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A study to assess the effectiveness of nurses led breast feeding Mobile clinic (NLBMC) on breast feeding outcomes in lactating mothers at selected areas of Gurugram

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ABSTRACT

Introduction: Breastfeeding is critical to infant and maternal health, yet many mothers encounter barriers that limit optimal breastfeeding practices, especially in underserved areas. The Nurses-Led Breastfeeding Mobile Clinic (NLBMC) model was developed to deliver accessible, community-based lactation support and counselling. This study aims to assess the effectiveness of NLBMC in enhancing breastfeeding self-efficacy and maternal satisfaction among lactating mothers in selected areas of Gurugram, Haryana.

Methods: A quasi-experimental research design was employed with 100 lactating mothers, divided equally into experimental and control groups using systematic random sampling. The experimental group received structured lactation counselling through the NLBMC in addition to conventional care, while the control group received only conventional postnatal support. Data collection tools included a validated breastfeeding self-efficacy scale and a maternal satisfaction level scale. Statistical analysis was conducted using unpaired t-tests.

Results: The experimental group exhibited a significantly higher mean breastfeeding self-efficacy score (12.2 ± 1.9) compared to the control group (7.4 ± 1.2), with a mean difference of 4.8 ($t=22.3$, $p=0.0001$). Similarly, maternal satisfaction scores were significantly greater in the experimental group (67.1 ± 4.4) than in the control group (37.3 ± 3.9), with a mean difference of 29.8 ($t=35.6$, $p=0.0001$). These findings suggest a substantial positive impact of NLBMC services.

Discussion: The results indicate that nurse-led mobile breastfeeding support effectively enhances both breastfeeding self-efficacy and maternal satisfaction. These outcomes align with previous studies advocating structured lactation counselling as a strategy to improve breastfeeding practices. The implementation of mobile clinics staffed by trained nurses offers a scalable solution for improving maternal-child health outcomes in resource-constrained settings.

1. INTRODUCTION

Breastfeeding is universally recognized as the ideal form of infant nutrition, offering critical benefits for both the child and the mother. According to the World Health Organization (WHO), exclusive breastfeeding for the first six months provides optimal growth, development, and health outcomes for infants. Despite these established benefits, global breastfeeding rates remain suboptimal.[1] Many mothers face challenges that hinder successful breastfeeding practices, such as limited access to healthcare support, lack of knowledge, socio-cultural stigmas, and logistical difficulties in reaching healthcare facilities.[2]

To address these barriers, innovative interventions like the Nurses-Led Breastfeeding Mobile Clinic (NLBMC) have emerged. The NLBMC model is designed to bring professional breastfeeding support directly to communities, ensuring that mothers in remote, underserved, or socioeconomically disadvantaged areas receive timely and accessible care. By utilizing trained nursing staff to deliver breastfeeding education, counseling, and practical support, NLBMCs have the potential to improve breastfeeding outcomes and maternal well-being.[3,18]

This research holds significant value for healthcare policymakers, nursing professionals, and public health organizations. By evaluating the effectiveness of NLBMC services, this study can provide evidence-based insights to guide future interventions aimed at improving breastfeeding rates.[4] Enhanced breastfeeding outcomes contribute to reduced infant morbidity and mortality, improved maternal health, and economic savings through decreased healthcare costs. Furthermore, the findings may inform strategies to expand NLBMC services, ensuring that vulnerable populations receive equitable healthcare support.[5,17]

Need of the Study

Breastfeeding is a vital component in promoting the health and survival of newborns and infants. It provides essential nutrients and antibodies that protect children from common childhood illnesses such as diarrhoea and pneumonia, two primary causes of child mortality globally. Despite extensive evidence supporting breastfeeding benefits, a significant gap persists in breastfeeding practices worldwide, particularly in developing countries like India.[6] The World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) report that approximately 2.4 million newborns died in 2020, with the majority of these deaths occurring within the first 28 days of life.[7] Neonatal mortality rates are highest in low- and middle-income countries, where access to essential healthcare services is limited. Evidence indicates that early initiation of breastfeeding within one hour of birth significantly reduces neonatal mortality by improving immune responses and reducing the risk of infections.[8] Exclusive breastfeeding for the first six months of life can prevent 820,000 child deaths each year among children under five years old. Despite these compelling statistics, WHO data reveals that only 44% of infants worldwide are exclusively breastfed for the first six months, falling far below the global target of 70% set by WHO and UNICEF's Global Breastfeeding Collective.[1011]This gap highlights the urgent need for comprehensive breastfeeding promotion strategies to improve maternal education, confidence, and support systems[12,16]. A nurse-led breastfeeding mobile clinic (NLBMC) presents a promising solution to address these challenges. By offering accessible, timely, and evidence-based interventions, NLBMCs can provide lactating mothers with crucial guidance and support in their communities.[13] This study aims to assess the effectiveness of a nurse-led breastfeeding mobile clinic (NLBMC) in improving breastfeeding practices and outcomes among lactating mothers in selected areas of Gurugram.[14,15]

2. MATERIAL AND METHODOLOGY

This study adopted a quantitative approach with a quasi-experimental research design to evaluate the effectiveness of the Nurses Led Breastfeeding Mobile Clinic (NLBMC) on breastfeeding outcomes in lactating mothers. The design facilitated a comparison between an experimental group and a control group.

The study was conducted in selected community areas of Gurugram, Haryana. These areas were chosen based on accessibility, population density, and the availability of lactating mothers within the postpartum period. The study population included lactating women in the identified community areas of Gurugram. Participants were recruited based on specific inclusion and exclusion criteria: Lactating mothers within the postpartum period, Mothers willing to participate in the study and provide informed consent, Mothers residing in the selected areas of Gurugram were included in the study. Mothers with medical complications preventing breastfeeding, and mothers unwilling to participate or unable to provide consent were excluded from the research study. A total of 100 lactating women were included in the study, with 50 participants in the control group and 50 participants in the experimental group. The systematic random sampling technique was used for participant selection, ensuring unbiased representation. The lottery method was applied to randomly allocate participants to the control or experimental groups.

The data was collected in the month of Jan-May 2024 using following tools: **a)** structured interview schedule for demographic profile consisting of Mother's age, educational level, occupation, duration of marriage, parity, mode of delivery, baby's age, infant sex. **b)** Structure Breastfeeding self-efficacy, scale to assess the self efficacy of breastfeeding. It is a structured assessment tool with total score of 15 indicating 0-8- inadequate, 9-15 – adequate. **c)** Structured Likert Maternal Satisfaction level scale to assess the satisfaction level of mother. It is structures assessment tool with total score of 15. The tools were validated by the experts in the field of obstetrics and Gynecological Nursing and CVI score was calculated to be 0.95 for Sociodemographic profile and 0.98 for breastfeeding self efficacy scale and 0.97 for maternal satisfaction level scale. The reliability of the breastfeeding self efficacy scale & maternal satisfaction level scale was assessed by the test-retest method which was found to be reliable. (r=0.95, & r=0.96). The study was conducted in three distinct phases:

Phase 1: Establishment of NLBMC

- A Nurses Led Breastfeeding Mobile Clinic (NLBMC) was set up in the selected community areas of Gurugram.

- The mobile clinic was staffed by trained lactation counsellors and registered nurses to provide comprehensive breastfeeding support and education.

Phase 2: Development of Lactation Counselling Module

- A lactation counselling module was developed using Information, Education, and Communication (IEC) materials.
- The module included visual aids, pamphlets, and interactive sessions to educate mothers on proper breastfeeding techniques, overcoming breastfeeding challenges, and promoting exclusive breastfeeding. Each session for 20-30 min is carried.

Phase 3: Implementation and Data Collection

- After obtaining informed consent, eligible lactating mothers were enrolled in the study.
- Participants in the experimental group received personalized lactation counselling through the NLBMC, either in-person or via teleconsultation. In addition to the counselling, they received the current conventional care available for postnatal breastfeeding support.
- Participants in the control group received only the current conventional postnatal breastfeeding support without additional counselling.
- A structured questionnaire was administered to both groups to assess breastfeeding outcomes during the postpartum period. The questionnaire covered aspects such as breastfeeding initiation, exclusivity, challenges faced, and maternal satisfaction.

3. RESULT AND ANALYSIS

TABLE NO: - 1 Frequency and percentage distribution of demographic characteristics

N = 100

S.NO	SAMPLE CHARACTERISTICS	Experimental group		Control group	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	**Mother's Age**				
1.1	18 – 22 years	8	16	14	28
1.2	23 – 27 years	33	66	21	42
1.3	28 – 32 years	9	18	12	24
1.4	33 – 37 years	0	0	3	6
2.	**Educational Level**				
2.1	Primary	32	64	28	56
2.2	Secondary	18	36	22	44
3.	**Occupation**				
3.1	House wife	42	84	44	88
3.2	Private employee	8	16	6	12
4.	**Duration of Marriage**				
4.1	0 – 1 years	8	16	24	48
4.2	2 – 5 years	36	72	20	40
4.3	6 – 10 years	6	12	6	12
5.	**Parity**				
5.1	Primiparous	30	60	26	52

5.2	Multiparous	20	40	24	48
6.	**Delivery Mode**				
6.1	Vaginal	32	64	39	78
6.2	C-Section	18	36	11	22
7.	**Baby's Age**				
7.1	0-3 month	21	42	18	36
7.2	4-6 month	20	40	22	44
7.3	7-9month	7	14	8	16
7.4	10-12 month	2	4	2	4
8.	**Infant Sex**				
8.1	Male	**25**	**50**	**21**	**42**
8.2	Female	**25**	**50**	**29**	**58**

- The first variable, "Age," shows that the respondents were distributed across different age groups. The majority of participants, 33 of them (66%), fell within the age range of 23-27 years old. 9 respondents (18%), fell within the age range of 28-32, and 8 respondents (16%) were between 18-22 years old. No participants were in the 33-37 age range.
- The "Level of education" variable showed a range of educational backgrounds among the participants. The highest frequency was recorded for primary education, with 32 respondents (64%). 18 respondents (36%) reported being Secondary education.
- In terms of "Occupation," the largest group consisted of housewife with 42 respondents (84%). There were, 8 respondents (16%) in private jobs.
- The Duration of marriage, majority of respondents, 36 of them (72%), fell within the range of 2-5 years, 8 respondents (16%) fell within the range of 0-1 years, 6 respondents (12%) fell within the range of 6-10 years.
- The term Parity, the majority of the respondents 30 (60%) are primiparous, and 20 (40%) are multi parous mothers.
- The term Mode of delivery, the majority of the respondents 32 (64%) delivery the baby through vaginal mode, and 18 (36%) by C-Section mode.
- The term Baby's age, shows that the respondent's baby's age was distributed across different age groups. The majority of baby's age 21 (42%), fell with the age range of 0-3 month, 20 of them (40%), fell within the age range of 4-6 month. 7 respondents (14%), fell within the age range of 7-9 month, and 2 respondents (4%) were between 10-12 years old.
- The term Infant sex, the majority of the respondents 25 (50%) are male, and 25 (50%) are female.

TABLE NO: - 2 EFFECTIVENESS OF NLBMC ON BREASTFEEDING SELF-EFFICACY SCALE

N = 100

Variable	**Experimental (50)**	**Control (50)**	**Mean Difference**	**df**	**Unpaired t value"**
	Mean ± std.	**Mean ± std.**			
Self- Efficacy score	**12.2 ±1.9**	**7.4 ±1.2**	**4.8**	**98**	**T=22.3** **P=0.0001**

***Significant at level of 0.05**

Table 2 shows the information the mean post breastfeeding Self- Efficacy score of postnatal mothers is 12.2 in the

experimental group is significantly higher than the post breastfeeding Self- Efficacy score of postnatal mothers is 7.4 in the control group. The mean difference of 4.8 was found between experimental and control group of breastfeeding self efficacy score, while the standard deviation difference is 0.7. In the experimental group, "Unpaired t Test" was performed to corelate gap between experimental and control group score, the computed "t" value (22.3) for degree of freedom 98 was determined to be statistically significant at the 0.05 level. As a result, it can be concluded that the difference in the mean breastfeeding Self- Efficacy score of postnatal mothers in the experimental and control groups is real and not accidental. As a result, the researcher dismissed the null hypothesis (H01) in favour of the research hypothesis (H1). Data indicates that Nurse led mobile clinic is successful in enhancing postnatal mothers' breastfeeding Self- Efficacy.

TABLE NO: - 3 EFFECTIVENESS OF NLBMC ON MATERNAL SATISFACTION LEVEL

Variable	Experimental (50)	Control (50)	Mean Difference	df	Unpaired t value"
	Mean ± std.	Mean ± std.			
Maternal satisfaction level	67.1±4.4	37.3±3.9	29.8	98	T = 35.6 P=0.0001

***Significant at level of 0.05**

Table 3 shows the information the mean post maternal satisfaction level score of postnatal mothers is 67.1 in the experimental group is significantly higher than the post maternal satisfaction level score of postnatal mothers is 37.3 in the control group. The mean difference of 29.8 was found between experimental and control group of maternal satisfaction level score, while the standard deviation difference is 0.7. In the experimental group, "Unpaired t Test" was performed to corelate gap between experimental and control group score, the computed "t" value (35.6) for degree of freedom 98 was determined to be statistically significant at the 0.05 level. As a result, it can be concluded that the difference in the maternal satisfaction level score of postnatal mothers in the experimental and control groups is real and not accidental. As a result, the researcher dismissed the null hypothesis (H01) in favour of the research hypothesis (H1). Data indicates that Nurse led mobile clinic is successful in enhancing maternal satisfaction level in postnatal mothers.

4. DISCUSSION

The findings of this study demonstrated a significant improvement in breastfeeding self-efficacy and maternal satisfaction levels in the experimental group following lactation counselling provided by the researcher. The mean score of the breastfeeding self-efficacy scale in the experimental group was 12.2 compared to 7.4 in the control group, reflecting a mean difference of 4.8. This notable increase suggests that the structured lactation counselling intervention had a positive impact on enhancing breastfeeding self-efficacy at the level of 0.05. Higher self-efficacy in breastfeeding is essential for fostering maternal confidence and ensuring sustained breastfeeding practices, which are vital for both infant and maternal well-being. And research findings of the maternal satisfaction levels in the experimental group (mean score of 67.1) were significantly higher than in the control group (mean score of 37.3), with a mean difference of 29.8. This result highlights the effectiveness of targeted lactation counselling in improving maternal contentment during the breastfeeding process. Enhanced maternal satisfaction can contribute to better psychological well-being and improved bonding between mother and child, reinforcing the long-term benefits of breastfeeding. The findings of this study align with previous research by Şimşek-Çetinkaya Ş, Gümüs Çaliş G, and Kibris Ş (2024), which investigated the impact of a nurse-led breastfeeding education program and online counselling system (BMUM) on maternal outcomes. Their study similarly concluded that providing structured educational support and guidance significantly improved breastfeeding success rates and maternal satisfaction. The consistency between these findings underscores the critical role of well-structured lactation counselling interventions in empowering mothers and improving breastfeeding outcomes[1]. Similarly, Madhan et al. (2025) in their study titled "Enhancing Breastfeeding Outcomes: Nurse-Led Interventions in Breast Hygiene for Primigravida Mothers—A Mixed-Methods Analysis, the results suggest that integrating structured interventions and educational strategies into maternal care programs can substantially improve maternal satisfaction and contribute to better overall maternal well-being[2].

The results of this study highlight the need for integrating evidence-based breastfeeding support programs into routine maternal care. Future studies may explore the long-term impact of such interventions on sustained breastfeeding practices, infant growth, and maternal mental well-being.

5. CONCLUSION

The study underscores the significant impact of Child birth preparedness programme on improving intrapartum coping behaviours. The Significant association between maternal education and coping strategies, supported by existing literature, highlights the need for customized educational programs in prenatal care. Comprehensive education on coping strategies,

labour management, and childbirth preparedness can bridge the gap in coping abilities, thereby improving overall intrapartum experiences.

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Author's Contribution All authors contributed equally to the study design, data collection and analysis, data interpretation, manuscript drafting, and critical revision.

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