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Original Research Article

Evaluate Analysis and Decision-Making of Nurses Regarding Sepsis Assessment and Management in Critically Ill Patients

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Abstract: *Sepsis is a life-threatening condition that requires timely diagnosis and management to prevent organ failure and mortality in critically ill patients. Nurses play a pivotal role in early sepsis recognition and intervention, yet gaps in knowledge, attitudes, practices (KAP), and decision-making can compromise patient outcomes. Understanding these gaps is crucial for improving sepsis care in Intensive Care Units (ICUs) and Emergency Departments (EDs).* ***Objective:*** *To evaluate nurses' knowledge, attitudes, and practices towards sepsis assessment and management in critically ill patients.* ***Methodology:*** *A cross-sectional study was conducted in the Intensive Care Unit of Nishtar Hospital from Aug 2024 to November 2024. A total of 100 ICU/CCU nurses and those working in the emergency department were selected by convenience sampling. A 32-item questionnaire collected data to assess knowledge, attitudes, and practices for sepsis. The 24-item nursing decision-making instrument was used to test the decision-making skills.* ***Results:*** *The mean knowledge score was 5.1 ± 1.8 with 83% of nurses with poor awareness. The mean attitude score was 2.0 ± 0.9 with 85% of nurses having negative attitudes. The mean practice score was 79 ± 17.8 with 72% possessing poor practice skills. Lastly, the mean decision-making score on NDMI was 63.3 ± 19.6. The qualification (p=0.010, p=0.009) and work experience (p=0.005, p=0.050) significantly influenced these scores. Knowledge and practice scores differ significantly concerning modes of decision-making (p<0.001, p=0.020).* ***Conclusion:*** *ICU and emergency department nurses had poor knowledge, attitudes, practices, and decision-making for the assessment and management of sepsis in ICU patients. Training protocols and policy changes are needed to improve nurses' quality of care and efficiency.*

Keywords: KAP, Knowledge, Nurses, Sepsis

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Introduction

Sepsis is a common health condition occurring in almost 50 million individuals globally, increasing the risk of mortality and morbidity (1). It leads to dysfunction in multiple organs causing acute respiratory distress syndrome, renal failure, arrhythmia, and consumptive coagulopathy. Psychological disorders like PTSD, anxiety, and depression are also frequent in septic patients (2).

Nurses are the backbone of any hospital and provide round-the-clock care to critical patients. However, literature shows that nurses cannot assess and manage sepsis and reduce its risk (3). A developed country like Canada also reports the inadequacy of its nurses in diagnosing and treating sepsis promptly (4, 5). Outdated curricula, lack of training programs, and learning opportunities are the main reasons for the poor knowledge and attitudes of nurses towards sepsis.[6]

Awareness and early decision-making are essential to providing quality care and improving clinical outcomes. Studies have shown that experience, workload, hospital atmosphere, and protocols are some factors that impact the management of sepsis patients by nurses.[7]Early indicators of sepsis like hypoxia, hypotension, and oliguria are often unnoticed, leading to delayed diagnosis. This study was conducted to evaluate nurses' knowledge, attitudes, and practices towards sepsis assessment and management in critically ill patients.

Methodology

A cross-sectional study was conducted in the Intensive Care Unit of Nistar Hospital from August 2024 to November 2024. A total of 100 ICU/CCU nurses and those working in the emergency department were selected by convenience sampling. Nurses working in the general ward and those with less than one year of experience were excluded. All nurses provided their informed consent to become a part of the study. The hospital's ethical committee approved the study.

Data was collected by a 32-item questionnaire divided into four sections. The first sections inquired about demographics including age, sex, department, qualification, and work experience. The second section included eight questions to knowledge, the third included four questions to assess attitudes, and the last was fifteen questions to assess practice about sepsis assessment and management. The questionnaire was tested for validity and reliability; Cronbach's alpha was 0.90.

The 24-item nursing decision-making instrument was used to test the decision-making skills. The questions could be answered by five options, one being never and five being always. The maximum score obtained was 120 and the minimum score was 24. A score of 67 or less indicated analytical decision making and a score more excellent than 68 indicated intuitive decision-making. The Cronbach alpha was 0.81 for this instrument in our study.

All data were evaluated using SPSS version 24. Data normalcy was checked by performing the Kolmogorov–Smirnov test. Levene's test checked the equality of variance. Demographic data, KAP scores, and decision-making analysis were presented using descriptive analysis. Two sample-independent tests determined differences in study variables concerning participants' baseline characteristics. A p-value ≤0.05 was taken as significant.

One hundred nurses participated in the study, where 60% were female, 65% were married, and 50% were juniors. Only 30% of nurses had previous training to assess and manage sepsis. Nurses' demographic information is shown in Table I. The mean knowledge score was 5.1 ± 1.8 with 83% of nurses having poor awareness. The mean attitude score was 2.0 ± 0.9 with 85% of nurses having negative attitudes. The mean practice

score was 79 ± 17.8 with 72% possessing poor practice skills. Lastly, the mean decision-making score on NDMI was 63.3 ± 19.6(Table II).

KAP score and decision-making did not differ significantly between gender groups concerning marital status (p>0.05). But qualification (p=0.010, p=0.009) and work experience (p=0.005, p=0.050) significantly influenced these scores. T-tests revealed that nurses with more than 5 years of experience and those with master's degrees had good practices and analytical decision-making (Table III).

Knowledge and practice scores differ significantly concerning modes of decision-making (p<0.001, p=0.020). Nurses who were analytic decision-makers had knowledge and practice scores, but no significant difference was noted in attitude scores (Table IV).

Table 1: Patients' demographics

Characteristics	N (%)
Sex	
Male	40 (40%)
Female	60 (60%)
Marital status	
Unmarried	35 (35%)
Married	65 (65%)
Work experience	
Less than 5 years	50 (50%)
More than 5 years	50 (50%)
Department	
ICU/CCU	65 (65%)
Emergency	35 (35%)
Qualification	
Bachelors' degree	75 (75%)
Masters' degree	25 (25%)
Decision making	
Analytical	15 (15%)
Intuitive	85 (85%)
Sepsis assessment and management training	30 (30%)

Table 2: KAP and decision-making scores

Variable	N (%)
Mean knowledge score	5.1 ± 1.8
Poor knowledge	83 (83%)
Good knowledge	17 (17%)
Mean attitude score	2.0 ± 0.9
Negative attitude	85 (85%)
Positive attitude	15 (15%)
Mean practice score	79 ± 17.8
Poor practice	72 (72%)
Good practice	28 (28%)
Decision score	63.3 ± 19.6

Table 3: KAP and decision-making scores based on participant characteristics

	Knowledge		Attitude		Practice		Decision making	
	Mean ±SD	P	Mean ±SD	P	Mean ±SD	P	Mean ±SD	P
Sex								
Male	4.8 ± 1.9	0.178	2.2 ± 0.9	0.111	79.2 ± 18.4	0.973	66.4 ± 22.8	0.429
Female	4.1 ± 2.2		2.0 ± 1.0		78.3 ± 19.5		62.5 ± 20.2	
Marital status								
Unmarried	4.8 ± 1.9	0.145	2.2 ± 0.9	0.483	75.1 ± 20.0	0.451	67.1 ± 21.6	0.299
Married	4.1 ± 2.2		2.1 ± 0.9		80.6 ± 18.7		62.5 ± 21.0	
Work experience								
Less than 5 years	5.7 ± 1.6	0.661	2.2 ± 1.3	0.861	86.6 ± 16.1	0.003	70.6 ± 17.3	0.051
More than 5 years	6.5 ± 1.8		2.0 ± 0.9		99.8 ± 17.2		78.3 ± 18.7	
Department								
ICU/CCU	6.18 ± 1.9	0.932	2.2 ± 1.2	0.620	94.5 ± 19.4	0.009	78.1 ± 18.5	0.008
Emergency	6.21 ± 1.7		2.0 ± 1.0		94.1 ± 17.7		74.6 ± 18.0	
Qualification								

Bachelors' degree	6.34 ± 1.8	0.970	2.0 ± 0.9	0.492	88.0 ± 18.3	0.901	81.4 ± 17.6	0.392
Masters' degree	6.33 ± 1.9		2.2 ± 1.1		100.3 ± 18.1		69.3 ± 17.2	

Table 4: Mean KAP scores according to mode of decision making

	Knowledge		Attitude		Practice	
	Mean ±SD	**P**	**Mean ±SD**	**P**	**Mean ±SD**	**P**
Analytical	5.5 ± 2.6	0.020	2.2 ± 0.9	0.132	86.4 ± 15.6	<0.001
Intuitive	3.9 ± 1.7		1.8 ± 0.8		70.5 ± 17.3	

Discussion

This study assessed KAP and nurses' decision-making regarding sepsis assessment and management. The results revealed poor KAP scores and decision-making skills. These results in our hospital may be due to the absence of any formal training or mandatory protocol for nurses to learn about clinical skills. Similar results were reported by other studies examining the same variables (8, 9).

The mean knowledge score was 5.1 ± 1.8 with 83% of nurses having poor awareness. Qualifications and work experience influenced these scores. Similar results were reported by studies from developing countries (10, 11). The mean attitude score was 2.0 ± 0.9 with 85% of nurses having negative attitudes. The attitude score did not differ between nurses with different modes of decision-making (12, 13).

85% of the nurses in our study had intuitive decision-making skills. Other researchers have reported similar findings, such as nurses' intuition while treating critically ill patients and their ability to take rapid action in emergencies (14, 15). Nurses who were analytic decision-makers in our study had knowledge and practice scores. However, the effect of decision-making style on learning skills is unapparent in the literature (16, 17). Intuitive decision-making effectively saves time and money, preventing delayed treatment and unnecessary steps (18). Analytical thinking is more effective for managing critical patients such as septic patients, which may delay the treatment but delivers an improved quality of care (19).

Nurses with master's degrees had good practices and analytical decision-making skills in our study. Higher education adds knowledge and practical skills and provides opportunities to train and master skills. Additionally, nurses with more than 5 years of experience also showed better scores than juniors due to better practice and patient interaction. This is backed by previous studies (20).

Our study has some limitations. The sample size was small and convenience sampling was employed. Extensive, randomised studies are needed in the future to achieve conclusive findings.

Conclusion

ICU and emergency department nurses had poor knowledge, attitudes, practices, and decision-making for assessing and managing sepsis in ICU patients. Training protocols and policy changes are needed to improve nurses' quality of care and efficiency.

Declarations

Data Availability statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-MMNCS-05511-24)

Consent for publication

Approved

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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

IK (Charge Nurse)
Manuscript drafting, Study Design,
SA (Nursing Officer)
Review of Literature, Data entry, Data analysis, and drafting article.
KK (Nursing Officer)
Conception of Study, Development of Research Methodology Design, Study Design, manuscript review, critical input.

All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.

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