

## Original Article

# Feasibility study for use of an educational program on essential newborn care practices for mothers in selected urban communities of Delhi: A pilot study

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### ABSTRACT

**Background:** The first month of life (neonatal period) represents the most critical period for child survival. Although neonatal mortality has declined by 44% since 2000, nearly half (47%) of all deaths in children under five years of age in 2022 occurred during the neonatal period. This phase remains one of the most vulnerable stages and necessitates enhanced quality newborn care. Therefore, implementing strategies to strengthen mothers' capacity to provide essential newborn care is imperative. This study was done to assess the feasibility of using a developed educational program on essential newborn care practices among mothers. **Methodology:** A pre-experimental study design was employed for the present research. Study participants were initially approached during the antenatal period, and the same mothers were subsequently contacted within 3 to 7 days postpartum for the first pre-test assessing essential newborn care practices. Following this, an intervention was administered. Two post-tests were conducted: the first on the 7th day after the intervention and the second on the 28th day of the postnatal period to evaluate essential newborn care practices. **Results:** Study findings proved there was an improvement in essential newborn care practices among mothers as compared to essential newborn care practices from pre-test 10(10.34) to post-test I 65.86(7.93) and post-test II 79.86(1.99). The mean (SD) practice scores were enhanced, respectively. **Conclusion:** The educational intervention was found to be effective in improving essential newborn care practices among mothers.

**Key words:** Neonate, Newborn, Infant care, Mothers

The newborn stage signifies the commencement of a new life. In a review by Doherty et al, it was mentioned that newborns undergo an important period characterized by major physiological transformations as they transition from fetal to independent circulation and begin to acclimate to life external to the maternal body [1]. In 2020, the World Health Organization (WHO) fact sheet demonstrated that almost all of newborn fatalities (75%) transpire within the first week of life, with over 1 million newborns dying within the initial 24 hours [2]. In 2017, the primary causes of newborn mortality were pointed out as premature delivery, intra-partum complications (such as birth asphyxia or respiratory failure at birth), infections, and congenital anomalies. WHO in 2024 has undertaken initiatives to cooperate with health ministries and partners in each nation to enhance and invest in neonatal care, particularly during the first week of life [3]. They emphasized the involvement of mothers, families, and communities in the provision of optimal infant care. Thus, strategies are necessary to enhance

Mother's abilities in performing essential newborn care practices, as researchers reviewed several publications indicating that the primary causes of neonatal morbidity include a lack of knowledge regarding substandard basic newborn care practices. It is crucial to initiate activities at home to enhance mothers' confidence and security in caring for their newborns. This study was conducted to assess the feasibility of using a developed educational program on essential newborn care practices among study samples and to assess the effectiveness of an educational program on essential newborn care practices among mothers.

### MATERIALS AND METHODS

A quantitative approach and a pre-experimental one-group pre-test post-test design were employed to assess the feasibility and effectiveness of an educational program on essential newborn care practices among study participants. Administrative permission was obtained from the Directorate of Health, East Municipal Corporation of Delhi. Study

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participants were approached in the antenatal period, and the research process was explained to them for easy feasibility. The baseline demographic variables were collected with the help of a semi-structured interview schedule questionnaire. The educational program was developed in video format which contained all the videos related to essential newborn care practices like breast feeding procedure, breast hygiene maintenance, prevention of infection by hand hygiene, eye care, umbilical cord care, assessing for breathing and temperature regulation, practice of maintaining warmth in room environment as per weather, skin care procedure including baby bath and skin to skin contact to maintain warmth for neonate.

During the 3-7 postnatal period, participants were approached to have a pre-test for the assessment of essential newborn care practices and then an education program was implemented. To avoid contamination, an educational program was introduced after conducting the pre-test assessment for all the selected study participants with an individual approach by making them comfortable and with their feasible time at their homes. The present study was conducted in the north-east district of Delhi (Shahdra North), in which 15 Study participants were covered for the implementation of the intervention. After the intervention, post-test-1 was conducted for assessment of essential newborn

care practices of mothers, which was done after 7 days of intervention. In this stage, reinforcement of the correct techniques was also done to study participants to determine if any incorrect steps were followed during re-demonstration by the study participants.

The post-test-2 for assessment of essential newborn care practices of mothers at 28 days of neonatal life. The data collection was done with the help of a socio-demographic profile and a structured observation checklist. 15 participants completed the study, and there was neither attrition nor loss.

## RESULTS

The discrimination index for the checklist was assessed it varied from 0.404\* to 1\*\*. Thus, the items were valid and reliable to use for the study. The data Collection was done for the present pilot study, June-July 2025. So, the educational program was found feasible, and objective 1 was successfully achieved.

### Outcomes and estimation

The analysis shows that the introduction of an educational program led to improvements in essential newborn care practices. The analysis is divided into two sections:

#### Section-1 Mothers socio-demographic characteristics

**Table 1: frequency and percentage distribution for the socio-demographic variables of the study participants (N=15)**

S .no	Sample Characteristics	Frequency	Percentage	
1	Age of mothers at the time of present delivery	24.8(5.07) Average mean age		
2	Marital status	Married	15	100
		Unmarried	-	-
		Divorced	-	-
		Widowed	-	-
3	Educational status of the mother	Professional qualification with technical degrees or a diploma		
		PhD		
		Post graduation		
		Graduation		
		10 <sup>th</sup> class pass but less than Graduation	8	53.3
		Primary pass but less than 10 <sup>th</sup> class	2	13.3
		Less than Primary but attended school for at least 1 year		
4	Occupation of the mother	Just literate but no schooling		
		Illiterate	5	33.3
		Service in central/State/Public undertakings or as an owner of a company employing more than 20 people or self-employed professionals		
		Service in the private sector or an independent business employing 2-20 persons		
		Service at shops, at home, transport, and own cultivation of land		
		Self-employed, e.g., shops or businesses with income more than 5000	1	6.7
5.	Number of family members	Self-employed with income less than 5000 (laborer, housewife)	14	93.3
		Less than 3	3	20.0
		4-5	3	20.0
		5-6	4	26.7
6.	Family income monthly (in Rs)	More than 6	5	33.3
		>50000		
		20000-49999	1	6.7
		10000-19999	9	60.0
		5000-9999	4	26.7
		2500-4999	1	6.7
		1000-2499		
<1000				
>50000				

Table 1 shows that the average mean age of the mother was 24.8(5.07), in which majority belong to 23-27 years of age. This suggests that most of the study samples were in their mid to late twenties, which is often considered a biologically and socially acceptable age for childbirth in many Indian communities. All mothers were married; this uniform marital status suggests that childbearing outside of marriage is either uncommon or socially discouraged in the surveyed region. It also indicates that the study was focused on women living in traditional family structures, which may affect family support systems and maternal responsibilities.

Educational data reflects the relatively low level of education among the study samples, which can impact on their awareness of maternal health practices, access to healthcare services, and participation in economic activities. The occupational status of the study samples demonstrates the economic vulnerability of most of the study samples and indicates limited engagement in the formal sectors, which may also reflect traditional gender roles. Monthly income figures highlight the economic challenges faced by most families in the sample, with limited disposable income, which may affect nutrition, healthcare access, and overall quality of life.

## Section II: Findings related to the pre-test and post-test practices regarding essential newborn care for mothers in selected urban communities.

**Table 2.1 Comparison of essential newborn care practices components among mothers in pre-intervention and post intervention 1 and 2. (N=15)**

Variable	Intervention	Mean (SD)	P value	Friedman ANOVA
Breast feeding	Pre	6.13(3.701)	Less than 0.05	27.76
	Post on 7 days after the intervention	16.80(2.145)		
	Post on the 28-day life of a neonate	19.80(.775)		
Eye care	Pre	00(00)	Less than 0.05	30
	Post on 7 days after the intervention	15.80(2.455)		
	Post on the 28-day life of the neonate	19.87(.915)		
Cord care	Pre	.07(.258)	Less than 0.05	29.1
	Post on 7 days after the intervention	6.93(.704)		
	Post on the 28-day life of a neonate	8.47(.516)		
Temperature and breathing	Pre	.40(1.121)	Less than 0.005	28
	Post on 7 days after the intervention	5.07(.884)		
	Post on the 28-day life of a neonate	6(0)		
Warmth	Pre	6(7.783)	Less than	27.55
	Post on 7 days	21.27(3.515)		

	after the intervention		0.005	
	Post on the 28-day life of a neonate	25.73(1.981)		

When the essential newborn care practices were compared pre-intervention and post-intervention 1 and 2 using ANOVA, it was found that the program was effective across all components, as all p-values were less than 0.05, indicating improvement in essential newborn care practices.

**Table 2.2 Comparison of overall essential newborn care practices among mothers in pre-intervention and post intervention 1 and 2.**

Variable	Intervention	Mean (SD)	P value	Friedman ANOVA
Essential newborn care practices	Pre intervention	10(10.34)	Less than 0.05	30
	Post on 7 days after the intervention	65.86(7.93)		
	Post on the 28-day life of a neonate	79.86(1.99)		

This consistent upward trend indicated a substantial improvement in essential newborn care practices over time. The findings demonstrated a statistically significant and progressive improvement in maternal practices following the intervention.

## DISCUSSION

The present study was aimed at assessing the essential newborn care practices after an educational intervention among mothers. Study findings proved there was an improvement in essential newborn care practices among mothers as compared to the newborn care practices from pretest 10 (10.34) to post-test I 65.86 (7.93) and post-test II 79.86 (1.99). The mean practice scores were enhanced, respectively. The findings demonstrated a statistically significant and progressive improvement in maternal practices following the intervention.

The results of this study are consistent with the studies by Zakaria et al. [4]. They highlighted that educational intervention helps as a comprehensive package and helps the mother to become more confident in taking care of the neonate. A validated health educational package could help in meeting the needs of the mother for premature baby care at home [4]. Sibeudeu and Okoli, in their study, revealed that there are an inadequate knowledge of cord care and its practices, but the findings highlighted that maternal education had a considerable influence on both the understanding and implementation of umbilical cord care practices [5].

Marques et al. did a study to evaluate the effectiveness of a nursing educational intervention using home visits (HV) combined with telephone contact in reducing hospital readmission and the mortality of patients with heart failure.

Evidence indicates that the use of HV and telephone contact for patient follow-up after hospital discharge contributes to a reduction in hospital readmission and mortality. Educational intervention combined with home visit and continuous follow-up improves patient outcome [6].

The findings of this study revealed that if mothers have prior exposure to essential newborn care practices, the neonatal outcome will improve significantly. These results highlight the importance of structured training and simulated practice sessions in nursing education for nurses as well as for mothers. Thus, strengthening early and repeated exposure to neonatal care for mothers is vital for ensuring competency.

The present study had certain limitations, including a small sample size, a single institutional setting, and reliance on self-reported knowledge assessment. These factors restrict the generalizability of the study results. However, the positive shift in knowledge supports the need for the adoption of educational initiatives and continuous refresher training. Overall, this study adds to growing evidence that educational interventions are effective tools to enhance essential newborn care practices among mothers, which can improve neonatal outcomes.

## CONCLUSION

This study demonstrated that a structured educational program is effective in enhancing the essential newborn care practices among mothers. The findings suggest that targeted teaching interventions can reinforce mothers' preparedness to recognize neonatal health and improve neonatal care.

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