

Factors Affecting Critical Care Nurses' Knowledge, Practice, and Self-Confidence Regarding Glasgow Coma Scale Assessment in Saudi Arabia

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Abstract

The Glasgow Coma Scale (GCS) is an essential neurological assessment tool used in emergency and critical care settings to evaluate patients' levels of consciousness. Accurate assessment using the GCS is highly dependent on nurses' knowledge, clinical skills, and confidence. This study aimed to evaluate factors affecting critical care nurses' knowledge, practice, and self-confidence regarding GCS assessment in Saudi Arabia. A cross-sectional study was conducted among 202 nurses working in critical care units in different hospitals across Saudi Arabia. Data were collected using a validated self-administered questionnaire that assessed nurses' demographic characteristics, GCS knowledge, practice, confidence, and barriers affecting implementation. Data were analyzed using SPSS version 27. The findings revealed that only 48% of nurses demonstrated good knowledge regarding GCS assessment, while 23.8% showed good clinical practice. In addition, 68.8% of nurses reported low confidence in performing GCS assessment. Significant predictors of knowledge included ICU work setting, patient-to-nurse ratio, and perceived barriers. Excessive workload, inadequate staffing, lack of continuous training, and insufficient knowledge were identified as major barriers affecting effective implementation of GCS assessment. The study highlights the need for targeted educational interventions, continuous professional development, and organizational support to improve nurses' competency and confidence in GCS assessment, ultimately enhancing patient safety and quality of care.

Keywords: *Confidence, Critical Care Nurses, Glasgow Coma Scale, Knowledge, Practice, Saudi Arabia*

Introduction

The Glasgow Coma Scale (GCS) is one of the most widely used neurological assessment tools in emergency and critical care settings. Developed by Teasdale and Jennett in 1976, the GCS provides healthcare professionals with a standardized method for assessing the level of consciousness among patients with neurological impairment or traumatic brain injuries. The scale evaluates three essential neurological responses: eye opening, verbal response, and motor response. Scores range from 3 to 15, with lower scores indicating severe neurological impairment and higher scores indicating normal consciousness. Nurses working in critical care settings play a central role in neurological assessment and patient monitoring. Accurate assessment using the GCS allows healthcare providers to identify early deterioration, monitor changes in patient condition, and communicate effectively among healthcare team members. Inaccurate assessment may lead to delayed

diagnosis and inappropriate clinical interventions, resulting in increased morbidity and mortality. Several studies have identified deficiencies in nurses' understanding and application of the GCS. Factors such as inadequate training, workload pressure, limited clinical exposure, and insufficient staffing may negatively influence nurses' performance and confidence in GCS assessment. In Saudi Arabia, limited studies have explored factors affecting critical care nurses' knowledge and confidence regarding GCS assessment. Therefore, this study aimed to evaluate the factors affecting critical care nurses' knowledge, practice, and self-confidence regarding Glasgow Coma Scale assessment in Saudi Arabia.

Review of Related Literature

Previous studies have demonstrated variations in nurses' knowledge and competency regarding the Glasgow Coma Scale. Research conducted in Jordan, Ethiopia, Vietnam, Iraq, and Ghana reported that many nurses possess theoretical knowledge of the GCS but experience difficulties applying this knowledge in clinical practice. Studies have shown that educational level, years of experience, and clinical exposure are strongly associated with improved GCS assessment skills. Andualem et al. (2022) reported that more than half of nurses working in intensive care units demonstrated poor knowledge and practice regarding GCS assessment. Similarly, Jaddoua et al. (2013) found inadequate knowledge among nurses in Iraq and emphasized the need for continuous educational programs. Another study by Hien and Chae (2011) identified significant gaps between theoretical understanding and practical implementation of the GCS among Vietnamese nurses. Research also indicates that workload and staffing shortages negatively affect nurses' ability to perform accurate neurological assessments. Excessive workload, lack of training opportunities, and absence of standardized assessment tools were identified as major barriers in several studies. Confidence levels among nurses are also influenced by their educational preparation and frequency of exposure to neurological assessment in clinical settings. Despite global research on the topic, studies focusing on Saudi Arabia remain limited. Understanding the factors affecting nurses' knowledge, practice, and confidence in the Saudi healthcare context is essential to improving patient care outcomes and ensuring effective neurological monitoring in critical care units.

Objectives

The primary objective of this study was to evaluate factors affecting critical care nurses' knowledge, practice, and self-confidence regarding Glasgow Coma Scale assessment in Saudi Arabia. The study addressed the following research questions: 1. What is the level of knowledge among critical care nurses regarding the Glasgow Coma Scale? 2. What is the level of clinical practice related to GCS assessment among critical care nurses? 3. How confident are nurses in performing GCS assessment? 4. What barriers affect nurses' implementation of GCS assessment in clinical practice? 5. What factors predict nurses' knowledge regarding the Glasgow Coma Scale?

Methodology

A cross-sectional descriptive study design was used to evaluate critical care nurses' knowledge, practice, and confidence regarding Glasgow Coma Scale assessment in Saudi Arabia. The study included 202 nurses working in intensive care units, emergency departments, and other critical care settings in different hospitals across Saudi Arabia. Data were collected using a validated self-administered questionnaire distributed

electronically through Google Forms. The questionnaire consisted of five sections: demographic information, knowledge assessment, clinical practice scenarios, confidence assessment, and barriers affecting GCS implementation. Knowledge was evaluated using 14 multiple-choice questions. Clinical practice was assessed through six clinical scenarios requiring nurses to identify correct GCS scores. Confidence levels were measured using a five-point Likert scale. Perceived barriers included workload, lack of training, insufficient staffing, and lack of assessment tools. Ethical approval was obtained from the University of Hail Research Ethics Committee. Participation was voluntary, and confidentiality of participants was maintained throughout the study. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics, chi-square tests, correlation analysis, and multivariate logistic regression were used to identify significant predictors associated with nurses' knowledge and practice.

Analysis

The findings demonstrated that nurses' knowledge and practice regarding the Glasgow Coma Scale remain suboptimal. Only 48% of nurses demonstrated good knowledge, while 76.2% exhibited poor clinical practice regarding GCS assessment. Although many nurses correctly identified theoretical concepts of the GCS, difficulties were observed when applying this knowledge to clinical scenarios. The results revealed that nurses working in intensive care units had significantly higher knowledge levels than nurses in other departments. This finding may be explained by the frequent use of neurological assessment in ICU settings, where nurses routinely care for critically ill patients requiring continuous monitoring. Patient-to-nurse ratio was another important predictor of knowledge. Nurses working in settings with lower patient loads demonstrated better understanding and performance regarding GCS assessment. Excessive workload and inadequate staffing were identified as the most significant barriers, affecting more than 96% of participants. High workload may reduce nurses' ability to conduct detailed neurological assessments and may contribute to inaccurate scoring. The study also identified a positive relationship between nurses' knowledge and confidence levels. Nurses with better understanding of the GCS were more confident in their ability to perform accurate assessments. However, the majority of nurses reported low confidence, suggesting the need for additional training and practical workshops. These findings are consistent with previous international studies that identified deficiencies in nurses' practical competency regarding neurological assessment. Continuous educational interventions and clinical simulation programs may improve nurses' practical skills and confidence levels.

Findings and Discussion

The study findings demonstrated several important outcomes regarding nurses' knowledge, practice, confidence, and barriers related to Glasgow Coma Scale assessment.

- 48% of nurses demonstrated good knowledge regarding the GCS, while 52% exhibited poor knowledge.
- 23.8% of nurses showed good clinical practice in GCS assessment, whereas 76.2% demonstrated poor practice.
- 68.8% of participants reported low confidence in performing GCS assessment.
- The most commonly identified barriers included excessive workload (96.5%), lack of continuous training (93.1%), lack of adequate knowledge and skills (88.1%), and lack of GCS assessment tools (78.7%).
- Nurses working in intensive care units were more likely to demonstrate better knowledge compared to nurses in other departments.
- Lower patient-to-nurse ratios were associated with improved knowledge and practice.
- Positive correlations were identified between

nurses' knowledge and confidence levels. These findings indicate the importance of organizational support, staffing improvements, and continuing education programs to enhance nurses' competency in neurological assessment.

Conclusion

This study evaluated factors affecting critical care nurses' knowledge, practice, and self-confidence regarding Glasgow Coma Scale assessment in Saudi Arabia. The findings demonstrated significant deficiencies in nurses' practical application of the GCS and highlighted several organizational and educational barriers. The study emphasizes the need for regular educational programs, simulation-based training, and continuous professional development to improve nurses' competency and confidence in GCS assessment. Healthcare institutions should also address staffing shortages and workload issues to support effective neurological monitoring and patient safety. Improving nurses' proficiency in GCS assessment has important implications for patient outcomes, early identification of neurological deterioration, and quality of care in critical care settings. Future studies should include larger samples and evaluate the effectiveness of educational interventions in improving nurses' performance and confidence.

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