional readiness and confidence can influence early breastfeeding behaviors. This finding aligns with global recommendations emphasizing the importance of initiating breastfeeding within the first hour after birth and providing adequate support during this critical period.(WHO, 2023; Beyene *et al.*, 2025)

A clinically meaningful finding of this study is the earlier onset of lactogenesis in the intervention group. Earlier lactogenesis may reduce the likelihood of early formula supplementation and support continued breastfeeding. Previous studies have shown that delayed lactogenesis is associated with suboptimal breastfeeding outcomes, including reduced milk production and shorter breastfeeding duration (Li and Wupuer, 2024; Montana *et al.*, 2024; Peng, Zhuang and Huang, 2024) One possible explanation is that positive affirmations may help reduce psychological distress and improve maternal coping during the early postpartum period. However, as hormonal and psychological variables were not directly measured in this study, these mechanisms should be interpreted cautiously as plausible explanations rather than confirmed pathways.(Emily M. Nagel PhD, *et al* 2022).

The higher rate of exclusive breastfeeding at one month postpartum suggests that the benefits observed in early breastfeeding processes may extend into the early postpartum period. The repeated nature of the intervention over four weeks may have contributed to strengthening adaptive cognitive responses and maternal confidence. Breastfeeding self-efficacy has been widely recognized as an important determinant of breastfeeding continuation, and previous studies have demonstrated that psychosocial interventions can improve exclusive breastfeeding through such mechanisms (Rodríguez-Gallego, 2024; Özhüner and Özerdoğan, 2025) Nevertheless, because self-efficacy and psychological distress were not directly measured in this study, their role should be interpreted as a potential contributing factor rather than a confirmed mediator.

This study offers a novel contribution by focusing on mothers at risk of preeclampsia, a population that has received limited attention in breastfeeding intervention research. Unlike previous studies that primarily target general maternal populations, this study evaluates a brief, low-cost, and non-pharmacological intervention tailored to a high-risk group, highlighting its potential for broader application in maternal healthcare settings.

Several limitations should be acknowledged. First, the use of purposive sampling may introduce selection bias and limit generalizability. Second, the quasi-experimental design without randomization may allow residual confounding despite statistical adjustment. Third, the follow-up period was limited to one month postpartum, which may not capture longer-term breastfeeding outcomes. Fourth, some outcomes were based on self-reported data, which may be subject to reporting bias. Finally, the study did not directly measure psychological or hormonal variables, limiting the ability to confirm underlying mechanisms.

From a practical and policy perspective, these findings suggest that positive affirmation interventions could be integrated into maternal care programs, particularly in postpartum services for mothers at risk of preeclampsia. Given that the intervention is simple, low-cost, and feasible to deliver by midwives or other healthcare providers, it has potential for implementation in routine clinical practice. Strengthening psychological support within maternal care may enhance both maternal well-being and breastfeeding outcomes.

Future research should include longer follow-up periods (e.g., up to six months postpartum), incorporate randomized designs where feasible, and directly measure psychological and physiological variables to better understand the mechanisms underlying the observed effects.

CONCLUSION

This study demonstrates that a positive-affirmation intervention is associated with improved breastfeeding outcomes among mothers at risk of preeclampsia. The intervention significantly increased the success of early initiation of breastfeeding, accelerated the onset of lactogenesis, and improved exclusive breastfeeding rates at one month postpartum. These findings suggest that positive affirmations may serve as a simple and feasible approach to support early breastfeeding practices in this population.

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CONFLICTS OF INTEREST

The authors declare no financial or personal relationships that could inappropriately influence the work reported in this paper.

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