

Effect of Incorporation of Oketani Massage Method in the Lactation Management Center on Improving Breastfeeding

Saria Tasnim^{1,*}, S.K. Roy², Nasir Uddin³, Khurshid Jahan⁴

Abstract

Breastfeeding is a common practice across most developing countries, including Bangladesh. However, the rate of exclusive breastfeeding is still lower than the expected level. Our study aimed to compare the exclusive breastfeeding status of infants between hospitals with Oketani services and those without Oketani services. A longitudinal study was conducted among the mothers who delivered their babies in two selected hospitals in Dhaka city. One was the Institute of Child and Mother Health (ICMH), while the other was the Maternity and Child Health Training Institute (MCHTI) located in Azimpur, Dhaka. The recovery rate of the mothers who visited LMC of ICMHT was significantly higher than those mothers who visited MCHTI for their problems. The mothers who visited MCHTI were suffering from their difficulties throughout the study period, on the other hand, the mothers who visited ICMH recovered within the study period. Oketani massage was received by about half of the mothers attending the Lactation Management Center (LMC) of ICMH and 100% of them appreciated the massage to be useful. Most mothers who had Oketani massage reported that their confidence increased, that their baby could be fed successfully because of the rise in breastmilk supply, and that by six months, all issues linked to breastfeeding had been resolved. There are significant challenges for optimum breastfeeding practices. Lactation Management Services and Oketani massage in this study proved to be useful and were well-accepted by the mothers yet there is still inadequate evidence of the impact of the Oketani method on breastfeeding. It is recommended to implement Oketani massage in maternity services in Bangladesh to overcome the difficulties in breastfeeding.

Keywords: Exclusive breastfeeding, Oketani method, difficulties in breastfeeding, Infant feeding practices, Management

*Author for Correspondence

Saria Tasnim

E-mail: sariatasnim2007@gmail.com

¹Professor, Dhaka Community Medical College and Hospital, Magbazar, Dhaka 1217, Bangladesh

²Senior Scientist & Chairperson, Bangladesh Breastfeeding Foundation (BBF), Institute of Public Health Building, Mohakhali, Dhaka 1212, Bangladesh

³Professor, Bangladesh Breastfeeding Foundation (BBF), Institute of Public Health Building, Mohakhali, Dhaka 1212, Bangladesh

⁴Nutritionist and Director, Bangladesh Breastfeeding Foundation (BBF), Institute of Public Health Building, Mohakhali, Dhaka 1212, Bangladesh

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INTRODUCTION

It is globally recognized that breastfeeding (BF) is the best start for the life of an infant [1]. Breastfeeding is the most important intervention for better health of a child, also reducing deaths of infants and young children [2–4]. The World Health Organization (WHO) advises starting breastfeeding within the first hour after birth, exclusively breastfeeding (EBF) for the first six months, and introducing safe and nutritious complementary foods at six months, while continuing breastfeeding up to two years or longer. Exclusive breastfeeding means that an infant receives only breast milk for the first six months, with no other liquids or solids, not even water, except for oral rehydration salts, or prescribed vitamins, minerals, or medications. Breast milk serves as a natural, complete source of nutrition,

supporting an infant's health, growth, and development during the first six months and should ideally continue for at least the first two years of life [5, 6].

Although Breastfeeding is universal in Bangladesh the pattern of infant feeding practice is not optimal in Bangladesh. Bangladesh Health and Demographic Survey (BDHS) 2022 showed, 40% of infants are breastfed within one hour of birth [7]. The exclusive breastfeeding rate up to 6 months is gradually increasing, such as 42%, 43%, 64 %, 55%, and 65% in 2004, 2007, 2011, 2014, 2014,2017, and 2022, respectively [7–10]. That means there is still a paucity of knowledge and practice of optimum breastfeeding among mothers. Breastfeeding is seen as a critical factor that can mean the difference between life and death for most children in developing countries [11]. However, adherence to the optimum practice of breastfeeding may be difficult for some mothers due to a lack of knowledge or techniques of breastfeeding requiring special support.

Oketani breast massage is a special technique that is used to promote breastfeeding in special circumstances, such as low milk production or breast problems like engorgement or mastitis that interfere with feeding. This technique was developed by Ms. Sotomi Oketani from Japan in 1981 [12]. Breastfeeding counseling is an integral part of this service and mother and baby are considered together. The mother is helped practically to feed the baby, and she gets confidence by experiencing by herself that the problem is solved, and she can feed the baby. One of the studies showed that after receiving Oketani massage, a maximum (80.6%) of the mothers grew confidence, 69.4% stated that their baby could feed well, 61.2% felt there was an increase in Breastmilk production and 56.1% of mothers expressed feeling good after massage [13].

Another study found that Oketani massage increased milk production by 22% of the average amount of small peptide (molecular weight under 10,000 Dalton) in 11 out of 15 breastfeeding mothers. Additionally, lipoxigenase activity was significantly reduced by the Oketani massage in 23 out of 27 participants. These findings suggest that the Oketani method might have an anti-allergic effect. The positive effects of Oketani breast massage could potentially enhance infant development [14].

In Bangladesh, the nurse-midwives of different institutes have been trained in ICMH on Oketani technique by Japanese midwives since 1994. The Lactation Management Center and Oketani service are available in the ICMH and some other centers but the MCHT only Lactation Management Center (LMC) without any Oketani massage services.

The objectives of the study were to compare the proportions of exclusive breastfeeding and the proportions of mothers who received services for difficulties in breastfeeding between hospitals with or without Oketani services and to see whether incorporation of Oketani service in the lactation management center could have better effects on exclusive breastfeeding and resolving breastfeeding difficulties.

MATERIAL AND METHODS

This was a longitudinal study carried out at two centers: the Institute of Child and Mother Health (ICMH) and the Maternity and Child Health Training Institute (MCHTI). Both centers were designated as Baby-Friendly Hospitals (BFH) and featured lactation management centers (LMC), which provide support to mothers experiencing breastfeeding issues. All the infants involved in this study were born at these hospitals.

ICMH is in a peri-urban location 8 kilometers east of Dhaka city. This hospital provides counseling on breastfeeding, supports the establishment of breastfeeding immediately after delivery, detects and manages breastfeeding problems, and applies the Oketani method in selected cases that do not improve after the traditional management. Oketani method is applied for low milk flow of mothers for different difficulties. Nurse midwives were trained in basic counseling and breastfeeding and further trained by Japanese Oketani experts on the Oketani method to provide services in ICMH.

The other center MCHTI is in an urban site in the southern part of Dhaka city. MCHTI has a functional LMC that provides similar services to ICMH except for Oketani massage. Midwives trained in basic counseling and breastfeeding provide services in the MCHTI.

STUDY SUBJECT

All mothers delivered to the above two hospitals within the last 7 days and those attending LMC for breastfeeding-related problems were enrolled consecutively over two months from March to April 2015 at MCHTI and May to June 2015 at ICMH, respectively. Mothers unwilling to participate were excluded. Subjects recruited were one hundred and sixty-two in the ICMH and one hundred and sixty-one in the MCHTI.

OKETANI BREAST MASSAGE TECHNIQUE

Oketani breast massage is a unique manual technique created by a Japanese nurse, Sotomi Oketani, to support breastfeeding, particularly for addressing lactation issues, such as insufficient milk, sore nipples, or mastitis [12]. Oketani massage loosens the connective tissue between the base of the breasts and the underlying chest muscle. This is a massage without pain that stimulates the sense of the mother, loosens the tissues around milk lobules, and promotes milk secretion, so that the baby can suck easily. The manual breast massage involves eight distinct steps, numbered 1 through 8. Figure 1 illustrates the steps of Oketani massage for the right breast. Steps 1 to 7 form one complete treatment session, while step 8 involves expression or milking. The same steps are followed for both breasts. Each full cycle of massage and expression takes about one minute, and this process is repeated for 15 to 20 minutes. Manual operations and expressions are performed appropriately to the breast adhesions at the base to soften the breast and improve milk production.

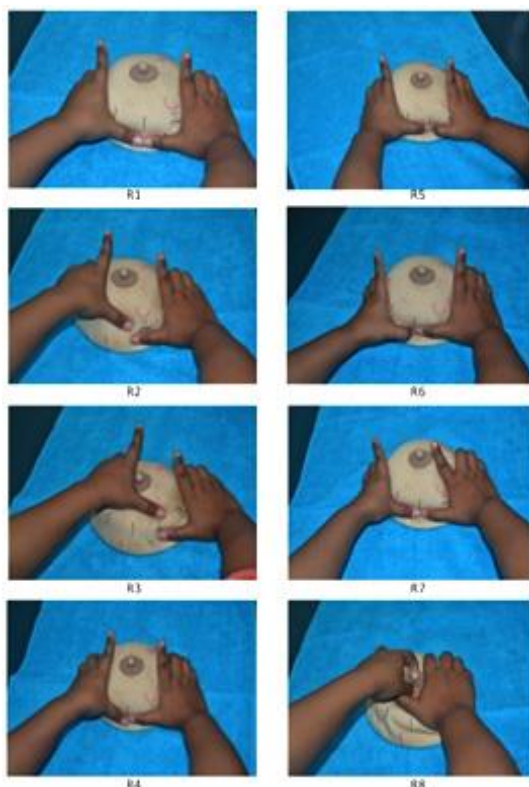


Figure 1. Oketani massage technique for right breast [13].

DATA COLLECTION PROCEDURE

At the baseline, data on socio-demographic characteristics, obstetric information, and feeding of infants were collected. Mother's contact details especially the number of the mobile phones and land-

phones were kept in the record. Mothers were briefed that they would be contacted later by telephone. Follow-up telephone calls were made at intervals of one month, three months, and 6 months from the date of enrolment. If the mother could not be contacted over the telephone on the assigned date, subsequent calls were made during the next seven days.

Ethical approval was granted by the ethical review board of ICMH. Informed written consent was collected from the mothers at the time of enrollment (Memo no: ICMH/IRB/2015/07). Data analysis was performed using SPSS version 25.

RESULTS

From Table 1, the comparison between two medical institutes (ICMH and MCHTI) in terms of maternal and infant characteristics, as well as the support and education on breastfeeding practices are evident. At enrolment, 51% and 27% of babies were first born and 30% and 61% were second born at ICMH and MCHTI, respectively. Forty-four percent of mothers were aged 21–25 years at ICMH and 34% at MCHTI. More than 70% of babies were born by cesarean section in both centers. The birth weight of many of the babies was normal (72% vs 86%) and low birth weight was (28% vs 14%) at ICMH and MCHTI, respectively. Most of the babies were enrolled within 7 days of birth. Regarding services, most of the mothers received assistance to attach the mouth of the baby to the breast (95% vs 76%, $P < 0.001$), and expression of breast milk was shown (93% vs 57%, $P < 0.001$) at ICMH and MCHTI, respectively which were significantly different.

Table 1. Distribution of subjects in two hospitals on enrolment.

	ICMH (n = 162 (%))	MCHTI (n = 161(%))	P-value
<i>Mother age</i>			
16–20	38 (24)	52 (32)	0.214
21–25	71 (44)	55 (34)	
26–30	40 (25)	43 (27)	
>30	13 (8)	11 (7)	
<i>Mode of delivery</i>			
C-section	125 (77)	115 (71)	0.254
Normal vaginal delivery	37 (23)	46 (29)	
<i>Gestational age</i>			
38–40	83 (51)	92 (57)	0.315
>40	79 (49)	69 (43)	
<i>Birth weight</i>			
LBW	45 (28)	22 (14)	0.002
>2.5	117 (72)	139 (86)	
<i>Birth order of baby</i>			
First baby	83 (51)	44 (27)	<.001
Second baby	49 (30)	98 (61)	
Third baby	23 (14)	15 (9)	
Fourth baby	7 (4)	3 (2)	
Sixth baby	0	1 (1)	
<i>Age of baby at enrolment</i>			
0–6	121 (75)	129 (80)	0.854
7–30	41 (25)	32 (20)	
Received help to attach the baby to breast after birth	154 (95)	122 (76)	<.001
Assisted to express breast milk	155 (95)	92 (57)	<.001

Table 2 shows that, after 1 month and 3 months of follow-up, EBF was similar among babies born at ICMH and MCHTI. At 6 months follow-up, a higher proportion of babies were found to have exclusive breastfeeding among the ICMH cohort compared to those of MCHTI (56% vs 44%, $P < 0.007$).

The commonest problem on admission was low milk production, followed by crying of the baby, mastitis, and engorgement. Mothers who received Oketani service for breastfeeding problems at ICMH recovered completely over the study period (Figure 2). Very few mothers complained of Breastfeeding problems on subsequent follow-up. For the mothers who visited LMC several times for different difficulties at ICMH, the necessity of the visit of these mothers decreased gradually than the mothers who visited LMC of MCHTI. The proportion of recovery from LMC of ICMH is much higher than MCHTI (Table 3).

Table 2. Types of Feeding in last 24 hours at different time periods.

Types of Feeding	ICMH (n = 162 (%))	MCHTI (n = 161 (%))	P-value
At Enrolment			
Exclusive Breastfeeds	130 (80)	137 (85)	0.516
Breast Milk with Artificial Milk	20 (12)	15 (9)	
Prelacteal Food	12 (7)	9 (6)	
At One Month			
Exclusive Breastfeeds	127 (78)	123 (76)	0.912
Breast Milk with Artificial Milk	23 (14)	25 (16)	
Supply with Expressed Breast milk	12 (7)	13 (8)	
At Three Month			
Exclusive Breastfeeds	112 (69)	95 (59)	0.135
Breast Milk with Artificial Milk	31 (19)	37 (23)	
Supply with Expressed Breast milk	19 (12)	29 (18)	
At Six Month			
Exclusive Breastfeeds	90 (56)	70 (44)	0.007
Breast Milk with Artificial Milk	47 (29)	48 (30)	
Supply with Expressed Breast milk	25 (15)	43 (27)	

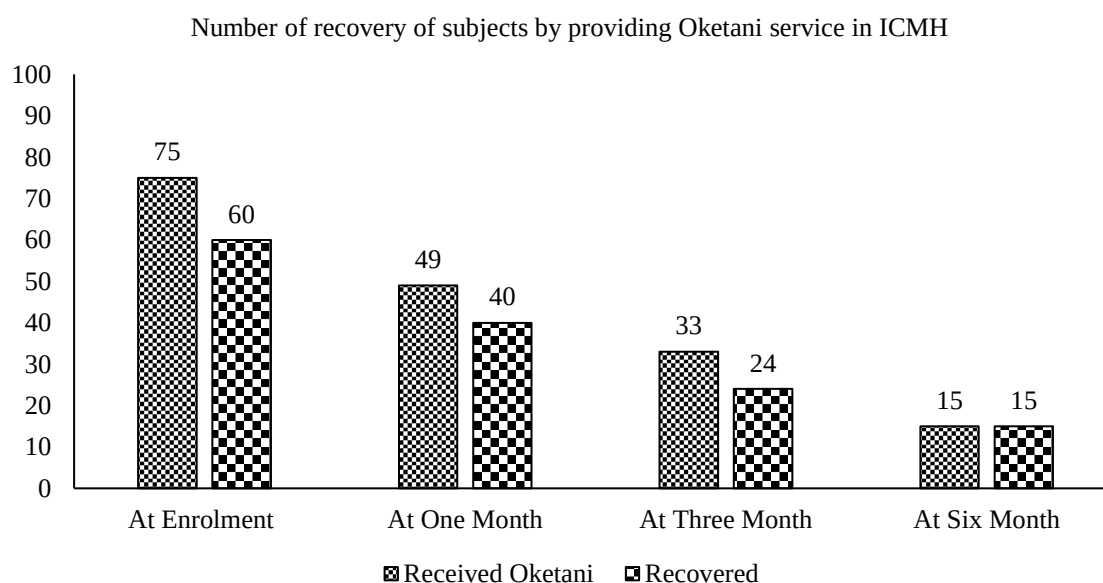
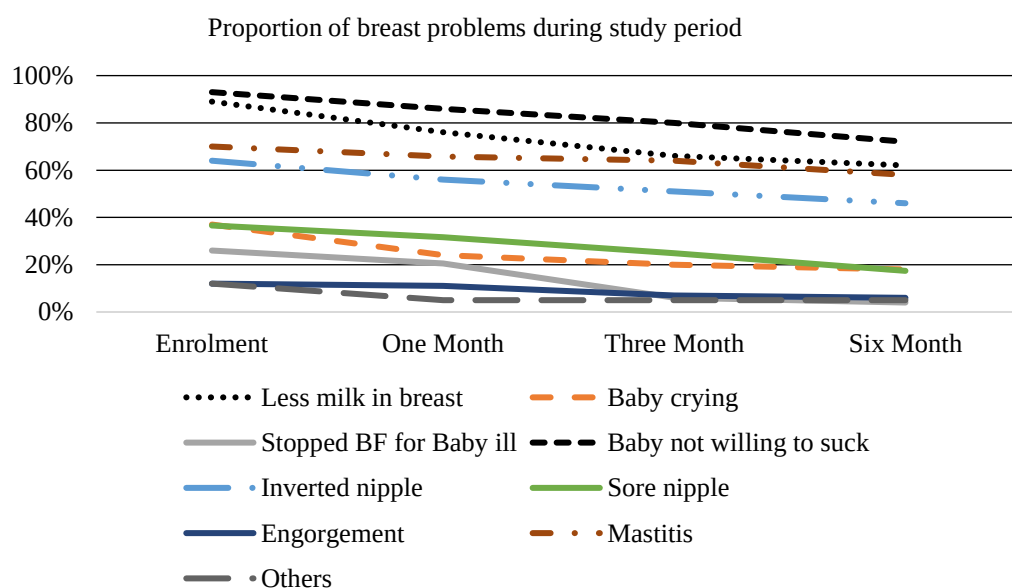
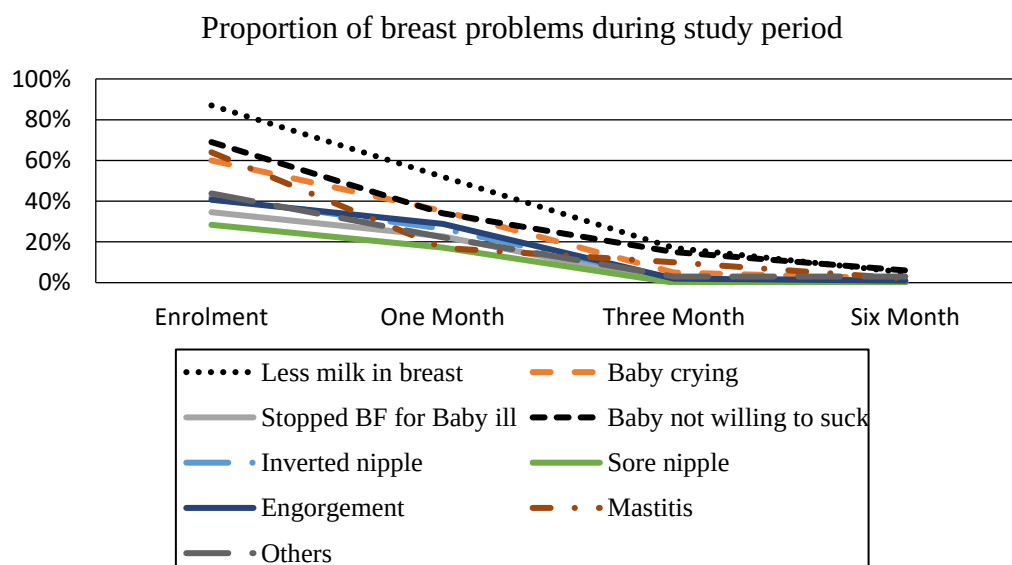


Figure 2. Number of recovery of subjects by providing Oketani service in ICMH.

Table 3. Comparison of sequential visit and recovery of the mother in LMC of ICMH and MCHTI.

Visit Lactation Center	ICMH		MCHTI		p-value
	LMC Visit (n = 162)	Recovered	LMC Visit (n = 162)	Recovered	
At Enrolment at one month	141 (87.04%)	84 (59.57%)	143 (88.82%)	45 (31.5%)	<0.01
At three month	83 (51.23%)	69 (83.13%)	100 (62.11%)	33 (33%)	
At six month	28 (17.27%)	18 (64.29%)	52 (32.3%)	22 (42.3%)	
	8 (4.94%)	7 (87.5%)	34 (21.12%)	16 (47.06%)	

Figures 3(a) & (b) show that the status of the difficulties faced by the mothers over the study period, reduced significantly in the LMC of ICMH but most of the mothers who visited the LMC of MCHTI were suffering from their problems until the study period.

**Figure 3(a).** The difficulties faced by the mothers and status of resolution array in MCHTI.**Figure 3(b).** The difficulties faced by the mothers and status of resolution array in ICMH.

In Figure 4, The Kaplan-Meier Survival Probability curve shows that there is a significant difference between the two hospitals ($p < 0.001$). The difficulties of low breast milk flow of mothers from ICMH were solved at the end of the study period but most of the mothers from MCHTI were suffering from the problems until the end of the study.

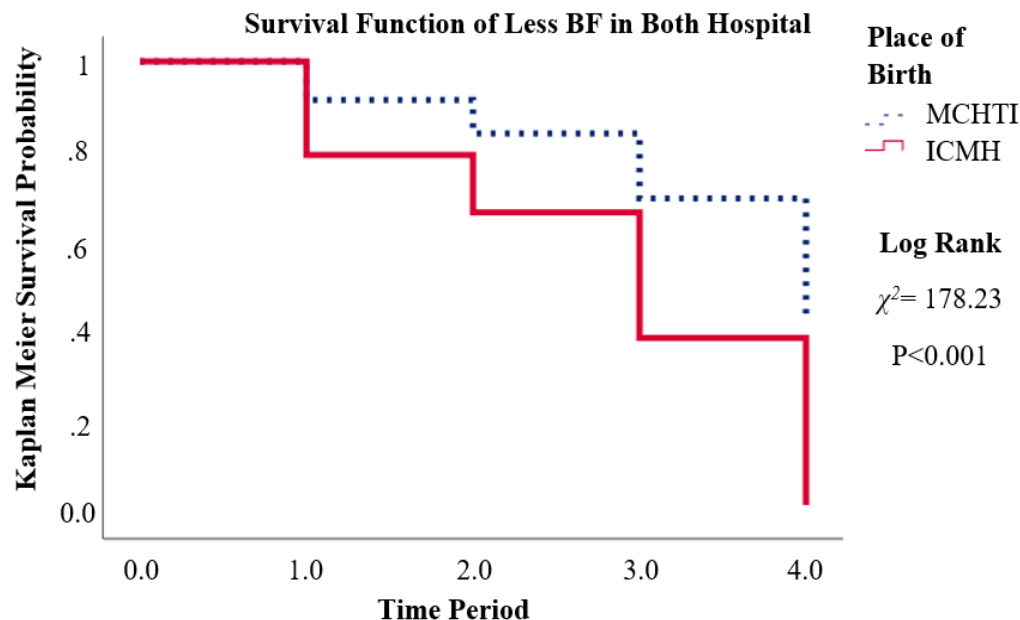


Figure 4. Survival Function for less breastfeeding problems of mother of ICMH and MCHT.

DISCUSSION

The study was undertaken in two maternity hospitals and the progress of breastfeeding problems, and their resolutions have been compared. The proportion of exclusively breastfed babies at birth was high in both centers at the baseline. Few of the babies who were not exclusively breastfed at enrolment had low birth weight or severe illnesses. The proportion of exclusively breastfed babies reduced during the postpartum period gradually in both hospitals, more at MCHTI during follow-up. However, exclusive breastfeeding was significantly more at the end of 6 months at ICMH compared to MCHTI. It is possible that in urban areas, a higher proportion of mothers are working women, and they might give some liquid or semisolid foods along with breastfeeding before 6 months to get the baby habituated with other food before they return to work after maternity leave [15]. As there are abundant breast milk substitutes (BMS) available in the market, mothers could use those more as alternative [13].

Lack of awareness of detrimental effects on child health and ignorance of the BMS Act 2013 could be a major reason to provide them with BMS [14]. Among the cohort of mothers at ICMH, only a few visited the LMC subsequently. Mothers were advised at discharge to visit if they face any problems as well as there was no advice for visiting the LMC as a routine. The engorgement of breasts has been identified as a frequent problem for mothers. This was more at enrolment as more babies were aged less than 7 days. Furthermore, during the transition from colostrum to mature milk on around the 3rd to 4th day, the fullness of the breast could cause engorgement [13]. Engorgement may also occur after the first or third month because of delayed or incomplete emptying of the breast. Initial support to the mother with a demonstration of position attachment and expression of breast milk was practiced at ICMH and that may be a reason for the lower reporting rate of problems during subsequent follow-up. The application of Oketani massage in a significant proportion of mothers in ICMH could be a great advantage for those mothers.

Insufficient breast milk and unwillingness to suck babies were two most common problems at MCHTI but these were less reported at ICMH. This difference may be due to routine ward rounds by Oketani-trained midwives working at LMC of ICMH in postnatal wards to screen out any lactation-related problems among recently delivered mothers. Rounds were not available in MCHTI.

In ICMH, more than half of the mothers visited LMC during enrolment and most of them reported that their visit was effective. Among them, mothers who received Oketani massage said the massage was very useful in solving breastfeeding problems. This proportion of Oketani massage was higher (46%) in this study than in previous studies, which were between 29 and 37% of mothers attending LMCs for Oketani massage [13–16]. One study showed that after receiving an Oketani massage, mother's perception of self-confidence for breastfeeding increased, the flow of breast milk, and production of breastmilk by mothers and feeling of satisfaction after the Oketani massage was expressed by all mothers [17]. Our study revealed that exclusive breastfeeding was significantly increased with the Oketani breast massage as reported earlier [15]. It is clearly identified through this study that Oketani massage reduced the complications of mothers very rapidly. The experts of ICMH developed the LMC with Oketani massage and the services to solve the difficulties of breastfeeding.

A limitation of our study was that the mothers were followed up through telephone interviews. Also, it was not easy to contact mothers because of non-response. Participants failed to visit the center at the scheduled time. There was less reporting of breastfeeding problems during the follow-up period. Non-response could be due to less confidence in reporting their problems over the telephone or they were not paying attention to the question, or they might have forgotten the schedules. Our study showed the impact of effective LMC services and additional Oketani massage on solving breastfeeding problems and increasing exclusive breastfeeding.

CONCLUSIONS

Oketani massage has been proven to be a very useful method for mothers who did not benefit from traditional LMC services. Further research should be undertaken on a large scale to see whether the application of the Oketani method during the postpartum period has a more positive impact on solving breastfeeding difficulties, increasing exclusive breastfeeding rates, and improving child health.

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