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RESEARCH PAPER

Knowledge of Nurses regarding Glasgow Coma Scale in Neurological Assessment of Patients in a Tertiary Care Hospital Multan

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ABSTRACT

The objective of this study was to assess the knowledge of nurses regarding Glasgow Coma Scale in neurological assessment of patients in a Tertiary Care Hospital Multan. Neurological assessment is a fundamental aspect of patient care, the level of consciousness in patients with brain injuries has to assess with Glasgow Coma Scale. Descriptive cross sectional study design was used to carry out at Nishtar Hospital Multan. The sample size was 80 nurses. Convenient sampling method was used to collect the data. The results showed that 25 (28%) nurses demonstrated poor knowledge of the GCS, while 35 nurses (46%) exhibited an average level of understanding and 20 nurses (25%) showcased a good understanding of the GCS. In term of association, age groups show no significant association with knowledge levels. While gender, qualification, experience, and department of work exhibit significant associations with knowledge. Implement regular training sessions for nurses on the Glasgow Coma Scale.

Keywords: Glasgow Coma Scale, Knowledge, Neurological Assessment, Nurses

Introduction

Neurological assessment is a fundamental aspect of patient care. The Glasgow Coma Scale (GCS) is used to measure the level of consciousness in patients with brain injuries (Ehwarieme et al., 2021). However, the effective utilization of the GCS relies heavily on healthcare professionals' understanding and application of its principles (Bidur & Adil, 2022). The GCS is highly valid and reliable, making it more accurate than earlier scoring systems like anatomical and physiological scoring systems and the revised trauma score (Andualem, Beyene, & Tuli, 2022).

The Glasgow Coma Scale measures the level of consciousness in three categories: eye opening, verbal response, and best motor response. Each category is further subdivided and assigned a score (Kebapçı et al., 2020). It is highly regarded as an effective measure of brain dysfunction from traumatic brain injuries (Shinde & Kulkarni, 2020). The GCS helps establish baseline information for patients with strokes, head injuries, and other unconscious states due to medical or surgical conditions. It is essential for monitoring patient condition after thrombolytic therapy and is widely used in clinical guidelines, research, and trials as an outcome measure (Bibi et al., 2023).

Assessing and documenting the level of consciousness are crucial tasks for doctors and nurses caring for patients with neurological or neurosurgical conditions (Thakshila De Silva et al., 2023). This assessment is essential for identifying neurological issues and evaluating the effectiveness of healthcare interventions (Andualem, Beyene, Tuli, et al., 2022). Nurses play a key role in using the GCS to monitor and evaluate patients from admission to discharge, requiring specialized skills and knowledge (Kanwal et al., 2022). Their proficiency in using the GCS significantly impacts patient outcomes, enabling timely interventions and accurate diagnoses (Yousef et al., 2021). This research aims to investigate

nurses' knowledge of the Glasgow Coma Scale in neurological assessments within a tertiary care hospital setting in Lahore

Literature Review

The Glasgow Coma Scale (GCS) is a cornerstone in the neurological assessment of patients. The literature surrounding nurses' knowledge and application of the GCS in neurological assessments is rich and varied, with numerous studies exploring factors influencing nurses' competency, and the relationship between demographic characteristics and GCS proficiency.

A descriptive cross-sectional study in Nepal assessed nurses' knowledge of the Glasgow Coma Scale, revealing that 48 nurses (52.70%) had inadequate knowledge (Bidur & Adil, 2022). Similarly, an institutional-based cross-sectional study in Ethiopia found that a significant proportion of nurses had poor knowledge (51.2%) and poor practice (62%) regarding the Glasgow Coma Scale. The study also identified that factors such as education level and gender were associated with nurses' knowledge and clinical practice related to the GCS (Andualem, Beyene, & Tuli, 2022).

A quantitative, descriptive cross-sectional study conducted in Karachi, Pakistan, revealed that 6% of participants had a low level of knowledge, 72% had a moderate level of knowledge, and 22% had a high level of knowledge regarding the GCS. These findings emphasize the significance of continuous education and training initiatives (Bibi et al., 2023).

In Pakistan, a cross-sectional study was conducted to compare the proficiency of physiotherapists (PTs) and nurses in using the Glasgow Coma Scale (GCS) within hospital and clinical settings. The study found that the mean knowledge scores for nurses and physiotherapists were 59.84±14.65 and 89.81±8.45, respectively. Additionally, factors such as age, gender, and educational attainment were significantly associated with the level of knowledge (p-value <0.001) (Kashif et al., 2022).

Material and Methods

A descriptive cross-sectional correlation study was carried out at various units including medical, surgical, gynecology, emergency, ICUs, and pediatrics units of Nishtar Hospital Multan. The study spanned a duration of 4 months, from January 2024 to April 2024.A sample size of 80 is estimated a margin of error of 5% using the following formula $n = \frac{N}{1+N\,(e)2}$. Convenient sampling technique was used to collect the data. The data was gathered from both male and female nurses registered in various units including Medical, Surgical, Pediatrics, Gynecological, Emergency, and Intensive Care. Prior to participation, all individuals provided written consent. Each participant received a structured questionnaire, with a one-week window to complete it. Approximately 90% of participants returned their completed questionnaires within the initial timeframe, while 10% did not. Those who didn't return their questionnaires were granted an additional week to do so. The data collection process took place over three months, from January to March 2024. The study utilized a demographic questionnaire and a knowledge scale adopted from reference (7). Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) 25. The association between knowledge and demographic characteristics was examined using the Chi-Square test.

Results and Discussion

A total of 80 eligible participants were recruited for the study. Demographic characteristics, such as participants' age, gender, qualification, experience, and department are presented in tables.

Table 1
Demographic characteristics of participants

Variable	Categories	Frequency	Percentage %
Age	20-25 year	15	19
	26-30 year	20	25
	31-35 year	15	19
	36-40 year	30	37
Gender	Male	20	25
	Female	60	75
Qualification	General Nursing Diploma	30	37
	Generic BSN	20	25
	Generic Post RN	25	31
	MSN	5	6
Experience	> 1 year	20	25
	1- 2 year	30	37
	3- 4 year	20	25
	≥ 5 year	10	12
Department	Medicine	12	15
	Surgery	18	22
	ICU	10	12
	Emergency	10	12
	Gynae and Obs	15	18
	Pediatrics	15	19

The table presents a breakdown of participants' characteristics. Regarding age distribution, the majority fall within the age brackets of 36-40 years (37%), with smaller proportions in the age ranges of 20-25 years (19%) and 31-35 years (19%). In terms of gender, females represent the predominant group at 75%, while males constitute 25% of the sample. Qualification-wise, General Nursing Diploma holders comprise the largest segment (37%), followed by Generic BSN (25%), Generic Post RN (31%), and MSN (6%). Experience levels vary, with the highest proportion having 1-2 years of experience (37%), followed by >1 year (25%), 3-4 years (25%), and ≥5 years (12%). Regarding departmental affiliation, Surgery (22%) and Gynae and Obs (18%) are the most represented, followed by Medicine (15%), Pediatrics (19%), ICU (12%), and Emergency (12%).

Table 2
Level of knowledge of nurses regarding GCS

Level of Knowledge	Frequency	Percentage
Poor knowledge	25	28
Average Knowledge	35	46
Good Knowledge	20	25

Table 2 indicates that 25 nurses (28%) had poor knowledge, while 35 nurses (46%) exhibited an average level of understanding. Furthermore, 20 nurses (25%) showed a good understanding of the GCS.

Table 3
Association between nurses' demographic characteristics and knowledge of GCS

Variable	Knowledge			P- Value
	Poor	Average	Good	
Age				
20-25 year	15	46	19	0.423
26-30 year	20	35	25	
31-35 year	15	46	19	
36-40 year	30	13	37	
Gender				
Male	20	35	25	0.0001
Female	30	25	25	
Qualification				
General Nursing Diploma	30	40	10	0.0000
Generic BSN	15	30	35	
Generic Post RN	17	30	33	
MSN	5	19	56	
Experience				
> 1 year	26	34	20	0.0002
1- 2 year	13	40	27	
3- 4 year	20	35	25	
≥ 5 year	10	48	22	
Department				
Medicine	22	33	25	0.0001
Surgery	38	22	20	
ICU	10	20	50	
Emergency	10	40	30	
Gynae and Obs	35	30	15	
Pediatrics	25	35	29	

Table 3 presented the relationship between nurses' characteristics and their levels of knowledge concerning the Glasgow Coma Scale (GCS). Gender ($p = 0.0001$), qualification ($p = 0.0000$), experience ($p = 0.0002$), and department of work ($p = 0.0001$) exhibit significant associations.

Discussion

This section discusses the knowledge level of nurses regarding the Glasgow Coma Scale (GCS). Our study found that 46% of nurses exhibited an average level of knowledge, indicating a satisfactory understanding among the majority of nurses. These findings align with previous research (12), which found that over 90% of nurses accurately answered basic knowledge questions about the GCS. However, when faced with clinical scenarios, 52.1% of nurses answered incorrectly, suggesting variations in knowledge depth across different aspects of the GCS. Additionally, while 83% of nurses demonstrated good knowledge regarding the reasons for conducting neurological assessments, only 64% could accurately identify the domains of behavior assessed by the GCS.

In contrast to other studies (3), our findings demonstrate significantly better results. Discrepancies may stem from differences in assessment tools and variations in training received. Like previous studies (3), ours also indicates a need for educational interventions and enhanced guidelines for conducting GCS assessments to improve knowledge and confidence.

We also found a significant association between nurses' gender and knowledge level, consistent with previous research (4, 7, 8). Similarly, qualification of nurses showed a significant association with GCS knowledge, contrary to some previous findings (Chong et al., 2016). Departmental affiliation was also significantly associated with knowledge level, in line with research demonstrating better understanding among nurses working in neuroscience wards compared to others (Bidur & Adil, 2022).

Conclusion

The study concluded that the majority of participating nurses were between 36 and 40 years old, female, with 1-2 years of experience, and most of them held a General Nursing diploma. Majority of nurses had average level of knowledge. There was a significant association between knowledge of participants and gender, qualification and experience of participants.

Recommendations

- Implement regular training sessions for nurses on the Glasgow Coma Scale (GCS).
- Utilize interactive learning methods such as workshops, case studies, and simulations.
- Provide access to updated educational resources like manuals, guidelines, and online courses.
- Foster interdisciplinary collaboration between nurses and other healthcare professionals.
- Establish a mentorship program for experienced nurses to mentor junior staff.
- Conduct regular assessments to evaluate nurses' knowledge and competency in using the GCS.
- Incorporate comprehensive GCS training into nursing curriculum.
- Encourage nurses to participate in professional development activities and conferences.
- Provide constructive feedback and support from supervisors and colleagues.

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