A Descriptive Study to Evaluate the Understanding of Staff Nurses Concerning the Care of New-borns Undergoing Phototherapy in Selected Hospitals of Indore, 2025

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Abstract: *Phototherapy is a critical treatment for neonatal jaundice, and proper nursing care significantly impacts its outcomes. This study aims to evaluate the understanding of staff nurses concerning the care of newborns undergoing phototherapy in civil hospitals sanwer Indore. A quantitative descriptive research design was employed. A total of 30 staff nurses were selected through purposive sampling. Data were collected using a structured knowledge questionnaire. Results revealed that 63.3% of nurses had good knowledge, and 16.7% demonstrated excellent understanding. A statistically significant association was found between knowledge and prior phototherapy training (p = 0.009). The study concludes that in-service training significantly enhances nurses' understanding of phototherapy care, advocating for continuous professional development programs.*

Keywords: Neonatal jaundice, phototherapy, staff nurses, knowledge assessment, newborn care, Indore hospitals

1. Introduction

Neonatal jaundice is a prevalent condition that affects nearly 60% of term and 80% of preterm newborns during the first week of life. Phototherapy remains the primary non-invasive intervention for treating hyperbilirubinemia. The efficacy of phototherapy depends not only on the equipment used but also on the competence of nursing staff providing the care. A lack of knowledge among nurses may lead to complications such as burns, dehydration, or retinal damage in neonates. Despite its importance, studies evaluating the understanding of staff nurses in this area, especially in central India, remain limited. This study was conducted to assess the understanding of staff nurses in selected hospitals of Indore regarding the care of newborns undergoing phototherapy.

2. Review of Literature

Maisels & McDonagh (2008) emphasize the importance of nurse knowledge in reducing complications Phototherapy is a standard treatment for neonatal jaundice. Nurses play a vital role in ensuring safety by managing eye protection, temperature, and hydration. However, Kumar et al. (2019) found gaps in nurses' understanding, indicating a need for regular training.

Banerjee et al. (2017) observed that only 58% of nurses had adequate knowledge of phototherapy practices. Singh & Thomas (2021) linked poor practices to irregular training and staff rotation. Structured education improves competence and neonatal outcomes.

Objectives
1) To assess the understanding of staff nurses regarding the care of newborns undergoing phototherapy.
2) To associate the understanding scores with selected demographic variables of staff nurses.

Assumptions
1) Staff nurses possess varying levels of understanding regarding the care of newborns undergoing phototherapy based on their education, clinical experience, and training exposure.
2) A structured knowledge assessment tool is an effective method to evaluate the understanding of staff nurses concerning phototherapy care.

3. Materials and Methods

A quantitative descriptive research approach was adopted. The study was conducted in Civil hospitals sanwer, Indore, Madhya Pradesh, where neonatal phototherapy units are operational. The target population included staff nurses currently working in neonatal care units and involved in phototherapy procedures.

A total of 30 staff nurses were selected using non-probability purposive sampling. Inclusion criteria were: nurses currently working in neonatal units, actively involved in phototherapy care, willing to participate, and present during the data collection period. Exclusion criteria included nurses on leave or those not directly involved in newborn phototherapy care.

A structured questionnaire tool was developed in two parts:
- **Part I** collected demographic data (age, gender, education, experience, phototherapy training).
- **Part II** contained 20 multiple-choice questions on key areas including principles, indications, contraindications, procedures, equipment handling, complications, and nursing responsibilities related to phototherapy. Each correct answer scored 1 point; the total score was 20.

Scoring was interpreted as follows:
- 0–5 = Poor Knowledge
- 6–10 = Moderate Knowledge
- 11–15 = Good Knowledge

- 16–20 = Excellent Knowledge

The tool was validated by four experts in pediatric nursing and neonatology. Reliability was confirmed using the split-half method and Spearman–Brown prophecy formula, yielding a coefficient of r = 0.82. Ethical clearance was obtained from the Institutional Ethics Committee. Informed consent was taken from all participants.

Data collection spanned two weeks, with each participant given 25–30 minutes to complete the questionnaire. Data were analyzed using SPSS (v20.0). Descriptive statistics (frequency, percentage, mean, SD) and inferential statistics (Chi-square test) were used.
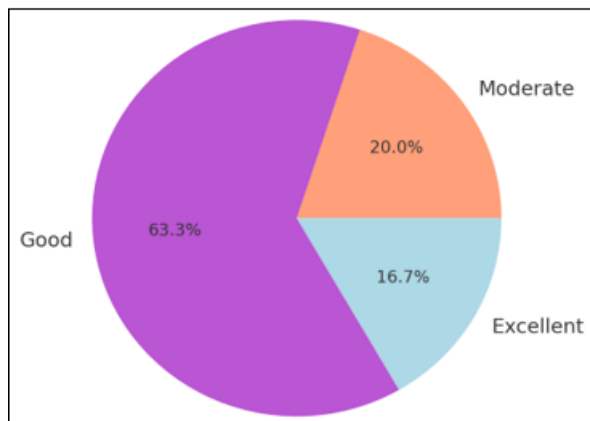
Ethical Considerations

- Approval was obtained from the **Institutional Ethical Committee**.
- **Informed consent** was obtained from each participant.
- Anonymity and confidentiality were maintained.
- Participation was purely **voluntary**.

4. Results

The demographic analysis showed that the majority of participants (40%) were aged 21–30 years. Females constituted 90% of the sample. Regarding education, 40% had B.Sc Nursing degrees, while 33.3% held GNM qualifications. Experience-wise, 33.3% had 1–3 years of experience, and 60% had received prior training in phototherapy.

Knowledge scores indicated that:
- 0% had poor knowledge
- 20% had moderate knowledge
- 63.3% had good knowledge
- 16.7% had excellent knowledge

Measures of Central Tendency for Knowledge Scores

Statistical Measure	Value
Mean	13.4
Median	13.5
Mode	13
Standard Deviation	2.4

The mean knowledge score was 13.4, with a median of 13.5 and standard deviation of 2.4.

The Chi-square test showed no significant association between knowledge levels and age ($p = 0.55$), gender ($p = 0.30$), qualification ($p = 0.27$), or experience ($p = 0.15$).

However, there was a significant association between prior phototherapy training and knowledge scores ($p = 0.009$).

5. Discussion

The findings demonstrate a generally good level of understanding among staff nurses concerning phototherapy care, with no participant falling under the "poor knowledge" category. This indicates a baseline awareness, possibly attributed to practical exposure. However, the significant association with prior training emphasizes the value of structured educational interventions. These findings align with studies conducted in other regions of India, which report improved knowledge and care practices post-training.

Lack of significant association with other demographics suggests that practical, targeted training plays a greater role in improving knowledge than factors like education level or experience alone. Continuous nursing education programs should be prioritized to enhance the quality of neonatal care.

6. Conclusion

The study concludes that while most staff nurses have a good understanding of newborn phototherapy care, prior training significantly enhances their competence. Regular in-service education and refresher courses are essential to sustain and improve nursing care standards in neonatal units.

7. Limitations of the Study

- The study was limited to civil hospitals sanwer Indore and involved only 30 staff nurses, which restricts generalizability.
- The data collection tool was limited to a structured questionnaire and did not assess practical skills.

8. Recommendations for Future Research

- Conduct similar studies on a larger scale across multiple districts.
- Implement and evaluate the impact of a structured training module on phototherapy care.
- Assess the practical competencies of nurses in real-time settings.

References

[1] Banerjee, A., Gupta, R., & Das, S. (2017). Assessment of knowledge regarding phototherapy among staff nurses in neonatal intensive care units. *Journal of Neonatal Nursing*, 23(2), 78–82.
[2] Sharma, P., Verma, A., & Bhatia, K. (2020). A study to assess knowledge and practice of nurses regarding neonatal phototherapy. *Indian Journal of Pediatric Nursing*, 13(1), 45–50.

[3] Singh, R., & Thomas, A. (2021). Effectiveness of in-service education on nurse's competency in neonatal phototherapy care. *International Journal of Nursing Education*, 13(3), 110–114.

[4] Verma, V. L., & Sharma, K. (2023). A descriptive study to assess the knowledge regarding care of newborn under phototherapy among staff nurses. *IOSR Journal of Nursing and Health Science*, 9(3), 65–71. Retrieved from https://www.researchgate.net/publication/378439391:contentReference(index=30)

[5] Ratna, R., & Kumari, S. (2023). A study to assess the knowledge of NICU nurses regarding the care of newborns undergoing phototherapy. *International Journal of Fundamental and Applied Research*, 11(2), 25–30. Retrieved from https://www.ijfmr.com/papers/2023/2/2520.pdf:content Reference (index=33)