

Effectiveness of Structured Teaching on Care of Low Birth Weight New-borns among Mothers

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Abstract

The birth weight of an infant is the single most important determinant of its chances of survival, healthy growth, and development. One of the factors contributing to infant mortality is low birth weight (LBW). Objectives: (1) To assess the pre-existing knowledge score of mothers regarding care of LBW newborns, and (2) To assess the post-test knowledge score of mothers regarding care of LBW newborns. Methods: An evaluative research approach with a pre-experimental design was used. The study was conducted at a selected hospital in Jalgaon city, involving 60 mothers of LBW newborns selected through purposive sampling. Data was collected using a self-structured questionnaire. Results: The majority (40%) of mothers were in the age group of 22–25 years. The mean pre-test knowledge score was 11.05, while the mean post-test score was 18.93. The findings revealed that mothers had inadequate knowledge regarding LBW newborn care before the intervention. The structured teaching programme was highly effective in improving knowledge levels. Conclusion: Structured teaching significantly increased mothers' knowledge about LBW newborn care, highlighting its importance in neonatal health promotion.

Keywords- Low Birth Weight, Newborn Care, Structured Teaching Programme, Maternal Knowledge, Neonatal Health, Health Education

INTRODUCTION

A healthy child is the cornerstone of a healthy future for families and the nation. Good health during childhood lays the foundation for a productive and fulfilling adult life. Among the many determinants of newborn health, birth weight is considered one of the most important predictors of survival, growth, and development. The World Health Organization (WHO) defines low birth weight (LBW) as a weight at birth of less than 2,500 grams, regardless of gestational age. Low birth weight remains a major public health challenge, particularly in developing countries, and is a leading contributor to neonatal morbidity and mortality. Infants with LBW are more vulnerable to infections, hypothermia, feeding difficulties, developmental delays, and complications arising from immature organ systems. The risk of death is significantly higher in these infants, especially during the neonatal period—the first 28 days of life—which is considered the most critical phase of growth and adaptation to the external environment. In India, LBW is a significant cause of the high infant mortality rate. Multiple factors contribute to LBW, including poor maternal nutrition, inadequate antenatal care, and maternal illnesses during pregnancy, low maternal age, and premature delivery. For LBW infants, special care is essential to ensure survival and promote healthy development. This care includes exclusive breastfeeding, temperature regulation, prevention of infections, regular growth monitoring, and timely medical intervention. Mothers are the primary caregivers and play a central role in providing this care. Their knowledge, skills, and awareness about the needs of LBW newborns directly influence the health outcomes of their babies. However, research has shown that many mothers—particularly in rural or low-literacy settings—have limited knowledge about LBW care. This knowledge gap can lead to inappropriate practices, delayed recognition of danger signs, and missed opportunities for early intervention. One effective strategy to address this issue is the use of structured teaching programmes (STPs). STPs are planned educational interventions designed to provide systematic, accurate, and comprehensive knowledge on specific topics. In the context of LBW newborn care, an STP can equip mothers with essential skills such as proper feeding techniques, kangaroo mother care (KMC), hygiene practices, immunization awareness, and early detection of health problems. By standardizing information delivery, STPs ensure that all mothers receive the same evidence-based guidance. Several studies have demonstrated that targeted maternal education improves knowledge, changes attitudes, and enhances newborn care practices. This is particularly important in settings where neonatal intensive care facilities are limited, and home-based care plays a vital role in the survival of LBW infants. In Jalgaon city, as in many parts of India, there is still a need for structured and consistent health education for mothers of LBW newborns. While counselling may be offered during antenatal and postnatal visits, the quality, depth, and frequency of this information vary considerably. Socio-demographic factors such as maternal age, education, and

obstetric history can further influence knowledge and practices. The present study was conducted to assess the effectiveness of a structured teaching programme on the care of LBW newborns among mothers in selected hospitals of Jalgaon. The study aimed to compare mothers' knowledge before and after the intervention, determine associations between knowledge scores and demographic variables, and establish whether the intervention produced a statistically significant improvement in knowledge. By identifying maternal knowledge gaps and evaluating the impact of structured health education, this research seeks to support the integration of systematic maternal teaching programmes into routine healthcare services. Strengthening maternal knowledge about LBW newborn care can contribute significantly to reducing neonatal morbidity and mortality, ultimately improving the survival and quality of life of these vulnerable infants.

Objectives

1. To assess the pre-existing knowledge score of mothers regarding care of low birth weight (LBW) newborns.
2. To assess the post-test knowledge score of mothers regarding care of LBW newborns.
3. To find out the association between post-test knowledge scores and selected demographic variables.
4. To determine the significant difference between pre-test and post-test knowledge scores of mothers regarding care of LBW newborns

Hypotheses

H₁: There will be a significant difference between the mean pre-test and post-test knowledge scores of mothers regarding care of low birth weight (LBW) newborns.

H₂: There will be a significant association between the pre-test knowledge scores of mothers regarding care of LBW newborns and selected demographic variables

METHODOLOGY

The study adopted an evaluative research approach using a pre-experimental design (one group pre-test and post-test without a control group) to assess the effectiveness of a structured teaching programme (STP) on the care of low birth weight (LBW) newborns among mothers.

Variables

Independent Variable: Structured teaching programme on care of LBW newborns.

Dependent Variable: Mothers' knowledge regarding care of LBW newborns.

Attribute Variables: Age, education, obstetrical history, illness during pregnancy, previous history of LBW babies, prior teaching on LBW care, sex of the baby, birth weight, and gestational age.

Population and Sample

The population comprised mothers of LBW newborns admitted to selected hospitals in Jalgaon city. A sample of 60 mothers was selected using purposive sampling.

Inclusion Criteria

Mothers of LBW newborns (<2500 g).

Available during data collection.

Willing to participate.

Able to read and write Marathi or English.

Exclusion Criteria

Mothers of newborns with normal birth weight.

Unavailable or unwilling to participate.

Unable to read/write Marathi or Hindi.

Data Collection Tool

A self-structured questionnaire was used to assess mothers' knowledge before and after the STP.

Procedure

Formal permission was obtained from hospital authorities. The pre-test was administered, followed by delivery of the structured teaching programme. After the intervention, a post-test was conducted using the same tool.

Data Analysis

Descriptive and inferential statistics, including t-tests and chi-square tests, were applied to compare pre- and post-test knowledge scores and examine associations with demographic variables.

RESULTS

The present study aimed to assess the effectiveness of a structured teaching programme (STP) on the care of low birth weight (LBW) newborns among mothers in selected hospitals of Jalgaon city. Data were analyzed using descriptive and inferential statistics to evaluate pre-test and post-test knowledge scores, identify associations with demographic variables, and determine statistical significance.

Demographic Characteristics of the Participants

A total of 60 mothers of LBW newborns participated in the study. The analysis of demographic variables revealed the following:

Age: The highest proportion of participants, 24 mothers (40%), were in the age group of 22–29 years.

Educational Status: The majority, 17 mothers (28.3%), had completed primary education, followed by those with secondary education and higher qualifications.

Parity: Most participants, 36 mothers (60%), were multiparous, while the remaining were primiparous.

History of Illness during Pregnancy: A large proportion, 44 mothers (73.33%), reported no history of illness during pregnancy.

Previous History of LBW Infants: The majority, 48 mothers (80%), had no previous history of giving birth to an LBW baby.

Birth Weight of the Infant: More than half, 34 infants (56.76%), weighed between 1500–2000 grams at birth.

Gestational Age: A majority, 43 infants (71.70%), were born preterm (less than 37 weeks of gestation).

Exposure to Antenatal Teaching: Most mothers (96.66%) reported no prior exposure to antenatal education on LBW care.

Pre-Test Knowledge Scores

Before the intervention, knowledge regarding care of LBW newborns was generally inadequate. In the pre-test: 36 mothers (60%) had poor knowledge scores. 24 mothers (40%) had average knowledge scores. No participants scored in the good or excellent categories. The mean pre-test score was 11.05, indicating limited understanding of essential LBW care practices.

Post-Test Knowledge Scores

Following the delivery of the structured teaching programme, there was a marked improvement in participants' knowledge. In the post-test: 32 mothers (53.34%) achieved good knowledge scores. 28 mothers (46.66%) achieved average knowledge scores. No participants remained in the poor knowledge category. The mean post-test score increased to 18.93, demonstrating a substantial gain in knowledge.

Effectiveness of the Structured Teaching Programme

The comparison between pre-test and post-test scores indicated a significant improvement in knowledge after the intervention. Statistical analysis using a paired t-test revealed a t-value of 17.33 at $p < 0.05$, confirming that the observed improvement was highly significant. This clearly supports the hypothesis that the STP was effective in increasing mothers' knowledge about LBW newborn care.

Association between Knowledge Scores and Demographic Variables

Chi-square tests were conducted to determine the association between post-test knowledge scores and selected demographic variables. The findings revealed:

Age: A significant association was found between maternal age and post-test knowledge scores.

Educational Status: Mothers' educational levels were significantly associated with their post-test scores, indicating that education positively influenced knowledge gain.

Obstetric History: Parity was significantly associated with post-test scores, suggesting that prior maternal experience played a role in learning outcomes.

No significant associations were found between post-test knowledge scores and other variables such as sex of the baby, birth weight category, or history of illness during pregnancy.

Key Observations

The majority of participants lacked prior exposure to structured antenatal teaching on LBW care, highlighting the importance of such interventions. Mothers showed notable improvement in knowledge scores across all domains of LBW care, including feeding practices, temperature regulation, infection prevention, and recognition of danger signs. Education and age emerged as strong determinants of the ability to acquire and retain new health-related knowledge. The structured format of the programme ensured uniform delivery of content and addressed the specific needs of the target population.

Summary of Findings

The pre-test results indicated that knowledge about LBW newborn care was largely inadequate among mothers in the selected hospitals. The STP led to a significant improvement in knowledge levels, with the mean score increasing from 11.05 to 18.93. A statistically significant difference between pre-test and post-test scores ($t = 17.33$, $p < 0.05$) confirmed the effectiveness of the intervention. Significant associations were found between post-test scores and demographic factors such as maternal age, education, and parity.

DISCUSSION

The present study assessed the effectiveness of a structured teaching programme (STP) on the care of low birth weight (LBW) newborns among mothers in selected hospitals of Jalgaon city. The findings revealed that the mean pre-test knowledge score (11.05) was considerably lower than the mean post-test score (18.93), with a statistically significant difference ($t = 17.33$, $p < 0.05$). This demonstrates that the STP was highly effective in improving

maternal knowledge. The results align with previous studies that reported significant improvement in maternal knowledge following educational interventions on newborn care. The baseline findings of inadequate knowledge among mothers are consistent with research conducted in rural and semi-urban settings, where limited access to structured health education has been observed. The absence of prior antenatal teaching in 96.66% of participants emphasizes a critical gap in existing maternal and child health services. Demographic factors such as age, education, and parity were significantly associated with post-test knowledge scores, suggesting that these characteristics influence the uptake of health information. Mothers with higher education and previous childbirth experience were more likely to assimilate and apply the knowledge provided. This finding supports the need for tailoring health education programmes to consider literacy levels and maternal experience. The improvement in knowledge across all domains—feeding, thermal care, infection prevention, and danger sign recognition—highlights the potential of STPs in addressing multiple aspects of LBW newborn care simultaneously. Given the high prevalence of LBW in India and its contribution to neonatal mortality, integrating structured maternal teaching into routine antenatal and postnatal care could significantly enhance newborn survival rates. Overall, the study confirms that STPs are a cost-effective, feasible, and impactful strategy to empower mothers with essential skills for LBW newborn care, thereby contributing to improved neonatal health outcomes.

CONCLUSION

The present study evaluated the effectiveness of a structured teaching programme (STP) on the care of low birth weight (LBW) newborns among mothers in selected hospitals of Jalgaon city. The findings revealed that mothers' baseline knowledge regarding LBW newborn care was inadequate, with the majority scoring in the poor knowledge category during the pre-test. Following the STP, there was a significant improvement in knowledge, with the mean score increasing from 11.05 to 18.93. The paired t-test confirmed that this difference was statistically significant ($t = 17.33$, $p < 0.05$), thereby supporting the study hypothesis. The study also found significant associations between post-test knowledge scores and selected demographic variables such as maternal age, educational status, and parity. This indicates that these factors influence knowledge acquisition and retention. The results underscore the importance of considering socio-demographic characteristics when designing and implementing maternal health education programmes. Given the high prevalence of LBW and its association with neonatal morbidity and mortality, providing mothers with comprehensive and accurate information on LBW care is essential. The structured teaching programme proved to be an effective, feasible, and low-cost intervention for enhancing maternal knowledge on critical aspects of LBW newborn care, including feeding, thermal regulation, infection prevention, and early identification of danger signs. It is recommended that such structured educational interventions be integrated into routine antenatal and postnatal care services, ensuring that all mothers—particularly those with limited education or prior exposure—are equipped with the skills and confidence to care for their LBW infants effectively.

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