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Assessing Clinical Competency Among Nursing Students According To their Academic Level At Aligarh College Of Nursing And Allied Health Sciences, Lahore

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Abstract

Background: Clinical competency is an essential component of nursing education. Throughout academic levels,nursing students must have adequate clinical knowledge, practical skills as well as professional attitude.Clinical competency varies according to academic level.

Objective: To determine the relationship between academic level and clinical competency among nursing students.

Methods: A cross-sectional study was conducted among 109 nursing students from BSN
4 year, BSN 3 year, and BSN 4 semester.A Likert-scale questionnaire consisting of four competency domains was used to collect data. SPSS version 26 was used for data analysis. Descriptive statistics,one-way ANOVA and Tukey post hoc tests were used.

Results: The findings suggest that nursing students showed moderate to high levels of clinical competency.BSN 4th year students showed the higher mean competency scores
(43.20 ± 2.39),compared to BSN 4th semester students (29.31 ± 3.91).Academic level disparities statistically significant ($p<0.001$) according to one-way ANOVA.Tukey
Post hoc test showed 4th year BSN nursing students (118.03) demonstrated higher clinical competency scores than BSN 4th semester nursing students (74.50).

Conclusion: Nursing students showed moderate to high levels of clinical competency, increasing according to academic level.BSN 4th year students achieved highest competency, showing importance of academic progression in clinical competency.

Introduction

Study Background:

Clinical competency has a direct impact on patient care quality and safety, it is regarded as one of the most important outcomes of nursing education. In addition to theoretical knowledge; practical skills, critical thinking, clinical judgment, effective communication, ethical decision-making, and professional behavior are all necessary for the nursing profession. A clinically competent nurse can safely perform the nursing procedures, make appropriate clinical decisions, integrate knowledge with practice, and successfully respond to patients' changing health situations. As a result, nursing educators, medical facilities, and regulatory agencies around the world now place a high premium on nursing students' acquisition of clinical competency (Workneh, 2024).

Medical technological advancements, the rising prevalence of chronic illnesses, aging populations, and rising patient expectations have all contributed to the complexity of healthcare systems. These developments call for nurses who can provide evidence-based care in a range of clinical settings and who are knowledgeable, self-assured, and skilled. Through a combination of classroom instruction and supervised clinical experiences, nursing students are expected to progressively gain these competencies throughout their educational career. Students can apply theoretical ideas in practical settings,improve their communication skills, sharpen their critical thinking, and earn professional confidence through clinical education. As a result, clinical competency is acknowledged as a crucial measure of nursing students' preparedness for the workforce
(Mousavi et al., 2024).

Knowledge, technical proficiency, communication, leadership, professionalism, ethical behavior, clinical reasoning, decision-making, patient-centered care, teamwork, and stress management are all components of the multifaceted concept of clinical competency. Accurate patient assessment, nursing problem identification, suitable intervention planning, safe nursing care implementation, and patient outcome evaluation
are all skills that a qualified nursing student should possess. Students must also exhibit
empathy, responsibility, respect for patients' rights, and commitment to ethical and professional norms. These skills are necessary to deliver top-notch medical care and enhance patient outcomes (Assiut University, 2023).

A number of environmental and educational factors influence the development of clinical competency. Students' competency levels are influenced by a variety of factors,
including academic advancement, the caliber of classroom instruction, the clinical supervision, simulation-based learning, mentorship, the learning environment, the availability of clinical resources, and chances for repeated practice. Compared to students
with the little clinical experience, individuals who get systematic clinical direction, encouraging supervision, and ample opportunities to conduct nursing operations typically
exhibit higher levels of skill and confidence. In a similar vein, students' psychomotor abilities, clinical judgment, and professional conduct improve with repeated practice under the guidance of seasoned clinical instructors (Quinn, 2022).

One of the key elements linked to the development of clinical competency is thought to be academic level. Nursing students gain greater theoretical knowledge,

clinical experience, and exposure to a variety of patient situations as they go from junior to senior academic levels. Students can combine scientific information with practical skills and gain more confidence in clinical practice. Due to their greater expertise and repeated clinical practice, senior students typically exhibit stronger clinical reasoning, better communication, better technical performance, and more professional competence as compared to junior students. However, depending on the quality of instruction, the learning environment, supervision, and individual learning experiences, students' levels of competency growth may differ (Kramer et al., 2023).

Numerous current studies have revealed that nursing students frequently exhibit only moderate levels of clinical competency, despite ongoing advancements in nursing education. According to research, students often struggle to manage stressful clinical situations, apply theoretical knowledge to actual practice, conduct complex nursing procedures, and make independent clinical decisions. Competency growth has been found to be hampered by a number of factors, including poor supervision, crowded clinical environments, a lack of practical experience, a fear of making mistakes, a lack of simulation training, and a lack of confidence. These difficulties highlight the necessity of an ongoing assessment of the students' clinical competency during their academic careers (Nishan, 2024).

Problem Statement:

Numerous studies have demonstrated that the advanced clinical skills, the critical procedures and confidence is still severely hampered by the lack of possibilities for repeated practice and hands-on involvement. These difficulties are made worse by the institutions' inconsistent criteria for the definition, assessment, and reporting of clinical competency (Scoping Reviews, 2024).Differences in student outcomes are caused by variations in the evaluation criteria, educational goals, and measurement instruments. Additionally, the overall training environment, the degree of professional instruction, and the design of the clinical placement tasks all have a significant impact on students' progress.Even the senior students frequently struggle with the critical clinical competencies as they get closer to the graduation level, according to the numerous current publications. This raises the concerns regarding the effectiveness of the recent evaluation procedures, theoretical assistive systems, and the high standards marked by the institutions (Ahmedin et al., 2024). The need to consider again that how the clinical skills are delivered, practiced and evaluated has been further nominated by the move towards hybrid and electronically enabled learning following the COVID-19 pandemic.

Technology has made simulations and online methods more reachable, however it cannot completely replace supervised, real-world clinical exposure, which is still important for developing clinical competency.

Significance of the study:

This study assists nursing students in identifying areas that need development and understanding their present level of clinical competency. Students' clinical knowledge, practical skills, critical thinking, communication, and professional behavior; all be strengthened as a result.

The findings provide nursing educators information about the strengths and shortcomings of students' clinical competence at various academic levels. Teachers can use this information to improve clinical instruction and change their teaching strategies.

The study can help nursing schools in assessing the efficacy of clinical education initiatives. The findings might encourage better competency evaluation techniques, enhanced clinical training approaches, and curriculum change.

Higher-quality, safer, evidence-based patient care is a result of nursing students' increased clinical competency. Competent nursing graduates are better able to lower the risk of clinical errors and make the right clinical decisions.

The study adds to the body of information already available about clinical competency among Pakistani nursing students. In areas where there is currently little study, it will offer local data about the connection between academic level and clinical competency.

This study provides a baseline for future investigations into nursing students' clinical competency. To replicate the findings, future researchers might repeat the study with larger sample size, more institutions, or various competency assessment instruments.

Objective of the study:

To assess the clinical competency among nursing students according to their academic level.

To compare the clinical competency levels among the different academic levels of nursing students.

Conceptual Definitions:

Clinical competency:

The ability of nursing students to apply their theoretical knowledge, practical skills, critical thinking, communication skills, and professional conduct to provide patients with safe, efficient, and evidence-based care in a clinical setting is known as clinical competency.

Student Nurse:

A student nurse is a person enrolled in an accredited nursing program, such as BSN study program, to acquire the practical skills and information required for a career in professional nursing.

Operational Definitions:

Clinical competency:

A structured clinical competency assessment tool was used in this study to evaluate clinical competency in these clinical areas: knowledge and critical thinking, technical or psycho motor skills, communication skills, clinical decision making, professional behavior, use of health related information and stress management strategies.

Student Nurse:

A student nurse is a person who, at the time of data collection, is enrolled in an accredited

professional nursing education program (such as a Bachelor of Nursing) at a particular educational institution and actively participates in the curriculum's required theoretical
coursework or supervised clinical placements.

Research question:
What is the relationship between the academic level and clinical competency among the nursing students?

Hypothesis:
Null Hypothesis (Ho):
There is no significant relationship between academic level and the clinical competency among nursing students.

Alternative Hypothesis(H1):
There is a significant relationship between academic level and the clinical competency among nursing students.

METHODOLOGY
Study Population:
The study population consisted of nursing students, who are currently enrolled in Undergraduate(Generic BSN) nursing program.

Duration of Study:
The Duration of the study was 8 months from September 2025 to April 2026.

Study Setting:
The study was conducted at Aligarh College Of Nursing and Allied Health Sciences, Lahore.

Sample size:
The calculated sample size was 109 using the Slovin's formula, which is given below:
n=N/1+N(e)2
n=Sample size:?

N=Population size: 150

e ²= margin of error (0.05)
n= 150/ 1+150(0.05)2 =150/1.375150=109

n=109

Study Design:
Study design was descriptive cross-sectional.

Sampling technique:
Convenience sampling technique was used to select nursing students from Aligarh College Of Nursing and Allied Health Sciences, Lahore.

Variables:
Independent Variables:
Academic level of nursing students (BSN 4 year, BSN 3 year, BSN 4 semester).

Dependent Variables:
Clinical competency level among the nursing students.

Data Collection:
After receiving approval from the appropriate institutional authorities and ethical review
committee, data collection was finished over a two-month period.

Data Analysis:
The collected data was entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 26.0. Among the descriptive statistics that were calculated; were median, range, minimum and maximum values, mean and standard deviation. Inferential statistics were utilized to determine how nursing students at their different academic levels varied in their level of clinical competency using the one-way ANOVA
and Tukey post hoc test.A p-value of less than 0.05 was considered statistically significant.

Research Tool:
A closed-ended Likert-scale questionnaire based on the Nurses Self Concept Instrument
(NSCI) was used for the data collection among nursing students.

Sample selection:
Inclusion Criteria:
Students studying in Generic BSN 3 and 4 year and 4 Semester.
Students who have completed at least three months of clinical duty.
Present students in the college during the data collection.
Students who Voluntarily agreed to participate in the research study.

Exclusion Criteria:
Nursing students, who are suffering from the physical or psychological distress.
Nursing students, who submitted the incomplete questionnaires.
Nursing students, who have irregular attendance or less than 85 percent attendance.

Ethical Consideration:
The study was conducted in accordance with the research protocols and ethical principles
authorized by the ethical review committee of Aligarh College of Nursing and Allied Health Sciences, Lahore. All participants' rights, dignity, and confidentiality were upheld
throughout the study. There are the following ethical considerations:
Prior to data collection, each subject provided informed consent.
Participation in the research study was entirely voluntary.
All research data and information gathered were kept private and utilized exclusively for academic purposes.
Participants were told that taking part in the study posed no risks to their physical, mental, or social well-being.
At any point during the study, participants were free to leave without facing any consequences or coercion.
Before beginning the research investigation, permission to collect data was obtained from the appropriate institutional authorities.
The study was carried out in compliance with the ethical guidelines for nursing research and the protection of human subjects.

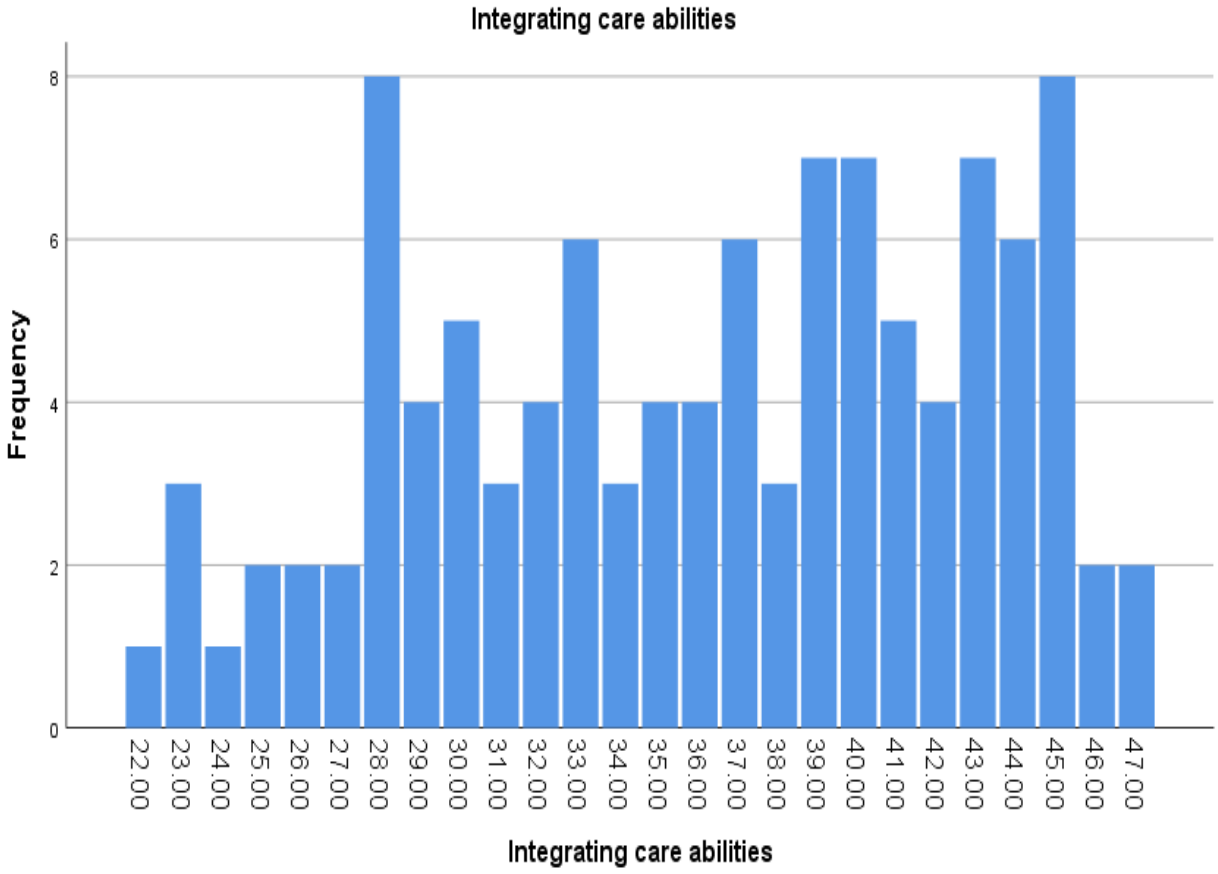
The research investigation preserved the participants' anonymity.

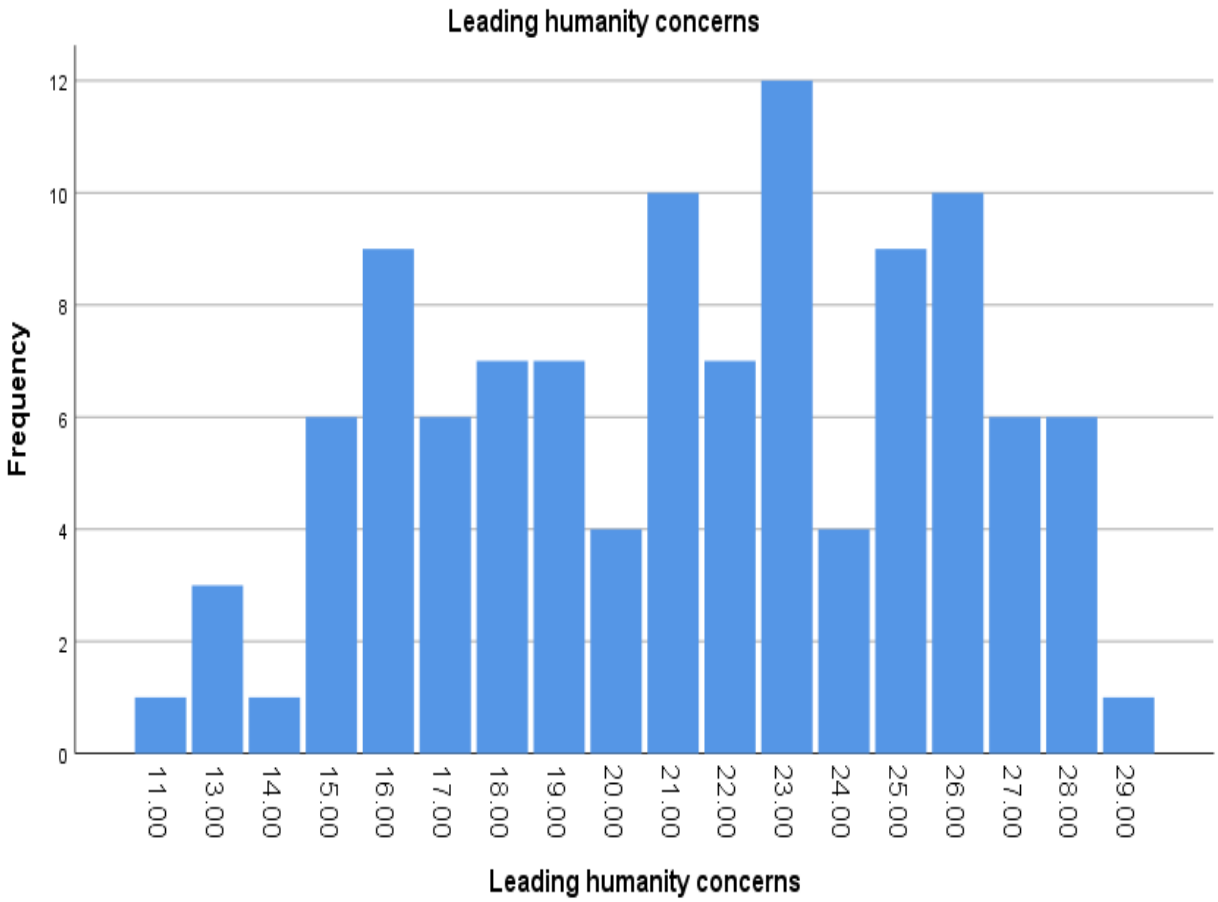
RESULTS

The statistical analysis and results of the study "Assessing Clinical Competency Among Nursing Students According to their Academic Level At Aligarh College Of Nursing And Allied Health Sciences, Lahore ." are presented in this chapter. SPSS version 26.0 was used to analyze the data gathered from 109 nursing students. Clinical competency among different academic levels was analyzed using descriptive statistics, one-way ANOVA, and Tukey post hoc tests.

Table 3.1: Descriptive Statistics of Clinical Competency Domains (n =109)

Clinical Competency Domain	Median	Minimum	Maximum	Range
Integrating Care Abilities	37	22	47	25
Leading Humanity Concerns	22	11	29	18
Advancing Career Talents	25	12	33	21
Dealing with Tension	12	5	20	15




Leading humanity concerns
Frequency
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6
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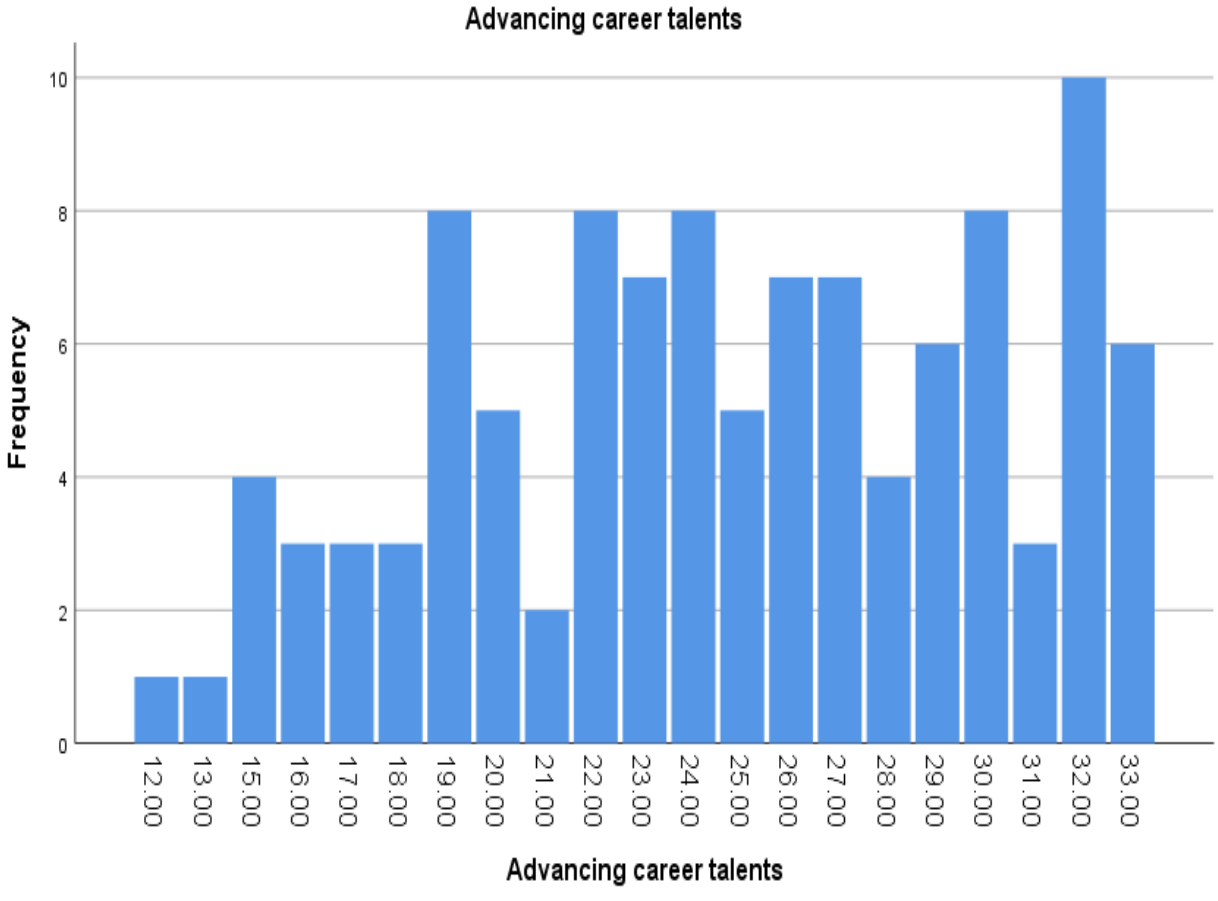
Leading humanity concerns


Advancing career talents
Frequency
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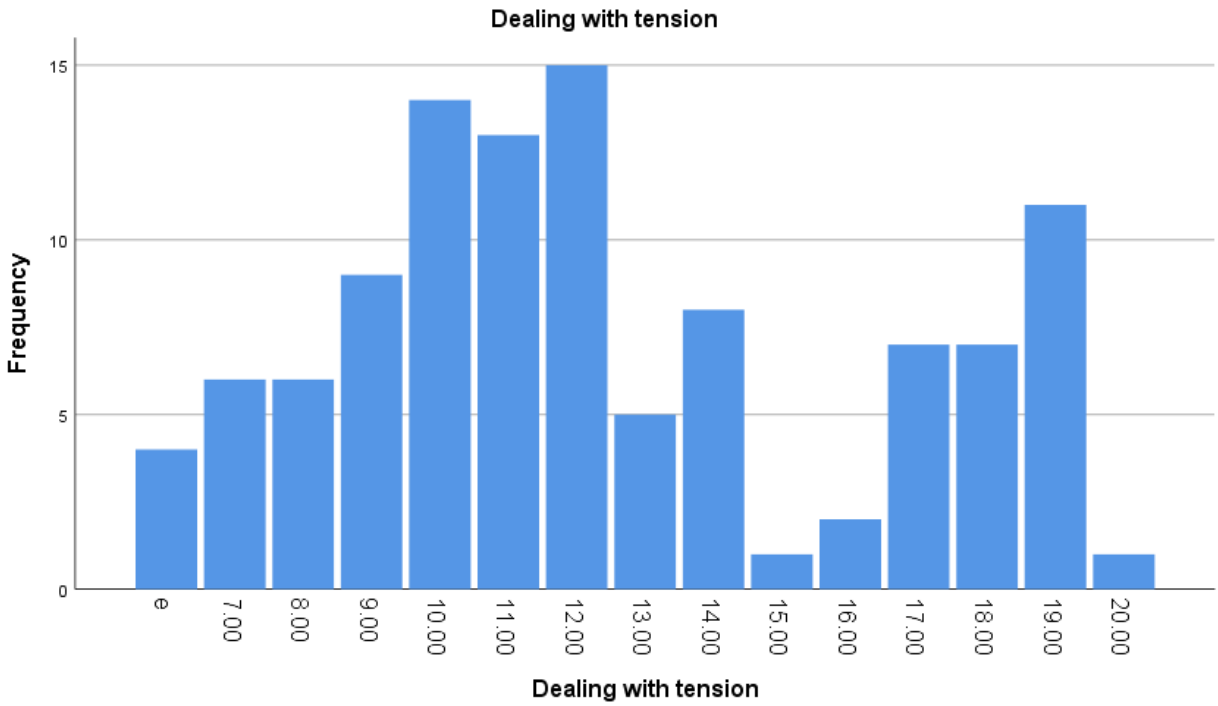
Advancing career talents



Interpretation:

Among nursing students, differences were noted in several clinical competency domains.

The domain of Integrating care abilities had the highest median score (37), indicating superior application of clinical knowledge and patient care skills. With a median score of

25, advancing career talents also showed comparatively high competency levels.

Students' acceptable professional and compassionate conduct were reflected in the modest median score of 22 for leading humanity concerns. Dealing with tension, on the

other hand, had the lowest median score (12), indicating that students had more trouble

coping and managing their stress during clinical practice. Variations in the distribution of

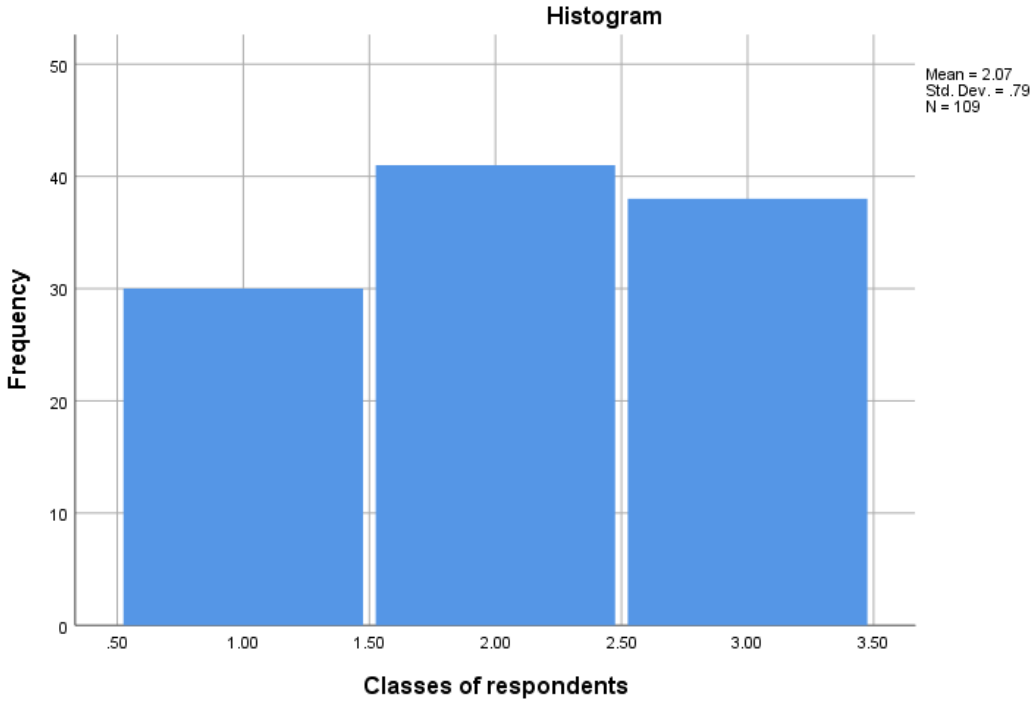
scores across skill domains were further revealed by the range values. Students' performance levels varied, as seen by the largest range (25) in integrating care abilities.

Overall, the results indicate that nursing students were relatively more adept at integrating patient care than at managing clinical stress and strain.

Table 3.2: Mean Comparison of Clinical Competency According to Academic level

Domain	**Level/Class**	**n**	**Mean**	**SD**
Integrating Care Abilities	BSN 4th Year	30	43.20	2.39
	BSN 3rd Year	41	37.29	4.39
	BSN 4th Semester	38	29.31	3.91

Leading Humanity Concerns	BSN 4th Year	30	26.20	1.56
	BSN 3rd Year	41	21.60	2.73
	BSN 4th Semester	38	17.03	2.52
Advancing Career Talents	BSN 4th Year	30	30.90	1.91
	BSN 3rd Year	41	25.19	3.10
	BSN 4th Semester	38	19.32	3.41
Dealing with Tension	BSN 4th Year	30	17.73	1.66
	BSN 3rd Year	41	11.80	1.62
	BSN 4th Semester	38	8.84	2.01



Interpretation:

The results showed that nursing students' clinical competency scores varied depending on their academic level. In every competency domain, fourth-year BSN students consistently received the highest mean scores, demonstrating superior clinical ability in comparison to junior students. Fourth-year BSN students had the greatest mean score (43.20±2.39) in the integrated care abilities category, whereas fourth-semester BSN students had the lowest mean score (29.31±3.91). Similar patterns were shown in leading humanity concerns, where fourth-year BSN students behaved more professionally and compassionately than other academic groups. Additionally, advancing career talents showed steadily increasing mean scores from fourth semester to fourth year BSN

students.Compared to junior students, fourth-year BSN students reported better levels of
proficiency in stress management. Overall, the findings imply that nursing students' clinical competency increases as their academic level and the clinical exposure rise.

Table 3.3: One-Way ANOVA Comparison of Clinical Competency

Domains	Between Groups SS	Within Groups SS	Total	df	Mean Square	F	P-value
Integrating Care Abilities	3319.437	1505.498	4828.936	2	1659.734	116.65	<0.001
Leading Humanity Concerns	1418.213	605.530	2023.743	2	709.132	124.32	<0.001
Advancing Career Talents	2264.834	923.350	3188.183	2	1132.423	130.23	<0.001
Dealing with Tension	1348.880	333.358	1682.239	2	674.432	214.65	<0.001

Interpretation:
All clinical competency domains showed statistically significant differences between nursing students at different academic levels, according to a one-way ANOVA study. Strong statistical significance was shown by the p-value for each competency domain being less than 0.001. The domain of handling tension had the highest F-value (F=214.65), indicating significant differences in academic groups' ability to manage stress. Significant variations were found in the areas of advancing career talents, leading
humanity concerns, and integrating caring abilities. Across all domains, the between-group sum of squares was greater than the within-group variability, suggesting that competency scores were significantly influenced by academic level.These findings suggest that the observed differences were not due to random variation alone.The findings support the study's hypothesis that nursing students' clinical competency and academic level are substantially correlated. Overall, the data shows that senior nursing students outperformed junior students in terms of clinical competency.

Table 3.4: Comparison of Clinical Competency Scores Among Different Academic Levels Based on Tukey Post Hoc Analysis

Domain	Lowest Mean	Moderate Mean	Highest Mean
Integrating Care Abilities	BSN 4 Sem (29.31)	BSN 3 Year (37.29)	BSN 4 Year (43.20)

Leading Humanity Concerns	BSN 4 Sem (17.03)	BSN 3 Year (21.60)	BSN 4 Year (26.20)
Advancing Career Talents	BSN 4 Sem (19.32)	BSN 3 Year (25.19)	BSN 4 Year (30.90)
Dealing with Tension	BSN 4 Sem (8.84)	BSN 3 Year (11.80)	BSN 4 Year (17.73)
Total Score:	BSN 4 Sem (74.50)	BSN 3 Year (95.88)	BSN 4 Year (118.03)

Interpretation:

According to academic level, nursing students' clinical competency scores increased gradually, as shown by Tukey post hoc analysis. In every competency domain, fourth-semester BSN students consistently displayed the lowest mean scores, whereas fourth-year BSN students consistently displayed the highest scores. Competency scores for integrating care abilities rose from 29.31 among fourth semester BSN students to 43.20 among fourth year BSN students. Leading humanity concerns,advancing career talents, and dealing with tension; all showed similar steady rises. Between junior and senior academic groups, third-year BSN students showed moderate competency levels. BSN fourth-year students had the highest total competency score (118.03), followed by third-year students (95.88), and fourth-semester students (74.50). These results show that when academic advancement and clinical exposure increase, clinical competency improves. The result that senior nursing students have greater levels of clinical competency than junior students was further supported by the post hoc analysis.

DISCUSSION AND CONCLUSION

Discussion:

The current study evaluated clinical competency among nursing students at different academic levels using a Likert-scale clinical competency questionnaire. The findings showed that nursing students had moderate to high levels of clinical competency, with significant variations between academic levels and the clinical competency . According to the current study, nursing students were comparatively more adept in applying theoretical knowledge to patient care practices, as evidenced by the highest median competency score (37) for integrating care abilities.It was observed in similar results in Iran, where nursing students' clinical competency ratings increased considerably from 21.00 ± 5.088 to 38.00 ± 4.481 following an educational intervention due to competency-based clinical skills orientation (Kumar et al., 2023). Similarly, coordinated clinical practice and structured clinical exposure significantly enhance nursing students' professional competency and readiness for clinical practice (Eronen, 2023). These results corroborate the current study, which showed that senior

nursing students had the greater levels of the clinical competency in patient care integration.

In comparison to BSN third-year and fourth-semester students, the results of the current study also showed that fourth-year BSN students consistently obtained the highest mean competency scores across all competency domains. The findings showed that clinical exposure and academic level both increased clinical competency. It was noticed that the undergraduate nursing students in Khyber Pakhtunkhwa, Pakistan, had generally strong clinical reasoning competencies, with a mean score of 59.7 ± 8.98. In order to increase nursing students' clinical competency, the authors stressed the significance of the sufficient practical exposure and the efficient teaching techniques (Aziz ul Rehman et al., 2024). Additionally, using the PROFFNurse SAS II assessment tool, a study conducted in South Africa found that nursing students had moderate self-perceived competency levels. They also emphasized the importance of mentorship, supervision, and hands-on clinical training in enhancing professional competency (Taylor et al., 2023).

The fact that nursing students had the lowest competency scores in the area of managing stress was another significant conclusion of the current study. This result implies that emotional coping and stress management continue to be major obstacles in therapeutic practice.Similar findings were observed in Lahore, where nursing students' clinical learning experiences and confidence levels were adversely affected by congested clinical environments, little practical chances, insufficient supervision, and negative patient attitudes (Nawaz et al., 2025). Moreover, nursing students' self-confidence, decision-making skills, and general clinical competency are all negatively impacted by anxiety and stress during clinical placements (Han et al., 2025). These results suggest that students' professional development and clinical competency may be hampered by stressful clinical settings.

Based on one-way ANOVA analysis, the current study also showed statistically significant differences in clinical competency among nursing students by academic level ($p < 0.001$). The dealing with tension domain had the highest F-value ($F = 214.65$), suggesting that academic groups differed significantly in their capacity to manage stress.

Similar results were reported by BSN students in Hyderabad had moderate psychomotor competency levels (mean 51 ± 7.31) and came to the conclusion that nursing students need repeated practical opportunities, guided clinical exposure, and the structured supervision in order to safely perform clinical procedures (Nizamuddin et al., 2024). The current study backs up the idea that nursing students' competency levels are significantly impacted by increasing clinical exposure and academic advancement.

Clinical competency scores gradually increased from BSN fourth semester students to BSN fourth year students, according to the current study's Tukey post hoc

analysis. Fourth-year BSN students had the greatest overall competency score (118.03),
while fourth-semester BSN students had the lowest score (74.50). Similar results were shown in Jamshoro, Sindh, where nursing students who had more clinical exposure showed improved collaboration, teamwork, and communication skills during clinical rotations. Nonetheless, several participants' ethical decision-making and documentation
methods were found to be lacking. These results imply that competency progressively increases with increasing practical experience, repeated clinical exposure, and academic
advancement (Sameer, 2025).

The findings of current study showed clinical competency ratings were higher among nursing students who had higher academic level, clinical exposure. Results of this
study are in line with the significance of clinical mentorship and competency-based nursing education in enhancing nursing students' professional readiness which have also
been emphasized by International studies. Nursing students and recently graduated nurses
frequently need further education in pharmacological competency, prescription delivery,
and adverse drug management (ICN, 2022). Furthermore, it has been established that the
competency-based learning and simulation-based learning are successful methods for raising students' self-assurance, practical skills, and the professional performance (Cant and Cooper, 2024).
Overall, the results of this study showed that the clinical competency of nursing students varies considerably depending on their academic level. When compared to junior
students, senior nursing students consistently showed greater proficiency scores in every
competency topic. The results show that enhancing clinical competency among nursing
students is mostly dependent on structured clinical exposure, competency-based education, efficient supervision, mentorship, and chances for hands-on learning. Recent
nursing competency studies have reported similar findings, highlighting the positive effects of competency-based nursing education and supportive clinical learning environments on students' clinical performance and the professional readiness (Albalawi et al., 2024).

Conclusion:

The current study found that in all four competency domains, nursing students showed moderate to high levels of clinical competency. Dealing with tension showed lower competency levels than integrating care abilities, which demonstrated the highest
clinical competency level among the domains.
The study also found that the clinical competency is strongly influenced by the academic level. When compared to the third-year and fourth-semester BSN students, fourth-year BSN students showed the highest levels of competency. This suggests that as academic level and clinical exposure rise, the clinical competency gradually increases.

Thus,results of this study confirm value of organized clinical education programs in enhancing undergraduate nursing students' competency development.

Limitations:

There were certain restrictions on the current investigation. Because the study was limited to a single nursing institution,the findings may not be generalizable to all nursing students in different educational settings.Furthermore,the study assessed the clinical competency using a self-administered Likert-scale questionnaire,which may not entirely reflect actual clinical performance.To give a more thorough assessment of the clinical competency among nursing students, future research may employ the large sample sizes,observational techniques and the practical skill evaluations.

Recommendations:

The following recommendations are made in light of findings of the current study:

To increase the clinical competency of nursing students at various academic levels, nursing schools should offer the structured and the supervised clinical exposure.

To assist nursing students in dealing with the stress during clinical practice, stress management and the coping skills training programs should be effectively implemented.

To improve students' confidence, decision-making skills, and clinical performance, simulation-based learning activities ought to be included in nursing education.

To monitor students' competency levels and pinpoint areas in need of development, regular clinical competency tests should be carried out.

To improve the students' practical skills and the professional competency, the clinical instructors and preceptors should offer helpful advice and constructive criticism during the clinical placements.

To increase the findings' generalizability, future research should be carried out in the several healthcare facilities with larger sample sizes.

Future studies should examine other elements that affect nursing students' clinical competency including the learning environment, instructional techniques and student motivation.

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