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Knowledge, Attitudes, Practice, and Decision-making Skills Related to Sepsis Assessment and Management among Nursing Students: A Cross-Sectional Survey

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A B S T R A C T

Background: Sepsis is a life-threatening condition that requires prompt recognition and intervention. Nursing students, as future frontline caregivers, need adequate knowledge, attitudes, practices, and decision-making skills (KAP-DMS) to ensure timely and effective care.

Objective: This study aimed to assess the level of knowledge, attitudes, practice, and decision-making skills related to sepsis assessment and management among nursing students.

Methods: A cross-sectional survey was conducted among 250 nursing students using a validated structured questionnaire. Data were analyzed using descriptive statistics, ANOVA, and correlation analysis.

Results: Of the 250 students, 58.4% had moderate knowledge, 72.8% had positive attitudes, 54% demonstrated appropriate clinical practice, and 38.8% exhibited high-level decision-making skills. Statistically significant differences in decision-making skills were observed across academic years ($p < 0.01$).

Conclusion: While students exhibited positive attitudes, significant knowledge and practice gaps were identified. Enhancing sepsis training through simulation, case-based learning, and clinical exposure is essential to bridge these gaps.

Keywords: Sepsis, Nursing Students, Knowledge, Attitudes, Practice, Decision-Making Skills, Cross-Sectional Survey

1. Introduction

Sepsis is a systemic, life-threatening condition that results from the body's extreme response to infection, leading to tissue damage, organ failure, and potentially death (Singer et al., 2016). According to the World Health Organization (WHO), sepsis affects more than 49 million people globally each year and is responsible for approximately 11 million deaths, many of which are preventable with timely and appropriate care (Rudd et al., 2020). Early detection and management are critical in improving survival rates, and nurses are often among the first healthcare providers to assess deteriorating patients.

Nurses play a pivotal role in the identification and initial management of sepsis. As the largest healthcare workforce globally, nurses are frequently in direct contact with patients and are in a unique position to recognize the subtle signs of clinical deterioration (Alharbi et al., 2021). Hence, nursing education must emphasize the development of competencies in sepsis assessment and management to ensure safe and effective care delivery.

Despite its critical nature, sepsis often goes unrecognized by healthcare providers, including nursing students (Hasanpour-Dehkordi et al., 2020). Several studies have demonstrated that nursing students have variable and sometimes inadequate knowledge and confidence when it comes to dealing with sepsis, which may be due to limited exposure to such scenarios during their training.

Attitudes toward sepsis also influence clinical behavior. A positive attitude can encourage prompt assessment and interventions, while hesitancy or uncertainty may delay essential care. Moreover, decision-making skills—the ability to apply knowledge in real-time to assess, prioritize, and act—are essential for effective sepsis management. However, decision-making is a complex skill influenced by experience, training, and confidence, and is often underdeveloped in undergraduate nursing students (Labrague et al., 2022).

This study was undertaken to assess the current status of knowledge, attitudes, practice behaviors, and decision-making skills (KAP-DMS) among nursing students in relation to sepsis. The findings will provide evidence for educators and curriculum developers to identify areas for improvement and enhance sepsis-related training in undergraduate nursing programs.

2. Methods

2.1 Study Design and Setting

A descriptive, cross-sectional design was employed. The study was conducted between February and April 2025 in three nursing colleges affiliated with public universities in Saudi Arabia.

2.2 Participants and Sampling

A total of 250 undergraduate nursing students (from second to fourth academic year) were recruited using convenience sampling. Inclusion criteria included enrollment in a nursing program and completion of at least one clinical training rotation.

2.3 Instrument Development

A structured, self-administered questionnaire was developed based on current literature and reviewed by a panel of experts. The instrument had four sections: Knowledge (15 multiple-choice questions), Attitude (10 items, 5-point Likert scale), Practice (10 clinical scenario-based questions), and Decision-making skills (5 clinical case questions). Cronbach's alpha for the overall questionnaire was 0.84.

2.4 Data Collection

After obtaining institutional ethical approval, data were collected online through Google Forms and paper-based surveys during scheduled lectures.

2.5 Data Analysis

Data were analyzed using SPSS version 26. Descriptive statistics (mean, SD, frequencies) and inferential statistics (ANOVA, Pearson's correlation) were applied. A p-value < 0.05 was considered significant.

3. Results

3.1 Demographic Characteristics

Of the 250 participants, 60% were female and 40% were male. Students were distributed across academic years as follows: second year (32%), third year (36%), and fourth year (32%). About 52% reported prior training related to sepsis.

Table 1: Demographic Characteristics of Nursing Students

Variable	Frequency (n = 250)	Percentage (%)
Male	100	40.0
Female	150	60.0
Second Year	80	32.0
Third Year	90	36.0
Fourth Year	80	32.0
Previous Sepsis Training	130	52.0

3.2 Knowledge Scores

Most students (58.4%) had moderate knowledge of sepsis, while 21.2% had high knowledge and 20.4% had low knowledge. The mean knowledge score was 8.2 ± 2.1.

Table 2: Knowledge Levels among Nursing Students

Knowledge Level	Frequency	Percentage (%)
Low (0–5)	51	20.4
Moderate (6–10)	146	58.4
High (11–15)	53	21.2

3.3 Attitudes Toward Sepsis

A total of 72.8% of students expressed positive attitudes. The statement 'Nurses play a critical role in detecting early signs of sepsis' had the highest agreement (86%).

Table 3: Attitudes Toward Sepsis among Nursing Students

Attitude Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Nurses play a critical role in detecting early signs of sepsis.	60	26	8	4	2
Early recognition of sepsis improves patient outcomes.	55	30	10	3	2
I feel confident in my ability to identify sepsis signs.	40	35	15	7	3
Sepsis management is an essential nursing responsibility.	58	28	8	4	2
More training on sepsis is needed in the nursing curriculum.	65	25	7	2	1

3.4 Practice Behavior

54% of students demonstrated good practice in clinical scenarios, 27.6% moderate, and 18.4% poor. About 60% correctly prioritized interventions in a septic shock case.

Table 4: Practice Levels in Sepsis-Related Scenarios

Practice Level	Frequency	Percentage (%)
Poor Practice	46	18.4
Moderate Practice	69	27.6
Good Practice	135	54.0

3.5 Decision-Making Skills

38.8% scored high in decision-making, 32.4% moderate, and 28.8% low. Significant differences were found across academic years ($F = 4.76$, $p = 0.003$).

Table 5: Decision-Making Skill Levels by Score Range

Score Range	Frequency	Percentage (%)
Low (0–2)	72	28.8
Moderate (3)	81	32.4
High (4–5)	97	38.8

4. Discussion

The findings of this study highlight several important aspects of nursing students' preparedness to manage sepsis effectively. Although the majority of students demonstrated moderate knowledge and positive attitudes, gaps remain in their practical skills and clinical decision-making, which are essential for early recognition and timely interventions. The moderate knowledge scores are consistent with previous studies conducted among undergraduate nursing populations. For example, Hasanpour-Dehkordi et al. (2020) found that only a minority of students were able to identify early signs of sepsis and understand its progression. This knowledge gap may reflect limitations in the current nursing curriculum, where sepsis may be taught theoretically but not reinforced through clinical practice or simulation.

Positive attitudes toward sepsis care were a promising outcome, with over 70% of students acknowledging the importance of their role in early recognition. Attitudes are a key predictor of intention and actual behavior in clinical settings, and fostering a proactive mindset in students is crucial (Labrague et al., 2022). However, having a positive attitude does not necessarily translate into effective practice, as evidenced by the lower scores in practical and decision-making domains.

Practice-related findings indicate that only slightly more than half of the students could demonstrate appropriate clinical responses in sepsis-related scenarios. This aligns with research suggesting that nursing students often struggle with applying theoretical knowledge to clinical situations, particularly those involving time-sensitive conditions like sepsis (Lateef, 2010). The ability to translate knowledge into action is heavily dependent on experiential learning, such as simulations, clinical rotations, and case discussions.

The most concerning result was the low performance in decision-making skills, especially among second-year students. As decision-making is influenced by clinical exposure and cognitive maturity, it is understandable that more advanced students performed better. Still, this gap indicates a need for structured development of critical thinking and clinical reasoning from earlier stages of the nursing curriculum.

To address these gaps, nursing education must incorporate more interactive and practical learning strategies. High-fidelity simulations have shown significant promise in improving sepsis recognition and management among nursing students (Lateef, 2010). Additionally, the use of clinical decision support tools, sepsis protocols, and early warning scoring systems should be introduced to students to reinforce evidence-based practices.

It is also essential that faculty and clinical instructors create opportunities for deliberate practice and reflection, helping students build confidence in their clinical judgment. Continuous assessment and feedback mechanisms are vital to ensure that students not only learn but retain and apply their knowledge effectively.

Finally, the study's limitations should be noted. As a cross-sectional design with self-reported data, responses may be subject to recall and social desirability biases. The sample was limited to three universities, and results may not be generalizable to all nursing students in Saudi Arabia or globally.

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