

Knowledge, Clinical Practice and Self-Efficacy Regarding Recognizing and Managing Neonatal Jaundice among Nursing Students

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Abstract: Neonatal jaundice is a common but potentially serious condition, and nursing students must be prepared to recognize and manage it effectively. This study assessed knowledge, self-reported clinical practice, and self-efficacy regarding neonatal jaundice among undergraduate nursing students and explored relationships between these domains and selected demographic variables. A quantitative cross-sectional survey was conducted among 185 VI- and VIII-semester students from a nursing college in Mangalore using validated questionnaires on recognition, management, supportive care, and parent education. Descriptive statistics summarized scores, and Pearson correlation and chi-square tests examined associations. Overall, 40.5% of students had good knowledge, 13.0% satisfactory knowledge, and 46.5% poor knowledge, whereas 57.3% reported adequate practice and 43.8% high self-efficacy. Mean scores indicated wide variability, and moderate positive correlations were observed between knowledge and practice ($r=0.48$), knowledge and self-efficacy ($r=0.45$), and practice and self-efficacy ($r=0.52$), all statistically significant. Knowledge was significantly associated with academic year, and self-efficacy with age, while practice showed no significant association with demographic factors. The findings reveal important gaps, particularly in theoretical knowledge and confidence, underscoring the need to strengthen neonatal jaundice content, supervised clinical exposure, and competency-based teaching strategies in undergraduate nursing curricula in both classroom and clinical settings for safe neonatal care.

Keywords: Knowledge, clinical practice, self-efficacy, neonatal jaundice

1. Introduction

Neonatal jaundice, or hyperbilirubinemia, is one of the most common conditions encountered in the newborn period [1], affecting approximately 60% of term and 80% of preterm infants [2] worldwide. Characterized by yellow discoloration of the skin and sclera resulting from elevated serum bilirubin levels, neonatal jaundice typically manifests as a benign, self-limiting physiological process. However, when severe and left unrecognized or inadequately managed, it can progress to acute bilirubin encephalopathy and kernicterus ultimately resulting in neurological conditions associated with lifelong sequelae including cerebral palsy, hearing loss, and intellectual disability. [1],[3]

Nurses play a critical front-line role in neonatal units, maternity wards, and community health settings in the early identification, monitoring, and immediate management of neonatal jaundice. Essential clinical competencies—such as performing visual risk assessments, monitoring serum bilirubin levels, initiating timely phototherapy, ensuring adequate hydration, and providing parental education—are pivotal to preventing severe complications.[4] However, studies have demonstrated that knowledge and clinical practices related to neonatal jaundice may vary among nursing personnel and students.[5] In a study conducted among nurses and midwives, 69.3% demonstrated good knowledge and 62.9% demonstrated good practices regarding neonatal jaundice management, while knowledge and attitudes were significantly associated with clinical practices.[4]

Nursing curriculum is intended to prepare nursing students with sound theoretical basis and practical skills to provide safe neonatal care. However, students from the walls of classroom often face challenges in translating the knowledge gained into confident, independent clinical decision making. [6][7] A study conducted among third-year nursing students in Windhoek, Namibia, revealed varied levels of knowledge, with only 63.8% correctly identifying physiological jaundice as the most common type and just 58.6% aware that it typically develops 2–3 days after birth.[8] Similarly, a study among BSc nursing students in Lucknow, India, found that none had adequate knowledge regarding care of neonates undergoing phototherapy during pre-test assessment, with the majority (62%) demonstrating inadequate knowledge.[9] Another study among nursing students reported generally satisfactory knowledge, attitudes, and practices but emphasized the continued need for strengthening education and clinical preparation related to neonatal jaundice.[10] In clinical education, undergraduate nursing students often experience gaps between classroom learning and real-world clinical performance, particularly when managing vulnerable populations such as newborns.

While numerous studies have been conducted to evaluate the knowledge of staff nurses or community health workers regarding neonatal danger signs, there is limited literature that specifically addresses the tripartite relationship between knowledge, clinical practice and self-efficacy among nursing students as they relate to the diagnosis and management of neonatal jaundice. The study may contribute to improving the preparedness of future nurses and, ultimately, the quality and safety of neonatal care.

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2. Methodology

Study Design and Setting

A quantitative, cross-sectional study was conducted among undergraduate nursing students in selected college in Mangalore, India between April – June 2026.

Participants and Sampling

Using purposive sampling, 185 nursing students from the VI and VIII semesters who had completed at least NICU/pediatric unit clinical posting were recruited. All provided written informed consent.

Study Instruments

Data were collected using a structured, self-administered questionnaire comprising three instruments designed around the same domains: recognition and assessment, management principles, supportive care and parent education, and clinical decision-making. The knowledge questionnaire contained 25 questions. Knowledge scores were categorized as good when above 80%, satisfactory 60% - 79%, and poor when below 59%.

Self-reported clinical practice was assessed using 12 statements rated on a five-point scale: never, rarely, sometimes, often, and always/consistently. Practice scores above 75% were categorized as adequate, whereas scores below 59% were categorized as inadequate, and 60% - 74% as moderately adequate. Self-efficacy was assessed using 10 statements on a five-point Likert scale; a total score above average score reported (>33) indicated high self-efficacy, while a score of below average as low self-efficacy.

Validity and Pilot Study

Content validity was established through expert review (n=5). A pilot study conducted on 18 students (not included in the main sample) confirmed tool feasibility and clarity. Reliability was acceptable (Cronbach's $\alpha = 0.82$ for knowledge; 0.84 for practice and 0.79 for self-efficacy).

Data Collection and Analysis

Following institutional ethical approval (MECT/055/2026), permission was obtained from the authorities of Nursing college. Eligible students were informed about the study, and written informed consent was obtained before administering the questionnaires. Following institutional ethical approval (MECT/055/2026), permission was obtained from the authorities of Nursing college. Eligible students were informed about the study, and written informed consent was obtained before administering the questionnaires. The data was analyzed using descriptive statistics such as frequency, percentage, mean and standard deviation. Inferential statistics were also used, including the Pearson correlation coefficient and chi-square tests, to investigate the relationship between the variables of interest and the characteristics of the participants. A p-value of <0.05 was considered statistically significant.

3. Results

3.1 Baseline Characteristics

The mean age of the participants was 21.73 ± 1.62 years. The majority of the participants were female, accounting for 85.4%, while male participants constituted 14.6% of the sample. 50.3% of the participants were studying in the VIII semester and 49.7% were studying in the VI semester, indicating an almost equal representation from both academic groups.

All participants had previous exposure to NICU or SNCU, previous experience caring for a neonate with jaundice, and previous experience assisting with phototherapy. Regarding the duration of NICU experience, 48.6% had less than one month of experience, 43.8% had one to three months of experience, and only 7.6% had more than three months of experience.

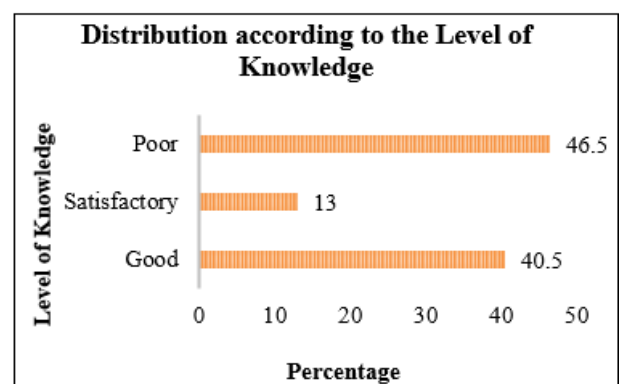


Figure 1: Knowledge of nursing students regarding neonatal jaundice

Fig 1 shows that 40.5% (75), had good, 13.0% (24), had satisfactory knowledge, while 46.5% (86), had poor knowledge regarding neonatal jaundice.

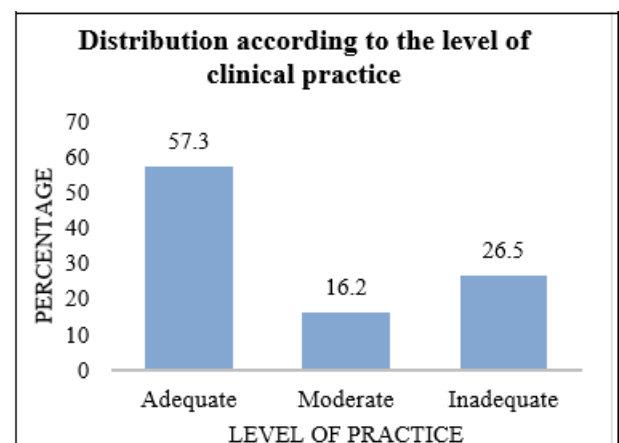


Figure 2: Self-reported clinical practice of nursing students regarding neonatal jaundice

Fig 2 shows that more than half of the participants, 57.3% (106), demonstrated adequate, 6.2% (30) had moderate practice, while 26.5% (49), demonstrated inadequate practice.

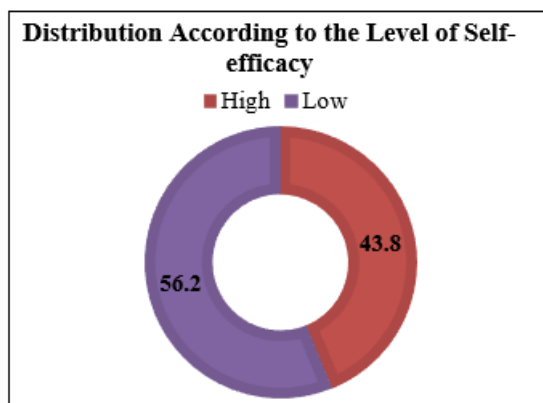


Figure 3: Self-efficacy of nursing students regarding neonatal jaundice

Fig 3: shows that **43.8% (81)**, reported high self-efficacy, whereas **56.2% (104)**, had low self-efficacy.

Table 1: Mean Knowledge, Practice, and Self-Efficacy Scores of nursing students regarding neonatal jaundice, n = 185

Variable	Max possible score	Observed range	Mean $\pm$ SD
Knowledge	25	2–25	15.24 $\pm$ 7.98
Clinical practice	60	12–60	46.60 $\pm$ 12.44
Self-efficacy	60	18–50	33.02 $\pm$ 5.00

Table 1 shows that the mean knowledge score was 15.24 $\pm$ 7.98, and the large standard deviation suggests considerable variation in knowledge levels among the participants. The average clinical practice score reported was 46.60 $\pm$ 12.44 and the broad range indicates marked differences in clinical performance among participants. The mean self-efficacy score reported was 33.02 $\pm$ 5.00 indicating a moderate level of perceived confidence in caring for neonatal jaundice.

Table 2: Correlation Between Knowledge, Practice, and Self-Efficacy Scores, n = 185

Variables Correlated	Test	r	p-value
Knowledge & Practice	Pearson	r = 0.48	<0.001
Knowledge & Self-Efficacy	Pearson	r = 0.45	<0.001
Practice & Self-Efficacy	Pearson	r = 0.52	<0.001

Table 2 reveals a statistically significant, moderate positive relationships among knowledge, practice, and self-efficacy scores (all $p < 0.001$), indicating that participants with stronger theoretical knowledge tended to demonstrate better neonatal care practices and greater confidence in performing them.

Association between knowledge, clinical practice and self-efficacy scores with demographic variables

Knowledge level was significantly associated with academic year ($\chi^2 = 6.77$, $p = 0.034$), with VI-semester students showing poorer knowledge scores than VIII-semester students; Self-efficacy was significantly associated with age ($\chi^2 = 12.33$, $p < 0.001$), with participants above 22 years showing higher self-efficacy than those aged 19–21 years. Practice level showed no statistically significant association with age, gender, academic year, or duration of NICU experience (all $p > 0.05$).

4. Discussion

The findings of this study provide crucial insights into the interplay between nursing students' knowledge, self-reported clinical practice, and self-efficacy regarding neonatal jaundice, highlighting significant gaps and opportunities for educational enhancement.

Knowledge of Nursing Students Regarding Neonatal Jaundice

The findings of this study revealed that a significant proportion of nursing students demonstrated 46.5% poor knowledge regarding neonatal jaundice. These results are consistent with previous research conducted among nursing students in various settings. Umar and Ibrahim (2025) found that the majority (58.0%) of midwifery students in Nigeria had inadequate knowledge regarding neonatal jaundice.[10] Similarly, Pandey (2022) reported that none of the BSc nursing students in Lucknow, had adequate knowledge regarding care of neonates undergoing phototherapy during pre-test assessment, with the majority (62%) demonstrating inadequate knowledge.[9] However, study conducted at the University of Namibia among fourth-year nursing students demonstrated satisfactory knowledge and practice regarding neonatal jaundice.[8] The lower knowledge level in the present study may be related to the limited duration of clinical exposure.

Self-Reported Clinical Practice of Nursing Students Regarding Neonatal Jaundice

The study found that 57.3% of students demonstrated adequate practice which is lower than that reported by Dzantor et al. (2023), who found that 62.9% of nurses and midwives in Ghana demonstrated good practices regarding neonatal jaundice management.[11] However, it is higher than the findings of Gerges et al. (2021), who reported that 84.4% of nurses in Egypt had unsatisfactory practice regarding neonatal jaundice care. The observed mean practice score of 46.60 $\pm$ 12.44 suggests that students may have performed better in basic nursing care aspects while struggling with more complex clinical decisions and procedures.[12] These findings are consistent with those of Ellis et al. (2023) who found that nursing students had adequate knowledge of neonatal assessment but lacked confidence in performing specialized processes like phototherapy administration and monitoring for potential complications.[14]

Self-Efficacy of Nursing Students Regarding Neonatal Jaundice

The mean self-efficacy score for the participants in the study was 33.02 $\pm$ 5.00. This score is similar to that found by Shilumbu et al. (2025), who found that only 39.5% of nursing students in Namibia were confident in identifying neonatal jaundice and only 20.9% of those students were confident in performing phototherapy for the newborns.[8] Ellis et al. (2023) also found that nursing students had sufficient knowledge of the topic but lacked confidence in applying that knowledge in practice.[13]

Correlation Between Knowledge, Practice, and Self-Efficacy

The relationship between the knowledge and clinical practices in the study was found to be correlated by $r = 0.48$. So, it points that students with higher levels of knowledge tend to exhibit better clinical practices. Such findings are consistent with other studies by Dzantor et al. (2023) discovered that good knowledge and good attitudes towards neonatal jaundice were associated with good clinical practices.[11] Also, another study by Donkor et al. (2023) revealed that the knowledge and attitude of the students towards neonatal jaundice were significantly associated with their clinical practices. [14]

The correlation between knowledge and self-efficacy ($r = 0.45$) shows that knowledge of clinical processes contributes to self-efficacy. This finding is consistent with the results of the study by Ebrahimi et al. (2021) which reported that reinforcing the existing knowledge enhanced student nurse's confidence in managing neonatal jaundice.[7] Also, a study by Shilumbu et al. (2025) found that nursing students with higher knowledge scores reported greater confidence in their clinical decision-making for neonatal jaundice cases.[8]

5. Conclusion

The undergraduate nursing students in the present study revealed significant gaps in their knowledge of neonatal jaundice and their self-efficacy in treating the condition, despite the fact that they reported being knowledgeable. The positive correlations between knowledge, practice and self-efficacy suggest that enhancing the theoretical understanding of neonatal care is likely to improve both the performance and the confidence of nurses caring for neonatal jaundice. These findings underscore the need for targeted, competency-based educational strategies and structured clinical exposure to ensure safe, evidence-based neonatal care.

6. Future Scope

Future research should employ longitudinal or multicentric designs, include objective assessments of clinical competence, and explore how structured NICU postings, simulation-based learning, and competency-based modules on neonatal jaundice influence sustained improvements in knowledge, practice, and confidence. The present study is limited by its cross-sectional design, single-institution setting, purposive sampling, and reliance on self-reported practice and self-efficacy, which may restrict generalizability and introduce response bias.

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