International Journal of Nursing and Health Research
www.nursingjournal.in
Online ISSN: 2664-6420
Received: 09-05-2026, Accepted: 09-06-2026, Published: 24-06-2026
Volume 8, Issue 2, 2026, Page No. 111-115

Effectiveness of simulation training on essential newborn care skills among staff nurses working at Triveni Health Care, Madhya Pradesh

Leena B M[1], Dr. Pratiksha Patrick[2]
[1] Department of Nursing, Malwanchal University, Indore, Madhya Pradesh, India
[2] Research Supervisor, Department of Nursing, Malwanchal University, Indore, Madhya Pradesh, India
DOI: https://doi.org/10.66856/ijnhr.2026.8.2.8047

Abstract
Background: Essential newborn care (ENC) is a cornerstone of neonatal survival and quality nursing practice. Simulation-based training offers an effective approach to improve clinical competence by providing realistic learning experiences without compromising patient safety.
Aim: To evaluate the effectiveness of simulation training on essential newborn care skills among staff nurses working at Triveni Health Care, Madhya Pradesh.
Objectives- To evaluate the effectiveness of simulation training by comparing pre-test and post-test skill scores.
Methodology: A quantitative pre-experimental one-group pre-test and post-test design was adopted. Thirty staff nurses were selected using convenience sampling. Skills were assessed using a structured observational checklist consisting of 40 items before and after simulation training. Descriptive and inferential statistics were used for analysis.
Results: The mean pre-test score was 22.80 ± 3.12, while the mean post-test score was 35.73 ± 2.41. The calculated paired t-value was 20.84 ($p < .001$), indicating a statistically significant improvement following simulation training. Educational qualification showed a significant association with post-test skill scores.
Conclusion: Simulation training significantly improved essential newborn care skills among staff nurses. Regular simulation-based competency training should be incorporated into continuing nursing education programs.

Keywords: Simulation training, essential newborn care, staff nurses, skill assessment, neonatal care

Introduction

The neonatal period, defined as the first 28 days of life, is the most critical stage in a child's survival and development. During this period, newborns are highly vulnerable to complications such as birth asphyxia, prematurity, hypothermia, neonatal sepsis, and feeding difficulties. Essential Newborn Care (ENC) comprises evidence-based interventions that include immediate drying and warming, delayed cord clamping, skin-to-skin contact, early initiation of breastfeeding, hygienic cord care, infection prevention, neonatal resuscitation when required, and continuous monitoring of the newborn's condition. Proper implementation of these interventions substantially reduces neonatal morbidity and mortality.

According to the World Health Organization (WHO), approximately 2.3 million newborns die each year worldwide, with nearly half of all deaths among children under five occurring during the neonatal period. India contributes a significant proportion of global neonatal deaths despite considerable improvements in maternal and child health services. The major causes of neonatal mortality include prematurity, birth asphyxia, infections, congenital anomalies, and complications during labor and delivery. Many of these deaths are preventable through timely and appropriate essential newborn care provided by skilled healthcare professionals.

Staff nurses are the primary healthcare providers responsible for immediate newborn assessment and management in labor rooms, neonatal intensive care units, maternity wards, and postnatal units. Their competence directly influences the quality of neonatal care and patient outcomes. However, many nurses have limited opportunities to practice life-saving neonatal procedures due to inadequate clinical exposure, lack of continuing education, and insufficient hands-on training.

Simulation-based training has emerged as an innovative educational strategy in nursing education and clinical practice. It allows healthcare professionals to practice clinical procedures in a realistic, risk-free environment using mannequins, task trainers, and simulated clinical scenarios. Simulation enhances psychomotor skills, clinical decision-making, teamwork, communication, confidence, and critical thinking while ensuring patient safety. Studies have consistently demonstrated that simulation-based education significantly improves nurses' competence in neonatal resuscitation and essential newborn care.

Regular competency-based simulation training enables staff nurses to identify neonatal complications promptly, perform essential interventions accurately, and improve adherence to standard newborn care protocols. Integrating simulation into in-service education programs is expected to enhance the quality of neonatal nursing care, reduce preventable neonatal complications, and contribute to achieving national and global newborn survival goals.

Therefore, the present study was undertaken to evaluate the effectiveness of simulation training on essential newborn care skills among staff nurses working at Triveni Health Care, Madhya Pradesh.

Need for the Study

The neonatal period remains the most vulnerable phase of life, accounting for a substantial proportion of infant mortality worldwide. Although advances in maternal and newborn healthcare have significantly improved survival

rates, preventable neonatal deaths continue to occur due to inadequate implementation of evidence-based essential newborn care practices. Many of these deaths can be prevented if healthcare professionals possess adequate knowledge, clinical competence, and practical skills.

India has made remarkable progress in reducing neonatal mortality; however, the burden remains considerable because of high delivery rates, resource constraints, and variability in nursing competency. Staff nurses are responsible for providing immediate newborn care immediately after birth, making their clinical competence essential for ensuring positive neonatal outcomes.

Traditional classroom teaching often provides theoretical knowledge but offers limited opportunities for repeated hands-on practice. In contrast, simulation-based education creates a safe learning environment where nurses can repeatedly practice essential newborn care procedures without risking patient safety. It enables learners to improve technical skills, clinical judgment, confidence, teamwork, and communication.

Hence, the investigator considered it necessary to conduct the present study to evaluate the effectiveness of simulation training on essential newborn care skills among staff nurses working at Triveni Health Care, Jabalpur Madhya Pradesh.

Hypotheses

H_1: There will be a statistically significant difference between the mean pre-test and post-test essential newborn care skill scores of staff nurses after simulation training at the 0.05 level of significance.

H_2: There will be a statistically significant association between post-test essential newborn care skill scores and selected demographic variables (age, educational qualification, clinical experience, and previous newborn care training) among staff nurses at the 0.05 level of significance.

Null Hypotheses

H_{01}: There will be no statistically significant difference between the mean pre-test and post-test essential newborn care skill scores among staff nurses after simulation training.

H_{02}: There will be no statistically significant association between post-test essential newborn care skill scores and selected demographic variables among staff nurses.

Methodology

The present study adopted a quantitative research approach using a pre-experimental one-group pre-test and post-test research design to evaluate the effectiveness of simulation training on essential newborn care skills among staff nurses working at Triveni Health Care, Unit of Jamdar Hospital Jabalpur Madhya Pradesh. This design was selected because it allows the investigator to assess the participants' baseline skill level before the intervention and compare it with their performance after the simulation training to determine the effectiveness of the educational program.

The study was conducted at Triveni Health Care, Jabalpur Madhya Pradesh, a tertiary healthcare institution providing comprehensive maternal and neonatal healthcare services. The target population comprised all registered staff nurses working in the labor room, maternity ward, neonatal intensive care unit (NICU), and pediatric units of the hospital. Staff nurses who were registered with the State Nursing Council, had at least six months of clinical experience, were willing to participate, and were available during the period of data collection were included in the study. Nurses who were on leave, undergoing specialized neonatal training during the study period, or unwilling to participate were excluded.

A non-probability convenience sampling technique was employed to select 30 staff nurses who fulfilled the inclusion criteria. Prior to data collection, ethical approval was obtained from the Institutional Ethics Committee, and written permission was secured from the hospital administration. Written informed consent was obtained from each participant after explaining the purpose and procedure of the study. Confidentiality and anonymity of all participants were maintained throughout the research process.

The research instrument consisted of two sections. Section A included a structured demographic questionnaire comprising four variables: age, educational qualification, years of clinical experience, and previous training in essential newborn care. Section B consisted of a structured observational checklist containing 40 skill items related to essential newborn care practices, including preparation for newborn care, immediate assessment of the newborn, thermal protection, cord care, initiation of breastfeeding, infection prevention, neonatal resuscitation preparedness, and postnatal monitoring. Each correctly performed step was awarded one mark, giving a maximum possible score of 40. Skill scores were classified as poor (0–20), average (21–30), and good (31–40).

Before the main study, the instrument was validated by experts in pediatric nursing, obstetric nursing, and nursing education to establish content validity. A pilot study was conducted among five staff nurses in another hospital to determine the feasibility of the study and the clarity of the tool. The reliability of the observational checklist was established using the inter-rater reliability method, yielding a reliability coefficient of 0.89, indicating that the instrument was highly reliable.

Data collection was carried out over a period of four weeks. On the first day, participants completed the demographic questionnaire, followed by the pre-test assessment of their essential newborn care skills using the structured observational checklist in a simulated clinical environment. After the pre-test, participants attended a simulation-based training program lasting approximately two hours.

Seven days after the intervention, the post-test was conducted using the same structured observational checklist to assess improvement in essential newborn care skills. The collected data were coded, organized, and analyzed using descriptive and inferential statistics. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize demographic characteristics and skill scores. Inferential statistics included the paired t-test to compare pre-test and post-test mean scores and the Chi-square test to determine the association between post-test skill scores and selected demographic variables. Statistical significance was established at the 0.05 level of significance ($p < .05$).

Data Analysis

Section I: Demographic Characteristics (N = 30)

Table 1: Distribution According to Age

Age (Years)	Frequency	Percentage
21–25	8	26.7
26–30	12	40.0
31–35	7	23.3
Above 35	3	10.0

Table 1 shows that out of 30 staff nurses, 12 (40.0%) belonged to the 26–30 years age group, which constituted the largest proportion of the sample. Eight (26.7%) participants were in the 21–25 years age group, 7 (23.3%) were between 31–35 years, and only 3 (10.0%) were above 35 years of age. The findings indicate that the majority of the staff nurses were young adults between 26 and 30 years of age.

Table 2: Educational Qualification

Qualification	Frequency	Percentage
GNM	10	33.3
B.Sc. Nursing	16	53.3
Post Basic B.Sc.	4	13.4

Table 2 reveals that 16 (53.3%) staff nurses had completed B.Sc. Nursing, representing the highest proportion of participants. Ten (33.3%) participants had completed GNM, while 4 (13.4%) had Post Basic B.Sc. Nursing qualifications. The findings suggest that more than half of the participants possessed a bachelor's degree in nursing.

Table 3: Clinical Experience

Experience	Frequency	Percentage
<2 Years	9	30.0
2–5 Years	12	40.0
6–10 Years	6	20.0
>10 Years	3	10.0

Table 3 indicates that 12 (40.0%) staff nurses had 2–5 years of clinical experience, followed by 9 (30.0%) with less than 2 years of experience. Six (20.0%) participants had 6–10 years of experience, whereas only 3 (10.0%) had more than 10 years of clinical experience. This indicates that the majority of the participants had moderate clinical experience.

Table 4: Previous Training on Newborn Care

Previous Training	Frequency	Percentage
Yes	11	36.7
No	19	63.3

Table 4 shows that 19 (63.3%) staff nurses had not received any previous training on essential newborn care, whereas only 11 (36.7%) had attended such training programs. This finding indicates that most participants had limited prior exposure to formal newborn care training, highlighting the need for simulation-based educational interventions.

Section II: Skill Scores

Table 5: Pre-test Skill Level

Skill Level	Score	Frequency	Percentage
Poor	0–20	7	23.3
Average	21–30	20	66.7
Good	31–40	3	10.0

Table 5 demonstrates that before the simulation training, 20 (66.7%) staff nurses had an average level of essential newborn care skills. Seven (23.3%) participants demonstrated poor skills, while only 3 (10.0%) exhibited good skills. These findings indicate that the majority of staff nurses required further skill enhancement before the educational intervention.

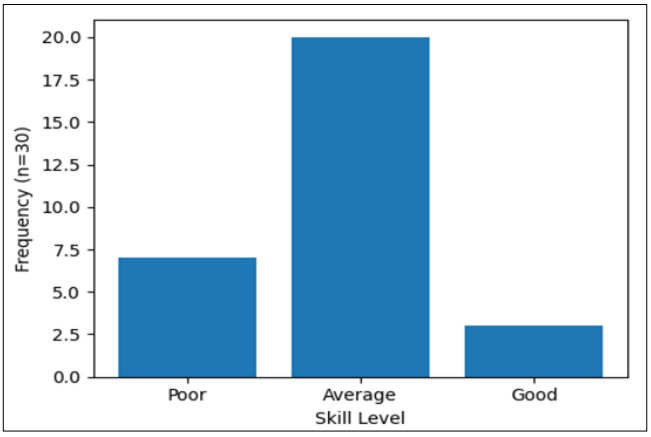

Fig 1: bar diagram showing Pre-test Skill Level

Table 6: Post-test Skill Level

Skill Level	Score	Frequency	Percentage
Poor	0–20	0	0
Average	21–30	5	16.7
Good	31–40	25	83.3

Table 6 reveals a marked improvement in skill levels following simulation training. Twenty-five (83.3%) staff nurses achieved good skill levels, while 5 (16.7%) demonstrated average skills. None of the participants remained in the poor skill category after the intervention. This indicates that simulation training substantially improved the essential newborn care skills of the participants.

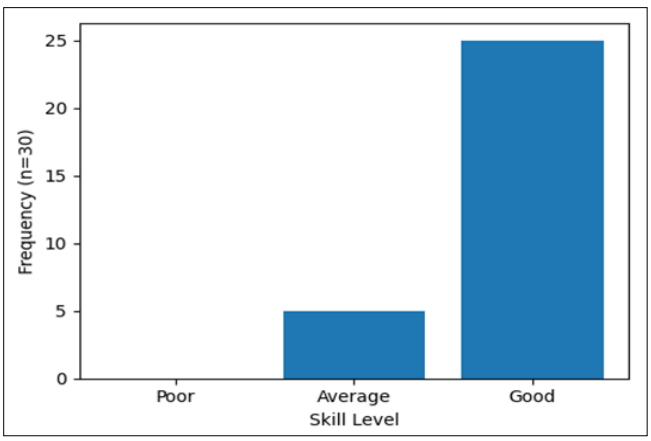

Fig 2: Bar diagram showing Post-test Skill Level

Table 7: Comparison of Pre-test and Post-test Scores

Test	Mean	SD	Mean Difference	Paired t	p-value
Pre-test	22.80	3.12	12.93	20.84	<.001
Post-test	35.73	2.41			

Table 7 compares the pre-test and post-test mean skill scores of the participants. The mean pre-test score was 22.80 ± 3.12, whereas the mean post-test score increased to 35.73 ± 2.41, with a mean difference of 12.93. The calculated paired t-value of 20.84 was statistically significant at $p < .001$, indicating that simulation training produced a highly significant improvement in the essential newborn care skills of staff nurses. Therefore, the research hypothesis (H_1) was accepted.

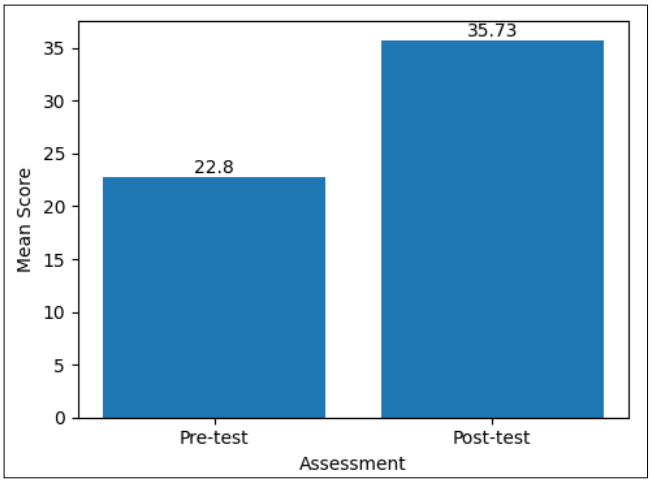

Fig 3: Bar diagram showing Comparison of Pre-test and Post-test Scores

Section III Association between Post-test Skills and Demographic Variables

Table 8: Association between Post-test Skills and Demographic Variables

Variable	χ^2	df	p-value	Interpretation
Age	2.45	3	.48	Not Significant
Educational Qualification	8.26	2	.016	Significant
Clinical Experience	4.18	3	.24	Not Significant
Previous Training	5.31	1	.021	Significant

Table 8 shows the association between post-test skill scores and selected demographic variables. There was no statistically significant association between post-test skill scores and age ($\chi^2 = 2.45$, $p = .48$) or clinical experience ($\chi^2 = 4.18$, $p = .24$). However, educational qualification ($\chi^2 = 8.26$, $p = .016$) and previous training on essential newborn care ($\chi^2 = 5.31$, $p = .021$) showed statistically significant associations with post-test skill scores at the 0.05 level of significance. These findings suggest that staff nurses with higher educational qualifications and previous exposure to newborn care training achieved better post-test performance following simulation training.

Major Findings

The major findings of the study are summarized as follows:

Demographic Characteristics

- Out of 30 staff nurses, 12 (40.0%) belonged to the 26–30 years age group, while 8 (26.7%) were 21–25 years, 7 (23.3%) were 31–35 years, and 3 (10.0%) were above 35 years.
- Regarding educational qualification, 16 (53.3%) had completed B.Sc. Nursing, 10 (33.3%) were GNM qualified, and 4 (13.4%) had completed Post Basic B.Sc. Nursing.
- In terms of clinical experience, 12 (40.0%) had 2–5 years of experience, 9 (30.0%) had less than 2 years, 6 (20.0%) had 6–10 years, and 3 (10.0%) had more than 10 years of experience.
- Nineteen (63.3%) staff nurses had no previous training in essential newborn care, whereas 11 (36.7%) had attended previous training programs.

Findings Related to Essential Newborn Care Skills

- During the pre-test, 20 (66.7%) staff nurses demonstrated an average level of essential newborn care skills, 7 (23.3%) had poor skills, and only 3 (10.0%) had good skills.
- During the post-test, 25 (83.3%) staff nurses achieved good skill levels, while 5 (16.7%) demonstrated average skills. None of the participants remained in the poor skill category after simulation training.
- The mean pre-test skill score was 22.80 ± 3.12, whereas the mean post-test skill score increased to 35.73 ± 2.41.
- The calculated paired t-value was 20.84 ($p < 0.001$), indicating a highly statistically significant improvement in essential newborn care skills following simulation training.

Findings Related to Association

- Educational qualification ($\chi^2 = 8.26$, $p = 0.016$) showed a statistically significant association with post-test skill scores.
- Previous newborn care training ($\chi^2 = 5.31$, $p = 0.021$) also demonstrated a statistically significant association with post-test skill scores.
- No statistically significant association was found between post-test skill scores and age ($p = 0.48$) or clinical experience ($p = 0.24$).

Results

The findings of the present study demonstrated that simulation-based training was highly effective in improving the essential newborn care skills of staff nurses working at Triveni Health Care, unit of Jamdar Hospital Jabalpur Madhya Pradesh. Before the intervention, the majority of participants exhibited average levels of clinical skills, with a considerable proportion demonstrating poor competency. Following the simulation training, there was a marked improvement in participants' performance, as evidenced by a significant increase in the mean post-test skill score compared with the mean pre-test score.

The paired t-test revealed a statistically highly significant difference between the pre-test and post-test scores ($t = 20.84$, $p < 0.001$), confirming the effectiveness of the simulation-based educational intervention. Furthermore, educational qualification and previous newborn care training significantly influenced post-test performance, whereas age and years of clinical experience were not significantly associated with skill improvement. Overall, the findings indicate that simulation-based education is an effective strategy for enhancing essential newborn care competencies among staff nurses.

Conclusion

The present study concluded that simulation training is an effective educational intervention for improving the essential newborn care skills of staff nurses. The findings demonstrated a statistically significant improvement in participants' practical competency following the simulation-based training program. The intervention enabled staff nurses to perform essential newborn care procedures more accurately, confidently, and in accordance with recommended clinical guidelines.

Simulation-based education provides a safe, realistic, and learner-centered environment that enhances psychomotor skills, clinical decision-making, communication, and teamwork without compromising patient safety. The study also highlighted that nurses with higher educational qualifications and previous newborn care training achieved better post-test performance.

Therefore, simulation-based training should be incorporated into regular in-service education programs, orientation training for newly appointed nurses, and continuing nursing education activities to maintain competency in essential newborn care. Periodic simulation drills and competency assessments are recommended to sustain clinical skills and improve the quality of neonatal healthcare services.

Limitations

The study had the following limitations:

1. The study was conducted among only 30 staff nurses, which limits the generalizability of the findings.
2. The research was confined to Triveni Health Care, Jabalpur Madhya Pradesh; therefore, the findings may not be applicable to other hospitals or healthcare settings.

References

1. Manoharam PB, Balusamy P. Newborn care: Effectiveness of simulation training for staff nurses. International Journal of Health Sciences,2022:6(1):1739–1748. https://doi.org/10.53730/ijhs.v6nS1.4934
2. Umoren RA, Ezeaka C, Berkelhamer SK, Hippe DS, Asangansi IE, Cook MW, et al. Essential newborn care virtual simulations for skills retention in newborn care. JAMA Network Open,2025:8(2):2460565. https://doi.org/10.1001/jamanetworkopen.2024.60565
3. Vail B, Morgan MC, Spindler H, Christmas A, Cohen SR, Walker DM. The power of practice: Simulation training improving the quality of neonatal resuscitation skills in Bihar, India. BMC Pediatrics,2018:18:291.
4. World Health Organization. WHO recommendations on newborn health: Guidelines approved by the WHO Guidelines Review Committee. World Health Organization, 2022.
5. World Health Organization. Newborn health, 2023. https://www.who.int/health-topics/newborn-health
6. American Academy of Pediatrics, American Heart Association. Textbook of neonatal resuscitation (8th ed.). American Academy of Pediatrics, 2021.
7. American Academy of Pediatrics. Helping Babies Breathe: Provider guide (2nd Ed.). American Academy of Pediatrics, 2021.