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ASSESSMENT OF NURSES' COMPETENCY IN NEUROLOGICAL ASSESSMENT SKILLS IN ACUTE CARE SETTINGS AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Background:
Neurological assessment is a critical skill for nurses working in acute care settings, where early detection of neurological deterioration can significantly influence patient outcomes. Competency in this area requires both theoretical knowledge and clinical practice, yet many nurses lack confidence and consistency in performing comprehensive neurological evaluations.

Aim:
This study aimed to assess the competency of nurses in neurological assessment skills in acute care units at a tertiary care hospital in Swat, Pakistan, and to determine the relationship between experience and knowledge levels.

Methods:
A descriptive cross-sectional study was conducted at Saidu Teaching Hospital, Swat. The study population included registered nurses from emergency, ICU, and neurology units. Using the Raosoft calculator, a sample size of 80 nurses was selected from a total population of 100. Data were collected using a validated questionnaire consisting of knowledge-based multiple-choice questions and a self-reported competency checklist. Descriptive statistics and the Chi-square test were used for data analysis using SPSS version 27.

Results:
Among the participants, 47.5% demonstrated moderate knowledge, 32.5% had good knowledge, and 20% had poor knowledge. The highest mean competency score was for the Glasgow Coma Scale (4.1), while the lowest was for cranial nerve examination (2.8). A significant association was found between years of experience and knowledge level ($p = 0.032$), with more experienced nurses demonstrating higher competency.

Conclusion:
The study highlights moderate overall competency in neurological assessment among nurses, with gaps in advanced skills. Targeted training and continuous professional development are recommended to improve clinical outcomes.

Keywords: *Neurological assessment, nurse competency, acute care, Glasgow Coma Scale, cranial nerves, clinical skills.*

INTRODUCTION

Competency is defined as the traits of knowledge, skills, judgment, and personal qualities to accomplish the functions performed by nurses efficiently and securely (Mrayyan et al., 2023). Neurological assessment skills as related specifically to the given study refer to the systematic examination of the neurological functioning of a patient, qua level of consciousness, pupillary response, motor and sensory functions, as well as to the assessment of cranial nerves, specifically, in an acute care environment (Campagnini et al., 2022). This is because the acute care setting is considered to be hospital units that offer acute and immediate attention to patients with critical injuries or illnesses, including such units as intensive care units (ICUs), emergency departments, and neurology wards. In these settings, nursing competencies play an important role in order to achieve correct diagnosis, appropriate intervention, and avoidance of complications among patients with neurological issues (Christensen & Liang, 2023).

Neurological disorders represent a great cause of morbidity and mortality in the world. The World Health Organization (WHO) has identified long-term disability and death as some of the major problems associated with stroke, traumatic brain injuries and neurodegenerative diseases (World Health Organization, 2023). Acute care is a scenario where timely but correct neurological assessment can significantly impact on patients (Raggi et al., 2022). However, research shows that large numbers of nurses are insecure or incompetent when it comes to administering full neurological examinations. Such a difference is seen especially in the resource-limited contexts where training might not be consistent. The increasing load of neurological emergency in hospitals is a signifying factor of the importance of assessing and improving the competencies of nurses in the field (Abuga et al., 2021).

Precise neurological evaluation is mostly the initial stage in identifying the degeneration among patients with brain/spinal injury. As the first-line caregivers, nurses should be capable of detecting subtle warning indicators like alteration in the state of awareness, motor disabilities, or aberrant reaction of the pupil (Brodbeck, 2025). In the absence of efficient appraisals, the situations of critical conditions might be not detected before it turns to be too late. The feature that a nurse can conduct elaborate neurological assessment enables him to inform the medical team in time and leads to immediately instituting the appropriate measures and events which can remarkably advance the rate and the length of stay in hospitals (Campbell, 2024).

Neurological assessment is not given sufficient importance in the study of nursing and in nursing practice even though it is critical. Most nurses complain of poor preparation of this aspect at undergraduate level of study. Moreover, clinical rotations in neurology-based units can be minimal which adds to the absence of the experience of practical work (Malmgren, 2024). Nurses in acute care setting (where acuity of patients is high, and time is restricted), might base their judgement on basic or incomplete assessment. This may lead to late/inadequate detection of complications in the form of rising intracranial pressure, hernia syndromes and brainstem involvement. Hence, formal training and routine competency assessment should be carried out to reinforce this core clinical skill (Ehwarieme et al., 2021).

Some studies reported a weakness in the neurological assessment skills of acute care unit nurses. To take an example, a study in South Africa and India showed that less than 40 % of nurses were able to do a complete Glasgow Coma Scale (GCS) assessment accurately or able to establish the functioning of the cranial nerves (Abdullah, 2023). Heavy workload, the absence of lifelong professional development, and the inability to access standardized assessment tools are some factors that lead to such inadequacies. In addition, any inconsistency regarding skill levels of new graduates and experienced nurses indicates that the continuation of mentorship and assessment related to competencies is important (Libke, 2025).

Nursing staff needs high clinical competency in tertiary care hospitals to treat the complex and severe neurological cases being treated in them. These institutions process referrals and rising critically ill patients and, therefore, nurses must be efficient in basic and advanced neurological examinations. Acute care settings can be dynamic and fast-paced, necessitating on-point and accurate responsiveness by the nurse when there is a shift in neurological status. Thus, the determination of the current levels of competency allows having a good look at the existing gap and the formation of specific training programs and the development of policies within the institution (Ehwarieme et al., 2021).

Amid rising rates of neurological emergencies and the importance of nurses to monitor patients, it is urgent to assess their competency in neurological assessment skills. The purpose of this research is to determine the

existing state of knowledge and practice among acute care nurses at a tertiary care hospital. The results will contribute to defining training requirements, evidence-based interventions, and the development of approaches that would educate nurses more effectively and improve patient safety in neurological care.

Methodology

The present study was a descriptive cross-sectional design that evaluated nurse's competency in neurological assessment skills in acute care units of a tertiary care hospital. Study was done in Saidu Teaching Hospital, Swat, which is one of the main executive care hospitals in the area with other specialist units including neurological and ICUs.

It was a sample of registered nurses in acute care units who practiced in the emergency department, intensive care unit (ICU), and neurology ward. The total population was estimated to be 100 nurses. The calculation of the sample size required to be achieved under the Raosoft sample size calculator indicated that 80 participants are required as the absolute minimum with a 95 % confidence level and a 5 % margin of error. A convenient sampling method was applied to select nurses with at least six months of experience in acute care settings who would have direct connection with neurological assessment as a part of their daily clinical practice.

Data Collection Procedure

A validated (Adopted) questionnaire was used as the instrument and participants were asked to respond to questions regarding their knowledge by using a multiple-choice questionnaire questioning their understanding of topics concerning neurological assessment (e.g., Glasgow Coma Scale, pupil response, motor function) followed by a self-reported competency checklist asking how frequently and how confident they were to perform certain neurological assessment tasks. Content validity of the instrument was established by clinical experts, who reviewed it before the administration.

Data collection was conducted over one month. The participants received information regarding the aim of the study, and written informed consent was received. Confidentiality and anonymity were maintained throughout the research process.

Data Analysis Procedure

The data were analyzed using SPSS version 27. Descriptive statistics, including frequencies, percentages, means, and standard deviations were used to summarize demographic data. The knowledge section was scored, with each correct answer assigned one point. Total knowledge scores were categorized as good (80–100%), moderate (60–79%), and poor (below 60%). For competency, Likert-scale responses were used to assess confidence in performing neurological assessment skills. Mean scores were calculated for each skill area. Higher scores indicated stronger self-perceived competency. Cross-tabulations were used to explore trends between experience and skill level. The Chi-square test was applied to determine associations between knowledge levels and demographic variables. A p-value of less than 0.05 was considered statistically significant.

The study was ethically approved by the Institutional Review Board (IRB) of Zalan College of Nursing, Swat. Special permissions were also sought by the administrative authorities of Saidu Teaching Hospital before the collection of data.

Results and Analysis

Demographic Characteristics

The majority of participants were male (70%), and most were between 26–30 years of age (42.5%). A significant proportion of nurses worked in the emergency department (37.5%), followed by ICU (32.5%) and the neurology ward (30%). In terms of experience, 40% had 3–5 years of clinical practice, while 35% had 6 months to 2 years, and 25% had more than 5 years. This reflects a diverse and experienced nursing workforce across acute care units [Table 1].

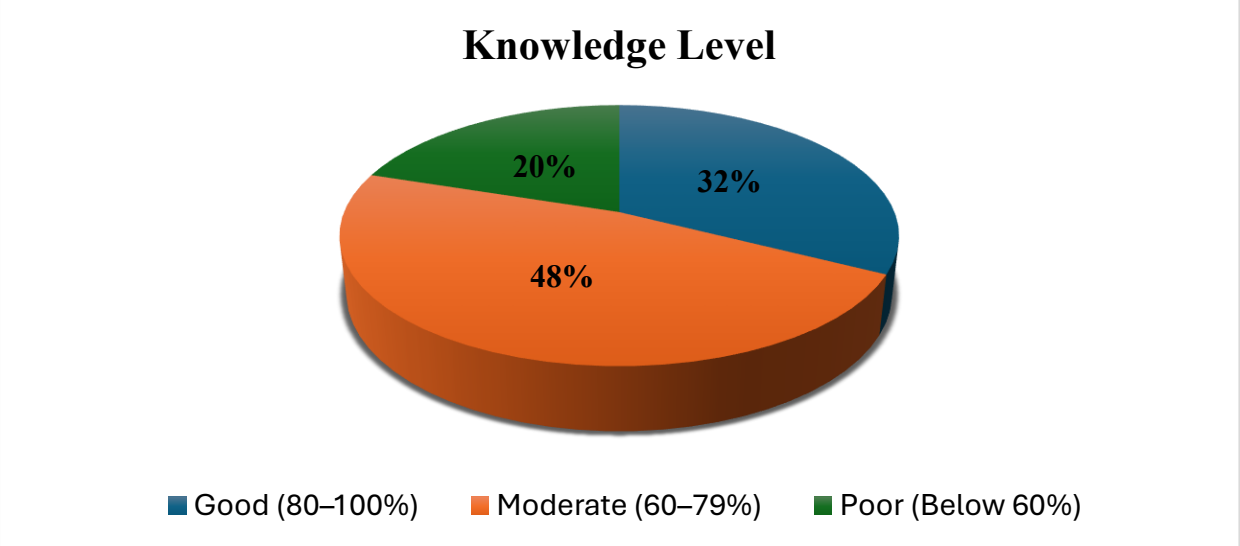
Table 1: Demographic Characteristics of Nurses (n = 80)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	56	70.0%
	Female	24	30.0%
Age Group	20–25 years	18	22.5%
	26–30 years	34	42.5%
	31–35 years	20	25.0%
	Above 35 years	8	10.0%
Unit	Emergency Department	30	37.5%

	ICU (HDU)	26	32.5%
	Neurology Ward	24	30.0%
Experience	6 months – 2 years	28	35.0%
	3–5 years	32	40.0%
	More than 5 years	20	25.0%

The results showed that 32.5% of nurses had good knowledge of neurological assessment, while 47.5% demonstrated a moderate level of knowledge. A smaller proportion, 20%, had poor knowledge. This indicates that while most nurses possessed a fair understanding, there remains a need to strengthen knowledge through targeted education and training [Figure 1].

Figure 1: Knowledge Levels on Neurological Assessment (n = 80)



Competency in Neurological Skills

The highest self-reported competency was in assessing the Glasgow Coma Scale (mean = 4.1), followed by pupil reaction (mean = 3.9). Motor function assessment had a moderate score (mean = 3.6), while lower competency was noted in sensory function (mean = 3.2) and cranial nerve examination (mean = 2.8). This suggests that while nurses feel confident in basic neurological assessments, there is a noticeable gap in performing more complex examinations [Table 2]

Table 2: Self-Reported Competency in Neurological Skills

Skill Area	Mean Score (1–5)	Standard Deviation
Glasgow Coma Scale (GCS)	4.1	0.6
Pupil Reaction Assessment	3.9	0.8
Motor Function Assessment	3.6	0.7
Sensory Function Assessment	3.2	0.9
Cranial Nerve Examination	2.8	1.0

Association Between Years of Experience and Knowledge Level

The results show a significant association between years of experience and knowledge level ($p = 0.032$). Nurses with more than 5 years of experience had the highest proportion of good knowledge (50%), while those with 6 months to 2 years had the lowest (14.3%). Conversely, poor knowledge was more common among less experienced nurses. This indicates that increased clinical experience is linked to better understanding of neurological assessment skills [Table 3].

Table 4: Association Between Years of Experience and Knowledge Level (Chi-Square Test)

Experience Level	Good Knowledge	Moderate	Poor	p-value
6 months – 2 years	4	15	9	
3–5 years	12	15	5	
More than 5 years	10	8	2	0.032

Discussion

This paper evaluated the levels in which nurses had the skills on the neurological assessment in cases of acute care in one of the tertiary care hospitals in Swat. The results confirmed that most nurses proved to have moderate knowledge (47.5%), whereas 32.5 percent had good knowledge and 20 percent showed poor knowledge. Such findings indicate that the current level of awareness about neurological assessment among nurses is rather positive but that there are still definite weaknesses which may negatively affect the care delivered to the patients. Moghadam et al. (2020) published the corresponding results in their study, indicating that nurses working in critical care departments had average knowledge levels, whereas low-depth results were reported in such specific assessment types as cranial nerve checks.

The paper also cited the highest competency level of the nurses in doing Glasgow Coma Scale (GCS) and pupil reaction had the highest mean scores of 4.1 and 3.9, respectively. This goes in line with the conclusions of Chen et al. (2024), who indicated that nurses feel as a rule that they can carry out basic neurological assessments, which are broadly used in everyday practice. Nonetheless, the more advanced skills that were observed to have a lower level of competency were found to be sensory assessments (mean = 3.2) and cranial nerve examinations (mean = 2.8), as is typical of the studies conducted by Pandey (2025) where only 28% of the nurses demonstrated the correct assessment of all cranial nerves.

The study also showed that there was a significant relationship between years of experience and levels of knowledge attained, with a higher proportion of good knowledge level in more experienced nurses (over 5 years). This discovery confirms the study by Klinke et al. (2025), which discovered that clinical experience is a very important aspect of acquiring assessment skills, particularly in cases characterized by complex and acute care. Conversely, the rates of poor knowledge were higher among the newly inducted nurses or those with up to two years of experience, which is why specific mentorship and training of early-career nurses are necessary.

To put the competency gap into perspective, it seems to have a stronger presence in developing countries when compared to international literature, such as the one by Pandey (2025) in the United Kingdom. Although the nurses in the acute neurology unit of the UK were undergoing regular continuing professional development (CPD) training sessions, they were more likely to be competent due to such regular sessions, the nurses in the current study did not have adequate access to effective structured learning after undergoing primary education. The effect of institutional support and continued training on clinical competency can be highlighted by this contrast.

The other outstanding fact is that the assessment of competency depended on the self-report data; therefore, it might or might not necessarily show actual performance. Nevertheless, the results can provide significant information about perceived confidence that has a great impact on the willingness of a nurse to conduct a certain evaluation during clinical practice. Research by Barker Scott & Manning (2024) recommends that perceived competence is an excellent predictor of actual clinical engagement, especially in extreme pressure settings, like emergency and ICU units.

Although the present paper can be compared to the rest of the world in terms of the relationship between knowledge and experience, regional problems are also unveiled. These are the absence of simulation training, unequal exposure to neurologic cases and a low focus on special testing both in the undergraduate educational plan and in the clinical practice. Such obstacles may be one of the reasons behind the noted skill deficiency areas, especially those concerning the evaluation of cranial nerves, a skill that needs dedicated instruction and training (Godard, 2021).

To sum up, the research validates the necessity of reforming the educational strategies and institutional policies to boost the competency of nurses in neurologist evaluations. In line with the results of other research studies done in other countries, the research findings also support the implementation of well-designed training modules, monthly workshops, and supervised incrustations in the neurology focused units. Healthcare organizations in resource-limited contexts can seek to fill these gaps, increasing attention to early identification of neurological decline, developing the ability to make interventions

efficiently, and eventually achieve better outcomes in acute care conditions.

Conclusion and Recommendations

The result of this study indicates that although the analytical results indicate that nurses in acute care departments of the Saidu Teaching Hospital had a moderate level of knowledge and self-reported ability in neurological assessment, weaknesses of the gauge were wide, especially at the higher levels in cranial nerves and sensory testing. The greatest competence was observed on the routine assessments, such as Glasgow Coma Scale and pupil reaction, and it demonstrated the knowledge of the frequently used instruments. That being said, the dependence between the extent of clinical experience and the degree of knowledge makes it paramount to continue the exposure path and hands-on experience necessary to increase neurological assessment proficiency.

It would be suggested on the basis of the results that the hospital administration and nursing education institutions should provide organized in-service training activities that specifically target the correct assessment skills in the area of neurology. Workshops using simulations and regular testing of competency should also be implemented in order to provide additional reinforcement. Moreover, undergraduate nursing curricula must focus on neurological assessment more intensely, with such topics as the specific clinical rotation on neurology ward. Apprenticeship to qualified nurses is encouraged to allow the less experienced nurses to learn how to gain confidence and accuracy on neurological assessment.

Moreover, the institution rules are expected to compel the conducting of refresher courses periodically and invite nurses to engage in continuing professional developments (CPD). Regular practice can also be supported as updated guideline and neurological assessment tools are provided to be easily available. The improvement of these areas will eventually result in patient safety, timely intervention, and improved outcomes of people with neurological diseases in acute care settings.

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