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Nurse-Led Oketani Breast Massage for Enhancing Breastfeeding Success Among Primiparous Women

Nourhan Magdy Nasr[1], Samia I Hassan[2], *Reda Hemida[3], Amina Elnemer[4]

[1]Clinical Instructor, Technical Institute of Nursing, Faculty of Nursing, Mansoura University, Egypt docnourhan74@gmail.com
[2]Professor of Woman's Health and Midwifery Nursing, Faculty of Nursing, Mansoura University dr.samiahassan@yahoo.com
[3]Professor of Obstetrics and Gynecology Medicine, Faculty of Medicine, Mansoura University redaelshouky@hotmail.com
[4]Professor of Woman's Health and Midwifery Nursing, Faculty of Nursing, Mansoura Universitymemylady@hotmail.com
*Corresponding Author's Email: docnourhan74@gmail.com

ABSTRACT: Background: Enhancing breastfeeding is a global health priority because of its significant benefits for both infants and mothers. Even though its benefits are well-established, many mothers face challenges in breastfeeding.

Aim: To evaluate the effect of nurse-led Oketani breast massage for enhancing breastfeeding success among primiparous women.

Method: A quasi-experimental design was used. A purposive sample of 100 Primipara women was drawn from the Obstetrics and gynecology inpatient wards (9, 10, 18& 15) at Mansoura University Hospital, Mansoura city, Egypt. Data collection relied on a structured interview questionnaire capturing demographic, current obstetric, and breastfeeding data, plus the Infant Breastfeeding Assessment Tool, the LATCH tool, and the breastfeeding self-efficacy scale short form.

Results: At discharge, a highly statistically significant difference separated intervention and control groups for both successful breastfeeding behavior ($p=0.004$) and breastfeeding support ($p=0.008$). Likewise, at discharge and one week later, breastfeeding self-efficacy diverged sharply between the two groups ($p <0.001$).

Conclusion: Nurse-led Oketani breast massage supports primipara breastfeeding mothers, shapes successful breastfeeding behaviors, and reinforces self-efficacy.

INTRODUCTION

Promotion of breastfeeding remains vital for improving newborn health and reducing mortality rates, particularly in developing regions (Handayani et al., 2025). Recently, the World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) have intensified policies and initiatives to support, encourage, and sustain breastfeeding across various health care systems (Hamdy et al., 2025).

According to the World Health Organization, the first feeding should be initiated within one hour of birth, exclusivity should be retained for the first 6 months, and continuation alongside complementary foods should run up to 2 years (Mahto et al., 2025). Early initiation and exclusive breastfeeding are shaped by several factors, among them mode of delivery, parity, antenatal preparation, and the mother's socioeconomic status and education (Altamimi et al., 2025).

Successful breastfeeding is the effective transfer of milk from breast to infant, influenced by determinants including prompt skin-to-skin contact, early bonding, infant latching and suckling, audible swallowing, and daily feeding frequency (Mahdizadeh-Shahri et al. 2021). For mothers undergoing Cesarian Section, the golden hour of early bonding is postponed, mother-infant separation impedes skin-to-skin breastfeeding, the neonate is less receptive, suckling weakens, and insufficient milk production. These difficulties are compounded by anesthesia-related fatigue, surgical pain, and anxiety (Çağan et al., 2025).

Initiation, continuation, and eventual success of breastfeeding are strongly predicted by breastfeeding self-efficacy, a mother's belief in her capacity to breastfeed (Fallah-Karimi et al., 2025). Yet postpartum complications such as delayed lactation, breast soreness, weak infant latch, and reduced confidence persist for many mothers, particularly after cesarean delivery, highlighting the need for simple, safe, low-cost supportive measures within postpartum nursing care. Attention has shifted to Oketani breast massage developed in 1981 by Sotomi Oketani as a complementary intervention with potential to reinforce exclusive breastfeeding, increase breast milk production, ease breastfeeding-related discomfort, and improve maternal comfort (Tungka et al., 2026; Sumini et al., 2026; Citrawati & Dharma, 2026).

Significance of the study

Effective breastfeeding improves maternal and infant health, reduces neonatal morbidity and mortality, supports long-term child development, and contributes to Sustainable Developmental Goal (SDG 3) (Mohamed et al., 2026). By contrast, suboptimal breastfeeding practices are essential factors contributing to under-five mortality, accounting for deaths from diarrhea (30%), acute respiratory infections (30%), and neonatal infections (45%). However, national data from Egypt indicates considerable challenges in achieving the standards of optimal breastfeeding. Specifically, during the first three days of life nearly half (47%) are given non-human milk supplementation and only 29% of infants aged 4–5 months receive exclusive breastfeeding (Fadl & Haile, 2021).

The initial few hours and days after delivery are a critical time to begin breastfeeding and offering mothers the support they need to do so successfully (Apoorvari et al., 2025). Primiparous mothers require greater breastfeeding self-efficacy to prevent early breastfeeding cessation (Fallah-Karimi et al., 2025).

Nurse-led Oketani breast massage is a simple, inexpensive, non-pharmacological intervention that reduces breast engorgement and improves breastfeeding (Tungka et al., 2026; Haryanti & Amalia, 2025), thereby promoting exclusive breastfeeding (Tungka et al., 2026). In addition, Oketani massage combined with chamomile aromatherapy increased breast milk production (Citrawati & Dharma, 2026), whereas its combination with lavender essential oil improved breastfeeding among rural mothers (Sumini et al., 2026).

Although evidence is increasing, previous studies have mainly examined breast milk production, breast engorgement, or breastfeeding success separately. Evidence on the combined effects of nurse-led Oketani breast massage on infant breastfeeding behavior, maternal breastfeeding self-efficacy, and breastfeeding support needs remains limited, particularly among primiparous women following cesarean delivery, and is scarce in Egypt. Nurses play a key role in promoting and supporting breastfeeding through education, guidance, and practical assistance (Galvão & Silva, 2024), highlighting the value of this low-cost intervention in early postpartum care.

This study simultaneously evaluated infant breastfeeding behavior, breastfeeding support needs, and maternal breastfeeding self-efficacy across different postpartum time points among primiparous women following cesarean delivery. To our knowledge, it is among the first Egyptian studies investigating these combined breastfeeding outcomes.

Egypt has one of the world's highest cesarean section rates, increasing from 20% in 2005 reaching 72.2% in June 2022 (Dewedar, 2025). Accordingly, this study examined the effects of nurse-led Oketani breast massage on multiple breastfeeding outcomes among primiparous women following cesarean delivery.

METHODOLOGY

Aim of the study

Evaluation of the effect of nurse-led Oketani breast massage for enhancing breastfeeding success among primiparous women.

Research hypotheses:

H1: Primiparous women who receive nurse-led Oketani breast massage will have higher level of successful breastfeeding behavior than primiparous women who do not.

H2: Primiparous women who receive nurse-led Oketani breast massage will need less breastfeeding support than primiparous women who do not.

H3: Primiparous women who receive nurse-led Oketani breast massage are expected to have higher levels of breastfeeding self-efficacy than primiparous women who do not.

METHOD AND SUBJECTS

Study design

A quasi-experimental design was adopted with intervention and control groups to achieve its goal (Armstrong et al., 2022).

Setting

The current study was conducted at Gynecology and Inpatient wards (9, 10, 18, 15) at Mansoura University Hospital (MUH) affiliated to Mansoura University and Ministry of Higher Education, Dakahlia governorate, Egypt. The inpatient wards are situated on the third and fourth floor at MUH. Every inpatient ward contains 25-30 beds. These wards provide care to high-risk pregnancy, pre and post operational care to cesarean section and abortion cases. and care of gynecological problem.

Sample

The current study utilized a purposive sample.

Subjects

100 primiparous women according to the inclusion criteria 1) Full term gestation (>37 to 40 weeks) 2) Aged 18 to 35 years, 3) Singleton pregnancy, 4) Cesarean section women and with relative, 5) Women who have the intention to breastfeed, and 6) Absence of maternal physical and/ or mental illness preventing breastfeeding. The exclusion criteria were 1) Women with breast problems such as nipple problems. Breast tumors and breast surgery, 2) Women with obstetric complications as postpartum hemorrhage and 3) Neonatal problems.

Sample size calculation

The sample size was calculated a priori using the two-independent-proportions formula, based on the proportions of successful breastfeeding reported for the intervention and comparison groups by Mahdizadeh-Shahri et al. (2021). The calculation was based on the following assumptions: a two-sided test, a type I error (α) of 5%, a statistical power (1-β) of 80%, and an equal allocation ratio (1:1) between the intervention and control groups. The complete formula, parameter definitions, and final calculation are presented below.

$$"n = \frac{2(Z\alpha/2 + Z\beta)^2 \times p\,(1-p)}{(d)^2}"$$

Where: n = the required sample size per group; Zα/2 = 1.96, the standard normal deviate corresponding to a two-sided significance level (α) of 5%; Zβ = 0.84, the standard normal deviate corresponding to a statistical power of 80%; p1 = the expected proportion of successful breastfeeding in the intervention group = 0.197 (19.7%); p2 = the expected proportion of successful breastfeeding in the control group = 0.022 (2.2%), both derived from the rates reported by Mahdizadeh-Shahri et al. (2021); p = the pooled proportion = (p1 + p2)/2 = (0.197 + 0.022)/2 = 0.109; and d = the expected (absolute) difference in proportions between the two groups = |p1 − p2| = |0.197 − 0.022| = 0.175. Substituting these values into the formula above:

$$n = \frac{2(1.96 + 0.84)^2 \times 0.109\,(1-0.109)}{(0.175)^2} = 50.0.$$

n = [2 × (1.96 + 0.84)² × 0.109 × (1 − 0.109)] ÷ (0.175)² = [2 × 7.84 × 0.0971] ÷ 0.0306 = 1.523 ÷ 0.0306 ≈ 49.8, rounded up to 50 participants per group.

Hence, each group required a sample size of 50, yielding a total sample size of 100 primiparous women (50 in the intervention group and 50 in the control group).

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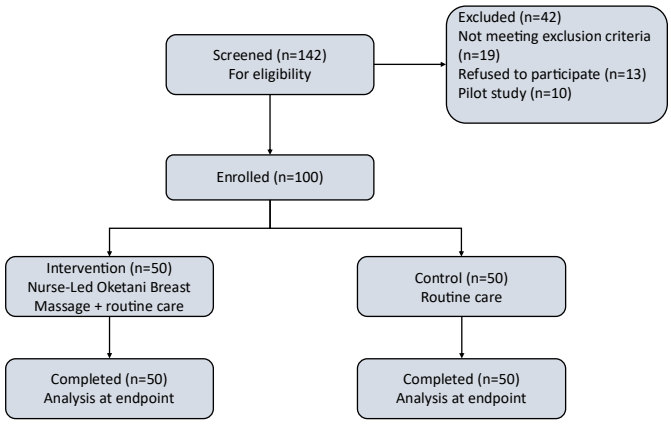


Fig.1. Flow Diagram of Study Sampling

Tools for Data Collection

Four tools served to collect data

Tool (I): A structured Interview Questionnaire.

The researcher developed this tool after reviewing the relevant literature (Mahdizadeh-Shahri et al., 2021; Dwedar et al., 2023); it contained two parts:

Part 1: Demographic characteristics of the primiparous women: as (age, educational level, occupation, residence& income).

Part II: The current obstetric and breastfeeding data of the primiparous women: such as (gestational age, breastfeeding initiation time,etc).

Tool II: Infant Breastfeeding Assessment Tool (IBFAT).

Adopted from (Matthews, 1988) to gauge neonate state (successful breastfeeding behavior), it encompassed: (1) arousability/feeding readiness of the infant, (2) Rooting, (3) Fixing (time required to latch onto the breast), and (4) Pattern of sucking.

Scoring system:

Each item was scored 0 to 3, giving a minimum of 0 and a maximum of 12. Scores of 10 to 12 reflected completely successful breastfeeding behavior, 7 to 9 relatively successful, and 0 to 6 unsuccessful.

Tool III: LATCH Assessment sheet

Adopted from (Jensen et al., 1994) to gauge primiparous women' breastfeeding support need, the LATCH acronym marks distinct assessment areas: L, how well the neonate latched; A, audible swallowing; T, type of mother's nipple; C, mother's comfort during feeding; and H, assistance needed to hold her neonate to the breast.

Scoring system:

A score of 0, 1 or 2 is assigned to each of the five major elements of breastfeeding (latching, audible swallowing sounds, nipple type, comfort & hold). On the LATCH score, (0 to 3) denotes poor, (4 to 7) denotes moderate, while (8 to 10) denotes good.

Tool IV: The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF).

Adopted from (Dennis, 2003) for gauging confidence in breastfeeding, this scale comprises fourteen statements, such as (I think I can always breastfeed my baby without using formula as a supplement, I think I can always keep wanting to breastfeed, etc).

Scoring system:

Across a Likert scale of 5-point, ratings range from never confident (score 1) up to very confident (score 5). 14 stands as the minimum possible score and 70 as the maximum.

Tool Validity and reliability

Five women's health and midwifery nursing experts evaluated the study instruments' clarity, appropriateness, sequence, and relevance to the study variables. The required modifications were carried out (arrangement of some items).

SPSS version 26's Cronbach's alpha coefficient measured internal consistency reliability. Cronbach's alpha was 0.789 on IBFAT (Tool II), 0.815 on the LATCH Assessment Sheet (Tool III), and 0.805 on the BSES-SF (Tool IV), indicating adequate internal consistency and reliability.

Ethical consideration

The Research Ethics Committee of Mansoura University's Faculty of Nursing approved with Approval No: 707 on 05 October 2024. After hearing the study's goal, procedures, benefits, and dangers, all primiparous women granted written consent. Participants in the study could quit without explanation. Their care would not change. We kept the data confidential and only utilized it for research.

Pilot Study

10 primiparous women participated in the tools' pilot testing phase to verify clarity and relevance. It was not included in the study sample.

Procedure

The research`s framework was conducted using four phases:

Preparation phase: The researcher attended a training course on Soft Tissue Manipulation and Oketani breast massage and received certification from the Academy of Complementary Medicine to perform Oketani massage.

Assessment phase: It took five months to collect data, from December 17, 2024 until mid-May 2025. Four days a week, the researcher visited the previously mentioned setting. The researcher approached primiparous women who fulfilled the inclusion criteria, explained the purpose and procedures of the study, obtained informed consent, and collected demographic, obstetric, and breastfeeding-related data. Baseline assessments of breastfeeding behavior, breastfeeding support needs, and breastfeeding self-efficacy were conducted using the study tools. Following baseline assessment, eligible primiparous women were allocated consecutively into the intervention and control groups using a predetermined allocation sequence. The first eligible participant was assigned to the intervention group, the second participant to the control group, and this sequence was continued until the required sample size was achieved. This approach was selected because random allocation was not feasible within the clinical setting.

Intervention phase: The intervention group received nurse-led Oketani breast massage in addition to routine postpartum care, whereas the control group received routine postpartum care only.

For the intervention group, the researcher applied nurse-led Oketani massage within six hours of birth when mothers could sit, 12 hours later, and on hospital discharge.

The researcher washed her hands, pulled curtains around the bed and placed a paravane, and instructed the mother to reveal the top of her dress and position her arm next to her head before the massage. Eight mild, rhythmic manual maneuvers used for massaging the left and right breasts, seven of which formed the therapy course and one expressing/milking. Each set lasted one minute and continued for 15–20 minutes.

A gentle and painless push and pull of the breast toward the left shoulder, left axilla, and opposite breast detached the hard section from the pectoral fascia in maneuvers one, two, and three. Maneuver four moved the breast to the umbilicus. Fifth and sixth maneuvers detached hard base portions: fifth: drawing breast toward researcher with right hand, gentle twisting from upper periphery to lower margin; sixth: pulling down the breast by left hand towards the direction of the researcher while twisting breast from the upper periphery to lower margin gently. Breast rotation clockwise and breast base enlargement occurred

in the seventh. The eighth expressed the inner, lower section, outside surface, and top periphery of both breasts using four ways. Adopted from Roy et al. 2019 **Figure 2**

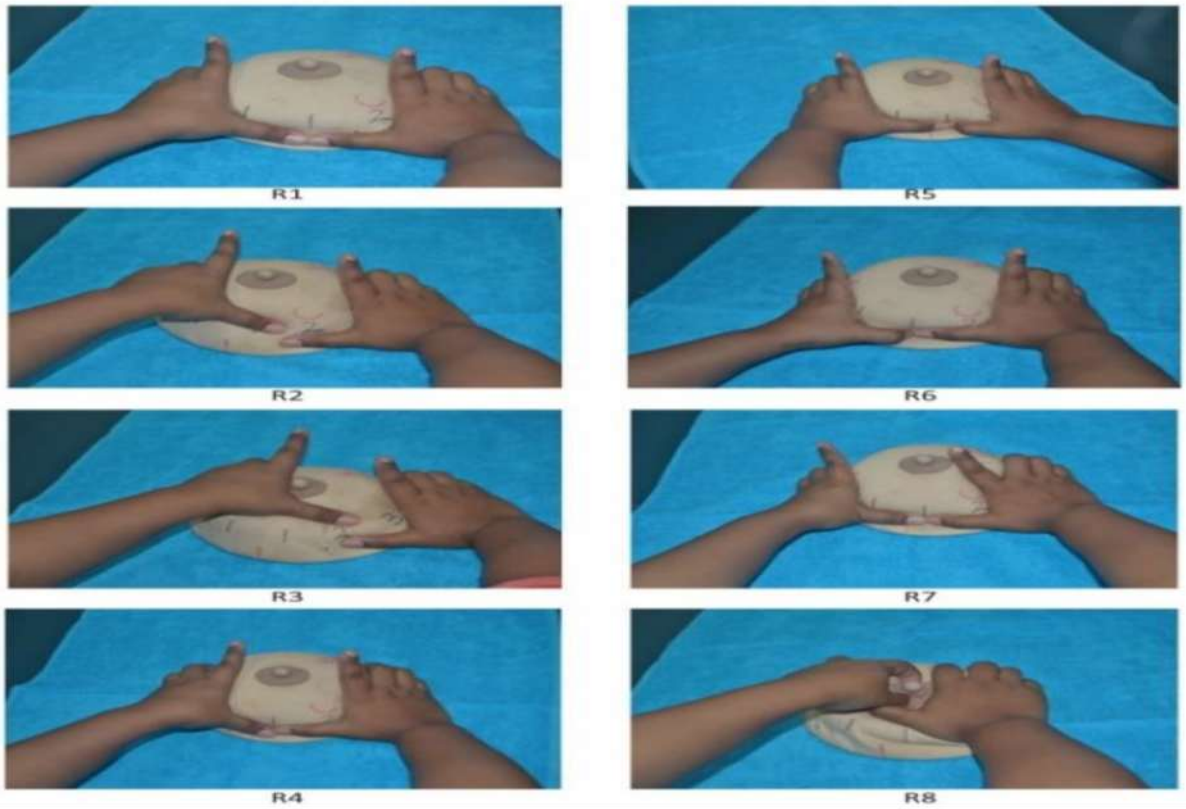


Figure 2. Oketani breast massage maneuvers (R1–R8) adopted from: (Roy et al., 2019).

In two sessions, the researcher taught primipara moms' relatives nurse-led Oketani breast massage at home**. Table (1):**

Components	Description
Introduction	**Highlighted on:** Nurse-led Oketani breast massage for enhancing breastfeeding success among primiparous women
Number of sessions	Two educational sessions on one day, every session took 30-45 minutes.
Goal	The educational sessions aim to promote the knowledge and skills of primiparous women' relatives on Oketani breast massage to help in promoting breastfeeding.
Specific objectives	**At the end of these sessions, each relative of primiparous women will be able to:** ▪ Discussing the importance of nurse-led Oketani breast massage on breastfeeding ▪ Identifying eight maneuvers of nurse-led Oketani breast massage for the right and left breast. ▪ Apply correctly nurse-led Oketani breast massage for right and left breast.
Educational materials	Breast model, video, pictures, redemonstration and data show
Educational methods	Supervised performance, supervised hands-on practice, corrective feedback
Methods of evaluation	Post-test.

After the sessions, primiparous women and their relatives received a video link showing the nurse-led Oketani massage maneuver. In the first week after delivery, primiparous women's phone numbers were gathered to follow up on massage twice daily. During the first week after delivery, twice-daily follow-up phone calls were conducted to monitor the application of the massage at home, reinforce adherence to the recommended practice, provide guidance, and strictly monitor safety by identify any reported difficulties, discomfort, or concerns related to the intervention.

Evaluation phase: The researcher used an observation sheet to assess both groups' breastfeeding success and support needs at baseline, six hours post-delivery, and discharge. Researcher assessed breastfeeding self-efficacy at baseline, hospital discharge, and one week during caesarean section follow-up.

Statistical Analysis

The collected data were coded, tabulated, and statistically analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Quantitative continuous variables were presented as mean ± standard deviation (SD), while qualitative categorical variables were expressed as frequencies and percentages. Data normality was assessed using the Shapiro–Wilk test. Chi-square test (χ^2) was used to compare categorical variables between the intervention and control groups. Mann–Whitney U test was used to compare continuous variables between the two groups, and Z values were reported accordingly. Statistical significance was considered at $p \leq 0.05$, while $p \leq 0.001$ indicated a highly statistically significant difference.

RESULTS

Table 2: Demographic Characteristics of the Studied Primiparous Women N=100

Variable	Intervention Group (50)		Control Group (50)		Significance Test	
	N	%	N	%	χ2	P
Age (years)						
18 < 22	10	20.0	16.0	32.0	1.635	0.651
22 < 26	23	46.0	20.0	40.0		
26 < 30	12	24.0	11.0	22.0		
30 ≤ 35	5	10.0	3.0	6.0		
Mean ±SD	**24.54± 3.85**		**24.26± 4.36**			
Educational level						
Primary	6	12.0	10	20.0	1.253	0.534
Secondary	23	46.0	22	44.0		
Bachelor's degree	21	42.0	18	36.0		
Occupation						
Housewife	28	56.0	29	58.0	0.041	0.840
Working	22	44.0	21	42.0		
Residence						
Urban	24	48.0	19	38.0	1.020	0.313
Rural	26	52.0	31	62.0		
Income						
Enough	19	38.0	15	30.0	0.713	0.398
Not enough	31	62.0	35	70.0		

χ^2 = Pearson Chi-square test. Mean ± SD = Mean and standard deviation. P-value ≤ 0.05 indicates statistical significance.

Table 2 indicates that mean age of primiparous women reached 24.54 ± 3.85 years in the intervention group and 24.26 ± 4.36 years in the control group. No statistically significant differences in demographic characteristics (education, occupation, residence, income) were detected between groups (P > 0.05).

Table *3*: Distribution of Primiparous Women based on Current Obstetric & Breastfeeding Data across the Intervention and Control Group N=100

Variable	Intervention group (50)		Control group (50)		Test of significance	
	N	%	N	%	χ2	P
Gestational age						
38 weeks	5	10.0	4	8.0	1.001	0.606
39 weeks	22	44.0	18	36.0		
40 weeks	23	46.0	28	56.0		
Mean ±SD	**39.36±0.66**		**39.48±0.65**			
Time of initiation of breastfeeding						
< 1 hour	11	22.0	14	28.0	0.489	0.783
1-2 hours	18	36.0	17	34.0		
>2 hours	21	42.0	19	38.0		
Mean ±SD	**2.04±1.31**		**2.15±1.51**			
Number of breastfeeding sessions during the first postpartum day						
3-4	14	28.0	24	48.0	4.244	0. 039*
5 and more	36	72.0	26	52.0		
Mean ±SD	**6. 024±1.41**		**4.74±1.10**			
Duration of first breastfeeding (Minutes)						
Mean ±SD	5.22±1.43		4.78±1.09		Z=1.586	0.113
Duration of last breastfeeding on discharge (Minutes)						
Mean ±SD	7.44±1.40		6.46±1.32		Z=3.284	0.001**

χ^2 = Pearson Chi-square test. Mean ± SD = Mean and standard deviation. Z = Standardized Mann-Whitney U test statistic. p < 0.05 statistically significant

Table 3 shows that primipara moms in the intervention and control groups had mean gestational ages of 39.36 ± 0.66 and 39.48 ± 0.65 weeks, respectively. In both groups, 46.0% and 56.0% of moms delivered at 40 weeks. Breastfeeding began >2 hours after birth for 42.0% of the intervention group and 38.0% of the control group (p = 0.783). On the first day, (72.0%) of the intervention group breastfed 5 times or more, while (48.0%) of the control group breastfed 3-4 times (p = 0.039). At discharge, the intervention group had a significantly longer mean duration of last breastfeeding (7.44 ± 1.40 minutes) than the control group (6.46 ± 1.32 minutes), despite no significant difference in first breastfeeding duration (5.22 ± 1.43 and 4.78 ± 1.09, p = 0.113).

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Table *4:* Comparison of Infant Breastfeeding Assessment Scores at Baseline, six hours after Intervention, and Discharge between Intervention and Control Groups N=100

Infant Breastfeeding Assessment Tool	Intervention group		Control group		Test of significance	
	N=50	%	N=50	%	χ2	P
Baseline						
Unsuccessful breastfeeding behavior	20	40.0	19	38.0	0.297	0.862
Relatively successful breastfeeding behavior	27	54.0	29	58.0		
successful breastfeeding	3	6.0	2	4.0		
Mean ±SD	7.00±1.55		6.72±1.73			0.619
Post 1st six hours						
Unsuccessful breastfeeding behavior	13	26.0	17	34.0%	3.964	0.183
Relatively successful breastfeeding behavior	26	52.0	29	58.0%		
successful breastfeeding	11	22.0%	4	8.0%		
Mean ±SD	7.76±2.2		7.10±1.97			0.136
On discharge						
Unsuccessful breastfeeding behavior	6	12.0%	17	34.0%	10.819	0.004**
Relatively successful breastfeeding behavior	25	50.0%	26	52.0%		
successful breastfeeding	19	38.0%	7	14.0%		
Mean ±SD	8.64±1.97		7.18±2.06			0.001**

X2: Pearson Chi-Square *** Highly statistically significant* at p<0.01 *Mean ± SD = Mean and standard deviation.*

Table 4 reveals no significant changes between intervention and control groups at baseline (p = 0.862) or after six hours (p = 0.183). However, the intervention group had a higher rate of effective breastfeeding (38.0% vs. 14.0%) at discharge (χ^2 = 10.819, p = 0.004). The intervention group had a considerably higher mean IBFAT score (8.64 ± 1.97 vs. 7.18 ± 2.06, p = 0.001) than the control group.

Table 5: Comparison of Breastfeeding support need (scores at baseline, six hours after Intervention, and Discharge between Intervention and Control Groups N=100

LATCH Assessment	Intervention group		Control group		Test of significance	
	N=50	%	N=50	%	χ2	P
Baseline						
Poor	31	62.0	29	58.0	0.427	0.808
Moderate	18	36.0	19	38.0		
Good	1	2.0	2	4.0		
Mean ±SD	3.54±1.81		3.38±2.05			0.651
Post the 1st six hours						

Poor	21	42.0	24	48.0	1.822	0.402
Moderate	22	44.0	23	46.0		
Good	7	14.0	3	6.0		
Mean ±SD	4.92±2.28		4.18±2.03			0.109
On discharge						
Poor	8	16.0	21	42.0	12.241	0.008**
Moderate	29	58.0	26	52.0		
Good	13	26.0	3	6.0		
Mean ±SD	5.78±2.00		4.26±2.01			0.001**

X2: Pearson Chi-Square *** Highly statistically significant at* p<0.01

At baseline and after six hours, **Table 5** demonstrates no significant differences between groups (p > 0.05). Upon discharge, the intervention group showed improved breastfeeding assistance and a higher LATCH score than the control group (p < 0.05).

Figure (3): Comparison between intervention and control groups according to breastfeeding self-efficacy total mean score

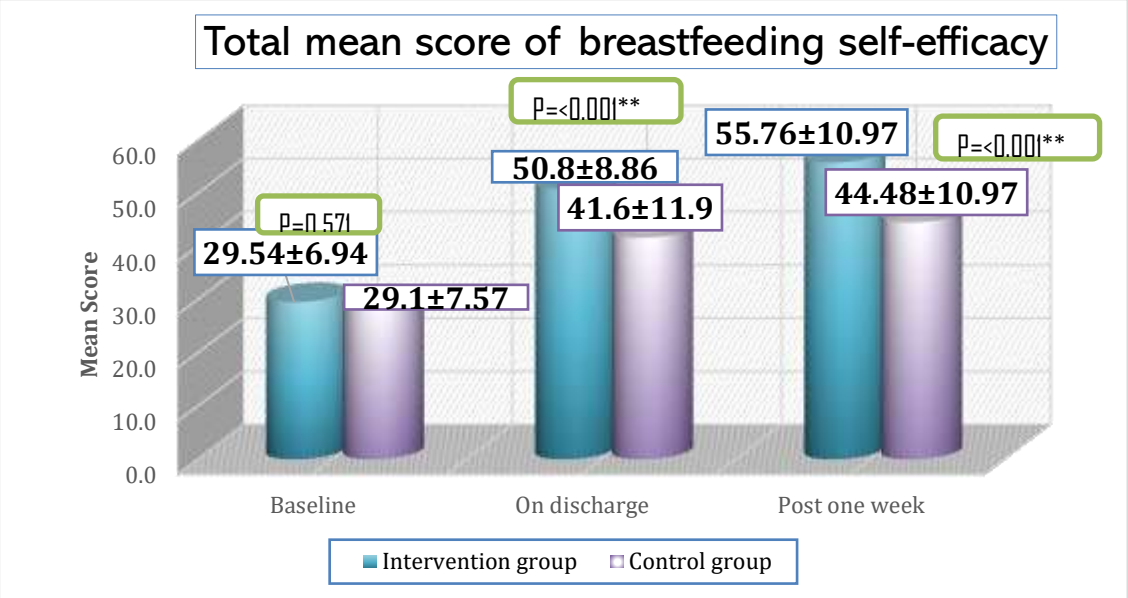


Figure (3) shows that baseline total mean breastfeeding self-efficacy scores were not significantly different across groups (p = 0.571). The intervention group had a significantly higher mean score at discharge (p < 0.001), indicating a favorable impact on maternal breastfeeding self-efficacy. After one week postpartum, the intervention group had a higher mean score than the control group (p < 0.001). We used the Mann-Whitney U test to compare groups. We regarded statistical significance at p < 0.05.

DISCUSSION

This study assessed how well nurse-led Oketani breast massage enhances breastfeeding success among primiparous women. The results supported its hypothesis: primiparous women undergoing nurse-led Oketani breast massage breastfed more successfully, needed less support, and had higher breastfeeding self-efficacy.

It expands the evidence on Oketani breast massage for primipara women in the early postpartum period. It assesses breastfeeding habit, support, and maternal self-efficacy in addition to the technique's success. This integrated assessment is important since breastfeeding depends on infant latch, milk transfer, mother confidence, and early postpartum support.

Before nurse-led Oketani massage, intervention and control groups had similar mean IBFAT scores for breastfeeding success. However, administration showed a statistically significant difference across both groups. This suggests that nurse-led Oketani massage has a good impact on primipara mothers' successful breastfeeding behavior. This supported the initial hypothesis.

This improvement may be attributed to nurse-led Oketani massage may enhance breast blood and lymphatic circulation, areolar flexibility, and breast tissue softening, enabling infant latch and suckling.

These results are in agreement with Mahdizadeh-Shahri (2021), an Iranian study, found that Oketani massage significantly raised the intervention group's mean effective breastfeeding score at discharge. Another supporting Egyptian study by Dwedar et al. (2023) revealed that Oketani breast massage improved breastfeeding success. Likewise, an Indian study, Nagargoje and Rokade (2025) found that Oketani massage improved mean IBFAT scores for the intervention group compared to the control group. Their results demonstrate that it promotes breastfeeding as a nursing intervention.

Concerning mother`s need for breastfeeding support, studies indicate that cesarean delivery negatively impacts LATCH scores, which help in a systematic evaluation of early breastfeeding problems allowing for timely intervention to reduce the mother's need for breastfeeding support (Çağan et al., 2025; Rapheal et al., 2023).

In this study, intervention and control groups had no statistically significant difference in mean LATCH score before nurse-led Oketani massage. However, a statistically significant difference was observed between the groups after intervention. The intervention group's primipara women needed less breastfeeding support after discharge than the control group. This supported the second hypothesis.

Nurse-led Oketani massage may alleviate breastfeeding discomfort by increasing blood circulation and relaxation. Primipara women after cesarean birth often face postoperative discomfort, weakness, restricted movement, and limited breastfeeding experience, which may reduce breastfeeding efficiency and raise the need for support.

Two randomized controlled studies gave comparable results. One in Turkey, (Çağan et al., 2025) and one in Iran (Mahdizadeh-Shahri et al., 2021) examined the effects of Oketani massage on nursing success and breast engorgement in cesarean, they reported that the LATCH score was significantly higher in the massage group compared to the control group meaning that women in Oketani massage group required less breastfeeding support. Similarly, in Indonesian studies, Sumini et al. (2026) and Rauzah et al. (2023) revealed that Oketani massage significantly improved LATCH score, reducing breastfeeding support need.

Before nurse-led Oketani massage, breastfeeding self-efficacy wasn`t significant difference between intervention and control group at baseline. However, the massage made a considerable impact upon discharge and one week later. Thus, primipara women getting nurse-led Oketani massage demonstrated higher breastfeeding self-efficacy, supporting the third hypothesis.

Oketani breast massage may help mothers relax, reduce nursing anxiety, and improve feeding comfort. Primiparous women may feel anxious, hesitant, and insecure in the early postpartum period due to little breastfeeding experience (Fallah-Karimi et al., 2025). Thus, easing breastfeeding issues and improving maternal comfort may boost their nursing confidence.

These findings are consistent with a study carried out in Egypt by Dwedar et al. (2023) who found that primipara moms in the OMB had statistically substantially higher breastfeeding self-efficacy at discharge and one week later than those in the control group. Furthermore, another supporting randomizes controlled trial study conducted in Tehran, Iran by Mahdizadeh-Shahri (2021) revealed that nursing self-efficacy in oketani massage group was much higher than those in the control group. The intervention group's improvement may be due to nurse-led Oketani breast massage's physiological and psychological consequences, not only the massage itself. The moderate rhythmic moves may increase local blood and lymphatic circulation, breast tissue softening, areolar suppleness, and newborn latch and sucking. These mechanisms may explain the higher discharge LATCH scores and better breastfeeding outcomes. The intervention may have given primiparous women after cesarean section psychological support, comfort, and direct breastfeeding support, which are crucial for mothers who experience pain, fatigue, limited mobility, anxiety, and lack of breastfeeding experience.

The current study findings consistently demonstrated the benefits of nurse-led oketani breast massage across various dimensions of breastfeeding including infant breastfeeding performance, mother support need and maternal breastfeeding self-efficacy. Evaluating these combined breastfeeding outcomes allow the intervention to be evaluated from the perspectives of infant, the mother, and the breastfeeding process, resulting in a broader understanding of its effect on early breastfeeding instead of relying on a single breastfeeding outcome as previous studies did.

The timing of key discovery is also noteworthy. The lack of statistically significant differences at baseline and after six hours shows that nurse-led Oketani breast massage may take repeated application and postpartum support to show results. The significant improvement at discharge and one week postpartum suggests a cumulative effect of the intervention on breastfeeding and maternal self-efficacy. Thus, nurse-led Oketani breast massage may be more effective when part of a postpartum breastfeeding support routine. Recent research in The Malaysian Journal of Nursing found that breastfeeding self-efficacy is a key factor in exclusive breastfeeding and that self-directed learning and confidence can improve breastfeeding outcomes (Ariani et al., 2025).

The data suggest that nurse-led Oketani breast massage may be useful in early postpartum breastfeeding support, especially for primipara mothers after cesarean birth.

The approach may improve latch, sucking, and milk transfer in early postnatal infants by improving breastfeeding behavior. The intervention group's higher LATCH ratings indicate less direct breastfeeding help, which is clinically significant in congested maternity wards where nurses must act rapidly. The sustained improvement in breastfeeding self-efficacy one week after birth implies nurse-led Oketani breast massage may improve nursing performance and maternal confidence during the hospital-to-home transition. This study suggests that nurse-led Oketani breast massage may represent a practical supportive nursing technique for promoting breastfeeding among primiparous women during the early postpartum period.

Clinical implications

The findings support integrating nurse-led Oketani breast massage into routine postpartum nursing care, particularly for primiparous women after cesarean birth. Incorporating this low-cost intervention into maternity services may improve breastfeeding outcomes while reducing the need for intensive breastfeeding support.

Limitations

Extrapolating the results to all primiparous women may be difficult due to the study's small sample size and single healthcare facility. Because this study was quasi-experimental with deliberate sampling, participant allocation was not random. Although baseline parameters were similar between groups, selection bias and residual confounding are possible. Despite these challenges, we hope the study can enlighten moms and medical providers and guide future research

Future Scope

To confirm and expand findings, future studies should use larger samples and diverse healthcare settings. Long-term effects of Oketani breast massage on newly pregnant women's ability to breastfeed exclusively, comfort, baby weight gain, and confidence need further study. The best way to increase breastfeeding is to compare Oketani breast massage to other non-drug lactation therapy. In light of WHO recommendations for exclusive breastfeeding, longitudinal studies should examine whether improvements in breastfeeding behaviour, support needs, and self-efficacy persist at 1-, 3-, and 6-month postpartum.

CONCLUSION

The findings showed that nurse-led Oketani breast massage improved successful breastfeeding behavior, reduced the mother's requirement for breastfeeding support, and reinforced breastfeeding self-efficacy. These results suggest that, throughout the early postpartum period, nurse-led Oketani breast massage may function as a useful, simple, non-pharmacological nursing intervention integrated into routine postpartum nursing care protocols for supporting breastfeeding among primiparous women following cesarean delivery.

CRediT authorship contribution statement

All authors worked together to conceive and design the study. The intervention was carried out by N.M.N. N.M.N. also, wrote the manuscript and carried out the data collection, analysis, and interpretation. A.M.E., S.I.H. and R. H helping to edit and revise the paper. The manuscript was read and approved by all writers.

Instruction for AI Assistance Declaration

Language editing, grammatical correction, and content clarity were the only uses of ChatGPT (OpenAI). The writers carefully edited and checked the manuscript. The authors are responsible for the manuscript's originality, accuracy, and integrity.

Conflict of Interest

The authors of this paper stated that they had no conflicting interests.

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