Effect of Oxytocin versus Oketani Massage on Breastfeeding Predictors among Primipara Women

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Abstract

Background: Breast massage is a simple, affordable, and effective technique for implementation after childbirth and adoption as the mainstay to improve breastfeeding success. This study aimed to examine the effect of oxytocin versus Oketani massage on breastfeeding predictors among primipara women. **Method:** A quasi-experimental design (nonequivalent control group pretest/posttest) was utilized. A convenience sample of 108 primipara women was selected and was divided into three groups (36 primipara women in each group control, oxytocin, and Oketani massage). **Setting:** This study was conducted at Minia University Hospital for Maternity and Child. Minia governorate, Egypt. Four tools were used: the structured interview questionnaire schedule, the LATCH Assessment tool, the Infant Breastfeeding Assessment Tool, and the Breastfeeding Self-Efficacy Scale Short Form. **Results**: There was no significant difference between the control group and the study groups in terms of mean breastfeeding support, success, and self-efficacy at pre- test (p> 0.05). However, at six hours and on discharge after the intervention, there were highly statistically significant differences between the control group and study after intervention in mean breastfeeding support and success Also, on discharge and at 1 week after intervention, high statistical significance (p 0.001) was found in the differences in mean Breastfeeding Self-Efficacy between the control group and the study groups. **Conclusion**: Breastfeeding support, success, and self-efficacy scores were significantly higher among the study groups than control group (p<0.001). **Recommendation:** Raise awareness among maternity nurses about Oxytocin and Oketani massages to be implemented into practice.

Keywords: Oxytocin, Oketani Massage, Breastfeeding Predictors, Primipara Women

Introduction

Breastfeeding is one of the most effective methods for ensuring a child's health and survival. The world health organization (WHO) recommended that solid foods be added to nursing starting at six months of age and continuing for at least another two years. Nursing should begin within an hour of delivery and should be done exclusively for the first six months of life. Worldwide, fewer than half of infants younger than six months are exclusively breastfed. In contrast to WHO recommendations, the Academy of Breastfeeding Medicine, the American Academy of Pediatrics, the United Nations Children's Fund, The Brazilian Ministry of Health, and the Indonesian Doctors Association with the same recommendation. [1,2]

Early breastfeeding has been shown to have numerous benefits. And its benefits are provided not only to the children and health of women but also to the society and total family. Immediate and early initiation of breastfeeding as a primary nutrient source for a child is considered essential child care. It is crucial for healthy development and growth factors. Also, it is the best food, sterile, safe, contains antibodies enzymes, and hormones, that serve as defenses against risk factors for chronic disease, guard against

allergies, promote cognitive and sensory development, improve a child's immune response to bacteria and viruses, lower rates of obesity and diabetes and raise the rate of intelligence. Additionally, it reduces the risk of sudden child death syndrome. [1-, 6]

Breastfeeding provides numerous benefits for women to increase uterine blood flow and decrease the risk of developing breast, ovarian, cervical, and uterine cancer, and use as a method of contraception. [7, 8]

Nursing success occurs when the milk passes successfully from the mother's breast to the child's mouth. Its success depends on a number of variables, including the child's desire and the recommended eight to twelve times of nursing daily. Hearing the swallowing sound of the child, the mother's breast softening with wet diapers, and an increase or decrease in weight within normal ranges are all signs of successful breastfeeding. [9]

The method of birth is one of the most crucial elements impacting the success of breastfeeding and its self-efficacy. Cesarean sections delay the start of breastfeeding; result in an early and extended separation of the mother and her child, postoperative pain, a loss of skin-to-skin contact, and a greater demand on the side of the mother for nursing support. Therefore, some mothers need more help breastfeeding, especially in the first few hours and days after giving birth. Hence, Cesarean sections hinder the onset and maintenance of effective breastfeeding and have an impact on the mother's sense of independence and self-worth. Additionally, mothers who undergo cesarean sections feel less secure in their ability to breastfeed. [10, 11, 12, 13, 14, 15]

Massage therapy is one of the standard nursing interventions for midwives and women's health that are listed in the Nursing Interventions Classification. Worldwide, breast massage is a nursing practice used to treat issues with nursing mothers. In order to alleviate breastfeeding difficulties, many breast massage techniques may be performed. Oketani, Oxytocin breast massage, Marmet technique, warm compresses, breast care, back massages, and suggestive provision are a few of these techniques that can increase the production of breast milk. However, because healthcare services lack the knowledge to properly apply these techniques, nurses hardly ever introduce them. [16- 19]

Oxytocin and Prolactin are two hormones that affect the ability to produce and use milk. Reduced child suction also decreases stimulation of prolactin and oxytocin hormones. The prolactin hormone was boosted via massage techniques, among other things. Many cultures around the world have employed massage techniques for health and treatment. After childbirth, oxytocin massage can be used to stimulate prolactin and oxytocin hormones among mothers. A massage that stimulates oxytocin and prolactin hormones after childbirth is known as an oxytocin massage. Increased levels of the oxytocin hormone from this massage may help to soothe the women and trigger the release of milk. the researchers used oxytocin massage techniques for breastfeeding to give cutaneous stimulation that was anticipated to boost women's comfort and stimulate oxytocin release, which would increase milk production. [17, 18, 20, 21]

Sotomi Oketani from Japan originally promoted the unusual breast treatment known as Oketani massage, which has now been adopted by several nations, including Bangladesh, Korea, and Japan. Oketani massage is an easy, cost-effective, efficient method and will soften the breasts and increase the elasticity of the areola and nipples, making it simpler for the infant to feed. Because of the focus on the alveoli and the flow of milk becomes smoother. According to Sotomi, nursing

can strengthen the link between a woman and her infant and promote the infant's healthy physical and mental development. Oketani massage can assist nursing women in overcoming obstacles to successful breastfeeding, finding comfort and pain relief postpartum and the postpartum mother's body relaxes. [22]

Significance

Goal 3 of the Sustainable Development Goals (SDGs) for the period of 2015–2030 aims to ensure a healthy life and enhance wellness for all people of all ages by 2030. It is hoped to eradicate infant and under-five mortality by having all nations work to bring down the infant mortality rate to at least 12 per 1,000 live births and the toddler mortality rate to 25 per 1,000 live births. A remarkable 53% of child deaths were related to malnutrition. The most beneficial food for children is breast milk, which has the ideal vitamin balance, is easily digestible, and guards them against disease. [23]

According to the Egypt Demographic and Health Survey (EDHS, 2014), breastfeeding exclusively during the earliest stages of infancy is frequent but not prevalent in Egypt. 71% of infants younger than two months old exclusively took breast milk. The percentage of older infants who are exclusively breastfed, however, rapidly declines. Only 13% of infants were exclusively breastfed by the age of 4-5 months. [24]

Mothers are more likely to successfully breastfeed their children postpartum throughout the hospitalization, if they initiate breastfeeding soon after giving birth, master breastfeeding skills, and have strong breastfeeding support, successful breastfeeding, and breastfeeding self-efficacy.[25, 26] **Cattaneo & Arendt (2023)** reported that the support of breastfeeding, preservation, and preferment is a national health essential and a collective work; assortment and cooperation are primary for success. [27]

Failure to breastfeed is typically brought on by the newborn's difficulty sucking, breast deformities, cesarean section delivery, the mother's lack of breastfeeding information, and no prior breastfeeding experience. These failures frequently lead to the mother ceasing to breastfeed and beginning to provide formula milk in place of breast milk. There are different studies, that examined breastfeeding predictors on women such as socio-demographic and psychological factors, attitudes, breastfeeding, family support, and social support help to increase breastfeeding self-efficacy, and the factor which has the strongest effect on the predictors of breastfeeding was determined to be the mother's perception of breastfeeding self-efficacy. [28, 29]

From clinical experience, it was observed that the primipara women who delivered by cesarean sections delay the initiation of breastfeeding and need more support to begin and keep breastfeeding. So, the current study had a genuine interest to examine the effect of oxytocin versus Oketani massage on breastfeeding predictors among primipara women, and that will be the basis for the contribution of the study to health education, nurse practice, and research concerning Oxytocin and Oketani Massage provided by women's health and midwifery nurses during postpartum for primipara women.

Aim of the study

The aim of the current study was to examine the effect of Oxytocin versus Oketani massages on breastfeeding predictors among primipara women

Research hypotheses

H.1. Primipara women who receive Oxytocin massage will have higher scores of breastfeeding predictors than those who do not receive it.

H.2. Primipara women who receive Oketani massage will have higher scores of breastfeeding predictors than those who do not receive it.

H.3. There is a difference in breastfeeding predictors between primipara women who receive Oxytocin massage and those who receive Oketani massage.

Operational definition

In this study, breastfeeding predictors refer to women's need for breastfeeding support, successful breastfeeding, and breastfeeding Self-Efficacy. These predictors will be measured using the LATCH Assessment score, Infant Breastfeeding Assessment Tool (IBFAT), and the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF).

Subjects and Method

Research design

A quasi-experimental design (nonequivalent control group pretest/posttest) was utilized in this research. is a design where the participants in the intervention groups are studied before and after the manipulation. The subjects in this design are split into intervention and control groups. All subjects got the baseline measurements for the dependent variables. Following that, the intervention group's participants only received breast massage. After that, the post-test was measured on all subjects to measure how much the dependent variables had changed. **(LoBiondo-Wood & Haber, 2018).** [30]

Setting

This study was conducted at Minia university hospital for Maternity and Child. This setting is considered one of the important medical and specialized hospitals in North Upper Egypt and it provides free health services for women and children during life stages. This setting includes antepartum, intrapartum, and postpartum care for low-risk and high-risk pregnant women. The postnatal unit on the second floor included six rooms divided into three rooms for vaginal deliveries and three rooms for cesarean section. Each room contains six beds. It conducted

approximately (5580) deliveries annually according to its local statistics for the year 2022 (Obstetrics and Gynecological Hospital, Minia University statistics, 2022).

Subjects

A convenience sample of 108 primipara women, was distributed into three groups (36 women in the control group, 36 women in the oxytocin massage group, and 36 women in the Oketani massage group), and was recruited according to the following inclusion criteria: age between 18 and 35 years, singleton pregnancy, term gestation (>37–40 weeks), women willing to breastfeed, the woman delivered by cesarean section, the birth of a mature and healthy neonate weighing equal or more than 2,5 Kg and accepted to participate in the study. The exclusion criteria included women with pre-existing medical conditions such as breast tumors and inverted nipples. The birth neonate has a cleft lip and cleft palate and admitted to the neonatal intensive care unit was also excluded from the study.

Sample size calculation

The sample size can be computed using the following method based on data from the literature (**Mahdizadeh-Shahri et al., 2021**) [22], a level of significance of 5%, and a power of study of 80%:

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

where, p = pooled proportion obtained from previous study; d = expected difference in proportion of events; $Z_{\alpha/2} = 1.96$ (for 5% level of significance) and $Z_\beta = 0.84$ (for 80% power of study). Therefore,

$$n = \frac{2(1.96 + 0.84)^2 \times 0.891\,(1-0.891)}{(0.208)^2} = 35.2$$

The needed sample size is 36 in each group as result, giving a total sample of 108 primipara women.

Tools of data collection

Data was collected through four tools:

Tool 1: **Structured Interview Questionnaire Schedule:** This tool was developed by the researchers after reviewing the related literature (**Mahdizadeh-Shahri et al., 2021; Barirah et al., 2017**) [22, 31] and included two parts: **Part A. Demographic characteristics of the primipara women:** such as (age، education, residence, occupation, telephone number……. etc)**;** and **Part B. The current Obstetric history of the primipara women:** such as (gravida, gestational age, antenatal follow-up visits number, time of initiation of breastfeeding, and frequency of breastfeeding on the first day.

Tool II. The LATCH Assessment Tool: It was adopted by (**Jensen et al, 1994**) [32] to assess primipara women's need for breastfeeding support, it is numbered from zero to ten, and getting a score of less than ten offers the women's need for more support during breastfeeding. The letters of the acronym LATCH appoint separate areas of assessment: L (Latch) for how well the infant latches onto the breast; A (Audible swallowing) refers the amount of audible swallowing noted while nursing the neonate; T (Type of nipple) for the women's nipple type; C (Comfort) for the women's level of comfort regarding the breast and nipple; and H (Hold) indicates to whether or not the women need help in positioning the child. The system assigns a numerical score, 0, 1, or 2, to five key statements. LATCH score of poor (0 to 3), moderate (4 to 7), and good (8 to 10).

Tool III. Infant Breastfeeding Assessment Tool (IBFAT): It was adopted from (**Matthews, 1988**) [33] to assess the infant state and contains four scored items: (1) infant readiness to feed/reusability, (2) rooting, (3) fixing (the time needed to latch to the breast), and (4) the sucking pattern. Each item is scored on a scale of 0–3, with minimum and maximum scores of 0 to 12, respectively. A score of 10–12 refers to

completely successful breastfeeding, a score of 7–9 indicates relatively successful breastfeeding and a score of 0–6 suggests unsuccessful breastfeeding.

Tool IV. The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF): It was adopted by (**Dennis et al., 2011**) [34] to measure breastfeeding confidence. The original scale contained 33 statements, while the short form scale contains 14 statements that are scored on a 5-point Likert scale ranging from very confident (score 5) to never confident (score 1). The minimum on this scale is 14 and the maximum possible score is 70.

Validity

Five academic nursing professionals in the fields of women's health & midwifery nursing assessed and validated the structured interview questionnaire schedule, a tool created by the researchers, for its content validity. The validity of the tool's contents was checked for completeness, relevancy, and clarity. The suggested modifications were made as a result.

Reliability

The Cronbach's alpha coefficient test was used to assess the reliability of the suggested instruments. Cronbach's alpha of 0.89 for the structured interview questionnaire schedule indicated a strong, positive correlation between the tool's elements. Whereas the Test-retest reliability, validity LATCH, IBFAT, and BSES-SF was 0.95 (**Amini et al., 2019; Altuntas et al., 2014**). [35, 36]

Ethical Considerations

Approval granted from the Research Ethics Committee at the Faculty of Nursing- Minia University granted the study ethical permission (Code: REC202313). Primipara women who met the inclusion criteria were informed about the aim, procedure, benefits, and nature of the study. After explaining the study's nature and aim to each woman, their formal agreement- by giving written consent- was obtained before the study

began. Each primipara woman was made aware that participation in the study was entirely voluntary and that they had the freedom to discontinue at any moment. For the course of the study, anonymity, safety, privacy, and confidentiality were guaranteed.

Pilot study:

A total of 11 primipara women were recruited for the pilot study to investigate data collection tools for their feasibility, objectivity, content validity, clarity of the questions, and correction of any discrepancies found in these tools. The pilot study indicated that the tools are clear and no modifications or changes were done to the tools. The sample that participated in the pilot study was excluded from the actual study.

Procedure

Data were collected within five months from the beginning of January 2023 to the end of May 2023. The researchers attended the predetermined setting four days a week from 9:00 am to 1:00 pm. The study was conducted through four steps: preparation, interviewing & assessment, implementation, and evaluation.

Preparation. Official permission was obtained from the university and administrative personnel at Minia university hospital. Also, it included the construction and preparation of different data collection tools. One of the researchers received a certificate from (The National Institute of Nutrition, Cairo & Faculty of Nursing, Cairo University, Egypt) for applying oxytocin massage and Oketani massage.

Interviewing and assessment: The researchers met the primipara woman who had inclusion criteria and explained the nature, aim of the study, its importance, and its benefits. After that, the researcher welcomes them to share in the study. Written consent was gained from each primipara woman. the samples were distributed into three groups the first 36 women in the control group,

the second 36 women in the oxytocin massage group, and the last 36 women in the Oketani massage group. After enrollment, the researchers were holding an interview with each primipara woman individually during the first hour after cesarean section to obtain data related to demographic characteristics and the current obstetrical history through using the structured interviewing questionnaire schedule. The questions were asked in Arabic and the responses were documented by researchers. In addition, the primipara woman was asked about the need for breastfeeding support, the rate of successful breastfeeding, and breastfeeding self-efficacy by using The LATCH assessment tool, Infant Breastfeeding Assessment Tool (IBFAT), and The Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) to obtain the baseline assessment (pre-test) breastfeeding predictors for three groups and it was documented by the researchers. All primipara women in the three groups who were subjected to interviews and assessments underwent these processes. This interview and assessment took roughly 25 to 30 minutes to complete for each one.

Implementation: Primipara women in the control group received postpartum breast care according to the hospital protocol of care. For the oxytocin massage group, in addition to postpartum breast care according to the hospital protocol of care, the researcher applied the oxytocin massage to the primipara women and it was applied through the first six hours when primipara women had the ability to sit. Also, it was done at 12 hrs after birth and on discharge. During the massage, the researchers kept privacy and ask primipara women to sit in a sitting position, exposed the of top their dress, and backup forward. After that, set her arms on the billow put in front of her and set her head on her arms. Therefore, both breasts were discovered and set free. The researchers

applied oxytocin massage up and down both breasts also sides of the vertebrae between the bones of the scapula with small circular friction movements. The researchers applied the friction movements with a clenched fist with the thumb curved outward and finally, the researcher applied the friction movements for 3 min (Figure,1).

For the Oketani massage group, in addition to postpartum breast care according to the hospital protocol of care, the researcher applied the Oketani massage to the primipara women through the first six hours when primipara women had the ability to sit. Also, it was done at 12 hrs after birth and on discharge. The massage was performed very gently and rhythmically on the right and left breasts within 8 several manual steps. From one to seven refers to (the course of treatment) & Step eight refers to (milking or expressing). One minute was spent on a series of tasks and statements, which were repeated for 15 to 20 minutes. Pushing and pulling away included manipulations in stages one, two, and three were carried out gently and painlessly on primipara women in order to separate the hard section of the breast from the fascia of the pectoralis. Four to six steps were required to drag the entire breast downward and to either side with two thumbs and two hands. At four Steps; the total breast was pushed down towards the umbilicus. Five to six steps were done to disconnect the hard base parts of the breast. In addition to, the breast was circulated clockwise in the first seven steps with an expansion of its base. In the eighth step, expression was done in four different ways for the outside surface, lower part, inside of the breast, and inside of the upper periphery of the right breast and inside, lower part, outside surface, and inside of the upper periphery of the left breast. (Figure, 2). The researcher also trained the women's relatives to apply oxytocin or Oketani massage to the primipara women at home. At the end of the session, a pamphlet was distributed containing the importance and how to apply oxytocin or Oketani massage to all primipara women who participated in the research whether the control, oxytocin, or Oketani massage group. This pamphlet is a guideline to facilitate the application of massage at home. Also, the researcher communicated with primipara women by phone to follow up on their application for the massage.

Evaluation: The researchers assessed breastfeeding predictors at three points in time for evaluation. The first time, the researchers assessed and recorded breastfeeding success and needs for support during breastfeeding for three groups as baseline; 2nd time after the 1st six hours after birth and the third time on discharge through an observation sheet. As well as Breastfeeding Self Efficacy Scale (BSES) was measured on discharge and after one week when primipara women came to the hospital for follow-up to cesarean section. This was done for the control, oxytocin massage group, and Oketani massage group for 10-15 minutes with each woman.

Figure (1) Oxytocin massage

The effect of oxytocin massage on the postpartum mother on breastmilk production in Surakarta Indonesia. [37]
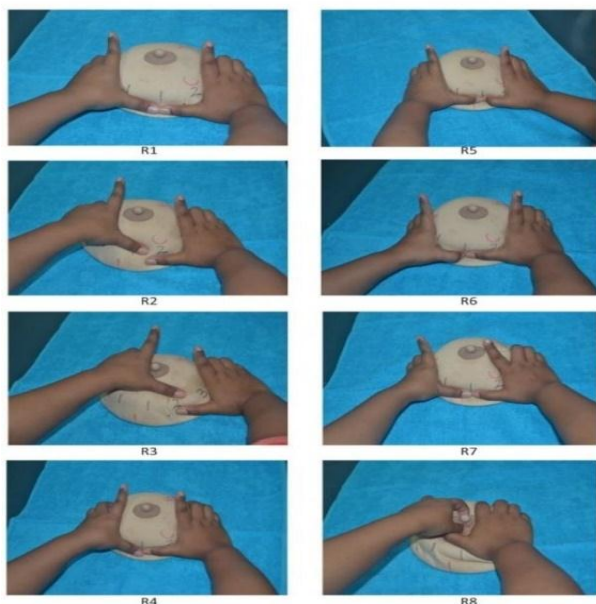
Figure (2) Oketani massage on RT breast

Difficulties in breastfeeding: Easy solution by Oketani breast massage. Bangladesh Medical Research Council Bulletin, 45(3), 149-154. [38]

Statistical analysis

Data were coded and entered using the statistical package for the Social Sciences (SPSS) version 28 (IBM Corp., Armonk, NY, USA). Inferential statistics were used; Comparisons between groups were done using analysis of variance (ANOVA) with multiple comparisons post hoc tests. For comparing categorical data, Chi-square ($\chi2$) test was performed. P-values were regarded as significant when they were less than 0.05 and highly significant when they were less than 0.001.

Results

The results of the current study are presented in three main sections: I. Demographic characteristics; II. The current obstetric history; III. Breastfeeding predictors (the primipara women's need for breastfeeding support, breastfeeding success, and breastfeeding self-efficacy).

I.Demographic characteristics. This part includes age, residence, level of education, and occupation

Table (1) showed that the age range was 18– 26 years; the mean age of the primipara women in the control, oxytocin, and Oketani group was 20.44±1.69, 20.44±1.48, and 21.05±2.12years respectively. More than half of the primipara women in the control group and oxytocin group were living in rural areas and less than half of the primipara women in the Oketani group were living in urban areas 52.8%, 55.6% & 52.8% respectively. Level of education revealed that 47.2% of the control and 30.6% of the Oxytocin group had preparatory education, compared to 22.2 % in the Oketani group had secondary or higher education. In addition, regarding to occupation more than half of (52.8%) the primipara women in the control group were working. While in the oxytocin and Oketani group (50% & 58.3%) respectively were housewives. There was no statistically significant difference between the three groups regarding demographic characteristics.

II. The Current Obstetric History: This part includes gravidity**,** antenatal follow-up visit number, gestational age (GA), Time of initiation of breastfeeding, and frequency of breastfeeding at 1st day. Table (2) showed that the mean gravidity of the primipara women in the control, Oxytocin, and Oketani group was 1.05±0.23, 1.02±0.67and 1.05±0.23 respectively. In addition to the mean antenatal follow-up visits number of the primipara women in the three groups was 5.94± 0.79, 6.03±0.84, and 5.83±0.81 visits respectively. Also, the mean gestational age of the primipara women in the control, Oxytocin, and Oketani groups were 38.83±0.84, 38.94±0.89, and 39.11±0.82 weeks respectively. There was no statistically significant difference between the three groups in terms of gravidity, antenatal follow-up visits number, and gestational age p=0.815, 0.599, and 0.384 respectively. Regarding the mean of the time of initiation of

breastfeeding for the primipara women in the control, oxytocin, and Oketani group was 3.00±1.17, 3.44±1.21and 3.86±1.10 hours respectively. Concerning the mean frequency of breastfeeding on 1st day of the primipara women in the control, oxytocin and Oketani groups were 4.08±1.32, 7.67±1.24, and 5.52±1.082 respectively. There was a highly statistically significant difference between the three groups in terms of the time of first breastfeeding initiation and frequency of breastfeeding on 1st day p=0.009 and 0.000 respectively.

III. Breastfeeding predictors. This part includes the women's need for breastfeeding support, breastfeeding success, and breastfeeding self-efficacy.

As shown in Table (3), One way ANOVA revealed a highly statistically significant difference in the mean scores of the need for breastfeeding support among the three groups throughout six hours later (F = 11.966 and p <0.001), and on discharge (F = 53.214 and p <0.001). Regarding the mean scores of successful breastfeeding, there was a highly statistically significant difference in the mean scores of successful breastfeeding among the three groups throughout six hours later (F = 12.615 and p <0.001), and on discharge (F = 79.778 and p <0.001). In addition to, Breastfeeding Self-Efficacy, there was a highly statistically significant difference in the mean scores of Breastfeeding Self-Efficacy (BSES) among the three groups on discharge (F = 14.025 and p <0.001), and 1 week later (F = 21.432 and p <0.001).

Figure (3) illustrated that primipara women in the intervention groups, according to the LATCH, needed less support compared to the primipara women in the control group. Also, Figure (4) noted that the mean scores for all dimensions of breastfeeding success, including readiness to feed, rooting, fixing (latching on), and sucking, in the breastfeeding primipara women in the intervention groups were significantly higher than those of the primipara women in the control group. And Figure (5) showed that the breastfeeding self-efficacy of the primipara women in the intervention groups according to the BSES was significantly higher than those in the control group.

Table 1. Comparison of the demographic characteristics of the sample in three groups (N=108).

Variables	Control group n=36		Oxytocin group n=36		Oketani group n=36		Chi-Square	
	Freq	%	Freq	%	Freq	%	X^2	P value
Age (Years)								
18 -	13	36.1	14	38.8	3	8.3		
21 -	11	30.6	14	38.8	19	52.9		
24 – 26	12	33.3	8	22.3	14	38.8	13.967	0.452
Age (Mean ±SD)	20.44±1.69		20.44±1.48		21.05±2.12			
Residence								
Rural	19	52.8	20	55.6	17	47.2	0.519	0.771
Urban	17	47.2	16	44.4	19	52.8		
Level of Education								
Read and write	3	8.4	5	13.9	7	19.4		
Primary education	8	22.2	8	22.2	6	16.8		
Preparatory education	17	47.2	11	30.6	7	19.4		
Secondary education	4	11.1	9	25.0	8	22.2	11.106	0.196
Higher education	4	11.1	3	8.3	8	22.2		
Occupation								
Housewife	17	47.2	18	50.0	21	58.3	0.964	0.617
Working	19	52.8	18	50.0	15	41.7		

*Significant at p <0.05

Table 2. Comparison between three groups regarding the current obstetric history (N=108)

Variables	Control group n=36	Oxytocin group n=36	Oketani group n=36	ANOVA test	
	Mean ±SD	Mean ±SD	Mean ±SD	F	P value
Gravidity	1.05±0.23	1.02±0.67	1.05±0.23	0.205	0.815
Antenatal follow-up visits number	5.94± 0.79	6.03±0.84	5.83±0.81	0.515	0.599
GA (wks)	38.83±0.84	38.94±0.89	39.11±0.82	0.967	0.384
Time of initiation of breastfeeding	3.00±1.17	3.44±1.21	3.86±1.10	4.965	0.009**
Frequency of breastfeeding on 1st day	4.08±1.32	7.67±1.24	5.52±1.082	78.897	0.000**

**Highly significant at p <0.01   Abbreviation :SD = (Standard Deviation)

Table 3. Comparison between three groups according to the mother's need for breast-feeding support, breast-feeding success, and breast-feeding self-efficacy (N=108).

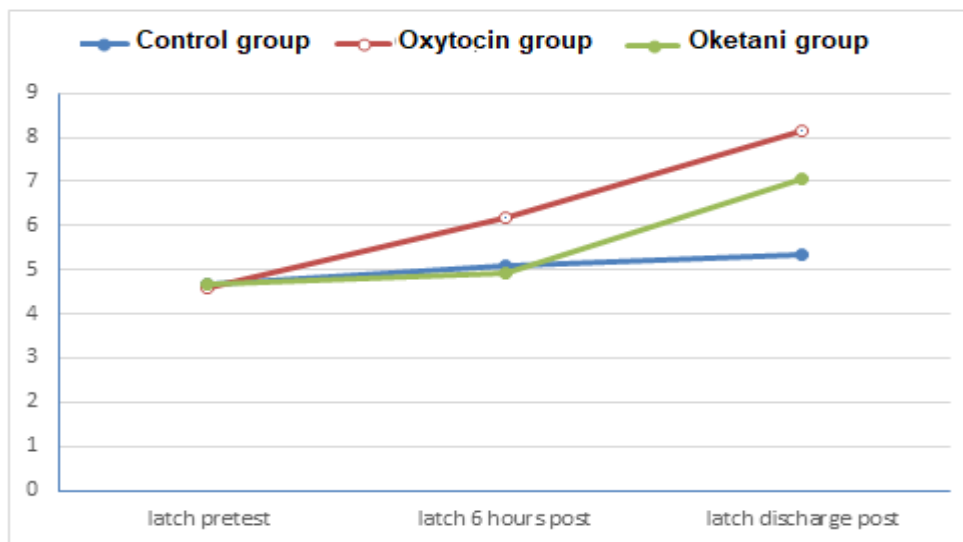| Variables	Control group n=36	Oxytocin group n=36	Oketani group n=36	ANOVA test	
	Mean ±SD	Mean ±SD	Mean ±SD	F	P value
Need for Breastfeeding Support (LATCH)					
Pretest	4.69±0.98	4.58±1.27	4.67±1.41	0.079	0.924
6 hours later	5.08±0.81	6.19±1.55	4.94±1.09	11.966	<0.001**
On discharge	5.33±1.10	8.14±0.80	7.06±1.49	53.214	<0.001**
Breastfeeding Success Score (IBFAT)					
Pretest	5.33±0.99	5.61±1.25	5.36±1.29	0.602	0.549
6 hours later	6.56±0.94	7.97±1.63	6.83±1.13	12.615	<0.001**
On discharge	7.89±0.92	11.14±0.80	10.06±1.49	79.778	<0.001**
Breastfeeding self-efficacy					
Pretest	29.53±7.61	29.31±6.11	29.44±4.86	0.011	0.989
On discharge	52.61±7.53	60.75±6.27	59.03±6.75	14.025	<0.001**
1 week later	51.75±7.20	60.22±5.72	59.75±5.44	21.432	<0.001**

**Highly significant at $p < 0.01$
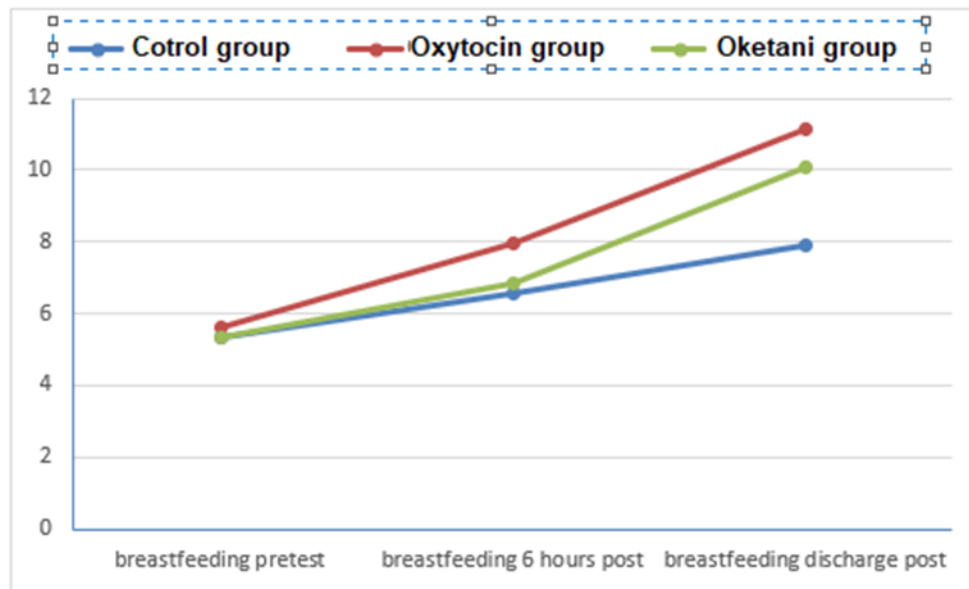

Figure (3) LATCH assessment score

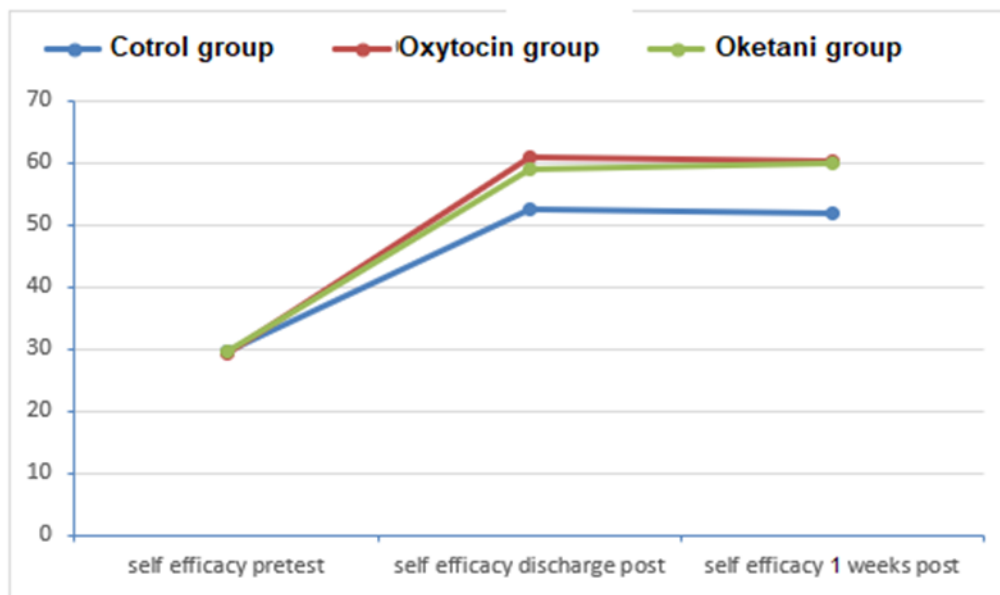Figure (4) Infant Breastfeeding Assessment score (IBFAT)

Figure (5) Breast Feeding Self Efficacy score (BSES)

Table 4. Post hoc pair-wise comparison in significant items

Variables	Control group VS Oxytocin group	Control group VS Oketani group	Oxytocin group VS Oketani group
LATCH assessment score			
6 hours later	< 0.001**	1.000	< 0.001**
On discharge	< 0.001**	< 0.001**	< 0.001**
Breastfeeding success score (IBFAT)			
6 hours later	< 0.001**	1.000	0.001**
On discharge	< 0.001**	< 0.001**	< 0.001**
Breastfeeding self-efficacy (BSES)			
On discharge	< 0.001**	< 0.001**	0.870
1 week later	< 0.001**	< 0.001**	1.000

**Highly significant at $p < 0.01$

Discussion

Breastfeeding is a worldwide practice for primipara women after birth. It is known that breastfeeding predictors are among the strongest shapes of breastfeeding success that a woman can experience. Different methods are generally applied to promote breastfeeding predictors. [22, 39,40, 41] the present study tested three hypotheses: H.1. Primipara women who receive Oxytocin massage will have higher scores of breastfeeding predictors than those who do not receive it, H.2. Primipara women who receive Oketani massage will have higher scores of breastfeeding predictors than those who do not receive it.; and H.3. There is a difference in breastfeeding predictors between primipara women who receive Oxytocin massage and those who receive Oketani massage.

The findings of the current study showed that before applying the intervention there was no significant difference between the control group and the Oxytocin massage group concerning breastfeeding predictors. In contrast, after the intervention has been applied, statistically significant differences emerged between the Oxytocin massage group and the control group, favoring Oxytocin massage group all predictors of breastfeeding; thus, the first hypothesis was supported. The results of the first hypothesis emphasize that Oxytocin massage is a successful method of increasing breastfeeding predictors. This may be due to the fact that Oxytocin massage is more successful in causing the pituitary gland to release prolactin and oxytocin at the beginning of breastfeeding. The Oxytocin massage technique affects autonomous nervous and hypodermic tissue; which in turn can calm these tissues and improve breastfeeding success by facilitating blood flow in the ductal system. Another interpretation of this finding is that Oxytocin massage can help primipara women calm down and relax which in turn brings them a deep feeling of comfort. These relaxation feelings enhance their feeding of their children successfully with less support; increase their positive attitudes such as bonding and breastfeeding self-efficacy.

In agreement with the current study findings, **Idris & Asrina (2020)** [42] conducted a study that aimed to determine how Indonesian

mothers responded to breastfeeding when their husbands offer them Oxytocin massage. They found that mothers who had their oxytocin massaged by their husbands had less need for breastfeeding support, increased the rate of breastfeeding success and improved breastfeeding self-efficacy. Also, the current findings match the findings of **Barirah et al., (2017)** [31] who reported that applying both Marmet and Oxytocin massage techniques have an impact on postpartum women who underwent cesarean sections' overall colostrum production and improved breastfeeding successfully.

The findings of our study showed that before applying the intervention, there was no significant difference between the control group and the Oketani massage group concerning breastfeeding predictors. In contrast, after the intervention has been applied, statistically significant emerged between Oketani massage group and the control group, favoring the Oketani, on all predictors of breastfeeding; thus, the second hypothesis was supported.

A possible interpretation for this finding is that Oketani massage increases breast softness, and increases the elasticity of nipples and areolas to make them so manageable that the child can suck them easily and consequently increase breastfeeding success. It can help reduce stress, decrease the need for breastfeeding support, enhance the immune system, and improve women's overall health and relaxation. Additionally, it has been demonstrated that massage can aid in boosting oxytocin production naturally. Generally, these findings advocate Oketani massage as a valuable technique that could be used to reduce the need for breastfeeding support and increase breastfeeding success and self-efficacy **Cattaneo & Arendt (2023)** [27]

These results are in the same line with the data in an experimental study carried out by **Mahdizadeh-Shahri et al., (2021)** [22] in which they reported that women who received Oktani massage reduced their need for breastfeeding support, increased their breastfeeding success, and improved their breastfeeding self-efficacy than the control group.

These findings are in line with those by **Jamzuri et al., (2019)** [43] who found that Oketani massage increased mothers' mean levels of oxytocin hormone as well as enhanced sucking speed, consequently, advanced breastfeeding success.

Furthermore, these results are supported **Tasnim et al., (2019)** [38] findings that, after receiving Oketani massage, most of the mothers grew confident and the majority of mothers expressed good feelings.

Also, this finding was matched with the data in a **Chan Man et al.'s (2016)** [44] longitudinal study to assess the effect of a self-efficacy-based educational program on maternal breastfeeding self-efficacy, breastfeeding duration, and exclusive breastfeeding rates, in which they revealed that the intervention group demonstrated significantly higher breastfeeding self-efficacy at 1 week and overall better breastfeeding at 8 weeks than the control group.

The current results also showed a statistically significant mean difference ($p < 0.001$) between the oxytocin massage group and the Oketani massage group, favoring the oxytocin massage group, in terms of a decrease in breastfeeding support, and a rise in the rate of breastfeeding success. In contrast, there was no statistically significant difference between the two groups in terms of self-efficacy This

reflects that our study partially supports the 3rd hypothesis: This finding may be due to the fact that our study sample was young primipara women who had undergone cesarean section and who had lower levels of prior experience in breastfeeding, and thus they may not correctly judge their breastfeeding self-efficacy.

Conclusion:

This study concluded that: the primipara women in the intervention groups needed less breastfeeding support and had higher breastfeeding success and self-efficacy breastfeeding than those in the control group.

Recommendation

This study recommended that:

- Oxytocin and Oketani massage should be applied as an intervention to enhance breastfeeding in primipara women with cesarean sections.
- The health care providers should provide education to postpartum women related to Oxytocin and Oketani massage.
- A protocol should be implemented in every maternity unit with knowledge about the benefits of Oxytocin and Oketani massage to improve breastfeeding successfully.
- Further research:
- Oxytocin and Oketani massage should be applied on primipara women delivered by vaginal birth.
- Replicate the present study by using a large sample from different regions of the country.

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