



EFFECTIVENESS OF PLANNED TEACHING PROGRAM ON KNOWLEDGE REGARDING CARE OF BABY IN INCUBATOR AMONG NURSING STUDENTS OF SELECTED NURSING COLLEGES: A QUASI-EXPERIMENTAL STUDY

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ABSTRACT

A neonatal incubator is a vital medical device that provides thermal regulation, controlled humidity, and oxygen support for premature and ill newborns. Proper knowledge regarding incubator care among nursing students is essential to ensure safe and effective neonatal care. **Objectives:** The study aimed to evaluate the effectiveness of a planned teaching program on knowledge regarding care of baby in incubator among nursing students of selected nursing colleges. The secondary objectives were to assess the existing knowledge and to determine the association between post-test knowledge scores and selected demographic variables. **Methodology:** A quantitative research approach with a quasi-experimental one-group pre-test post-test design was adopted. The study was conducted among 100 nursing students of 5th and 6th semester selected through non-probability convenience sampling. Data were collected using a structured knowledge questionnaire. Reliability of the tool was established using Karl Pearson's correlation coefficient ($r = 0.8418$). Descriptive and inferential statistics were used for data analysis. **Results:** In the pre-test, 43% of students had average knowledge, 29% had poor knowledge, and 28% had good knowledge regarding care of baby in incubator, with a mean score of 11.63 ± 5.036 . Post-test findings showed marked improvement, with 69% of students achieving excellent knowledge and 31% good knowledge, with a mean score of 24.86 ± 3.752 . A statistically significant improvement in knowledge was observed following the planned teaching program. Religion showed a significant association with post-test knowledge scores. **Conclusion:** The planned teaching program was effective in significantly improving the knowledge of nursing students regarding care of baby in incubator. Structured educational interventions can enhance neonatal care knowledge and strengthen clinical preparedness among nursing students.

KEYWORDS

Planned Teaching Program, Knowledge, Care Of Baby, Incubator, Nursing Students.

INTRODUCTION

"A child is precious and beautiful

A source of joy and happiness

A focus of love and care

A subject of dream for the future" - Jawaharlal Nehru

A neonatal incubator is a vital medical device that provides thermal stability, regulated humidity, and controlled oxygen levels for premature and ill newborns, thereby creating an optimal environment for survival and growth. Advances in incubator technology have enabled precise regulation of temperature, humidity, and oxygen through microprocessor-based systems; however, challenges such as heat loss, noise exposure, and maintenance requirements continue to affect neonatal outcomes.¹⁻³

Neonatal mortality remains a significant global health concern, with approximately 38% of child deaths occurring during the neonatal period. A substantial proportion of these deaths take place within the first week of life, particularly on the first day, and are largely concentrated in low- and middle-income countries, including South-Central Asia.⁴ In India, more than half of infant deaths occur during the neonatal period, emphasizing the critical need for effective newborn care practices during and immediately after birth.⁵

Nurses play a central role in providing immediate and ongoing care to newborns, including those requiring incubator support. Inadequate knowledge and skills related to incubator care can contribute to preventable neonatal morbidity and mortality. Continuous education and training are therefore essential to enhance nurses' competence in neonatal care.⁶⁻⁷ Strengthening nursing students' knowledge regarding care of baby in incubator through structured educational interventions is vital to ensure safe, effective, and quality neonatal care.

Background:

The infant incubator was first developed in the late nineteenth century to improve the survival of premature and sick newborns. Stephane Tarnier introduced the first closed incubator model in 1880, laying the foundation for modern neonatal care. Subsequent advancements by pioneers such as Pierre Budin and Julius Hess led to the integration of temperature regulation, oxygen control, and infection prevention into neonatal practice. Over the decades, incubator technology has evolved significantly, with increased emphasis on thermal stability, oxygen regulation, and family-centered neonatal care.⁸⁻¹⁰

Despite technological progress, effective neonatal outcomes largely

depend on the knowledge and skills of healthcare providers. Evidence from descriptive studies conducted among nursing students in India has shown that a majority possess poor to moderate knowledge regarding care of newborns in incubators. Studies from Tumkur and Tirupati reported inadequate knowledge levels and significant associations with selected demographic variables, highlighting the need for structured educational interventions.¹¹⁻¹² These findings emphasize the importance of planned teaching programs to enhance nursing students' knowledge and competence in incubator care.

NEED FOR THE STUDY

Malnutrition among school-going children continues Immediate and appropriate newborn care is a crucial determinant of neonatal survival, and nurses play a pivotal role in providing such care. In India, the shortage of trained nurses highlights the need for strengthening knowledge and skills during the student period itself. Despite advances in neonatal care, inadequate knowledge regarding care of baby in incubator among nursing students may adversely affect newborn outcomes.¹³

Globally, nearly 75% of neonatal deaths occur within the first week of life, with a significant proportion happening within the first 24 hours. The neonatal period accounts for a substantial share of under-five mortality, particularly in developing countries, where preventable causes such as infections, asphyxia, prematurity, and inadequate newborn care remain major contributors.¹⁴⁻¹⁶

Evidence from previous studies conducted in India indicates gaps in knowledge and practices related to newborn and incubator care among both mothers and nursing students. While several studies have assessed knowledge levels, limited interventional research has been undertaken to evaluate the effectiveness of planned teaching programs.¹⁷⁻¹⁸ Therefore, this study was undertaken to assess the effectiveness of a planned teaching program in improving nursing students' knowledge regarding care of baby in incubator.

Gowri M. et al. (2023) conducted a pre-experimental one-group pre-test post-test study to assess the effectiveness of a structured teaching programme on knowledge regarding immediate newborn care among 3rd year B.Sc. Nursing students in a selected nursing college in Bangalore. A total of 60 nursing students were selected using non-probability purposive sampling technique. The findings revealed that the mean pre-test knowledge score was 21.82 ± 2.26 , which significantly increased to 38.4 ± 2.81 in the post-test, showing an overall knowledge enhancement of 16.58 ± 0.55 . A significant

association was found between pre-test knowledge levels and selected socio-demographic variables such as area of residence and source of information ($\chi^2 = 13.30$, $p \leq 0.05$). The study concluded that the structured teaching programme was effective in improving nursing students' knowledge regarding immediate newborn care

OBJECTIVE OF THE STUDY

PRIMARY OBJECTIVE:

1. To evaluate the effectiveness of planned teaching program on knowledge regarding care of baby in incubator among nursing students of selected nursing colleges

SECONDARY OBJECTIVES:

1. To assess the existing knowledge regarding care of baby in incubator among nursing students of selected nursing colleges.
2. To associate the post-test knowledge score with their selected demographic variables.

RESEARCH METHOD AND MATERIAL

A quantitative research approach was adopted for the present study, employing a quasi-experimental one-group pre-test post-test research design. The study was conducted in selected nursing colleges, and the population comprised nursing students studying in the 5th and 6th semester. A total of 100 nursing students were selected using a non-probability convenience sampling technique. Data were collected using a structured knowledge questionnaire to assess knowledge regarding care of baby in incubator. The reliability of the tool was established using Karl Pearson's correlation coefficient ($r = 0.8418$). A pilot study was conducted among 10 nursing students prior to the main study to assess feasibility. Following informed consent, a pre-test was administered, after which the planned teaching program was implemented. A post-test was conducted using the same questionnaire to evaluate the effectiveness of the intervention. Data were analyzed using descriptive and inferential statistics. Ethical approval was obtained, and confidentiality and anonymity of the participants were maintained throughout the study.¹⁹

RESULTS

The results of the study revealed a significant improvement in the knowledge of nursing students regarding care of baby in incubator following the planned teaching program. The majority of participants were aged 21–23 years (54%), female (86%), belonged to Buddhist religion (43%), were not posted in the pediatric department (55%), had not handled a baby in an incubator during clinical posting (63%), and had not received prior knowledge regarding care of baby in incubator (55%). In the pre-test, 43% of students had average knowledge, 29% had poor knowledge, and 28% had good knowledge, with a mean knowledge score of 11.63 ± 5.036 . In the post-test, a marked improvement was observed, with 69% of students achieving excellent knowledge and 31% attaining good knowledge, and none having poor or average knowledge. The mean post-test knowledge score increased to 24.86 ± 3.752 , indicating a substantial gain in knowledge after the intervention. A statistically significant association was found between post-test knowledge scores and religion, while no significant association was observed with other selected demographic variables.

DISCUSSION

The findings of the present study demonstrated that the planned teaching program was effective in improving the knowledge of nursing students regarding care of baby in incubator. In the pre-test, most of the nursing students had poor to average knowledge, indicating a baseline deficiency in understanding incubator care, which may be attributed to limited clinical exposure and lack of prior training. Following the implementation of the planned teaching program, a substantial improvement was observed in post-test knowledge scores, with the majority of students attaining excellent knowledge levels. The marked increase in mean post-test scores compared to pre-test scores confirms the effectiveness of the teaching intervention. The association of post-test knowledge with religion suggests that certain demographic factors may influence learning outcomes, while the lack of association with other variables indicates that the teaching program was uniformly effective across most demographic groups. Overall, the study highlights that structured and planned teaching programs play a crucial role in enhancing nursing students' knowledge and preparedness for providing safe and effective care to newborns in incubators.

CONCLUSION

The study concluded that the planned teaching program was effective

in significantly improving the knowledge of nursing students regarding care of baby in incubator. The increase in post-test knowledge scores compared to pre-test scores indicates that structured teaching interventions enhance students' understanding and preparedness for neonatal incubator care. The findings suggest that planned teaching programs can be an effective strategy to strengthen nursing students' knowledge and support safe and quality neonatal care practices.

RECOMMENDATION

The findings of the study suggest that planned teaching programs should be implemented to enhance nursing students' knowledge regarding care of baby in incubator. Such educational interventions may be incorporated into nursing education to strengthen students' understanding and improve the quality of neonatal care practices.

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