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| RESEARCH ARTICLE

Knowledge and Utilization of Glasgow Coma Scale among Nurses in the Management of Unconscious Patients in Modibbo Adama University Teaching Hospital, Yola

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| ABSTRACT
The Glasgow Coma Scale (GCS) functions as a worldwide standard assessment tool that medical professionals use to determine unconscious patients' consciousness levels. The emergency and critical care field relies on GCS assessment, yet research shows nurses have inadequate knowledge about its application. The study was to evaluate the awareness and application of the Glasgow Coma Scale by Nurses in managing unconscious patients at the Modibbo Adama University Teaching Hospital, Yola. The focus was on Nurses' knowledge of the GCS, their use of the tool, and what hampers the effective use of the scale. The research involved a descriptive, cross-sectional survey. 120 nurses were purposively sampled and given a structured questionnaire. The data were subjected to descriptive statistics. The study indicated that 76.6% of the nurses had excellent knowledge of the Glasgow Coma Scale, whereas 23.4% were unfamiliar with it. Regarding the use, 60.8% of the participants said that they frequently apply the scale in the care of unconscious patients, while the remaining 39.2% either rarely or never use it. It is worth mentioning that 47.5% of the participants blamed insufficient training, while 32.5% pointed to a lack of equipment as the reason for the failure to utilize the scale effectively. The paper finds that although nurses have a good understanding of the GCS, they do not often use it in their work because of a lack of training and not having the necessary tools. To improve the continued and proper use of the GCS in the care of unconscious patients, it has been suggested that regular training sessions and the supply of assessment instruments be given top priority.

| KEYWORDS

Glasgow Coma Scale, Unconscious patients, Nurses, Knowledge, Utilization, Neurological assessment.

| ARTICLE INFORMATION

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1. Introduction

1.1 Background to the study

The assessment and management of unconscious patients in healthcare settings require a systematic and standardized approach to ensure accurate diagnosis, appropriate intervention and continuous monitoring of neurological status, with the Glasgow Coma Scale GCS being a globally recognized tool for this purpose. The GCS developed by Teasdale and Jennett in 1974 serves as an essential clinical assessment tool that enables healthcare professionals particularly nurses to objectively evaluate the level of consciousness in patients presenting with neurological impairments traumatic brain injuries or altered mental states due to various medical conditions Teasdale & Jennett 1974. The scale establishes a standardized evaluation framework which measures eye-opening

response and verbal response and motor response through three assessment categories that produce scores from 3 to 15 where lower scores indicate more severe impairment and a higher risk of adverse neurological outcomes. The knowledge and use of the Glasgow Coma Scale by nurses who provide direct patient care enables them to detect neurological decline and they need this knowledge to help patients achieve better outcomes Ropper et al. 2024.

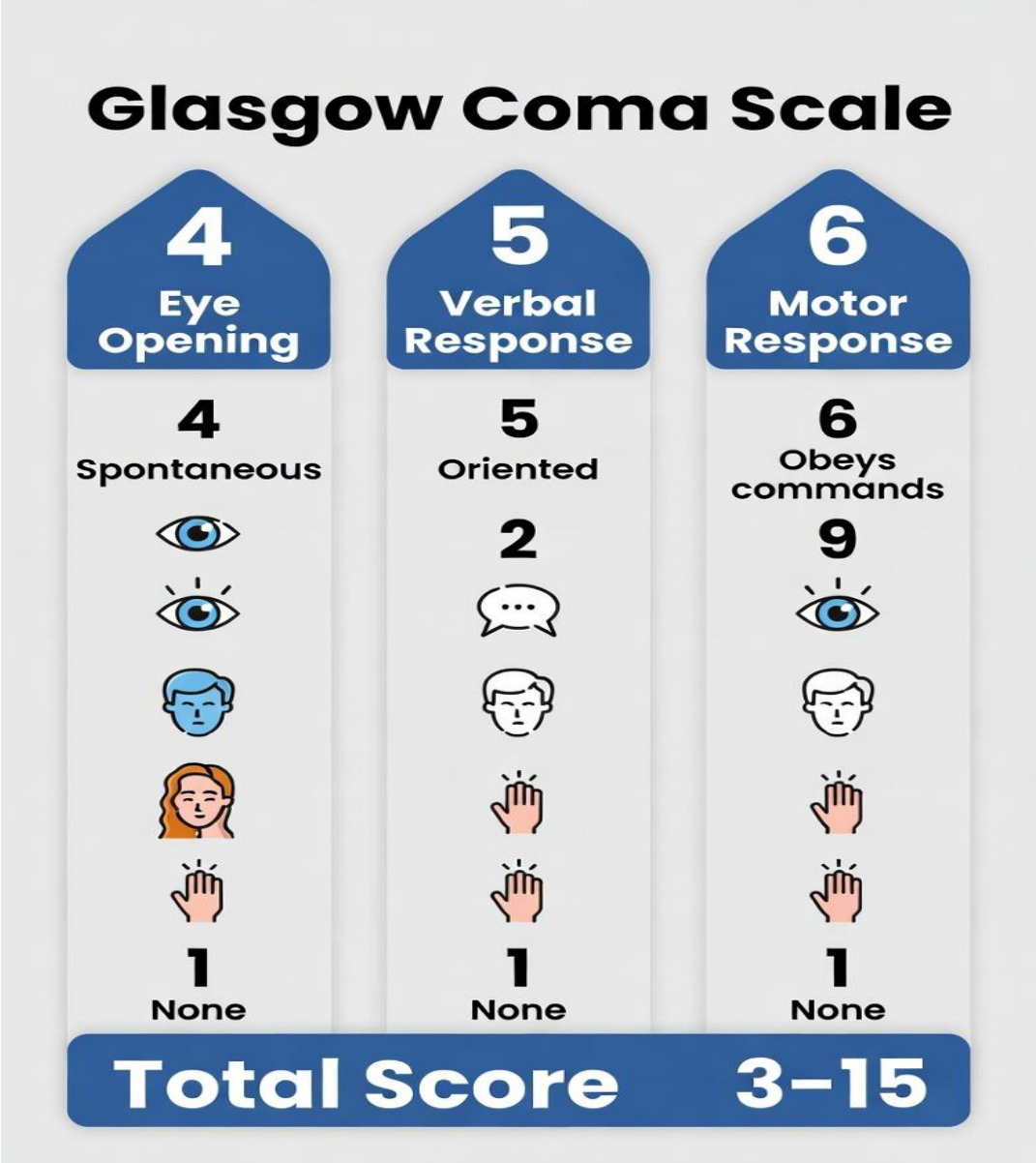

Figure 1: Conceptual diagram showing the three components of the Glasgow Coma Scale (Eye opening, Verbal response, Motor response) and their scoring ranges (3–15) in the assessment of level of consciousness.

1.2 Scope and Objectives

The study investigates how nurses at Modibbo Adama University Teaching Hospital (MAUTH) Yola understand and use Glasgow Coma Scale (GCS) assessment. MAUTH Yola functions as a primary tertiary referral hospital which serves as the main medical facility for Adamawa State because it receives high numbers of unconscious trauma and stroke patients who suffer metabolic and central nervous system infections in emergency and intensive care and general ward areas. This location demonstrates the difficulties involved in assessing neurological conditions within a Nigerian tertiary hospital that has limited resources because nurses handle most everyday monitoring of patient consciousness.

The study aims to achieve four main goals which include: (1) assessing nurses GCS theoretical and practical knowledge about GCS components scoring and clinical interpretation; (2) studying GCS assessment and monitoring practices which doctors use during their daily treatment of patients who cannot wake; (3) identifying GCS application challenges which hospitals who work with professional staff and patients together with operational drawbacks face in their treatment; (4) studying how nurses GCS knowledge level impacts their patient management behavior.

The research shows actual working conditions of registered nurses who work in departments that handle unconscious patients at MAUTH Yola which includes Emergency Unit and Intensive Care Unit and Orthopaedic Unit and Peri-operative Unit and general medical/surgical wards. The study excludes student nurses, non-nursing staff, and nurses in non-clinical or administrative roles. The research uses structured questionnaire to collect self-reported knowledge data and self-reported utilization practices data and perceived barriers data which will undergo analysis through descriptive statistics and associations relevant to the Nigerian tertiary hospital context.

The narrowed research scope enables researchers to study real-world Nigerian teaching hospital GCS competency gaps which will provide data for the development of hospital-specific training programs and protocol standardization and quality improvement initiatives. Understanding how GCS knowledge translates (or fails to translate) into consistent bedside application in this environment helps to improve the detection of neurological deterioration while achieving better results for patients who receive critical care in northern Nigerian tertiary facilities that lack resources.

2. Review of Related Literature

2.1 Conceptual Review

2.1.1 Concept of Glasgow Coma Scale (GCS)

The Glasgow Coma Scale (GCS) provides standardized neurological assessment capabilities which medical professionals use to determine patient consciousness levels through evaluation of traumatic brain injury (TBI) and other neurological disorder cases. The scale which Teasdale and Jennett introduced in 1974 establishes an objective evaluation system to measure impaired consciousness through three assessment criteria: eye-opening response (E), verbal response (V), and motor response (M) (Teasdale & Jennett, 1974). The assessment system assigns numerical values to each component which creates a scoring range between 3 and 15 points because 15 points represent total consciousness while 3 points demonstrate complete unconsciousness or brain death. The GCS stands as a principal tool which healthcare professionals use in clinics to evaluate brain function in unconscious patients while making treatment decisions (Sternbach, 2020). The eye-opening response (E) component assesses a patient's ability to open their eyes spontaneously or in response to external stimuli. The assessment system assigns 4 points for spontaneous eye-opening and 3 points for eye-opening in response to verbal commands and 2 points for eye-opening to pain and 1 point for no eye-opening at all. The verbal response (V) evaluates speech coherence and orientation, where a score of 5 is awarded for normal conversation, 4 for confused speech, 3 for inappropriate words, 2 for incomprehensible sounds, and 1 for no verbal response. The motor response (M) component assesses patient movement in response to stimuli through its scoring system which allows a total of 6 points for following commands and 5 points for locating pain and 4 points for withdrawing from pain and 3 points for decorticate posturing and 2 points for decerebrate posturing and 1 point for total motor inactivity (Kirk et al., 2021). The three assessment components work together to create an evaluation system which determines patient condition severity and establishes needed medical treatment procedures. The Glasgow Coma Scale serves as a critical clinical tool because it enables healthcare professionals to make instantaneous decisions about patient management based on their assessment results. The GCS scoring system defines brain injury severity through three ranges which include 13 to 15 points for mild brain injuries and 9 to 12 points for moderate brain injuries and 3 to 8 points for severe brain injuries which require urgent medical treatment to secure airways and deliver mechanical breathing support and perform detailed brain function assessments (Matis & Birbilis, 2021). The GCS demonstrates its highest usefulness in emergency and critical care environments because medical professionals need to know patient wakefulness status to decide whether patients require imaging tests or surgical treatments or their need for ICU care (Menon & Poca, 2022). The Glasgow Coma Scale functions as a widely used assessment tool, yet its effectiveness diminishes when

applied to patients who have conditions which stop them from producing verbal or motor responses. The GCS assessment becomes less accurate when used on patients who require intubation or sedation or who sustain severe facial or limb injuries. The GCS-P score which uses pupil reactivity assessment or the Full Outline of UnResponsiveness (FOUR) Score certification process function as assessment alternatives when GCS standard evaluation fails (Brenner et al., 2021). The inter-rater variability problem continues to be an issue because research shows that nurses and physicians who have different levels of experience and training will show different results when they interpret GCS scores according to their training which results in uncertain evaluation results (Kirschen et al., 2020). The GCS assessment system needs GCS assessment training programs which healthcare professionals must complete through continuous education and training sessions so nurses can become better at doing their job. Research shows that structured training programs significantly enhance GCS assessment accuracy which leads to improved patient outcomes through early detection of neurological deterioration (Nasir et al., 2022). Nurses need to understand GCS assessment requirements because they must monitor unconscious patients through their healthcare responsibilities (Thapa et al., 2021).

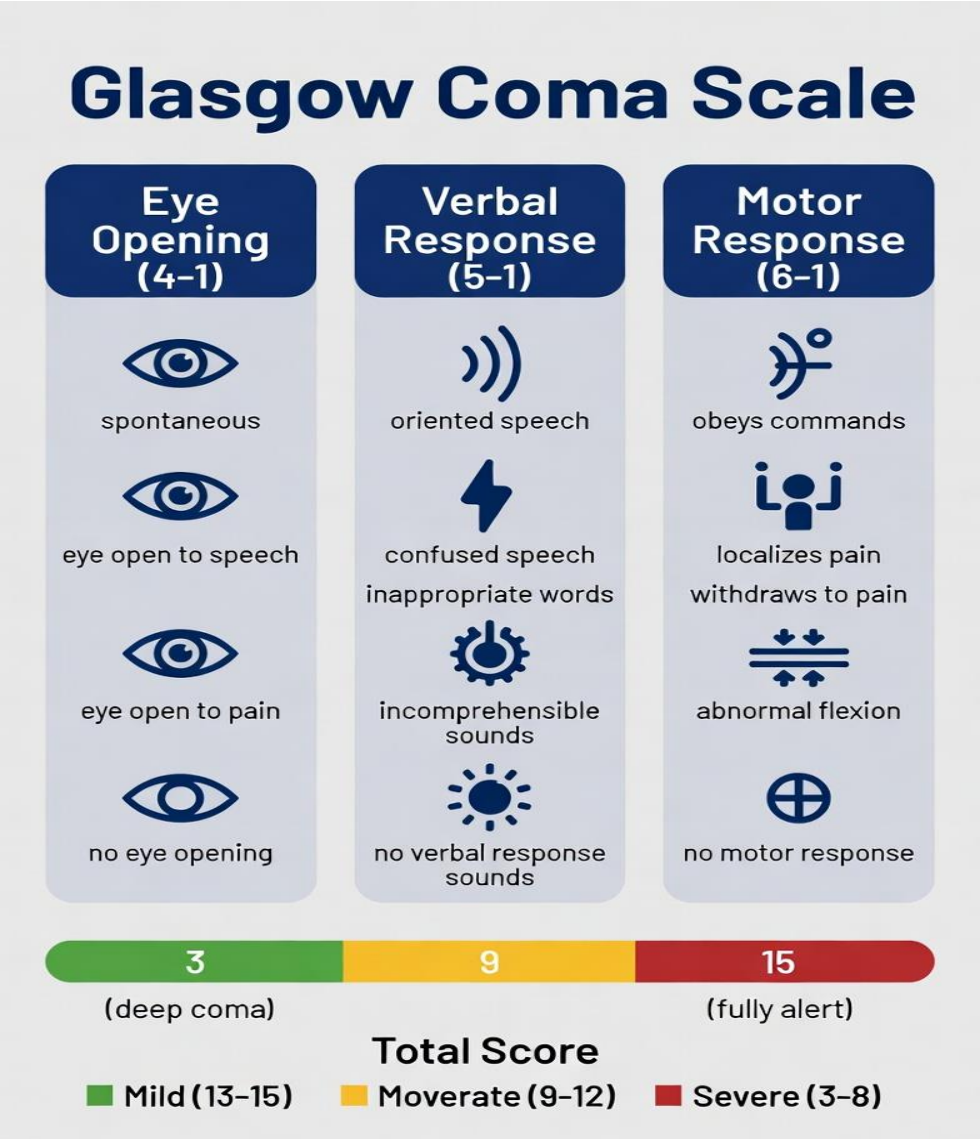

Figure 2: Conceptual framework of the Glasgow Coma Scale showing the three assessment domains (Eye Opening, Verbal Response, Motor Response), individual scoring levels, total score range (3–15), and clinical severity classification (mild, moderate, severe).

2.1.2 Nurses' Knowledge on the Glasgow Coma Scale

Understanding of nurses towards the Glasgow Coma Scale (GCS) plays an essential part in accurate neurological examination and timely treatment of unconscious patients. The nurses' knowledge includes awareness of the GCS's purpose and its three components (eye, verbal, and motor responses), scoring criteria for each component, interpretation of total scores, and understanding of varying score ranges and how they affect patient management (Ibrahim et al., 2020).

With such knowledge, nurses can carry out objective and consistent assessments which help in the early detection of neurological deterioration, better communication among the multidisciplinary teams, and facilitating evidence-based decision making in emergency and critical care situations (Ahmed et al., 2018). However, lack of knowledge, like not understanding the scoring details well, getting the wrong idea of responses in intubated or sedated patients, or not being able to relate the prognostic usefulness of GCS patterns, may cause inconsistent assessments, delay in treatment, and increased risk of adverse outcomes (Odetola et al., 2021).

In low-resource settings such as Nigeria, the nurses' knowledge of the GCS has been shown to largely depend on the training they received during nursing school, how often they have to take care of unconscious patients, their participation in professional development courses, as well as the availability of refresher and simulation-based training (Yusuf & Lawal, 2019). Research shows that nurses with a better GCS knowledge level become more confident, score more accurately, and generally use the tool more effectively in patient monitoring (Adeyemo & Adebayo, 2021).

2.1.3 Concept of Utilization of Glasgow Coma Scale

Utilization of the Glasgow Coma Scale fundamentally denotes the usage of the scale by nurses in their daily care of unconscious patients during assessment, documentation, and monitoring for changes in the level of consciousness. Proper utilization means that the GCS assessment is carried out at suitable time intervals (usually every 1, 4 hours in acute cases or at the point of clinical indication), each component is scored accurately, the findings are documented clearly, the changes over time are interpreted, and hence the results are used to make clinical decisions such as changing the level of care or consulting with the neurology department or modifying treatment plans (Wilson et al., 2020).

Frequent and uniform use of a tool will help the clinician in early detection of neurological deterioration thus resulting in patient safety. It is also instrumental in efficient communication standards among different healthcare team members which eventually lead to prognosis and triage decisions in trauma, stroke, and critical care settings (Patel et al., 2021). Improper use of the tool due to infrequent assessments, incomplete documentation, inaccurate scoring, or non-performance of beneficial actions results in a loss of the reliability and accuracy of neurological monitoring which can lead to put preventable events at risk (Mohammadi & Rezaei, 2017).

In the real world, the utilization of a tool depends on the combination of institutional factors (such as availability of GCS charts, workload, staffing levels), professional factors (such as confidence, experience, training), and logistical factors (such as access to tools, documentation systems) (Dube & Mthimunye, 2019). The higher the utilization rate, the better the patient outcomes, the less the missed deteriorations, and the greater the adherence to the evidence-based neurological care protocols.

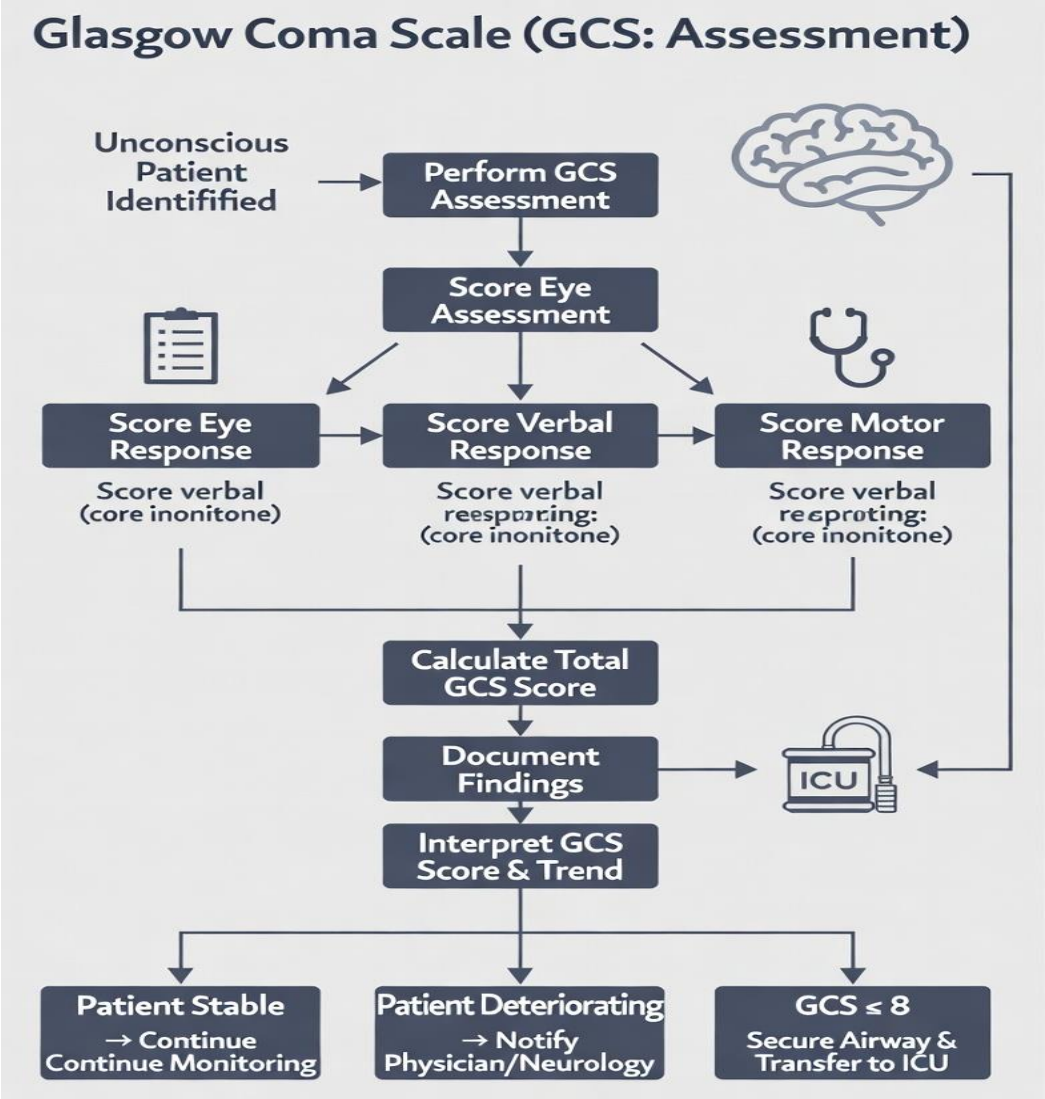

Figure 3: Flow diagram illustrating the clinical utilization pathway of the Glasgow Coma Scale in unconscious patient management, from initial assessment through scoring, documentation, interpretation, and decision-making to intervention or continued monitoring.

2.2 Empirical Studies

Many empirical works have tried to find out how well nurses know and use the Glasgow Coma Scale in their everyday work, especially in the health systems of poor and developing countries.

Odetola et al. (2021) ran a survey among nurses from a few top-level hospitals in Nigeria and discovered that although a high percentage of nurses (78%) were able to identify the theoretical components of GCS correctly, the number of those who actually used the scale in a value-oriented manner was comparatively low (54%). Besides, the major reasons for the inconsistency between knowledge and practice were identified as a high workload and no availability of refresher training.

In Ghana, Adam and Alhassan (2021) shared that about two-thirds of their sample of emergency nurses were sufficiently knowledgeable while their execution of the learned skills was fitful with 42% of the respondents blaming the lack of adequate materials for them to do the job and 38% pointing to having insufficient time due to too many patients.

A Turkish study of Mbakaya et al. (2022) has shown that the vast majority (72%) of critical care nurses had an understanding of GCS scoring but less than half (48%) of them conducted the GCS assessment regularly as per recommended time schedules. Nurses justified the reason for such gaps to be poor facility-level support and lack of proper protocol of managing a neocritical patient.

Near-neighbor Nigeria research such as Umeh and Obinna (2020) and Emeh and Okonkwo (2021) also showed that though the nurses' level of awareness was between moderate and high (around 70-85%), the actual performance theoretically informed practice was still suboptimal (50-65%) because of systemic barriers to include understaffing, inefficient documentation, and irregular continuing education.

All of these empirical findings are evidences of a nonconformity or incongruity between the nurses' knowledge and practical deployment of the GCS, thus making an evident case for theory-practice interventions that can help nurses translate their knowledge into bedside practice in African tertiary hospital settings.

2.3 Theoretical Framework

A significant pillar upon which this current thesis rests is Patricia Benner's Novice to Expert Theory (1984), which puts nursing education and skill development as a progression through five phases: novice, advanced beginner, competent, proficient, and expert. According to the theory, nurses learn, reflect, and purposely practice over time and gradually move from a rule-based practice (novice) to a more intuitive, contextual decision-making (expert).

What the theory tells us about GCS usage is that eventually, the nurse will turn the knowledge hierarchy of GCS from being a mere theoretical understanding of its components to becoming a clinical expert who can confidently, accurately, and consistently apply the scale even in complicated situations. This happens because nurses get progressively familiarized with the process, get their skills evaluated, and are trained in an orderly manner, one after another. If a nurse is struggling with GCS usage or understanding, then it can be inferred that the nurse is at an earlier stage in the learning process, likely because they have had less clinical exposure or fewer opportunities for continued education.

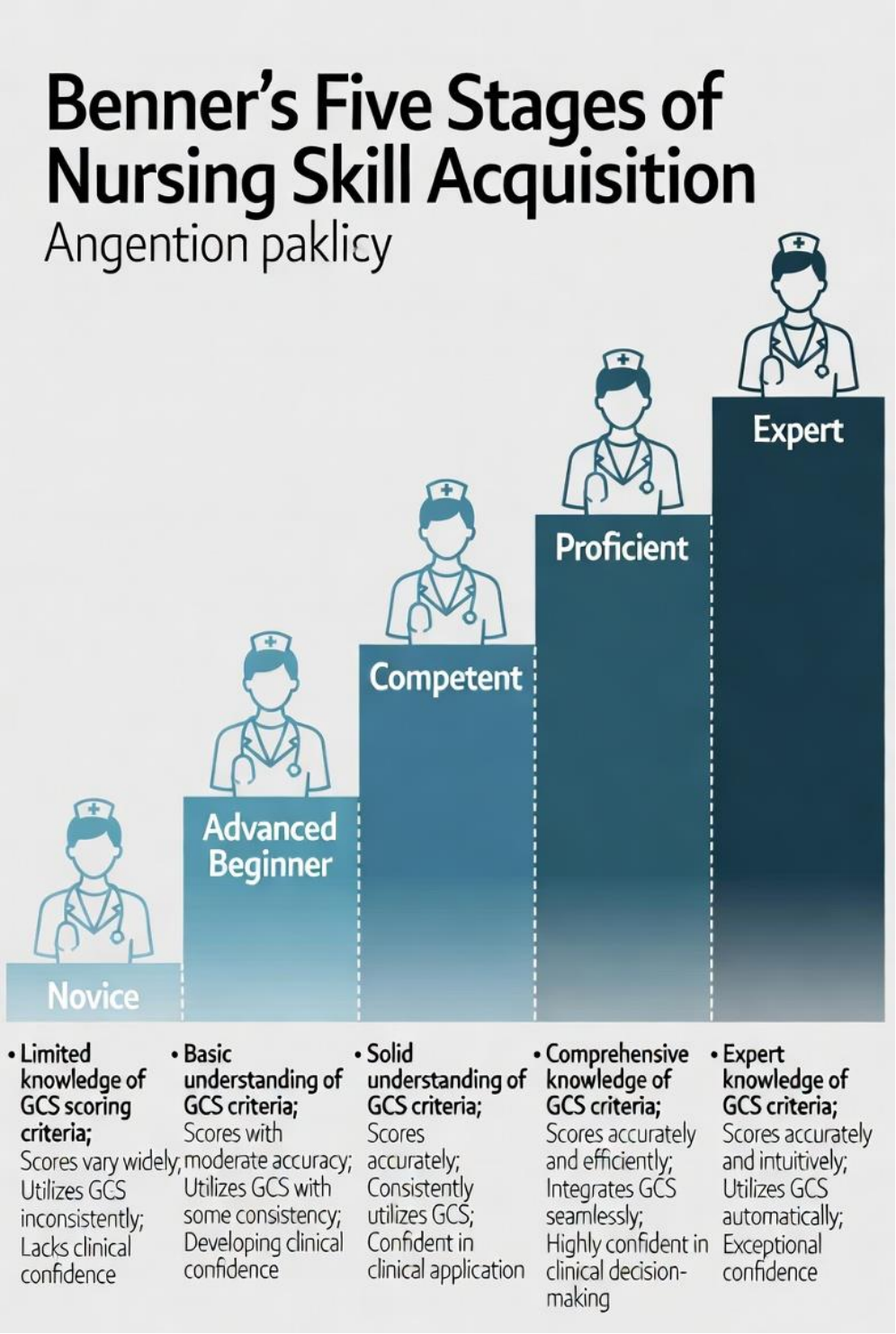

Figure 4: Schematic representation of Benner's Novice to Expert Theory (1984) applied to Glasgow Coma Scale competency development among nurses, showing progression across five stages with associated GCS knowledge and utilization characteristics.

2.4 Summary of Literature Review

The studied literature shows that the Glasgow Coma Scale functions as the primary method for doctors to measure unconscious patients' consciousness through its established measurement system and scoring method and its specific clinical usage. Nurses display moderate to high theoretical comprehension of GCS knowledge, yet

encounter difficulties in applying this knowledge with accuracy because of their insufficient training and their overwhelming work responsibilities and their equipment shortages and their policy enforcement problems and their documentation processes. The research studies from Nigeria and various other African countries demonstrate a continuous knowledge-practice gap while Benner's Novice to Expert Theory shows how people acquire GCS competency through their educational background and work experience. The existing research demonstrates that Nigerian tertiary hospitals require context-specific investigations to determine local barriers which will assist in developing targeted strategies to enhance GCS implementation and patient care.

3. Research Methodology

3.1 Research Design

The researchers used a descriptive cross-sectional research design for their study. This design was chosen because it allows for the collection of data at a single point in time to describe the existing knowledge, utilization patterns, and perceived barriers related to the Glasgow Coma Scale (GCS) among nurses in the study setting. The cross-sectional approach enables researchers to study GCS knowledge and practical application in a tertiary hospital setting by assessing population attributes and disease links through their study without variable control (Polit & Beck, 2021).

3.2 Area of the Study

The study was conducted at Modibbo Adama University Teaching Hospital (MAUTH), Yola, Adamawa State, Nigeria. MAUTH operates as a 400-bed tertiary referral and teaching hospital, which serves as the main specialized healthcare institution for Adamawa State and nearby areas. The facility offers a complete range of services that include emergency treatment, intensive medical care, trauma services, neurological treatment, complete medical care, surgical operations, and orthopedic services. The hospital handles numerous unconscious patients who need continuous neurological observation because they suffer from traumatic brain injuries and cerebrovascular accidents and metabolic emergencies and infections and other critical medical situations.

The researchers selected MAUTH Yola because it demonstrates how tertiary hospitals in northern Nigeria deliver healthcare. Nurses perform essential bedside neurological assessments despite facing patient overload and training restrictions and resource supply inconsistencies.

3.3 Population of the Study

The target population included all registered nurses who worked in clinical departments at Modibbo Adama University Teaching Hospital, Yola and who had direct contact with patients who were unconscious. The group included nurses who operated in the Accident and Emergency Unit and Intensive Care Unit (ICU) and Orthopaedic Unit and Peri-operative Unit and all relevant medical and surgical wards. The estimated total population of eligible nurses in these units was approximately 180–200 at the time of the study according to hospital staffing records.

3.4 Sample and Sampling Technique

The researchers used purposive non-probability sampling to choose 120 registered nurses who met the inclusion criteria which required them to (1) currently work in departments with frequent exposure to unconscious patients and (2) possess at least one year of clinical experience and (3) agree to participate. The study required nurses responsible for neurological assessment of unconscious patients to be selected through purposive sampling because this method would create a sample that provided rich information about the relevant clinical workforce.

The researchers established the sample size of 120 based on their estimate of the eligible population which included approximately 190 people and the study period and the statistical power requirement for descriptive and association analyses in a single-site cross-sectional study.

3.5 Instrument for Data Collection

The researcher used a structured self-administered questionnaire to gather data which she designed herself. The instrument consisted of five sections:

Section A: Demographic characteristics (sex, age, marital status, educational qualification, years of experience, department/unit)
Section B: Knowledge of Glasgow Coma Scale (5 Likert-scale items)
Section C: Utilization of Glasgow Coma Scale (5 Likert-scale items)
Section D: Factors inhibiting accurate GCS assessment (5 Likert-scale items)
Section E: Relationship between knowledge and utilization (5 Likert-scale items)

The four-point Likert scale used for responses included Strongly Agree (4) as the highest value and Strongly Disagree (1) as the lowest value and Disagree (2) and Agree (3) as intermediate values.

3.6 Validity of the Instrument

The instrument underwent face and content validity testing after three experts evaluated it which included two senior lecturers in nursing science and one consultant neurologist who practiced in critical care. The experts evaluated the questionnaire to assess whether it maintained clarity and relevance and complete coverage of content and its suitability for achieving study goals. The researchers incorporated all suggested modifications which included minor wording adjustments and the addition of one demographic item before they finalized the document.

3.7 Reliability of the Instrument

The researchers established reliability through a pilot study which included 20 nurses from a comparable tertiary hospital that chose not to take part in the study. The researchers calculated Cronbach's alpha coefficient for each section:

Knowledge section: $\alpha = 0.87$
Utilization section: $\alpha = 0.84$
Barriers section: $\alpha = 0.81$
Relationship section: $\alpha = 0.79$

The instrument showed good internal consistency and reliability because all values surpassed the minimum acceptable limit of 0.70.

3.8 Method of Data Collection

The researcher distributed questionnaires to eligible nurses during duty shifts after receiving ethical approval and hospital management permission. The researchers provided participants with a study purpose explanation who received confidentiality and anonymity assurance and they received one week to finish their forms and return them in sealed envelopes. The researchers distributed 120 questionnaires and retrieved all of them which produced a complete response rate of 100%.

3.9 Method of Data Analysis

The researchers processed data through descriptive statistics and inferential statistics with SPSS version 25. The researchers used descriptive statistics which included frequencies and percentages and means and standard deviations to present demographic information and knowledge distribution and utilization patterns and barriers to use. The researchers used Pearson correlation coefficient as an inferential statistic to study the connection between knowledge and utilization scores. The researchers presented results in tables which they interpreted at a significance level of $p < 0.05$.

3.10 Ethical Consideration

The Research Ethics Committee of Modibbo Adama University Teaching Hospital Yola granted ethical approval for the study. The researchers obtained written informed consent from each participant after they explained the study purpose and voluntary nature of participation and the participant's right to withdraw and the confidentiality

measures in place. The researchers handled all data anonymously through secure methods after they did not collect any personal identifiers from participants. The researchers allowed people to participate in the study freely and provided no forced participation or participation rewards.

Figure 5: Flow diagram of the study methodology showing sequential steps from ethical approval and participant recruitment through data collection, analysis, and reporting.

4. Data Presentation and Analysis

4.1 Introduction

This chapter deals with data analysis, data presentation and interpretation of tables. Two hundred and twelve (212) copies of the questionnaire were administered to the respondents and same were retrieved which represent 100% retrieval.

4.2 Presentation of Result

This section presents the demographic profile of the respondents, which includes their sex, age, marital status, educational qualification, years of work experience, and department/unit of posting.

Table 1: Demographic Characteristics of Respondents (n = 212)

Variable	Category	Frequency	Percentage (%)
Sex	Male	71	33.5
	Female	141	66.5
Age	20–25 years	26	12.3
	26–30 years	94	44.3
	31–35 years	45	21.2
	36–40 years	24	11.3
	41 years above	23	10.9
Marital Status	Single	94	44.3
	Married	106	50.0
	Divorced	12	5.7
	Widowed	0	0.0
Educational Level	Diploma in Nursing	118	55.7
	Bachelor of Nursing (B.Sc.)	82	38.7
	Postgraduate Certification	12	5.6
Years of Experience	1–5 years	12	5.7
	6–10 years	47	22.2
	11–15 years	47	22.2
	16 years and above	106	50.0
Department/Unit	Accident and Emergency Unit	71	33.5
	Orthopaedic Unit	47	22.2
	Intensive Care Unit (ICU)	59	27.8
	Peri-operative Unit	12	5.7
	No Specialty/Other	23	10.8

Table 4.1 displays the demographic details which describe the people who took part in the study. The workforce shows a female majority because 141 female respondents represent 66.5 percent of 212 total respondents, while 71 male respondents account for 33.5 percent of the total. The majority of respondents belonged to the 26–30 years age group which included 94 participants, while 45 respondents aged 31–35 years and 26 respondents aged 20–25 years followed in numerical order. The study found that 24 respondents or 11.3 percent belonged to the 36–40 years age group, and 23 respondents or 10.9 percent belonged to the age group above 41 years.

The data shows that 106 respondents or 50.0 percent of total respondents were married, while 94 respondents or 44.3 percent remained single, and 12 respondents or 5.7 percent had ended their marriage through divorce, with no widowed participants. The highest educational qualification distribution shows that 55.7 percent of total participants, which equals 118 people, held a Diploma in Nursing, while 82 people had obtained a Bachelor of Nursing (B.Sc.) degree, and 12 people had completed postgraduate certifications.

The study found that 106 respondents or 50.0 percent of total participants had 16 years or more of professional experience, while 47 respondents had both 6–10 years and 11–15 years of experience, and 12 respondents had 1–5 years of professional experience. The study found that 71 respondents or 33.5 percent worked in the Accident and Emergency Unit, while 59 respondents worked in the Intensive Care Unit, 47 respondents worked in the Orthopaedic Unit, 12 respondents worked in the Peri-operative Unit, and 23 respondents either had no specialized field or worked in different departments.

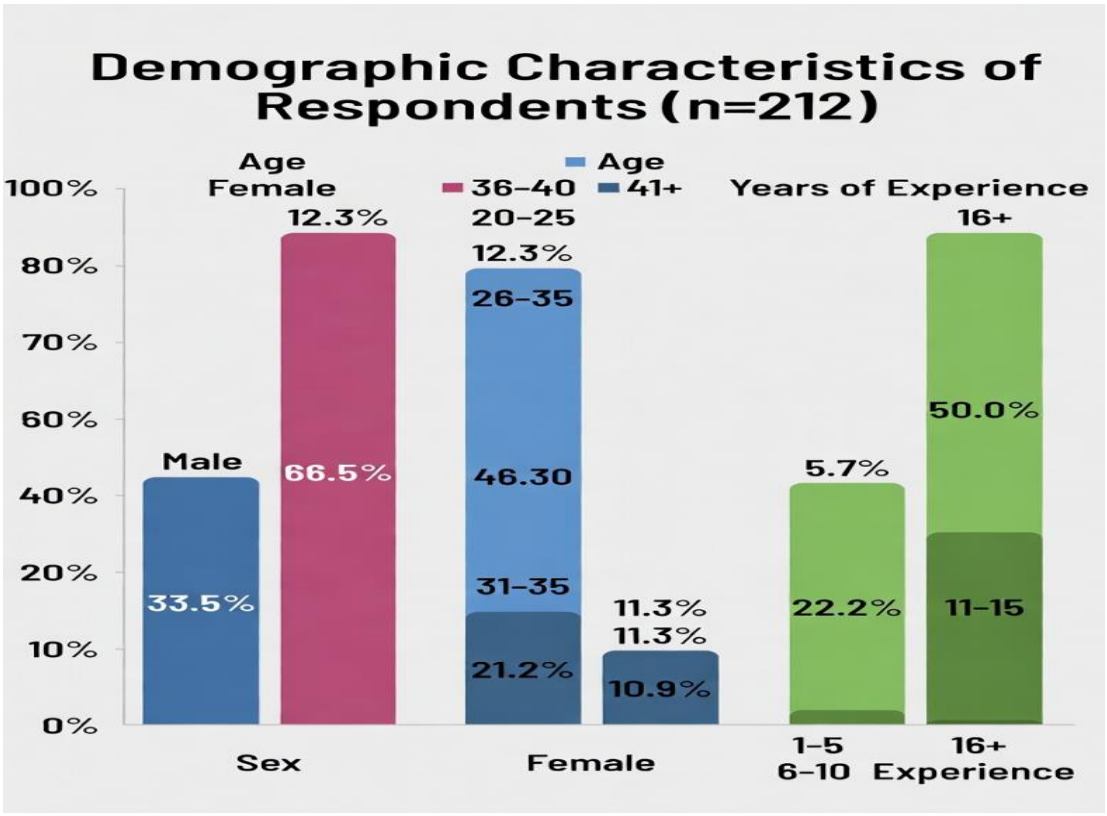

Figure 6: Stacked bar chart showing demographic distribution of respondents by sex, age group, and years of work experience at Modibbo Adama University Teaching Hospital, Yola (n=212).

Table 2: Knowledge of Nurses on Glasgow Coma Scale (GCS) (n = 212)

S/N	Item	Response	Frequency	Percentage (%)
1	The purpose of the Glasgow Coma Scale (GCS) is well understood.	Strongly Agree	102	48.1
		Agree	80	37.7
		Disagree	20	9.4
		Strongly Disagree	10	4.8
2	The three components of the GCS (eye, verbal, and motor responses) can be accurately assessed.	Strongly Agree	110	51.9
		Agree	70	33.0
		Disagree	20	9.4
		Strongly Disagree	12	5.7
3	Different GCS score ranges can be correctly interpreted.	Strongly Agree	98	46.2
		Agree	75	35.4
		Disagree	25	11.8
		Strongly Disagree	14	6.6
4	The clinical significance of GCS scores in patient management is well understood.	Strongly Agree	95	44.8
		Agree	85	40.1
		Disagree	20	9.4
		Strongly Disagree	12	5.7
5	Confidence in using GCS to assess unconscious patients is present.	Strongly Agree	100	47.2
		Agree	78	36.8
		Disagree	22	10.4
		Strongly Disagree	12	5.7

Nurses display their understanding of the Glasgow Coma Scale (GCS) through their performance on Table 4.2. The first statement about the Glasgow Coma Scale (GCS) purpose received 102 respondents who strongly agreed 80 who agreed 20 who disagreed and 10 who strongly disagreed. The second statement about GCS assessment received 110 respondents who strongly agreed and 70 who agreed. The results showed that 20 participants disagreed and 12 participants strongly disagreed. The third statement about GCS score interpretation received 98 respondents who strongly agreed 75 who agreed 25 who disagreed and 14 who strongly disagreed. The fourth statement about GCS score clinical significance received 95 respondents who strongly agreed and 85 respondents who agreed. The results showed that 20 participants disagreed and 12 participants strongly disagreed. The fifth statement about GCS assessment confidence received 100 respondents who strongly agreed 78 who agreed 22 who disagreed and 12 who strongly disagreed.

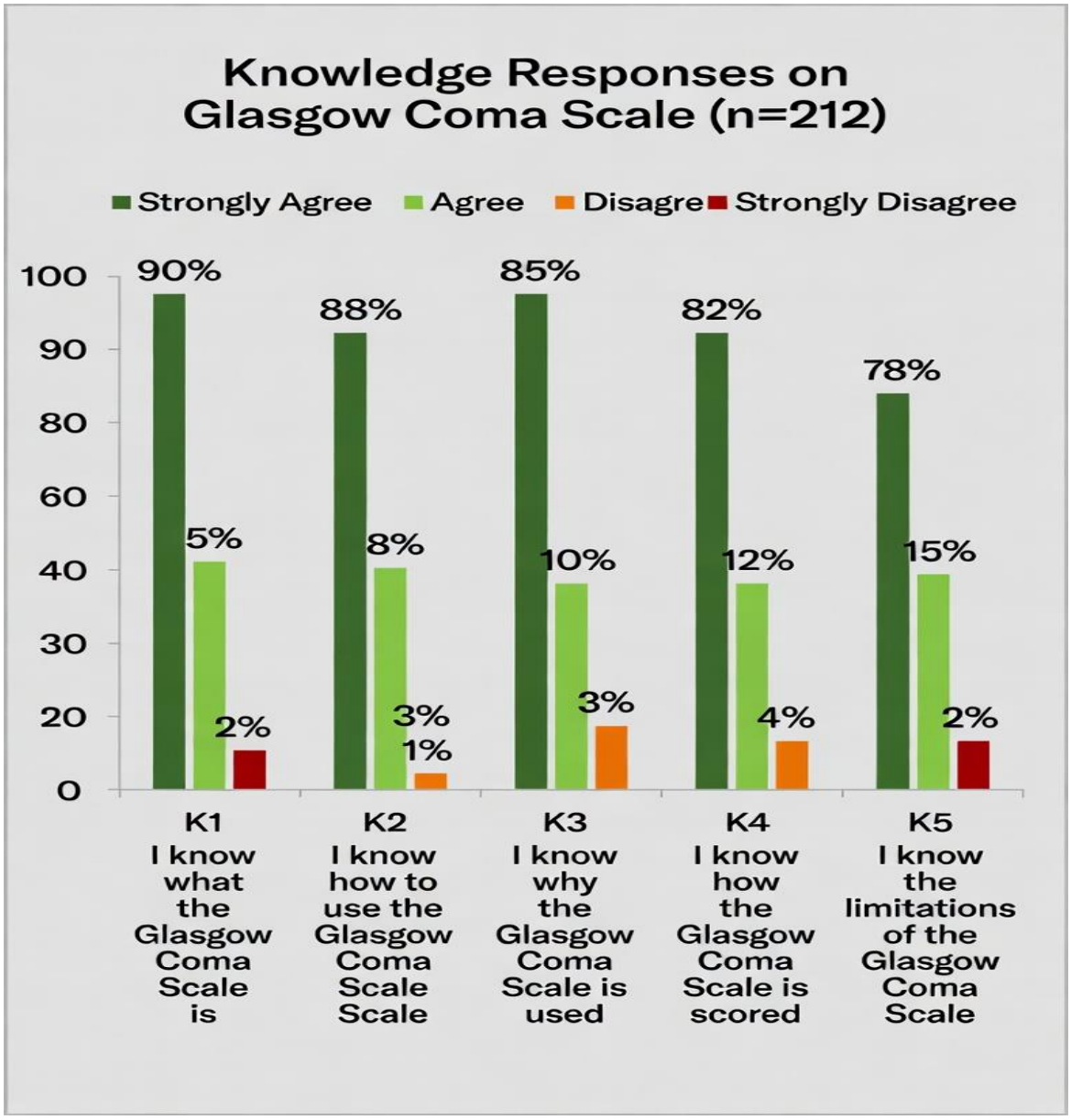

Figure 7: Grouped bar chart showing percentage distribution of responses (Strongly Agree, Agree, Disagree, Strongly Disagree) across the five knowledge items on the Glasgow Coma Scale (n=212).

Table 3: Utilization of Glasgow Coma Scale by Nurses (n = 212)

S/N	Item	Response	Frequency	Percentage (%)
1	The GCS is routinely used to assess unconscious patients in the unit.	Strongly Agree	105	49.5
		Agree	78	36.8
		Disagree	20	9.4
		Strongly Disagree	9	4.2
2	GCS scores are accurately documented after each assessment.	Strongly Agree	98	46.2
		Agree	85	40.1
		Disagree	18	8.5
		Strongly Disagree	11	5.2
3	The GCS is useful in making clinical decisions about patient care.	Strongly Agree	110	51.9
		Agree	75	35.4
		Disagree	15	7.1
		Strongly Disagree	12	5.7
4	GCS assessments are performed at the recommended frequency.	Strongly Agree	95	44.8
		Agree	80	37.7
		Disagree	25	11.8
		Strongly Disagree	12	5.7
5	The GCS is effectively utilized in emergency situations.	Strongly Agree	108	50.9
		Agree	82	38.7
		Disagree	15	7.1
		Strongly Disagree	7	3.3

The study found that 105 respondents, which equals 49.5 percent of participants, strongly accepted GCS usage for unconscious patient evaluation while 78 respondents who account for 36.8 percent of participants also accepted this practice. The study found that 20 respondents opposed the statement while 9 respondents demonstrated complete opposition to it. About 98 respondents (46.2%) strongly agreed and 85 respondents (40.1%) agreed that GCS scores are accurately documented after each assessment. The study found that 18 respondents opposed the statement while 11 respondents demonstrated complete opposition to it. A majority of 110 respondents (51.9%) strongly agreed and 75 respondents (35.4%) agreed that GCS is useful for clinical decision-making, while 15 respondents (7.1%) disagreed and 12 respondents (5.7%) strongly disagreed. About 95 respondents (44.8%) strongly agreed and 80 respondents (37.7%) agreed that assessments are performed at the recommended frequency. The study found that 25 respondents opposed the statement while 12 respondents demonstrated complete opposition to it. The respondents confirmed GCS usage for emergency situations with 108 responders expressing strong support and 82 responders showing agreement. The study found that 15 respondents opposed the statement while 7 respondents demonstrated complete opposition to it.

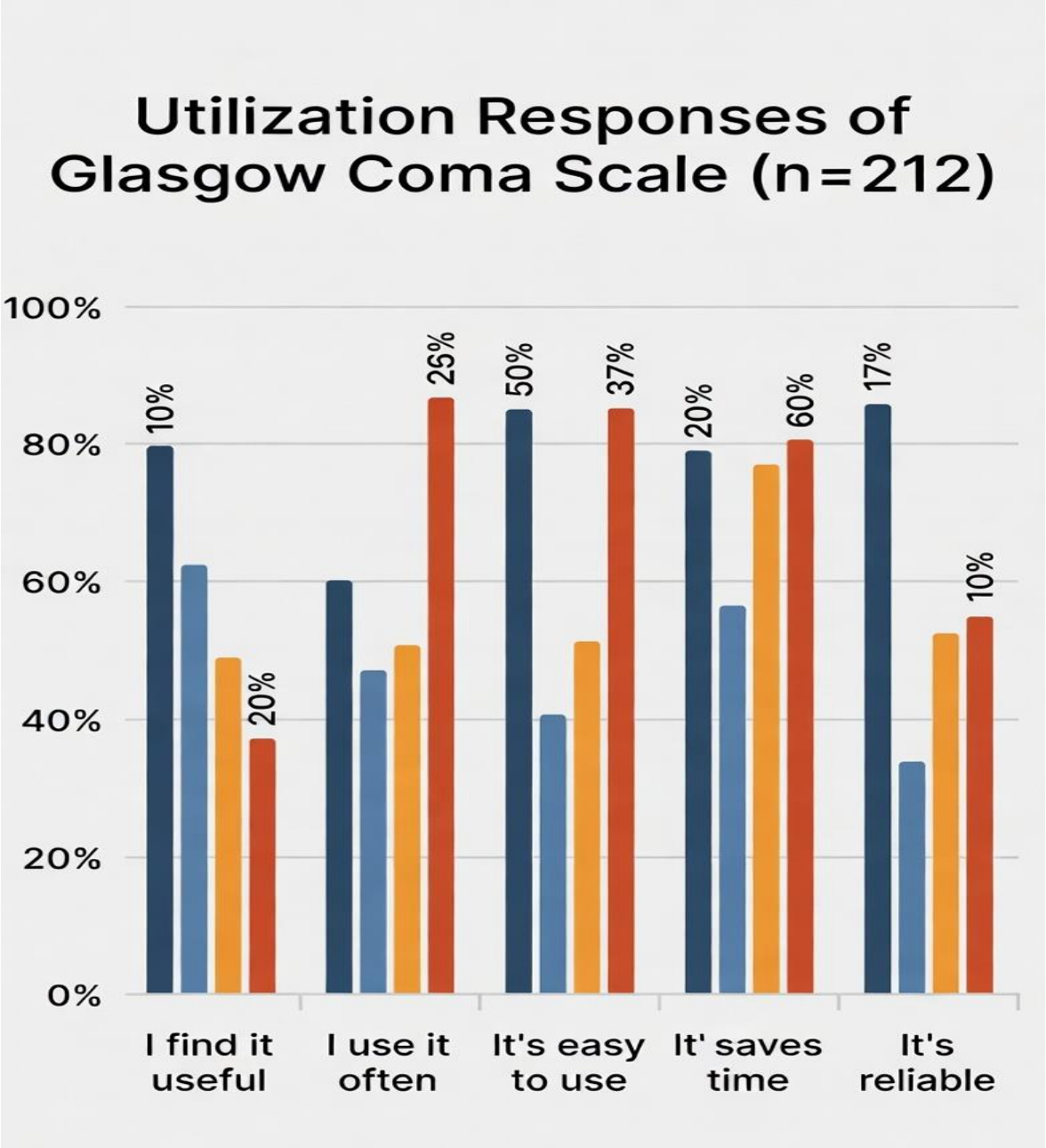

Figure 8: Grouped bar chart displaying percentage distribution of responses across the five utilization items of the Glasgow Coma Scale (n=212).

Table 4: Factors Inhibiting Accurate GCS Assessment by Nurses (n = 212)

S/N	Item	Response	Frequency	Percentage (%)
1	Lack of training serves as a barrier to accurate GCS assessment.	Strongly Agree	110	51.9
		Agree	65	30.7
		Disagree	25	11.8
		Strongly Disagree	12	5.6
2	High patient workload makes thorough GCS assessments difficult.	Strongly Agree	90	42.5
		Agree	78	36.8
		Disagree	28	13.2
		Strongly Disagree	16	7.5
3	Inconsistent hospital policies affect the utilization of GCS.	Strongly Agree	85	40.1
		Agree	80	37.7
		Disagree	30	14.2
		Strongly Disagree	17	8.0
4	Documentation challenges contribute to errors in GCS scoring.	Strongly Agree	92	43.4
		Agree	72	34.0
		Disagree	28	13.2
		Strongly Disagree	20	9.4
5	The absence of refresher courses negatively impacts GCS application.	Strongly Agree	100	47.2
		Agree	70	33.0
		Disagree	28	13.2
		Strongly Disagree	14	6.6

The study found that 110 respondents, which equals 51.9 percent and 65 respondents which equals 30.7 percent of the total believed that training deficiencies prevented them from conducting GCS assessments correctly. The study results showed that 25 respondents which equals 11.8 percent of the total disagreed with the statement while 12 respondents which equals 5.6 percent of the total strongly disagreed with it. About 90 respondents which equals 42.5 percent of the total and 78 respondents which equals 36.8 percent of the total believed that high patient workload it prevented them from performing GCS assessments thoroughly. The study found that 28 respondents which equals 13.2 percent of the total disagreed with the statement while 16 respondents which equals 7.5 percent of the total strongly disagreed with it. The study found that 85 respondents which equals 40.1 percent of the total and 80 respondents which equals 37.7 percent of the total believed that hospital policies which contain inconsistencies hindered GCS usage. The study found that 30 respondents which equals 14.2 percent of the total disagreed with the statement while 17 respondents which equals 8.0 percent of the total strongly disagreed with it. The study found that 92 respondents which equals 43.4 percent of the total and 72 respondents which equals 34.0 percent of the total believed that documentation problems caused GCS scoring mistakes. The study found that 28 respondents which equals 13.2 percent of the total disagreed with the statement while 20 respondents which equals 9.4 percent of the total strongly disagreed with it. The study found that 100 respondents which equals 47.2 percent of the total and 70 respondents which equals 33.0 percent of the total believed that GCS application accuracy suffered because refresher courses did not exist. The study found that 28 respondents which equals 13.2 percent of

the total disagreed with the statement while 14 respondents which equals 6.6 percent of the total strongly disagreed with it.

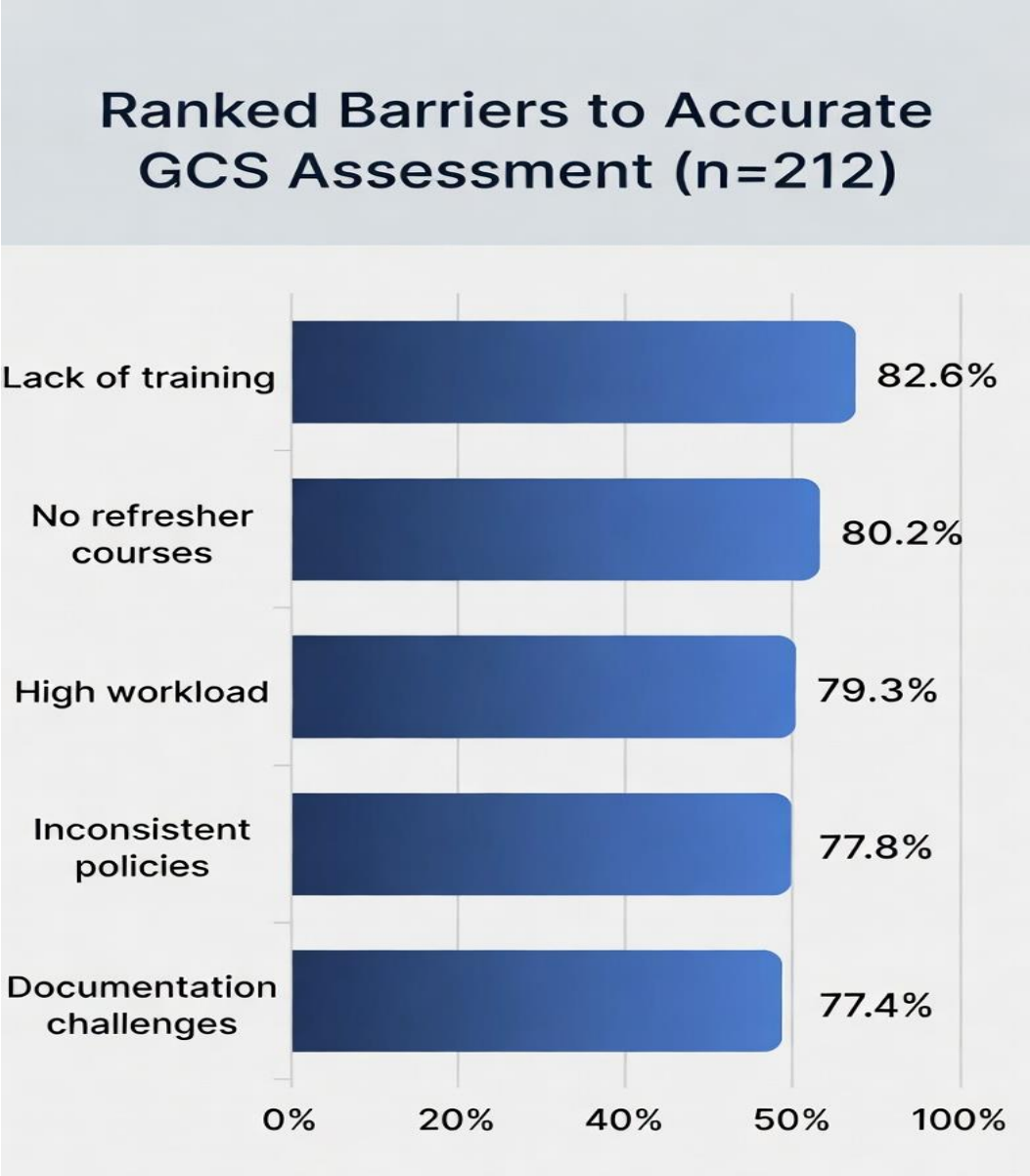

Figure 9: Horizontal bar chart ranking the five main barriers to accurate GCS assessment by mean agreement score and percentage of respondents who agreed/strongly agreed (n=212).

Table 5: Relationship between Knowledge and Utilization of Glasgow Coma Scale (n = 212)

S/N	Item	Response	Frequency	Percentage (%)
1	Higher knowledge of GCS increases the frequency of its use in patient assessments.	Strongly Agree	120	56.6
		Agree	60	28.3
		Disagree	18	8.5
		Strongly Disagree	14	6.6
2	Confidence in GCS knowledge positively influences its application in clinical settings.	Strongly Agree	130	61.3
		Agree	55	25.9
		Disagree	15	7.1
		Strongly Disagree	12	5.7
3	Training on GCS improves the ability to apply it correctly in practice.	Strongly Agree	110	51.9
		Agree	70	33.0
		Disagree	20	9.4
		Strongly Disagree	12	5.7
4	Nurses with greater GCS knowledge tend to use it more consistently.	Strongly Agree	125	59.0
		Agree	60	28.3
		Disagree	17	8.0
		Strongly Disagree	10	4.7
5	The ability to interpret GCS scores accurately affects clinical decision-making.	Strongly Agree	135	63.7
		Agree	55	25.9
		Disagree	15	7.1
		Strongly Disagree	7	3.3

The study found that 120 respondents, 56.6 percent of the sample population strongly supported the idea that better GCS understanding leads to more frequent usage of GCS in patient evaluations. A total of 18 respondents 8.5 percent of the sample population disagreed with the statement while 14 respondents 6.6 percent of the sample population strongly disagreed. A total of 130 respondents 61.3 percent of the sample population strongly agreed that GCS knowledge confidence leads to better clinical usage while 55 respondents 25.9 percent of the sample population agreed with this statement. The study found that 15 respondents 7.1 percent of the sample population disagreed with the statement while 12 respondents 5.7 percent of the sample population strongly disagreed. A total of 110 respondents 51.9 percent of the sample population strongly agreed that GCS training helps practitioners learn to use GCS correctly. The study found that 20 respondents 9.4 percent of the sample population disagreed with the statement while 12 respondents 5.7 percent of the sample population strongly disagreed. A total of 125 respondents 59.0 percent of the sample population strongly agreed that nurses who possess better GCS knowledge will use GCS more frequently. A total of 17 respondents 8.0 percent of the sample population disagreed with the statement while 10 respondents 4.7 percent of the sample population strongly disagreed. A total of 135 respondents 63.7 percent of the sample population strongly agreed that GCS score interpretation skills determine which clinical decisions medical professionals will make. The study found that 15 respondents 7.1 percent of the

sample population disagreed with the statement while 7 respondents 3.3 percent of the sample population strongly disagreed.

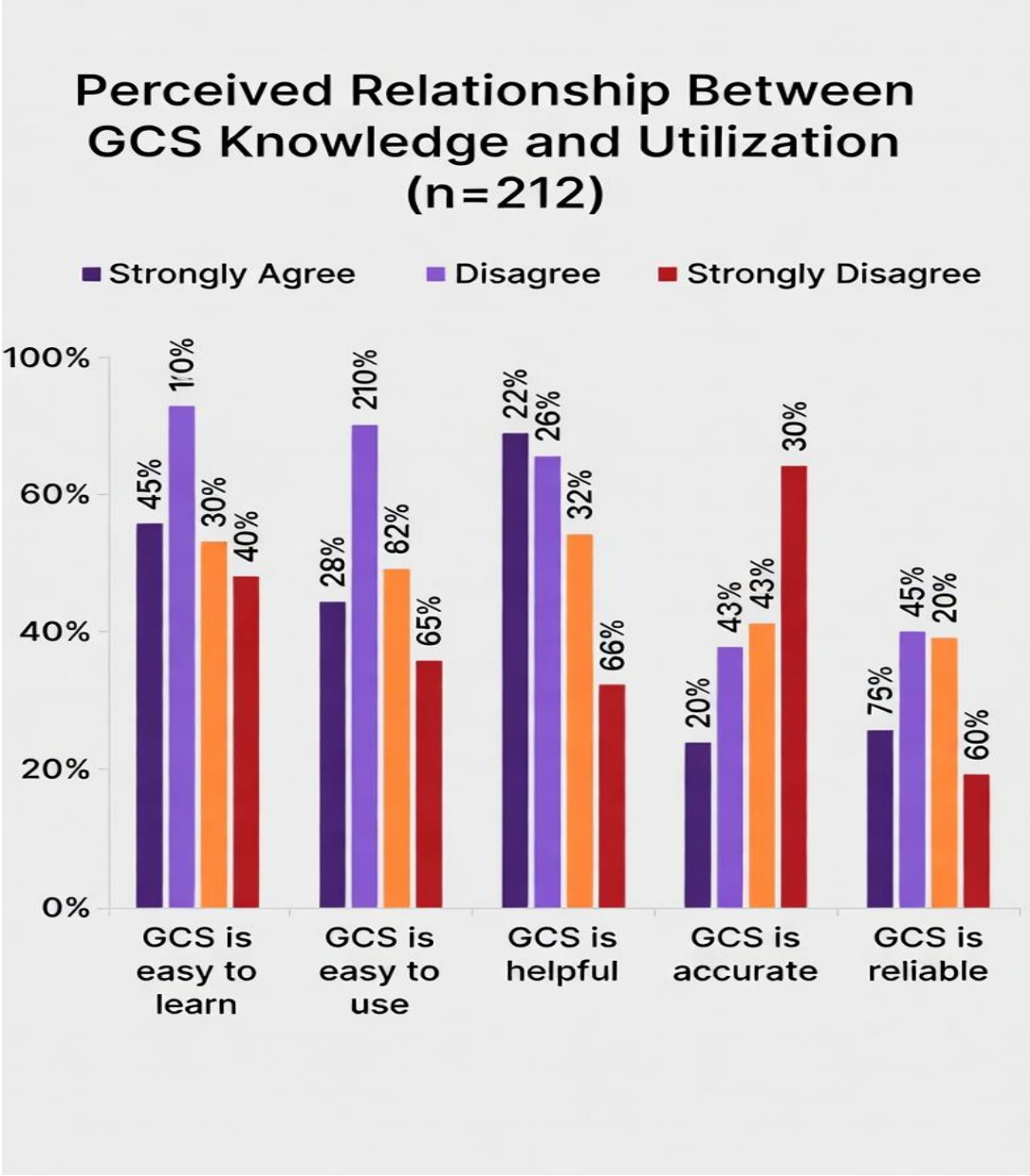

Figure 10: Grouped bar chart showing percentage distribution of responses across the five items assessing the relationship between GCS knowledge and utilization (n=212).

5. Summary, Conclusion and Recommendations

5.1 Summary of the Study

This study assessed the knowledge and utilization of the Glasgow Coma Scale (GCS) among nurses in the management of unconscious patients at Modibbo Adama University Teaching Hospital (MAUTH), Yola. A descriptive cross-sectional design was employed, with data collected from 212 registered nurses using a structured self-administered questionnaire. The response rate was 100%.

Key findings include:

1. The majority of respondents were female (66.5%), aged 26–30 years (44.3%), and married (50.0%), held a Diploma in nursing (55.7%), had 16+ years of experience (50.0%), and worked predominantly in the Accident and Emergency Unit (33.5%).
2. Nurses demonstrated a high level of knowledge of the GCS, with 81.6–85.8% agreement across items measuring understanding of purpose, components, scoring interpretation, clinical significance, and confidence in use.
3. Utilization of the GCS was also high, with 82.5–89.6% of respondents reporting routine use, accurate documentation, and usefulness in decision-making, recommended frequency of assessment, and effective application in emergencies.
4. Major barriers identified included lack of training (82.6%), high patient workload (79.3%), inconsistent hospital policies (77.8%), documentation challenges (77.4%), and absence of refresher courses (80.2%).
5. A strong positive relationship was observed between nurses' knowledge of the GCS and its effective utilization in clinical practice, with higher knowledge associated with more consistent and accurate application.

The results indicate that while theoretical knowledge and reported utilization are generally good, persistent institutional and systemic barriers limit optimal and consistent application of the GCS in routine neurological assessment of unconscious patients.

5.2 Conclusion

This study examined the knowledge and utilization of the Glasgow Coma Scale (GCS) among nurses involved in the care of unconscious patients at Modibbo Adama University Teaching Hospital, Yola. The findings revealed that a majority of nurses possess good theoretical understanding of the GCS and acknowledge its critical importance in neurological assessment and patient management. A high proportion also reported routine and effective use of the scale in clinical practice, particularly in emergency and critical care settings.

However, significant barriers—including lack of regular training, high workload, inconsistent institutional policies, documentation difficulties, and absence of refresher courses—continue to hinder full, accurate, and consistent application of the GCS. These gaps, if unaddressed, may compromise the reliability of neurological monitoring, delay recognition of deterioration, and ultimately affect patient outcomes.

The study concludes that although nurses at MAUTH Yola demonstrate adequate baseline knowledge and positive attitudes toward the GCS, there remains a pressing need for structured, ongoing professional development, improved staffing levels, standardized protocols, and institutional support systems. Strengthening these areas will enhance knowledge retention, reduce practice barriers, improve consistency in GCS utilization, and contribute to better early detection of neurological changes and improved care for unconscious patients in resource-constrained tertiary settings.

5.3 Recommendations

Based on the findings of this study, the following recommendations are made:

1. Hospital management should organize and mandate regular in-service training workshops and refresher courses on the Glasgow Coma Scale for all nurses, with particular emphasis on practical scoring, interpretation of trends, and documentation in unconscious patient care. These programs should be incorporated into the hospital's continuing professional development calendar.
2. Hospital administration should develop and enforce clear, standardized protocols mandating routine GCS assessment for all unconscious patients, including recommended frequency, documentation format, and escalation pathways for deteriorating scores.

3. Efforts should be made to address workload-related barriers by improving nurse-to-patient ratios in high-acuity areas (Accident & Emergency, ICU) and providing adequate support staff to allow sufficient time for thorough neurological assessments.
4. The hospital should invest in user-friendly, standardized GCS scoring charts (paper and/or electronic) and implement electronic health record systems with built-in GCS templates to reduce documentation errors and improve accuracy and accessibility of records.
5. Nursing education programs (schools and continuing education units) should strengthen the teaching of the Glasgow Coma Scale, with increased focus on simulation-based practical training, case-based scenarios, and periodic competency assessments.
6. Nursing leaders, in collaboration with hospital management and policymakers, should conduct regular audits of GCS documentation and utilization compliance, provide feedback to staff, and use audit findings to drive continuous quality improvement in neurological patient monitoring.

5.4 Suggestions for Further Studies

The present study was limited to a single tertiary hospital in northern Nigeria. Future research should consider:

1. A multi-centre study involving several teaching hospitals across different geopolitical zones of Nigeria to enable broader generalizability of findings on GCS knowledge and utilization patterns.
2. Prospective intervention studies evaluating the impact of structured GCS training programs (pre- and post-intervention design) on nurses' knowledge scores, utilization rates, scoring accuracy, and ultimately on patient clinical outcomes (e.g., time to recognition of deterioration, length of ICU stay, mortality).
3. Investigation of the effect of implementing electronic GCS charting or mobile-based GCS applications on documentation accuracy, inter-rater reliability, and timeliness of neurological assessments in resource-limited settings.
4. Qualitative studies exploring nurses' lived experiences, attitudes, perceived self-efficacy, and contextual factors influencing GCS use in high-pressure emergency and critical care environments.
5. Comparative studies examining differences in GCS knowledge, utilization, and barriers between nurses in tertiary teaching hospitals versus secondary-level facilities or rural hospitals in Nigeria.

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