

CLINICAL COMPETENCY ASSESSMENT METHOD IN UNDERGRADUATE
NURSING PROGRAM IN SWAT

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Abstract

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Background: Clinical competency assessment is a fundamental component of undergraduate nursing education, ensuring that students acquire the knowledge, skills, and professional behaviors required for safe and effective patient care. However, variations in assessment methods and challenges within clinical learning environments may affect students' competency

development. **Objective:** To assess the clinical competency assessment methods used in undergraduate nursing programs in Swat and evaluate students' perceptions of their effectiveness. **Methods:** A descriptive cross-sectional study was conducted among undergraduate nursing students from selected nursing institutes in Swat, Pakistan. A convenience sampling technique was used, and data were collected through a structured online questionnaire. A total of 317 students participated in the study. Data were analyzed using IBM SPSS Statistics. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized participant characteristics and responses, while Chi-square tests examined associations between demographic variables and perceptions of clinical competency assessment ($p < 0.05$). **Results:** Most participants

were BSN students (94.3%), male (68.2%), aged over 20 years (75.8%), and in the fourth year of study (43.6%). Students reported several barriers affecting clinical competency development, including inadequate teacher-to-student ratios, inconsistent clinical supervision, insufficient collaboration with nursing and medical staff, lack of synchronization between theory and practice, limited availability of equipment, overcrowding during clinical practice, communication barriers with patients, and psychological factors such as fear and embarrassment. Gender showed significant associations with many of these perceptions ($p < 0.05$), while age, department, and year of study demonstrated significant relationships with selected variables only. **Conclusion:** Undergraduate nursing students in Swat experience multiple educational, clinical, and organizational challenges that influence the effectiveness of clinical competency assessment. Standardized assessment methods, improved clinical supervision, strengthened collaboration between educational institutions and healthcare facilities, and adequate clinical resources are recommended to enhance competency development and prepare competent nursing graduates.

Keywords: Clinical competency, Competency assessment, Undergraduate nursing students, Nursing education, Clinical education, Swat, Pakistan.

Introduction

Clinical competence is considered one of the most essential outcomes of undergraduate nursing education because it enables nursing graduates to provide safe, effective, ethical, and evidence-based patient care. Competence extends beyond technical proficiency and encompasses cognitive knowledge, psychomotor skills, communication, professionalism, ethical decision-making, and critical thinking required to respond effectively to complex healthcare situations. Consequently, accurate and reliable assessment of clinical competence has become a cornerstone of nursing education worldwide.

Healthcare systems continue to evolve due to technological advancements, increasing patient expectations, demographic transitions, and the growing burden of chronic diseases. These changes require nursing graduates to demonstrate high levels of clinical competence before entering professional practice. Clinical competency assessment therefore plays a crucial role in determining whether students have

successfully integrated theoretical knowledge with practical skills while maintaining patient safety and professional standards. Modern assessment approaches include direct observation, Objective Structured Clinical Examinations (OSCEs), simulation-based learning, clinical logbooks, portfolios, reflective practice, and structured feedback from clinical preceptors.

Although numerous assessment strategies have been developed internationally, their implementation remains inconsistent across nursing institutions, particularly in developing countries. Limited educational resources, inadequate clinical supervision, high student-to-instructor ratios, insufficient faculty development, and lack of standardized evaluation criteria frequently compromise the quality and reliability of competency assessment. These challenges may result in subjective evaluations and reduced opportunities for students to achieve the competencies expected by national and international nursing standards.

Clinical educators and preceptors play a vital role in facilitating competency development by supervising students during clinical placements, providing constructive feedback, and evaluating clinical performance. However, evidence suggests that preceptors often face heavy workloads, unclear assessment guidelines, and insufficient training in competency-based evaluation, which may reduce assessment consistency and fairness. In addition, the clinical learning environment—including availability of equipment, patient diversity, staff cooperation, and institutional support—substantially influences students' learning experiences and competency development.

In Pakistan, undergraduate nursing education has expanded considerably over the past decade to address the increasing demand for qualified nurses. Despite this growth, limited evidence is available regarding the effectiveness of current clinical competency assessment methods, particularly in the Swat region. Understanding students' perceptions of existing assessment practices and identifying barriers within clinical education are essential for improving educational quality, strengthening competency-based assessment, and preparing graduates capable of meeting contemporary healthcare demands.

Therefore, this study aimed to assess the clinical competency assessment methods used in undergraduate nursing programs in Swat, Pakistan, and to evaluate nursing students'

perceptions regarding the effectiveness of these methods. The findings are expected to provide evidence for nursing educators, curriculum planners, clinical instructors, and policymakers to strengthen competency assessment systems and improve the quality of undergraduate nursing education.

Materials and Methods

Study Design

A descriptive cross-sectional study was conducted to assess the clinical competency assessment methods used in undergraduate nursing programs and to evaluate students' perceptions regarding their effectiveness. A cross-sectional design was considered appropriate because it allows the collection of data from a large group of participants at a single point in time, providing an overview of existing clinical competency assessment practices and associated challenges.

Study Setting

The study was conducted in selected nursing institutes located in Swat, Khyber Pakhtunkhwa, Pakistan. These institutes offer undergraduate nursing education comprising both classroom-based theoretical instruction and supervised clinical practice in affiliated teaching hospitals. Students receive clinical training in various hospital departments, including medical, surgical, emergency, intensive care, pediatric, and other specialty units, where they develop professional competencies under the supervision of clinical instructors and preceptors.

Study Population

The study population consisted of undergraduate nursing students enrolled in recognized nursing institutions in Swat who were actively participating in clinical training during the data collection period. Students from different academic years and both genders were invited to participate in the study.

Eligibility Criteria

Inclusion Criteria

Participants were eligible if they:

- Were enrolled in an accredited undergraduate nursing program in Swat.
- Were aged between 20 and 27 years.
- Were actively attending clinical placements during the study period.

- Voluntarily agreed to participate and provided informed consent.

Exclusion Criteria

Students were excluded if they:

- Were enrolled in non-nursing healthcare programs (e.g., medicine, pharmacy, physiotherapy, or allied health sciences).
- Were absent during data collection because of academic leave or clinical suspension.
- Declined participation.
- Submitted incomplete or incorrectly completed questionnaires that could compromise data quality.

Sampling Technique and Sample Size

A convenience sampling technique was used to recruit participants from selected nursing institutes. Although the minimum required sample size calculated using the Raosoft Sample Size Calculator was 292 (95% confidence level and 5% margin of error), a total of **317 undergraduate nursing students** completed the survey and were included in the final analysis, thereby increasing the statistical power and representativeness of the study.

Study Instrument

Data were collected using a structured, self-administered online questionnaire developed from a previously published instrument after obtaining permission from the original author. The questionnaire was reviewed by the research supervisor to ensure suitability for the local context.

The instrument consisted of two sections:

- **Section I:** Demographic information, including academic program, gender, age, and year of study.
- **Section II:** Items assessing students' perceptions of clinical competency assessment methods and challenges encountered during clinical education. These included clinical supervision, teacher-to-student ratio, integration of theory and practice, collaboration with healthcare professionals, availability of clinical equipment, communication barriers, learning opportunities, psychological factors, and other aspects influencing competency development.

Data Collection Procedure

Following institutional approval, eligible students were informed about the objectives and significance of the study. Participation was entirely voluntary, and electronic informed consent was obtained before questionnaire completion. The questionnaire was distributed electronically through Google Forms. Participants completed the survey anonymously, and no identifying information was collected. Completed questionnaires were automatically stored in a secure database before being downloaded for statistical analysis.

Data Analysis

Data were exported from Google Forms into Microsoft Excel and subsequently analyzed using IBM SPSS Statistics. Data cleaning procedures were performed before statistical analysis to identify missing values, duplicate responses, and data entry inconsistencies. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic characteristics and questionnaire responses.

Inferential analysis was performed using the Chi-square test of independence to determine associations between demographic variables (gender, age, academic department, and year of study) and students' perceptions of clinical competency assessment methods. Statistical significance was established at a **p-value < 0.05**.

Ethical Considerations

Ethical principles were maintained throughout the study. Ethical approval was obtained from the relevant institutional authorities before commencement of data collection. Participation was voluntary, and informed consent was obtained electronically from all participants.

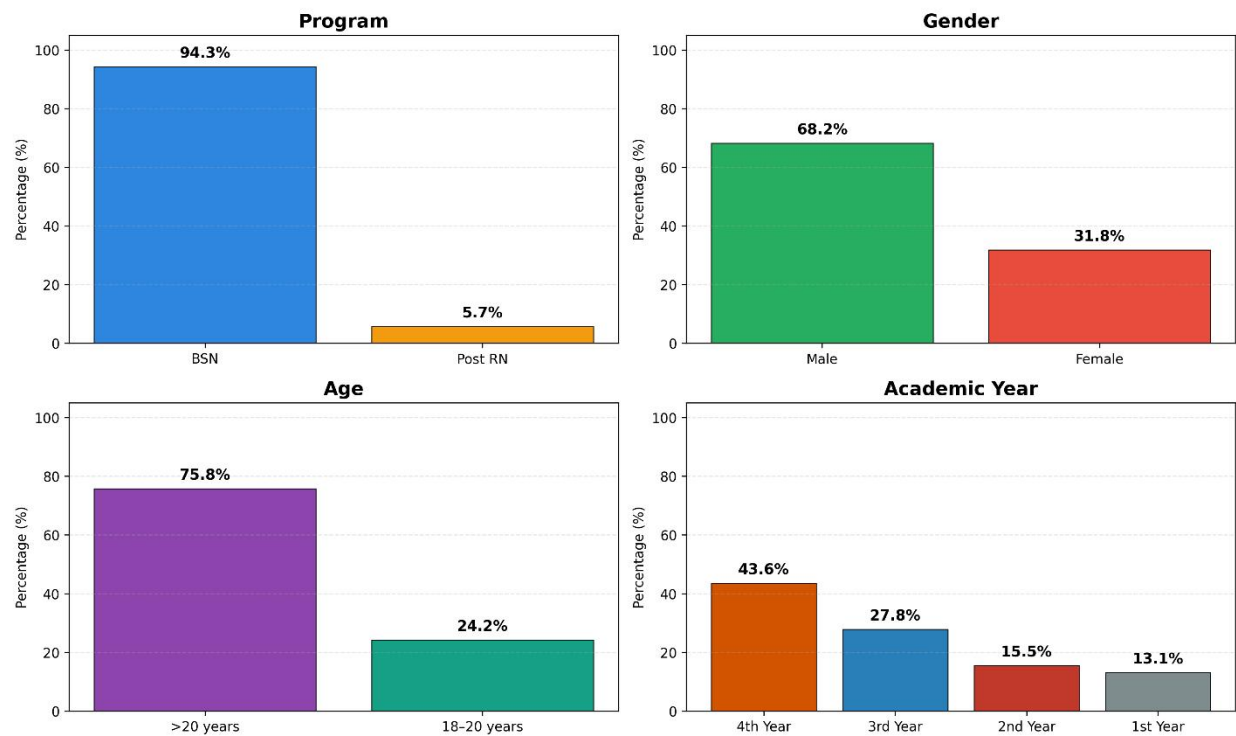
Confidentiality and anonymity were ensured by excluding personal identifiers such as names and registration numbers. Participants were informed of their right to withdraw from the study at any stage without academic consequences. All collected data were securely stored and used exclusively for research purposes. The study complied with accepted ethical principles governing research involving human participants, including respect for autonomy, confidentiality, beneficence, and justice.

Results

Participant Characteristics

A total of 317 undergraduate nursing students participated in this study. The majority of participants were enrolled in the Bachelor of Science in Nursing (BSN) program (94.3%), while 5.7% were Post RN students. Most participants were male (68.2%), and 31.8% were female. Regarding age, 75.8% were older than 20 years, whereas 24.2% were between 18 and 20 years. Nearly half of the participants (43.6%) were fourth-year students, followed by third-year students (27.8%), second-year students (15.5%), and first-year students (13.1%). These findings indicate that the study included students from different academic years and demographic backgrounds, providing a comprehensive overview of undergraduate nursing education in Swat.

Demographic Characteristics of Undergraduate Nursing Students (N = 317)



Percentages represent the distribution of participants across program, gender, age, and academic year.

Students' Perceptions of Clinical Competency Assessment

The findings demonstrated that undergraduate nursing students encountered multiple educational and clinical challenges affecting competency assessment and skill acquisition during clinical training.

Most students acknowledged that **clinical teachers frequently relied on supervisors to follow up with students during clinical practice**, with 41.3% reporting that this always occurred and 47.0% indicating that it occurred sometimes. Gender was significantly associated with students' perceptions ($p < 0.001$), whereas age, department, and year of study showed no statistically significant associations.

Regarding the integration of theoretical knowledge with practical application, **85.8% of participants** reported that teachers either always (42.0%) or sometimes (43.8%) linked classroom learning with clinical practice. Significant associations were observed with gender ($p < 0.001$), age ($p = 0.007$), and year of study ($p = 0.014$), while academic department showed no significant relationship.

More than half of the respondents (**52.4%**) believed that theoretical instruction and clinical practice were only sometimes synchronized, while 25.9% indicated that they were never adequately aligned. Gender demonstrated a significant association with this perception ($p = 0.008$), whereas age, department, and academic year did not.

Clinical Learning Environment

The clinical learning environment presented several barriers to effective competency development. More than half of the participants (**53.0%**) reported insufficient collaboration between nursing staff and students, while **52.4%** expressed similar concerns regarding collaboration with medical staff. Significant associations were observed between nursing staff collaboration and gender ($p = 0.009$) as well as year of study ($p = 0.003$). Perceptions regarding medical staff collaboration differed significantly according to gender ($p < 0.001$) and age ($p = 0.009$).

Language barriers during patient communication were frequently reported, with **50.8%** of students indicating that language sometimes affected communication and **31.2%** reporting that it always created difficulties. Significant associations were found with gender ($p < 0.001$) and academic department ($p = 0.041$). Restricted access to certain hospital units and wards was another common concern. More than half of the

respondents (51.4%) reported occasional restrictions, while 30.0% experienced such restrictions consistently. Department was the only demographic variable significantly associated with this challenge ($p = 0.039$).

Additionally, 54.3% of students stated that the presence of multiple patient relatives occasionally caused embarrassment during clinical procedures, whereas 33.4% reported experiencing this issue regularly. Significant associations were identified for gender ($p < 0.001$) and academic department ($p = 0.026$).

Clinical Practice Challenges

Student absenteeism was perceived as an important factor affecting competency development. Nearly 89% of participants believed that absenteeism sometimes or always negatively influenced their clinical practice. Gender demonstrated a significant association with this perception ($p < 0.001$).

Although one-third of students reported never disliking clinical practice, almost half (46.7%) indicated that they sometimes disliked practical training experiences. Significant associations were observed for gender ($p < 0.001$) and year of study ($p = 0.015$).

Availability of Clinical Resources

Availability of clinical resources remained a major concern throughout the study.

Nearly 60% of respondents reported that essential clinical tools and equipment were only sometimes available, while 21.5% stated that shortages were consistently experienced. Gender showed a statistically significant association with this issue ($p < 0.001$).

Similarly, 57.4% reported that medical equipment such as monitors, ECG machines, and defibrillators functioned effectively only sometimes, whereas 24.6% believed these machines frequently failed to operate properly. Significant differences were observed according to gender ($p < 0.001$).

Student-Related Factors

Overcrowding during clinical placements was identified as another important barrier. Approximately 83.6% of participants reported that excessive student numbers sometimes or always reduced opportunities for hands-on clinical practice. Gender demonstrated a statistically significant relationship with this perception ($p < 0.001$).

Psychological barriers were also prevalent. Half of the participants (50.5%) indicated that fear, embarrassment, and indecision sometimes reduced their participation in clinical practice, while 34.4% experienced these barriers consistently. Significant associations were observed with gender ($p < 0.001$).

Similarly, 54.6% of respondents believed that personal problems sometimes affected their academic and clinical performance, whereas 30.9% reported that personal issues consistently reduced their performance. Gender was significantly associated with these perceptions ($p < 0.001$).

Physical Demands of Clinical Training

Most participants considered clinical training physically demanding. More than half (51.7%) reported that the number of practical days per week was sometimes tiring, while 25.9% indicated that it was consistently exhausting. Likewise, 53.3% experienced fatigue due to prolonged standing during ward activities, and 28.7% reported this challenge regularly. Gender showed statistically significant associations with both variables ($p < 0.001$).

Summary of Findings

Overall, the study demonstrated that undergraduate nursing students encountered numerous barriers to effective clinical competency assessment, including inadequate supervision, insufficient collaboration with healthcare professionals, poor integration of theory and practice, language barriers, restricted ward access, overcrowding, inadequate clinical resources, psychological stress, absenteeism, and physical fatigue. Across most study variables, gender emerged as the demographic factor most consistently associated with students' perceptions, while age, academic department, and year of study were associated with selected outcomes only. These findings highlight the need for standardized competency assessment strategies and improvements in the clinical learning environment to enhance nursing education outcomes.

Discussion

This study assessed the clinical competency assessment methods used in undergraduate nursing programs in Swat, Pakistan, and explored nursing students' perceptions regarding the effectiveness of current assessment practices. The findings demonstrate that although students generally acknowledged the efforts of clinical instructors to

integrate theory with practice, several educational, organizational, and environmental barriers continue to influence competency development during clinical training. These findings emphasize the need for strengthening competency-based nursing education through standardized assessment strategies, improved supervision, and supportive clinical learning environments (Gupta et al., 2023).

One of the major findings of the present study was that most students reported that clinical instructors frequently depended on clinical supervisors for follow-up during practical training. While supervision is an essential component of competency-based education, excessive dependence on supervisors may reduce direct interaction between educators and students (Bhardwaj et al., 2023). Effective clinical supervision facilitates knowledge integration, clinical reasoning, confidence, and professional development. Similar findings have been reported by Henderson et al. (2012), who concluded that supportive supervision and regular feedback significantly improve nursing students' clinical competence and satisfaction with clinical learning.

The present study also demonstrated that the majority of students perceived that instructors attempted to connect theoretical learning with clinical practice. However, many participants simultaneously reported inadequate synchronization between classroom teaching and practical experiences. This finding suggests that although educational institutions emphasize theory-practice integration, inconsistencies still exist during clinical implementation. Similar observations have been reported by Benner et al. (2010), who emphasized that nursing curricula should better integrate theoretical knowledge with real clinical experiences to prepare competent graduates capable of delivering evidence-based patient care.

Another important finding was the insufficient collaboration between nursing staff, medical staff, and nursing students during clinical placements. Interprofessional collaboration is widely recognized as an essential element of effective clinical education because students learn not only technical skills but also communication, teamwork, and professional behavior through interaction with healthcare professionals. Limited cooperation from hospital staff may reduce students' opportunities to practice clinical procedures and develop confidence. Comparable findings were reported by

Papastavrou et al. (2016), who identified clinical staff support as one of the strongest predictors of positive clinical learning experiences among nursing students.

Language barriers were identified as another important challenge affecting communication with patients. Effective communication is fundamental to nursing practice because it influences patient assessment, therapeutic relationships, patient safety, and quality of care. Students who experience communication difficulties may hesitate to perform procedures or obtain complete patient information. Similar findings have been described by Kaihlanen et al. (2019), who reported that language differences negatively affect nursing students' communication skills, clinical confidence, and overall learning experiences.

Restricted access to specialized hospital units and overcrowding during clinical placements also emerged as major barriers. Many students indicated that they were occasionally denied access to certain wards and that excessive numbers of students reduced opportunities for hands-on practice. Clinical competency develops primarily through repeated exposure to real patient care situations. Therefore, overcrowded clinical environments limit procedural practice and individualized supervision. Previous studies by Chan (2002) and Jamshidi et al. (2016) similarly identified overcrowding, inadequate learning opportunities, and restricted clinical exposure as important obstacles to competency development among nursing students.

The study further highlighted resource-related challenges, including shortages of essential clinical equipment and malfunctioning medical devices. Availability of functional equipment is necessary for developing psychomotor skills and ensuring competency in modern healthcare settings. Students who cannot regularly practice using appropriate equipment may experience reduced confidence before graduation. Similar findings have been reported in several developing countries, where inadequate clinical resources continue to compromise nursing education quality and competency acquisition.

Psychological factors including fear, embarrassment, indecision, and personal problems were also commonly reported by participants. These emotional barriers may reduce students' willingness to perform procedures independently and negatively influence learning outcomes. Nursing education literature consistently demonstrates

that anxiety during clinical placement decreases students' confidence, clinical decision-making ability, and skill performance. Supportive supervision, constructive feedback, simulation-based education, and positive learning environments have been shown to reduce these psychological barriers and improve competency development.

Another important finding was that gender demonstrated statistically significant associations with many of the study variables, whereas age, academic department, and year of study were associated with only selected outcomes. These findings suggest that male and female students may perceive clinical learning experiences differently because of cultural, educational, or environmental factors. However, additional multicenter studies are required to determine the underlying reasons for these gender-based differences and whether similar patterns exist across other nursing institutions in Pakistan.

Overall, the findings of this study indicate that competency assessment should extend beyond evaluating students' technical skills. Effective assessment systems should also consider the quality of clinical supervision, availability of learning opportunities, institutional support, clinical resources, communication skills, psychological well-being, and interprofessional collaboration. Implementing standardized competency assessment frameworks, strengthening partnerships between nursing institutions and affiliated hospitals, providing faculty development programs for clinical instructors, and improving the clinical learning environment may substantially enhance competency development among undergraduate nursing students.

The findings of this study provide valuable evidence for nursing educators, curriculum developers, clinical preceptors, hospital administrators, and policymakers to strengthen competency-based nursing education in Pakistan. Future multicenter longitudinal studies involving nursing institutions from different provinces are recommended to evaluate the effectiveness of standardized competency assessment methods and their impact on graduate clinical performance and patient care outcomes.

Strengths

This study has several important strengths. First, it included a relatively large sample of 317 undergraduate nursing students, providing sufficient statistical power to evaluate students' perceptions regarding clinical competency assessment methods. Second,

participants were recruited from different academic years, allowing comparison of perceptions across varying levels of clinical experience. Third, the study examined multiple dimensions influencing clinical competency, including educational, organizational, environmental, psychological, and resource-related factors, providing a comprehensive understanding of the challenges faced by nursing students. Finally, the use of inferential statistics (Chi-square tests) enabled the identification of significant associations between demographic characteristics and students' perceptions, thereby strengthening the validity of the findings.

Limitations

Despite its strengths, the present study has several limitations. First, the cross-sectional design limits the ability to establish causal relationships between clinical competency assessment methods and students' learning outcomes. Second, the study was conducted in selected nursing institutes within Swat, which may limit the generalizability of the findings to other regions of Pakistan. Third, convenience sampling may have introduced selection bias. Fourth, the study relied on self-reported responses, making the findings susceptible to recall bias and social desirability bias. Finally, the study assessed students' perceptions rather than objectively measuring clinical competency through practical examinations such as Objective Structured Clinical Examinations (OSCEs). Future longitudinal and multicenter studies incorporating objective competency assessments are recommended.

Conclusion

Clinical competency assessment is an essential component of undergraduate nursing education because it ensures that nursing students acquire the knowledge, clinical skills, professional attitudes, and critical thinking abilities required for safe and effective patient care. The findings of this study indicate that undergraduate nursing students in Swat experience numerous challenges that influence competency development during clinical education.

The most frequently reported challenges included inadequate clinical supervision, inconsistent integration of theoretical knowledge with practical application, insufficient collaboration with nursing and medical staff, language barriers, restricted access to specialized clinical units, overcrowding during clinical practice, shortages of essential

equipment, malfunctioning medical devices, psychological barriers such as fear and embarrassment, personal problems affecting academic performance, and physical fatigue associated with clinical training schedules.

Gender demonstrated statistically significant associations with many competency assessment variables, whereas age, academic department, and year of study influenced selected aspects only. These findings suggest that improving competency assessment requires not only standardized evaluation methods but also supportive clinical learning environments, effective supervision, adequate clinical resources, and stronger collaboration between nursing schools and affiliated hospitals.

Educational institutions should implement competency-based assessment frameworks, strengthen faculty development programs for clinical instructors, increase opportunities for supervised hands-on practice, improve access to clinical resources, and promote effective communication between educators, healthcare professionals, and students. Such interventions will enhance the quality of nursing education and prepare competent graduates capable of providing high-quality patient care.

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Conflict of Interest:

The authors declare that there is no conflict of interest regarding the publication of this research.

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Ethical Approval:

Ethical approval was obtained from the relevant institutional ethical review committee before commencement of the study. Participation was entirely voluntary, and informed

consent was obtained electronically from all participants prior to data collection. Confidentiality and anonymity were maintained throughout the research process, and all procedures were conducted in accordance with the ethical principles of the **Declaration of Helsinki**.

Author Contributions:

Abdullah Khan: Conceptualization, methodology, data collection, formal analysis, interpretation of results, manuscript writing, and final approval of the manuscript.

Supervisor: Study supervision, methodology review, manuscript editing, critical revision, and final approval of the manuscript.

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