Oketani Massage Enhances Postpartum Early Breastfeeding Flow

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Abstract

Background:

Early initiation of breastfeeding is critical for neonatal health, survival, and cognitive development. However, global rates of early initiation and exclusive breastfeeding (EBF) remain suboptimal, particularly in low-resource settings. Common barriers include improper positioning, poor attachment, delayed milk flow, and cultural practices such as prelacteal feeding. Oketani breast massage—a Japanese technique involving soft massage on breast is a low-cost, non-invasive method believed to improve milk flow and relieve early breastfeeding difficulties. This study aimed to examine whether integrating Oketani breast massage with standard breastfeeding counseling enhances early initiation of breastmilk flow of mothers in Bangladesh.

Methods:

The investigators conducted a randomized controlled trial across 12 health facilities in Bangladesh, enrolling 630 healthy mothers with full term singleton babies. Participants were randomized equally to one of the three groups: (1) routine care (control), (2) breastfeeding counseling with positioning and attachment, or (3) Breastfeeding counseling plus Oketani breast massage. Primary outcomes included number of feeds in the first 24 hours, total suckling episodes in the first 3 days, and time to establish continuous flow of breastmilk. Secondary outcomes included early initiation of breastfeeding, colostrum feeding, maternal comfort, and breastfeeding problems. Data were analyzed using t-test, ANOVA, chi-square tests, and intention-to-treat principles.

Conclusion:

Enhanced counseling with Oketani breast massage significantly enhanced early initiation of breastfeeding (EIB) practices and breast milk flow with higher frequency of breastfeeding and maternal comfort compared to routine Breastfeeding practices. These low-cost interventions can enhance breastfeeding in the postnatal care to strengthen exclusive breastfeeding and reduce the risk of feeding breastmilk substitutes.

Keywords:

Breastfeeding, Oketani massage, Counseling, Early initiation

Introduction

Early initiation of breastfeeding (EIB), defined as breastfeeding within one hour of birth, is a key factor for successful exclusive breastfeeding (EBF) and improved health outcomes [1]. Achieving successful EIB can be challenging, and therefore, additional supportive strategies may be required. Essential skills include breastfeeding counseling with demonstration of correct positioning and attachment of the infant to the breast [2]. More recently, Oketani breast massage a technique developed in Japan has been used as an adjunct intervention to promote effective milk flow in mothers experiencing lactation insufficiency [3] [4] [5].

Exclusive breastfeeding is the gold standard of infant nutrition, supporting optimal psychomotor and cognitive development while reducing infant morbidity and mortality [6]. Early initiation of breastfeeding provides critical immune protection and enhances neonatal survival. However, globally, only 3 in 5 newborns receive breastmilk within the first hour of life [7]. The World Health Organization UNICEF and IBFAN recommend exclusive breastfeeding for the first six months of life and continued breastfeeding up to two years [8]. Despite these recommendations, only about 48% of infants worldwide are exclusively breastfed for six months [9]. In Bangladesh, this rate is higher, with approximately 55% of mothers are exclusively breastfeeding for six months [10]. Nevertheless, delays in initiation and suboptimal breastfeeding techniques are impeding optimal infant outcomes throughout the world.

Improper breastfeeding technique particularly poor positioning and attachment further add to breastfeeding difficulties. Studies in South Asia indicate that mothers reporting breastfeeding problems frequently demonstrate suboptimal positioning and latch [11,12]. Correct positioning

of the mother–infant dyad and a proper latch are fundamental to effective milk transfer and prevention of issues such as nipple trauma and engorgement [13]. Newborn feeding challenges, including the use of prelacteal feeds and taboos, can further result in delayed initiation of colostrum and subsequent milk flow.

Oketani breast massage is designed to improve lactation by massaging the breast tissue, thereby relaxing connective tissue and improving breast milk flow and composition [3,14]. Earlier studies have suggested that Oketani massage can increase the whey-to-casein ratio and milk volume [14,15]. It may also help alleviate common breastfeeding problems such as plugged ducts, engorgement, or delayed milk flow, increasing maternal comfort and confidence [16]. Oketani massage stimulates the oxytocin-mediated milk ejection reflex, softens the breast and nipple–areolar complex, reduces breast tension and ductal resistance, and improves infant latch and milk removal, thereby facilitating earlier and more sustained milk flow [28, 29]. However, there is limited research quantifying the impact of Oketani massage on early breastfeeding outcomes or its effect in combination with breastfeeding counseling. Delays in the onset of regular milk flow may increase the risk of introducing breast milk substitutes (BMS) to newborns, potentially undermining successful breastfeeding [17].

The investigators hypothesized that ensuring breastfeeding techniques (positioning, attachment, and frequent suckling), along with Oketani breast massage, would lead to earlier establishment of continuous milk flow compared to standard counselling and care (position, attachment and frequent suckling). This study aimed to determine effective methods for enhancing the continuous breastmilk flow within the first three days after childbirth.

Methods

Study Design and Participants: The investigators conducted a three-arm, parallel-group randomized controlled trial [18]. The study was implemented in 12 health facilities, including eight hospitals in Dhaka city (urban) and four rural Upazila health complexes located in the Mymensingh located in North and Khulna divisions located in South west of Bangladesh. Pregnant women admitted for delivery at these facilities were screened according to the inclusion criteria. Eligible participants were healthy mothers aged 20–40 years with singleton full term babies, without chronic illnesses or pregnancy complications, and who gave informed consent. Women were excluded if they had serious medical conditions or declined to participate. A total of 630 mothers were enrolled and randomly assigned in equal proportions to one of the three groups: a control group, a breastfeeding counseling group, and a breastfeeding counseling plus Oketani breast massage group.

Sample Size: The sample size was determined to detect a meaningful difference in the number of breastfeeding in the first few days postpartum. Based on prior data, mothers in the control group were estimated to breastfeed an average of 10 times per day in the first 24 hours [19]. The investigators hypothesized that the intervention could increase this frequency to 15 times per day. Using a one-sided test with 90% power and a 5% significance level, and assuming standard deviations of roughly 4–7 feeds/day, the investigators calculated that approximately 34 mother-infant pairs per group would be required. To account for variation between the participating facilities, the investigators applied a design effect of approximately 5, and allowed for up to 20% loss to follow-up. This yielded a target sample size of about 210 mothers per group (630 total).

Randomization and Blinding: Participants were assigned to three parallel groups using a computer-generated randomization sequence stratified by the 12 participating facilities. Due to the nature of the interventions, participants and care providers were not blinded. Outcomes were assessed by staff independent of the intervention delivery team, and the analysis used coded group labels. Independence of assessors from the intervention team does not necessarily establish assessor blinding; the original study documentation should be consulted before claiming assessor masking.

Procedure of Interventions: Participants were assigned to one of three parallel study arms. The routine-care arm received standard breastfeeding support provided by hospital personnel, without additional study-specific intervention. The breastfeeding-counseling arm received routine care plus one-to-one counseling from trained healthcare personnel on positioning, infant attachment, and frequent breastfeeding, initiated soon after birth and continued over the first three postpartum days. The combined-intervention arm received the same structured breastfeeding counseling plus Oketani breast massage administered by nurses trained in the technique. Oketani massage involved gentle manipulation of breast tissue and was administered soon after birth, with repeat sessions according to reported breastfeeding needs, up to three sessions during the intervention period. Standard routine care was available to all three arms. For ClinicalTrials.gov, Breastfeeding Counseling and Oketani Breast Massage must be entered as two separate interventions, linked to the counseling arm and the combined arm as appropriate.

Data Collection: Baseline data were collected through interviews and included maternal age, parity, education, and health status. Birth weight and length were recorded. After delivery, research staff closely observed and recorded breastfeeding practices.

Outcome Measures: The recorded outcomes included (1) number of breastfeeding episodes in the first 24 hours postpartum; (2) total suckling episodes during the first three postpartum days; (3) time to establishment of continuous breastmilk flow, assessed using maternal report of milk coming in and effective feeding; and (4) initiation of breastfeeding within the first hour. Additional measures included colostrum feeding, exclusive breastfeeding during the hospital stay, maternal comfort, breast pain, and other breastfeeding-related difficulties. The original approved protocol should be used to verify which measures were prespecified as primary or secondary and the actual observation time frame for continuous milk flow.

Ethical Considerations: The study protocol was approved by the Ethical Review Committee of the Bangladesh Breastfeeding Foundation (approval No. BBF/2024/003) following the Helsinki Declaration (1964). Written informed consent was obtained from all participants prior to enrollment. Mothers in the control group received standard breastfeeding support and were offered additional counseling if needed. There was no anticipated harm from the Oketani massage, and mothers were asked to report any discomfort immediately; trained staff ensured that the massage was gentle and safe [3].

Statistical Analysis: Data were analyzed using SPSS for Windows version 22.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics summarized baseline characteristics and outcomes for each group. Continuous outcome measures (e.g., number of suckling's, time to continue breast milk flow) were compared between groups using t-test, x^2 test, one-way analysis of variance (ANOVA). When overall ANOVA indicated a significant difference, post-hoc pairwise comparisons with Bonferroni adjustment were performed to identify which groups differed. Categorical outcomes (such as, proportion of initiating breastfeeding within one hour, proportion of feeding colostrum) were

compared using chi-squared tests. Outcome data of normal distribution are presented as mean ± standard deviation (SD) compared by t-test between groups. A p-value < 0.05 was considered statistically significant. All analyses were conducted by intention-to-treat, meaning that participants were analyzed in the groups to which they were originally assigned [22].

References

1. Debes AK, Kohli A, Walker N, Edmond K, Mullany LC. Time to initiation of breastfeeding and neonatal mortality and morbidity: a systematic review. *BMC Public Health*. 2013;13(Suppl 3):S19.

2. UNICEF. *Breastfeeding Counselling: A Training Course*. WHO/UNICEF; 1993.

3. Akaeda T. The Oketani method of breast massage: A technique to improve breastfeeding. *J Hum Lact*. 2005;21(1):67-70.

4. Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet*. 2016;387(10017):475-90.

5. UNICEF. *Capture the Moment: Early initiation of breastfeeding: The best start for every newborn*. New York: UNICEF; 2018.

6. World Health Organization. *Exclusive breastfeeding for six months best for babies everywhere*. 2011.

7. UNICEF. *Global breastfeeding scorecard 2023: Tracking progress for breastfeeding policies and programmes*. New York: UNICEF; 2023.

8. National Institute of Population Research and Training (NIPORT), ICF. *Bangladesh Demographic and Health Survey 2022*. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT and ICF.

9. Haider R, Ashworth A, Kabir I, Huttly SRA. Effect of community-based peer counsellors on exclusive breastfeeding practices in Dhaka, Bangladesh: A randomised controlled trial. *Lancet*. 2000;356(9242):1643-7.

10. Khan J, Vesel L, Bahl R, Martines JC. Timing of breastfeeding initiation and exclusivity of breastfeeding during the first month of life: effects on neonatal mortality and morbidity—a systematic review and meta-analysis. *Matern Child Health J*. 2015;19(3):468-79.

11. Colson SD. Facilitating optimal positioning and latch for breastfeeding. *Int J Childbirth Educ*. 2008;23(3):7-9.

12. Akaeda T, Nishimura T. Clinical effect of the Oketani breast massage in Japan. *Breastfeed Med*. 2013;8(1):68-74.

13. Ueda T, Yokoyama Y, Irahara M, Aono T. Oxytocin section, Department of Obstetrics and Gynecology, Okayama University Medical School. *J Hum Lact*. 1994;10(2):83-87.

14. Inoue T, Matsuzaki T, Nakazawa M. The effect of Oketani breast massage on milk composition. *Breastfeed Med*. 2007;2(1):35-8.

15. Nommsen-Rivers LA, Dewey KG. Practical aspects of breastfeeding medicine. *Breastfeed Med*. 2009;4(Suppl 1):S1-S9.

16. Rollins NC, Bhandari N, Hajeebhoy N, Horton S, Lutter CK, Martines JC, Piwoz EG, et al. Why invest, and what it will take to improve breastfeeding practices? *Lancet*. 2016;387(10017):491-504.

17. Friedman LM, Furberg CD, DeMets DL, Reboussin DM, Granger CB. *Fundamentals of Clinical Trials*. 5th ed. Springer; 2015.

18. UNICEF/WHO. *Breastfeeding Counselling: A Training Course*. WHO/UNICEF; 1993.

19. Akaeda T. The Oketani Method of Breast Massage: A Technique to Improve Breastfeeding. *J Hum Lact*. 2005;21(1):67-70.

20. World Health Organization. *Ten Steps to Successful Breastfeeding*. Geneva: WHO; 2018.

21. Dewey KG, Nommsen-Rivers LA, Heinig MJ, Cohen RJ. Risk factors for suboptimal infant breastfeeding behavior, delayed onset of lactation, and excess neonatal weight loss. *Pediatrics*. 2003;112(3):607-619.

22. IBM Corp. *IBM SPSS Statistics for Windows, Version 22.0*. Armonk, NY: IBM Corp; 2013.

23. WHO. *Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services*. 2018.

24. Chantry CJ, Dewey KG, Peerson JM, Wagner EA, Nommsen-Rivers LA. In-hospital formula use increases early breastfeeding cessation among first-time mothers intending to exclusively breastfeed. *J Pediatr*. 2014;164(6):1339-1345.e5.

25. UNICEF. *Breastfeeding: A Mother's Gift, for Every Child*. New York: UNICEF; 2018.

26. Cho ES, et al. Effects of breast massage on breast pain, milk volume and newborn feeding. *J Korean Acad Nurs*. 2012;42(3):425-33.

27. Jamzuri NI, Rahmah MA, et al. Effects of Oketani Breast Massage on Milk Production and Hormonal Changes: A Randomized Trial. *Breastfeed Med*. 2016;11(3):123-9.

28. Roy SK, Tasnim S, Jahan K, Nazmeen S, Debnath SC, Islam ABMM. Difficulties in breastfeeding: Easy solution by Oketani breast massage. *Bangladesh Med Res Counc Bull*. 2019;45(3):149-154. doi:10.3329/bmrcb.v45i3.44644.

29. Kabir N, Tasnim S. Oketani lactation management: A new method to augment breast milk. *J Bangladesh Coll Phys Surg*. 2009;27(3):155-159. doi:10.3329/jbcps.v27i3.4293.