

RESEACH ARTICLE

## Undergraduate Nurses' Perceptions of Learning Style Influence on Psychomotor Performance in North-west, Nigeria

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### Abstract

**Background:** Students' learning styles influence their psychomotor performance, especially in medical-surgical nursing. As such, medical-surgical nursing is considered to be the backbone of nursing theory and practice for undergraduate nursing students. Therefore, the style of learning medical-surgical nursing among students should be given profound attention. **Aim:** This study aim to explore nursing undergraduates' perceptions of learning style influence on their medical-surgical nursing psychomotor performances in North-west, Nigeria. **Methodology:** Qualitative design was employed. Overall, 13 students were interviewed in the study. A purposive sampling technique was applied during the recruitment of the participants. The data was transcribed verbatim, and analyzed manually. Resultant themes associated with the codes were interpreted and presented in a thematic form. **Results:** The result of this study revealed that Auditory, Visual, and Read, and write learning styles were mostly applied by the students in learning medical-surgical nursing. The students perceived their psychomotor performance in medical-surgical nursing as very good. A positive influence of learning style on students' medical-surgical nursing psychomotor performance was reported. **Conclusion:** The study concluded that the learning style of undergraduate nursing students in Northwest Nigeria has a significant influence on their psychomotor performance in medical-surgical nursing.

**Keywords:** Perception, Undergraduate, Learning style, Psychomotor performance, Medical-surgical nursing.

### Introduction

Undergraduate students' perceptions of learning style and its influence on academic performance could influence their behaviours and actions towards learning. Developing undergraduate nursing students' psychomotor skills in nursing education has been

regarded as a very crucial and challenging task. Lecturers need to be aware of students' learning styles of medical-surgical nursing to meet student's individual learning preferences and enhance lesson comprehension. (Amaniyani et al, 2020). This may likely enhance students' psychomotor performance in medical surgical nursing.

Medical-surgical nursing courses require higher-order and critical thinking skills to be adequately understood. Students' learning styles in medical-surgical nursing courses may have influence on their psychomotor performance in medical-surgical nursing. Undergraduate nursing students' performance in medical-surgical nursing is relatively low when compared to other courses (Sze, Baaska, and Martin, 2020). Therefore, the best styles of learning psychomotor aspect of medical-surgical nursing must be found to improve students' psychomotor performance in medical-surgical nursing (Adepeju & Euphemia, 2019).

Learning styles are "habitual psychomotor and affective behaviors which determine how each individual interacts in learning situations" (Andreou, Papastavrou, & Merkouris, 2014). Several studies have been carried out to determine the learning style preferences of undergraduate students (Jonah and Dakyes, 2017; Salihu, et al., 2020; Ladan, et al., 2014; and Chetty, et al., 2019). There are several classifications of learning styles. Many Psychologists perceive learning style from the Physiological perspective (visual, auditory, read/write, and kinesthetic) while some perceive learning style from the Social interaction perspective (cooperative, avoidant, participative, and competitive learning). Other experts considered Environmental issues in studying learning styles (sound, light, temperature, design of the learning environment, and many more). The physiological perspective of learning style – visual, auditory, read/ write and kinaesthetic (VARK) will be used throughout the course of this study.

Undergraduate nursing students are students studying Bachelor of Nursing Science in the university. They are trained to become critical thinkers and problem-solvers by developing their cognitive, affective, and psychomotor skills during the training period to ensure the incorporation of theory and practical skills (Culha, 2019) in patient care. Careful approach should be given to Medical–surgical nursing courses to ensure the production of skillful graduates at the end of the training program.

Acquisition of psycho-motor clinical skills has been shown to improve the quality of nursing care provided to patients (Mwale & Kalawa, 2016). Psychomotor

performance focuses on performing sequences of motor activities to a specified level of accuracy, smoothness, rapidity, or force.

Several studies have investigated the learning style of undergraduate students (Chetty et al., 2019; Salihu et al, 2020). Other studies investigated the relationship between learnig style and students' performance (Garko et al, 2023; Alharbi et al., 2017; Madu et al., 2019). Few studies investigated the relationship between learning style and psychomotor performance in medical-surgical nursing (Garko and Lawali, 2023) The researchers did not come across any documentation on students' perception of their learning style and its influence on their psychomotor performance. Due to the fact that and students perception of their learning style and academic performance would determine their attitudes towards their studies, the researchers decided to investigate the perceptions of nursing undergraduates on the influence of learning styles on medical-surgical nursing psychomotor performances in North-west, Nigeria.

Many students are unaware of their learning styles and do not take them into account during the learning process. This may have negative consequences for the students. As a result, efforts must be made to investigate the learning style of undergraduate nursing students and its influence on their psychomotor performance to help enhance students' psychomotor performance in medical-surgical nursing.

### **Aim of the study**

This study aims to explore perceptions of nursing undergraduates on the influence of learning styles on their medical-surgical nursing psychomotor performances in North-west, Nigeria.

### **Objectives of the study**

This study intends to achieve the following Objectives:

1. To find perceptions of nursing undergraduates of their styles of learning medical-surgical nursing.
2. To determine undergraduate nursing students' opinions on their psychomotor performance in medical-surgical nursing.

3. To discover the undergraduate nursing students' viewpoints on the influence of learning style on medical-surgical nursing psychomotor performance.
4. To identify students' views on ways of improving undergraduate nursing students' psychomotor performance in medical-surgical nursing.

## Methodology

A qualitative research design was employed to gather data on the Perceptions of nursing undergraduates regarding the influence of learning styles on psychomotor performance in medical-surgical nursing in North-West Nigeria. The data was obtained through conducting key informant interviews with the students.

The research setting is the nursing departments of North-west, Nigerian Universities. North West is one of the six geopolitical zones of Nigeria. It consists of 7 states, which include Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara states (Ajala, Adetunji, & Akande, 2015).

The four states that run undergraduate nursing programs in the Northwest include Federal University Birnin Kebbi, Usman Danfodio University Sokoto, Ahmadu Bello University Zaria, and Bayero University Kano.

The study population comprises the entire undergraduate nursing students in North-west, Nigeria. Purposive sampling technique was employed in the selection of the study participants where only 300 and 400 level students were recruited for the study. This because 100 and 200 level students have not started medical-surgical nursing course while 500 level students have finished medical-surgical nursing course from 400 level. A total of 13 undergraduate nursing students were interviewed before saturation was reached. The data collection instrument used was a Semi-structured student interview guide. The data was collected in phases – Ethical approval was obtained from the research and ethics committee of Bayero University Kano. Institutional approval was also obtained from institutions of the study. All the participants gave informed consent before they were enrolled in the study. Key informant interviews (KII) were conducted with the students to obtain data on their

perception on the influence of learning style on psychomotor performance in medical-surgical nursing in North-west, Nigeria. The recorded interviews were transcribed verbatim for data analysis.

## Ethical Consideration

Ethical clearance was obtained from the Health Research Ethics Committee (HREC) of Bayero University Kano before the commencement of the study (BUK/CHS/HREC/216). Institutional approval was also gotten from of Usman Dan Fodio University Sokoto before the study commenced. Autonomy was ensured in the study. It was also ensured that the respondents participated voluntarily. The respondents were also informed of their rights to withdraw at any time during the study if they so wished. Privacy was also provided during the administration of the KII to the respondents by administering it at places where the respondents felt free to express their views without any external influence. Confidentiality of the information provided by the respondents was also ensured by keeping the filled consent forms and questionnaires under lock and key. Only the researcher and research assistants had access to them. Trustworthiness was ensured during the period of data collection by ensuring the credibility, transferability, dependability and confirmability of the collected data.

The data was analyzed manually via thematic approach. The researchers read through the transcript carefully, highlighted important statements, and allocated codes to them based on their content. Like codes were grouped into broader categories. Patterns and associations between codes were identified. Major themes that capture the grouped categories were identified. The researchers ensured that the themes addressed the research questions and reflected the data accurately. The themes were reviewed further to ensure they were distinct and comprehensive. Similar themes were merged while complex themes were broken down.

## Results

This section presents the findings from semi-structured Key Informant Interviews conducted among undergraduate nursing students in North-West Nigeria. The results are organized according to the objectives of

the study and are presented thematically, supported with verbatim quotations from participants.

### **Theme 1: Socio-Demographic Characteristics of Participants**

Thirteen undergraduate nursing students participated in the study. Participants were aged between 20 and 35 years. The majority were female, while 3/13 were married. About 7/13 of the participants were in their third year (300 level) of study, with the remaining 6/13 in their fourth year (400 level). Most participants gained admission through the Unified Tertiary Matriculation Examination (UTME), while a smaller proportion entered through Direct Entry.

### **Theme 2: Learning Styles Adopted by Undergraduate Nursing Students**

Participants reported using multiple and complementary learning styles in studying medical-surgical nursing courses. These styles included auditory learning, visual learning, note-taking, reading, demonstrations, and independent study.

One participant emphasized a preference for visual and demonstration-based learning:

“I always like sitting in front so that I can hear what he is saying. I like when lecturers explain in-depth to my understanding, and when I read, I read a lot of pictures... I like reading alone... I read with pictures, I read with demonstrations and I read books.” (BUKS 5)

The participant explained that this approach enhanced comprehension and speed of learning:

“Because it is faster for me than other styles, I feel when I learn through this process I will understand faster.” (BUKS 5)

Another participant described an auditory and interactive approach to learning:

“By listening carefully and paying attention, jotting the important points and asking questions.” (UDUSS 4)

He further explained the rationale for this method:

“When you jot down the important things the lecturer will say in the class that you cannot see in any book... asking questions if I want clarification.” (UDUSS 4)

Similarly, another participant highlighted the importance of note-taking and questioning during lectures:

“I used to listen, ask a question if I did not understand anything, and jot the most important things.” (UDUSS 5)

This approach was perceived as useful for revision and long-term retention:

“Because sometimes I may forget something that has been said during the lecture, so I can bring it out so that I can revise.” (UDUSS 5)

### **Theme 3: Perceived Psychomotor Performance in Medical-Surgical Nursing**

Participants generally perceived their psychomotor performance in medical-surgical nursing as good, particularly within the context of Objective Structured Clinical Examination (OSCE).

Several participants simply rated their performance positively:

“Sir, also it is good.” (BUKS 2)

“I will say good.” (UDUSS 2)

“It is good.” (UDUSS 3)

Participants attributed this perceived improvement largely to the introduction of OSCE as an assessment method:

“Compared to the previous one... now it is changed to OSCE, there is an increase in the percentage... maybe it is as a result of the shift from practical to OSCE.” (BUKS 2)

However, some participants expressed concerns that OSCE performance may not fully reflect real-life clinical competence:

“If it was in a real live situation... live patient, I don't think it will be very good like that. In OSCE we perform very well.” (UDUSS 2)

Anxiety and fear during practical examinations were also identified as factors influencing psychomotor performance:

“Even if we prepare very well, once we are in the exam venue we have anxiety and phobia... someone or a senior is watching you during the practical/OSCE exam.” (UDUSS 3)

#### **Theme 4: Influence of Learning Style on Psychomotor Performance**

Most participants believed that learning style positively influences psychomotor performance in medical-surgical nursing.

One participant stated:

“There is also a positive influence.” (BUKS 1)

He explained that frequent practice enhanced skill performance:

“If students practice more, go for practical more... that student has a higher chance of performing better.” (BUKS 1)

Another participant emphasized the role of visual learning and videos:

“I watched the video about how it was supposed to be and it stuck to my head... I was able to perform it the way it was supposed to be.” (BUKS 3)

Similarly, a participant highlighted the importance of translating theory into practice:

“Whatever you learn you have to put it into practice... we have models and procedure manuals... by trying what you read into practice.” (UDUSS 2)

Although a few participants felt learning style had little or negative influence, the dominant perception was that appropriate learning styles enhance psychomotor performance.

#### **Theme 5: Suggested Strategies for Improving Psychomotor Performance**

Participants proposed several strategies for improving psychomotor performance in medical-surgical nursing.

##### *Subtheme 5.1: Increased Practical Sessions*

Participants recommended increasing the frequency of practical classes:

“There is a need to add another practical period in a week so that students will become more conversant.” (BUKS 4)

##### *Subtheme 5.2: Use of Audio-Visual Aids and Clinical Exposure*

The inclusion of videos, anatomical models, and hospital-based learning was emphasized:

“The department should include videos... anatomical organs to demonstrate... and then clinical experiences.” (UDUSS 2)

##### *Subtheme 5.3: Interactive Teaching and Improved Learning Resources*

Participants advocated for interactive teaching methods and better institutional support:

“If all the lecturers can adopt the interactive class method and show pictures and videos... students should do more research... schools should provide adequate facilities.” (UDUSS 4)

##### *Summary of Findings*

Overall, the findings indicate that undergraduate nursing students employ diverse learning styles, perceive their psychomotor performance as generally good, and believe that appropriate learning styles positively influence practical skill acquisition. Participants emphasized the need for enhanced practical exposure, interactive teaching, and improved learning resources to further strengthen psychomotor performance in medical-surgical nursing.

##### **Discussion**

This study explored undergraduate nursing students' perspectives on the influence of learning styles on psychomotor performance in medical-surgical nursing in North-West Nigeria. By employing a qualitative approach, the study provides context-specific insights into how students perceive and explain the relationship

between learning strategies and practical skill acquisition. This addresses a gap in the literature, as many previous studies in this area have relied predominantly on quantitative designs (Garko and Lawali, 2023; Alharbi et al., 2017; Madu et al., 2019), which may not adequately capture learners' lived experiences.

Participants were senior undergraduate nursing students with substantial exposure to medical-surgical nursing theory, laboratory practice, and clinical postings. Their academic level and clinical experience suggest that they were well positioned to reflect meaningfully on their learning processes and psychomotor performance. Similar studies have shown that learners' maturity and sustained clinical exposure enhance their ability to evaluate educational experiences, lending credibility to the perspectives reported in this study.

Findings indicate that most participants adopted bimodal or multimodal learning styles rather than relying on a single approach. This finding aligns with that of Jonah and Dakyes (2017), in their study to examine the learning style preferences among undergraduate Basic Design students of Ahmadu Bello University Zaria, found that the most prevalent learning style was visual (31.25 %), followed by auditory (27.08 %) then kinesthetic (14.58 %). In another study by Salihu, et al., (2020) on learning style preferences of medical students in Kano, Northwestern, Nigeria it was found that kinesthetic modality has the highest mean (6.607) and standard deviation (2.265) followed by auditory (5.369/2.436) and then reading/writing (4.984/2.621) and visual (4.345/2.468) modalities. Also, Ladan, et al., (2014), in another study entitled Learning Approaches as Predictors of Academic Performance of Undergraduate Students in Ahmadu Bello University, Zaria revealed that the predominant learning approach used by the students is the surface approach ( $M=14.88$ ,  $SD=2.64$ ). Another study revealed that the most favorite learning style by the students is the visual style with 49.80% followed by the Kinaesthetic Style with 15.94% of the respondents then the bimodal dimension Visual and Kinaesthetic (V/K) with 11.95% of the respondents reporting their preference on it (Chetty, et al., 2019). The least preferred learning style dimensions were the trimodal VAK dimension and bimodal Auditory/Kinesthetic (A/K) dimension which had 3.98% and 4.38% preference levels respectively.

Students described adjusting their learning strategies to meet the cognitive and practical demands of medical-surgical nursing. This adaptability suggests that learning styles function as flexible, context-dependent strategies rather than fixed learner characteristics. This finding aligns with Garko and Lawali (2023), who reported visual and kinesthetic learning styles as commonly used among nursing undergraduates in North-West Nigeria. The prominence of these styles likely reflects the procedural nature of nursing education, where observation, demonstration, and hands-on practice are central to effective learning.

Participants generally perceived their psychomotor performance in medical-surgical nursing as satisfactory, particularly within the context of structured practical assessments such as the Objective Structured Clinical Examination (OSCE). OSCE was viewed as enhancing confidence and performance by providing a standardized and supportive assessment environment. However, some participants expressed concern that performance in simulated settings may not fully translate to real-life clinical competence. This highlights an important tension between simulation-based assessment and authentic clinical practice, underscoring the need for balanced integration of both approaches in nursing education.

Most participants perceived a positive influence of learning styles on psychomotor performance. Learning approaches that emphasized active engagement—such as frequent practice, demonstrations, clinical exposure, and use of visual aids—were viewed as particularly effective in enhancing procedural competence. These findings support existing literature emphasizing experiential and active learning as critical to psychomotor skill development in nursing. The qualitative accounts further suggest that learning styles influence performance in interaction with opportunities for practice, quality of instruction, and availability of learning resources, rather than operating as isolated factors.

Participants also proposed practical strategies for improving psychomotor performance in medical-surgical nursing. At the individual level, students emphasized the importance of self-awareness and reflection on the effectiveness of their learning strategies, with a willingness to modify ineffective

approaches. This reflects principles of self-regulated and constructivist learning, where learners actively shape their educational experiences. At the institutional level, participants highlighted the need for increased practical sessions, greater use of multimedia resources, and timely clinical exposure following classroom instruction. Videos and demonstrations were perceived as particularly valuable for reinforcing learning and supporting mastery of procedures. Participants further emphasized the importance of adequate instructional facilities, noting that limited resources may hinder both teaching effectiveness and student learning.

Overall, the findings suggest that psychomotor performance in medical-surgical nursing is shaped by a dynamic interaction of learning styles, instructional strategies, assessment methods, and institutional support. Encouraging flexible, multimodal learning approaches, increasing structured opportunities for practice, and strengthening the integration of theory and clinical experience may enhance psychomotor competence among undergraduate nursing students. By foregrounding students' perspectives, this study contributes qualitative evidence that can inform curriculum design, teaching practices, and assessment strategies in nursing education, particularly within resource-constrained settings.

### Conclusion

Based on the outcomes of this study, it can be concluded that undergraduate nursing students in Northwest Nigeria have positive perceptions of their learning style and its influence on their psychomotor performance. Also, Auditory, Visual, and Read and write learning styles were the most commonly used learning styles among undergraduate nursing students in North-west, Nigeria. The results of the study also revealed that students perceive their psychomotor performance as good. Majority of the students opined that students' learning styles positively influence their psychomotor performance in medical-surgical nursing. This finding may be related to the level of maturity of the students that enabled them understand their learning style and its influence on their psychomotor performance. This findings have a number of implications for nursing education and practice. Students perception influences how they view teaching and learning styles, understand learning tasks, their

motivation and engagement and eventually their academic and clinical performances. Also, students' perceptions influence nurse-patient interaction, critical thinking, clinical judgment and decision making. The results of this study could be further verified by conducting it in other Geopolitical zones of Nigeria.

### Acknowledgment

The support and cooperation given to us by the staff and students of the Department of Nursing Science Bayero University Kano, Nigeria, and the Department of Nursing Science Usman Danfodio University, Sokoto, Nigeria cannot be overemphasized.

### Conflict of interest

There is no conflict of interest in this study.

**Funding:** Personal fiscal contribution by the author

### Authors' Contributions

**MAG:** Manuscript preparation, literature review, data analysis and discussion of findings.

**AA:** Data Analysis and presentation

**UAM:** Methodology and data collection

**IMU:** Literature review discussion of findings

### Article History

**Received:** 02<sup>nd</sup> December, 2025.

**Accepted:** 06<sup>th</sup> January 2025.

**Published online:** 22<sup>nd</sup> April, 2026

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