

The Effect of Planned Teaching Program on Knowledge Regarding Neonatal Care Among Postnatal Mothers in a Selected Community, Kolkata

Moumita Bhattacharyya

Associate Professor, MSc Nursing (Child Health) Sister Nivedita University

Abstract: Background: Neonatal care is crucial in reducing newborn morbidity and mortality. Postnatal mothers are the primary caregivers, and enhancing their knowledge through planned teaching programs can significantly improve neonatal outcomes. Objective: This study aimed to assess the effect of a planned teaching program on knowledge regarding neonatal care among postnatal mothers in a selected community of Kolkata. Methods: A quantitative pre-experimental (one-group pre-test post-test) design was employed among 30 purposively selected postnatal mothers. A structured knowledge questionnaire was used for pre- and post-intervention assessment. Descriptive and inferential statistics, including paired t-test and chi-square test, were used for data analysis. Results: The mean pre-test knowledge score was 12.13 and the post-test score was 18, with a mean difference of 5.87. The calculated t-value was 8.63, which was statistically significant at $p < 0.05$. A significant association was found between pre-test knowledge and variables such as age, family type, and educational qualification. Conclusion: The planned teaching program was effective in improving knowledge regarding neonatal care among postnatal mothers.

Keywords: Neonatal care, Postnatal mothers, Teaching program, Knowledge.

1. Introduction

Neonatal care, which includes all aspects of care provided to a newborn during the first 28 days of life, is critical in reducing neonatal morbidity and mortality. The neonatal period is the most vulnerable time for a child's survival, with a significant proportion of infant deaths occurring during this time¹. According to the World Health Organization (WHO), nearly 2.4 million neonates died in 2020 globally, most from preventable causes such as infections, birth complications, and poor home-based newborn care practices². India accounts for a substantial portion of these deaths, with socioeconomic disparities, inadequate maternal education, and lack of awareness contributing to poor neonatal outcomes³. In many low-resource settings like urban slums and semi-urban communities in Kolkata, a large number of deliveries still occur at home or in under-resourced health centers, where mothers receive minimal postnatal education about neonatal care practices⁴.

Postnatal mothers are often primary caregivers and play a crucial role in maintaining neonatal health through appropriate feeding, hygiene, thermal care, and early identification of danger signs. However, studies show that knowledge among mothers regarding essential neonatal care is limited, especially among primiparous women with low literacy levels⁵. Effective educational interventions such as structured or planned teaching programs have shown promise in improving maternal knowledge and consequently improving neonatal outcomes⁶. These interventions empower mothers to make informed decisions regarding newborn care, reduce harmful traditional practices, and promote health-seeking behavior⁷. Despite various maternal and child health programs by the government, the gap in knowledge persists, particularly in underserved communities

where health education is either unavailable or underutilized⁸.

Recognizing this critical need, the present study was conducted to assess the effectiveness of a planned teaching program on neonatal care among postnatal mothers in a selected community in Kolkata. By targeting key areas of neonatal care such as breastfeeding, thermal protection, cord care, and danger sign identification, the study aims to bridge the knowledge gap and enhance neonatal well-being through mother-centric education.

2. Objectives

General Objective

- To develop and evaluate the effect of a planned teaching program on knowledge regarding neonatal care among postnatal mothers in a selected community, Kolkata.

Specific Objectives

- To develop and validate a structured planned teaching program on neonatal care.
- To assess the knowledge regarding neonatal care before and after administration of the planned teaching program among postnatal mothers.
- To identify the effect of the planned teaching program on knowledge regarding neonatal care in terms of change in knowledge score.
- To determine the association between pre-test knowledge scores of postnatal mothers and their selected demographic variables such as age, education, parity, and occupation.

Hypotheses

- H1:** There will be a significant improvement in knowledge scores of postnatal mothers after

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administration of the planned teaching program on neonatal care.

- **H2:** There will be a significant association between pre-test knowledge scores and selected demographic variables of postnatal mothers.

3. Materials and Methods

This study adopted a quantitative, pre-experimental one-group pre-test post-test design to evaluate the effectiveness of a planned teaching program on knowledge regarding neonatal care among postnatal mothers. The study was conducted in a selected community in Kolkata, with a purposive sampling technique used to select the sample. A total of **30 postnatal mothers** who fulfilled the inclusion criteria participated in the study. Inclusion criteria involved mothers within 6 weeks postpartum, willing to participate, and available during the data collection period.

A structured knowledge questionnaire on neonatal care was developed and validated by subject experts in pediatric nursing, obstetrics, and community health nursing. The questionnaire included key domains such as thermal protection, exclusive breastfeeding, hygiene, cord care, immunization, and identification of danger signs. A pre-test was administered to assess the baseline knowledge, followed by implementation of a **planned teaching program** using visual aids, demonstration, and discussion techniques. After a gap of 7 days, a post-test was conducted using the same questionnaire.

Descriptive statistics like mean, standard deviation, and percentage were used to describe demographic data and knowledge scores. Inferential statistics like paired t-test was applied to evaluate the effectiveness of the intervention, and chi-square test was used to assess the association between demographic variables and pre-test knowledge scores. Ethical approval was obtained from the Institutional Ethics Committee, and informed consent was taken from each participant.

4. Results

Demographic Characteristics

A total of 30 postnatal mothers participated in the study. Analysis of their socio-demographic profile revealed that a majority, i.e., **56.6% (n = 17)** of mothers were in the age group of **21–26 years**, followed by **23.3% (n = 7)** in the age group **15–20 years**, and **20% (n = 6)** in the age group **27–32 years**. This suggests that most mothers were in their early reproductive years, a common demographic for early motherhood.

Regarding **occupation**, all participants (100%) were housewives, indicating that none were employed outside the home. This uniformity may have implications on their availability for health education sessions and caregiving practices.

When analyzing **family structure**, it was observed that the majority, **63.33% (n = 19)** of mothers belonged to **nuclear families**, while **33.33% (n = 10)** lived in **joint families**, and only **3.33% (n = 1)** lived in **extended family systems**. The

dominance of nuclear families may reflect urban social patterns in Kolkata and has implications for support systems available for neonatal care.

In terms of **religion**, the majority of participants were **Muslim (90%, n = 27)**, with only **10% (n = 3)** being **Hindu**. Religious and cultural practices may have an influence on maternal and neonatal health behaviors, which need to be considered in community-based interventions.

Educational status is a major determinant of maternal health practices. The educational qualification of the mothers was assessed using a pie diagram (Figure 5). The data showed that **50%** of the postnatal mothers had **secondary level education**, **30%** had completed **higher secondary education**, and the remaining **20%** were educated only up to the **primary level**. This indicates that while a reasonable proportion had basic schooling, a notable segment still had minimal education, which may influence their baseline knowledge of neonatal care.

Parity status was assessed and represented in Figure 7. The majority, **67% (n = 20)** of mothers were **primipara**, while **33% (n = 10)** were **multipara**. This suggests that a large proportion of mothers were experiencing motherhood for the first time and may benefit more from structured education programs due to lack of prior experience.

When examining the **source of information regarding neonatal care**, Figure 6 shows that **67% (n = 20)** of mothers reported receiving information from **health workers**, **23% (n = 7)** from **relatives and friends**, and only **10% (n = 3)** from **media or printed materials**. This indicates that frontline health workers continue to be the most accessible and utilized source of health education in the community, while media remains underutilized.

Table 1: Presents the frequency and percentage distribution of the demographic characteristics of the participants, (n=30)

Variable	Categories	Frequency	Percentage (%)
Age in Years	15–20	7	23.30%
	21–26	17	56.60%
	27–32	6	20%
Occupation	Housewife	30	100%
Type of Family	Nuclear	19	63.33%
	Joint	10	33.33%
	Extended	1	3.33%
Religion	Muslim	27	90%
	Hindu	3	10%

Pre-test and Post-test Knowledge Score Comparison

There was a significant increase in mean knowledge scores from 12.13 in the pre-test to 18.00 in the post-test.

Table 2: Comparison of Pre-test and Post-test Knowledge Scores (N = 30)

Test	Mean	Mean Difference	Median	SD	t-value	Significance
Pre-test	12.13	5.87	12	2.81		
Post-test	18		17.32	2.52	8.63**	p < 0.05

$t(29) = 8.63$; $df = 29$; $Critical\ value = 2.05$ at $p < 0.05$

The obtained t-value was greater than the table value, indicating that the difference in mean scores was statistically

significant. Thus, H_{01} is rejected and H_1 is accepted, confirming the effectiveness of the planned teaching program.

To determine the factors influencing baseline knowledge regarding neonatal care, **chi-square tests** were conducted between pre-test knowledge scores (categorized as $<$ median and $\geq$ median) and selected demographic variables.

- **Age** was found to have a statistically significant association with pre-test knowledge scores. The **calculated chi-square value was 6.39** ($df = 2$, $p < 0.05$), which was greater than the tabulated value (5.99). Mothers in the age group of 21–26 years showed higher knowledge scores compared to younger and older groups.
- A **significant association** was also found with **type of family**. The **chi-square value was 7.33** ($df = 2$, $p < 0.05$). Mothers from nuclear families had comparatively higher knowledge scores, possibly due to higher independence in decision-making and interaction with healthcare services.
- **Educational qualification** was also significantly associated with knowledge level. The **chi-square value was 6.89** ($df = 2$, $p < 0.05$). Mothers with secondary or higher education had better pre-test knowledge than those with only primary education.

However, no significant association was observed between pre-test knowledge scores and **parity** ($\chi^2 = 0.89$, $p > 0.05$) or **source of information** ($\chi^2 = 5.12$, $p > 0.05$), indicating that prior childbirth experience or source of information did not significantly affect baseline knowledge in this study.

Thus, the **null hypothesis (H_{02}) was rejected** for age, family type, and education, and **accepted** for parity and source of information.

5. Discussion

This section interprets the major findings of the study in light of previous research and discusses implications for nursing education, practice, administration, and research.

6. Summary of Major Findings

The present study assessed the effectiveness of a **planned teaching program (PTP)** on knowledge regarding neonatal care among **30 postnatal mothers** in a selected community in Kolkata.

- **Demographic Profile:** The majority (56.6%) of participants were aged 21–26 years, 50% had secondary education, 100% were housewives, and 67% were primipara. A dominant proportion (90%) followed Islam. Most mothers (67%) received information on neonatal care from health workers.
- **Effectiveness of Planned Teaching Program:** The **mean pre-test knowledge score was 12.13**, which increased to **18.00 post-intervention**, showing a **mean difference of 5.87**. The **standard deviation (SD)** was 2.81 (pre-test) and 2.52 (post-test). The **calculated t-value was 8.63**, which was greater than the critical value at $p < 0.05$, indicating statistical significance.

- **Associations with Demographics:** Significant associations were observed between **pre-test knowledge scores** and variables such as **age** ($\chi^2 = 7.39$), **type of family** ($\chi^2 = 6.61$), and **educational qualification** ($\chi^2 = 7.39$) at $p < 0.05$.

Comparison with Related Studies

The findings of this study are in alignment with prior research indicating that **planned teaching interventions improve maternal knowledge** of neonatal care.

A study conducted by **Thomas Subini M⁹**, reported a significant improvement in knowledge scores post-intervention (pre-test: 17.34, post-test: 22.54) with a calculated **t-value of 12.54**, exceeding the critical value at $p < 0.05$, thus confirming the effectiveness of educational programs on neonatal care among urban postnatal mothers.

Another study conducted in Kolkata showed that **demographic variables such as age, education level, and income** were significantly associated with pre-test knowledge scores regarding menstrual hygiene, with chi-square values of **15.78**, **16.68**, and **11.67**, respectively¹⁰. These findings are consistent with the current study, which demonstrated similar associations with age, education, and type of family.

In contrast, a study conducted among adolescent girls in **Damoh, Madhya Pradesh¹¹**, reported **no significant association** between knowledge levels and demographic variables such as age ($\chi^2 = 2.69$), education ($\chi^2 = 5.45$), and family income ($\chi^2 = 3.65$), suggesting that context and population characteristics may influence outcomes.

Furthermore, a study in **urban Uttar Pradesh¹²** found no significant association between age ($\chi^2 = 4.65$), education ($\chi^2 = 9.45$), and income ($\chi^2 = 3.65$) with neonatal care knowledge, differing from the present study. This variation could be due to differing educational exposures, access to health services, and sample size.

7. Conclusion

The findings of this study clearly demonstrate that a planned teaching program is effective in enhancing the knowledge of postnatal mothers regarding neonatal care. There was a significant improvement in post-test knowledge scores following the intervention, with a marked mean difference and statistically significant t-value ($t = 8.63$, $p < 0.05$). The association between demographic factors—such as age, educational qualification, and type of family—and pre-test knowledge scores further supports the need for targeted educational strategies.

These results underscore the importance of structured, evidence-based teaching programs as a cost-effective and scalable approach for improving maternal understanding of neonatal care practices. The study suggests that empowering mothers through education can contribute significantly to neonatal health outcomes, particularly in resource-limited community settings. Future research with larger sample sizes and diverse populations is recommended to validate these

findings and explore the impact of such interventions on actual newborn care practices and neonatal health indicators.

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