

Assessing the Effectiveness of Clinical Rotations in Preparing Undergraduate Nursing Students for Practice: Mixed Study

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ABSTRACT

Objective: The objective of this mixed-methods research study is to assess the effectiveness of clinical rotations in preparing undergraduate nursing students for practice at Ninevah Nursing College, Iraq by combining quantitative and qualitative approaches. **Methods:** A mixed-methods approach was used to collect data from a convenience sample (100) of undergraduate nursing students. A survey was conducted to obtain quantitative data, while qualitative data was obtained through focus groups. Descriptive and thematic analyses were employed to analyze the data. **Results:** The results revealed that clinical rotations were perceived to be valuable in developing clinical skills. However, there were gaps in the student's preparation for the emotional demands of nursing practice, navigating complicated patient interactions, and managing workload. The findings suggest a need for nursing programs to ensure that clinical rotations provide a more comprehensive preparation for the realities of nursing practice. This can be achieved through a structured approach, including debriefing sessions and opportunities for reflection, and ensuring that students have exposure to a range of patient populations and healthcare settings. **Conclusion:** Clinical rotations are essential for nursing students to apply their theoretical knowledge in a real-world setting. The study findings indicate that there is a need for nursing programs to enhance the effectiveness of clinical rotations in preparing students for the realities of nursing practice. Implementing a structured approach to clinical rotations and ensuring exposure to diverse patient populations and healthcare settings can help bridge the gaps in nursing education.

Keywords: *Clinical Rotations; Mixed- Methods; Reflection*

INTRODUCTION

Clinical rotations are an essential component of nursing education, allowing students to apply their theoretical knowledge in a real-world setting. (Woods *et al.*, 2023) The practical experience gained through clinical rotations is critical in preparing nursing students for the realities of nursing practice. (Madera, 2023) However, despite the acknowledged importance of clinical rotations, there is limited research on their effectiveness in preparing undergraduate nursing students for practice, particularly in Iraq. In recent years, nursing education in Iraq has undergone significant changes, with an increased emphasis on practical training and clinical experience (Attia & Ibrahim, 2023; Fathi & Ibrahim, 2023; Sulaiman *et al.*, 2023). As a result, it is crucial to assess the effectiveness of clinical rotations in nursing education in Iraq, particularly in their ability to prepare students for the complex and challenging nature of nursing practice (Yusandra & Diana, 2022).

Clinical rotations in Iraq and other regions can vary in terms of their structure, duration, resources, and the overall healthcare system context. Clinical rotations in Iraq may follow a similar structure to those in other regions, involving supervised hands-on experiences in various healthcare settings. However, the specific organization, duration, and sequencing of rotations may differ. For example, some regions may have longer or more frequent rotations, while others may have a more diverse range of specialty rotations available. The availability and quality of resources and facilities during clinical rotations can vary across regions. Differences

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may exist in terms of access to modern medical equipment, simulation labs, standardized patient programs, and interprofessional learning opportunities (Awad *et al.*, 2019). Regions with more advanced resources and facilities may provide enhanced learning experiences for nursing students. The healthcare system context within which clinical rotations occur can also differ. Variations may exist in terms of healthcare policies, models of care, and interprofessional collaboration practices. These contextual factors can influence the exposure and experiences of nursing students during their rotations. Previous studies have highlighted several benefits of clinical rotations in terms of perceived readiness for systems thinking and interprofessional collaboration. Clinical rotations have been found to enhance students' understanding of the broader healthcare system, including how different components interact and impact patient care. Students exposed to diverse clinical settings and patient populations develop a broader perspective, enabling them to see healthcare delivery from a system-thinking perspective. This includes recognizing the influence of social determinants of health, patient safety, resource allocation, and healthcare policy on patient outcomes. (Mallek & El-Hosany, 2020; Noor, Bakar, & Bit-Lian, 2020) Clinical rotations provide opportunities for nursing students to collaborate with healthcare professionals from various disciplines. This exposure fosters teamwork, communication, and mutual understanding among healthcare providers, leading to improved patient care outcomes. Nursing students who engage in interprofessional collaboration during clinical rotations develop skills in effective communication, shared decision-making, and understanding the roles and responsibilities of different healthcare team members. These benefits, related to systems thinking and interprofessional collaboration, align with the domains measured by the Casey-Fink Readiness for Practice Survey (CFRPS) used in the study. The four domains assessed by the CFRPS (clinical competence, clinical judgment, professional development, and systems thinking) reflect the essential aspects of nursing practice that are influenced by clinical rotations. By measuring students' perceived readiness in these domains, the study aims to evaluate the impact of clinical rotations on their preparedness for future professional roles. This study aims to assess the effectiveness of clinical rotations in preparing undergraduate nursing students for practice at Ninevah Nursing College, Iraq.

METHODOLOGY

Design

The mixed-methods research study conducted at Ninevah Nursing College in Iraq employed a mixed sampling approach to collect data from undergraduate nursing students. This study utilized both quantitative and qualitative data collection methods to comprehensively assess the effectiveness of clinical rotations.

Setting

The study took place at the Colleges of Nursing at Ninevah University and Al Kitab University in Iraq.

Participants

Quantitative Sampling

The study employed purposive sampling to select a sample of 100 undergraduate nursing students who had undergone clinical rotations. Purposive sampling allowed for the selection of participants with relevant experiences and characteristics related to the research topic. The sample aimed to be diverse in terms of gender, academic performance, and clinical rotation experiences.

Qualitative Sampling

From the quantitative sample, a subset of participants was purposefully selected for the qualitative component, which involved focus group discussions. The selection aimed to ensure diversity in the sample, considering factors such as gender, academic performance, and clinical rotation experiences. The sample size for the focus groups was determined based on data saturation, the point at which new information and themes ceased to emerge. The mixed sampling approach enabled the researchers to gather data from a diverse group of undergraduate nursing students, ensuring varied perspectives and experiences regarding the effectiveness of clinical rotations at Ninevah Nursing College, Iraq. The inclusion criteria for this study encompassed

undergraduate nursing students from the Nursing College at Ninevah University and Al Kitab University who had experienced clinical rotations and had met the minimum requirement for clinical rotation hours. To capture a diverse range of perspectives, students from various academic years were included. Conversely, the exclusion criteria encompassed nursing students who had not yet undergone clinical rotations, those who had not fulfilled the mandated minimum clinical rotation hours, and students not currently enrolled in the nursing programs at Ninevah University and Al Kitab University. These criteria ensured that the study focused on individuals with relevant clinical rotation experiences and a direct connection to the participating institutions.

Sample Size

In this study, a non-probability sampling method was employed due to the heterogeneous nature of the target population, which included undergraduate nursing students. A purposive sampling approach was used, where all willing participants from the sample frame of students were included. While descriptive studies often involve small sample sizes, factors like power considerations influenced the determination of an appropriate sample size. G-power software was utilized to calculate the sample size, considering a 5% margin of error, a 95% confidence level, an estimated response rate of 50%, and a population size of 780. The calculated sample size was 93, aiming for representativeness. To round up the sample size to an even number and further enhance its representativeness, seven additional students were included, resulting in a total sample size of 100 participants.

Study Tool and Data Collection

- a. **Personal Data Include Age-Sex**
- b. **Casey Fink Readiness for Practice Survey© 2008 (CFRPS)**

The second section of the Casey Fink Readiness for Practice Survey© 2008 (CFRPS) generates ordinal data related to the participant's comfort level in multitasking or managing multiple patient assignments. This section comprises a 20-item survey where students were provided responses on a Likert-type scale, ranging from 1 (strongly disagree) to 4 (strongly agree). Participants will rate their level of confidence for each item in handling various aspects of their responsibilities. The survey likely includes a range of questions covering different areas relevant to nursing practice, providing valuable insights into the readiness and preparedness of new graduate students for their professional roles. The following is an example of CFRPS statements.

"I feel confident in my ability to communicate effectively with patients and their families."; "I am comfortable using electronic health record systems to document patient care."; "I have experience in collaborating with other healthcare professionals as part of a multidisciplinary team."; "I feel prepared to handle unexpected situations or emergencies in the clinical setting."; "I am confident in my ability to perform essential nursing procedures, such as medication administration and wound care."

Test for Validity and Reliability

The Casey-Fink Readiness for Practice Survey (CFRPS) used in the study has undergone extensive testing for both validity and reliability. Multiple studies, including those by Boswell & Sanchez, (2002); Casey & Fink, (2021); Casey, Tsai, & Fink, (2021) and Woods *et al.*, (2023), have evaluated the psychometric properties of the survey, consistently yielding positive results. The CFRPS demonstrates good construct validity, indicating that it effectively measures the intended construct and aligns with the expected competencies of new graduate nurses. Its validity is further confirmed through correlations with other clinical performance measures, such as preceptor ratings and clinical evaluations. In the present study, the tool's validity was confirmed through an expert panel review involving experienced nursing educators and practitioners who assessed its content relevance, clarity, language, and structure. Their feedback led to refinements, ensuring the questionnaire's appropriateness and understandability for study participants. Reliability, reflecting the consistency and stability of test results, is another strong point of the CFRPS. It exhibits good internal consistency and reliability, indicating that its items consistently measure the same construct and are highly correlated. Test-retest reliability was also assessed in the present study, involving a

sample of 10 students who completed the questionnaire twice, two weeks apart. Statistical measures, including Cohen's Kappa and the Intraclass Correlation Coefficient (ICC), demonstrated substantial agreement and good-to-excellent reliability between the two administrations of the questionnaire, indicating that the tool provides consistent and reproducible results over time. Any necessary adjustments were made based on the test-retest analysis to enhance its reliability. Overall, the CFRPS used in the study is a valid and reliable instrument for assessing readiness for nursing practice.

Data Analysis

The research employed content analysis, an interpretive approach, to assess the effectiveness of clinical rotations in preparing undergraduate nursing students for practice. This method involved a comprehensive review of the interview script, where relevant sections related to participants' experiences with clinical challenges were carefully extracted and organized. Through systematic coding, words, sentences, and paragraphs sharing common content and context were merged to identify patterns and distinctions within the text. The interpretation of these codes and units of meaning was carried out in the study's specific context, facilitating the recognition of both similarities and differences. Subsequently, abstract subclasses were created, guided by the semantic line of the data. After revisiting and refining the codes and subclasses, the analysis yielded three primary categories.

Ethical Consideration

The study obtained permission from the Ethics Committee of the Ninevah University, College of Nursing, Iraq on 18th of October 2022 with reference No. CCRME-Med-22-45.

RESULTS

Quantitative Results

Characteristics of the Participants

Table 1 presents the characteristics of 100 participants in a nursing college. The mean age of the participants was 25.66 years, with a standard deviation of 9.41. The gender distribution of the participants was 75% female and 25% male. The participants were distributed equally among the five semesters, with 20 participants per semester. The semesters included adult nursing, maternity nursing, pediatric nursing, community health nursing, and mental health nursing (Table 1).

Casey-Fink Readiness for Practice Survey

The main results presented in Figure 1 are the mean scores of the four subscales of the Casey-Fink Readiness for Practice Survey. The highest mean score was observed in the clinical problem-solving subscale (18.56), indicating that the participants had relatively high readiness levels for clinical problem-solving tasks. The lowest mean score was observed in the Learning Techniques subscale (3.96), suggesting that the participants may have had relatively lower readiness levels for learning new techniques. The mean score for the professional identity subscale was 14.03, indicating a moderate level of readiness in terms of professional identity, while the mean score for the trials and tribulations subscale was 15.17, suggesting moderate readiness to face challenges and difficulties in professional practice.

Qualitative Results

Six key themes were identified after analyzing the interviews conducted with the participants regarding the effectiveness of clinical rotations in preparing undergraduate nursing students for practice. These themes included:

1. **Exposure to Real-World Nursing Situations:** Participants reported that clinical rotations provided them with valuable exposure to real-world nursing situations, allowing them to develop the necessary skills and knowledge to function as a nurse in a clinical setting. one student said.

“One student shared their experience, stating that clinical rotations allowed them to witness and participate in real-life scenarios that cannot be replicated in a classroom setting. This exposure allowed them to gain hands-on experience and develop critical thinking skills required for nursing practice.”

2. **Integration of Theory and Practice:** Participants reported that clinical rotations allowed them to integrate their theoretical knowledge with practical experience, facilitating their understanding of the link between theory and practice.

3. **Development of Professional Identity:** Participants reported that clinical rotations helped them develop their professional identity as nurses by allowing them to observe and learn from experienced nurses and interact with patients. One student shared their experience:

“Clinical rotations allowed them to apply the theoretical knowledge they learned in the classroom to real-life situations. This integration of theory and practice helped them understand the practical relevance of their theoretical knowledge and allowed them to develop a deeper understanding of nursing practice.”

4. **Inadequate Supervision:** Some participants reported that inadequate supervision during clinical rotations was a concern, as it limited their ability to learn and practice nursing skills.

“Inadequate supervision during clinical rotations was a challenge, as they felt unsure of their ability to perform certain tasks without the guidance of an experienced nurse. They felt that more supervision would have provided a better learning experience and allowed them to develop their skills more confidently.”

5. **Inadequate Preparation for Clinical Rotations:** Some participants reported feeling unprepared for clinical rotations, as they lacked the necessary knowledge and skills to perform effectively in a clinical setting.

Stating that “they felt unprepared for clinical rotations, as they lacked the necessary knowledge and skills to function as a nurse in a clinical setting, They felt that more preparation in the classroom would have helped them feel more confident and better equipped to handle the challenges of clinical rotations.”

6. **Communication and Interpersonal Skills:** Participants reported that clinical rotations helped them develop their communication and interpersonal skills, which are critical in nursing practice.

They stated that “clinical rotations helped them develop their communication and interpersonal skills, allowing them to interact effectively with patients and other healthcare professionals. They learned to convey information clearly, listen actively, and build rapport with patients and their families. They recognized that these skills were essential in providing high-quality patient care and building positive relationships with patients and colleagues.”

Table 1: Characteristics of Participants (n = 100)

Characteristics	Statistics	%
Age, mean + SD	25.66 + 9.41	
Gender, n (%)		
Female	75	75
Male	25	25
Semester		
Adult nursing	20	20
Maternity Nursing	20	20
Paediatric Nursing	20	20
Community Health Nursing	20	20
Mental Health Nursing	20	20

Statements	1	2	3	4	5	Mean	Sd
“I feel confident communicating with physicians.	80	15	4	1	0	1.22	0.74
I feel comfortable communicating with patients and their families.	50	30	14	5	1	2.11	1.05
I am comfortable delegating tasks to the nursing assistant.	30	25	20	15	10	3.15	1.06
I have difficulty documenting care in the electronic medical record	10	20	30	25	15	3.65	1.24
I have difficulty prioritizing patient care needs.	5	10	20	30	35	4.15	1.31
My clinical instructor provided feedback about my readiness to assume an RN role.	10	15	25	30	20	3.35	1.16
I am confident in my ability to problem solve.	40	25	20	10	5	2.45	1.08
I feel overwhelmed by ethical issues in my patient care responsibilities.	5	10	30	40	15	3.85	1.18
I have difficulty recognizing a significant change in my patient’s condition	10	15	25	30	20	3.35	1.14
I have had opportunities to practice skills and procedures more than once.	30	25	20	15	10	3.15	1.06
I am comfortable asking for help.	50	25	15	5	5	2.35	1.12
I use current evidence to make clinical decisions.	50	25	15	5	5	2.35	1.12
I am comfortable communicating and coordinating care with interdisciplinary team members.	40	25	20	10	5	2.45	1.08
Simulations have helped me feel prepared for clinical practice.	30	20	25	15	10	3.05	1.01
Writing reflective journals/logs provided insights into my own clinical decision-making skills.	40	25	20	10	5	2.	1.61
I feel comfortable knowing what to do for adying patient.	30	25	20	15	10	3.15	1.06
I feel comfortable taking action to solve problems.	5	10	20	30	35	4.15	1.31
I feel confident identifying actual or potential safety risks to my patients	10	15	25	30	20	3.35	1.17
I am satisfied with choosing nursing as a career.	7	18	20	35	20	3.35	1.14
I feel ready for the professional nursing role.”	10	20	30	25	15	3.65	1.24

(1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree)

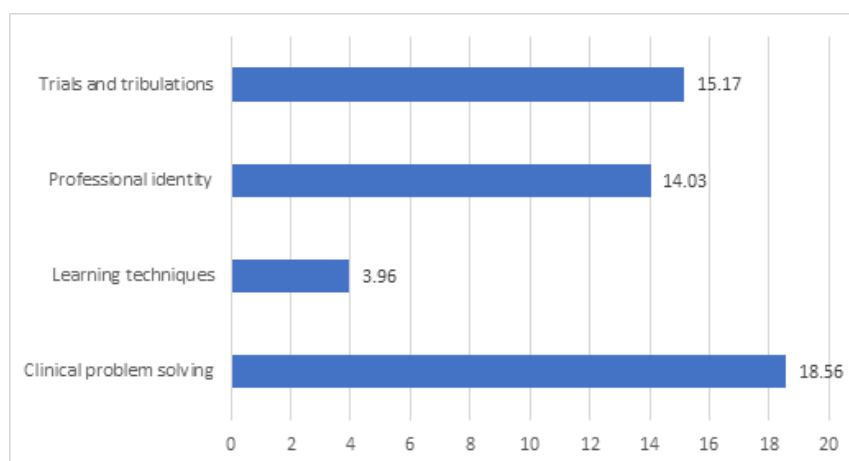


Figure 1: Mean of Casey-Fink Readiness for Practice Survey Subscales

Table 3: Themes Identified in Qualitative Data (n=20)

Themes
Exposure to Real-World Nursing Situations
Integration of Theory And Practice
Development of Professional Identity
Inadequate Supervision
Inadequate Preparation for Clinical Rotations
Communication and Interpersonal Skills

DISCUSSION

Qualitative Findings

The study assessed undergraduate nursing students' readiness for professional practice using the Casey-Fink Readiness for Practice Survey, measuring various aspects of their preparedness on a Likert scale. The findings revealed that students were confident in physician communication but faced challenges in delegating tasks, documenting care, and patient care prioritization. They also reported discomfort with ethical issues. While simulations and reflective journals helped them feel prepared, there were gaps in problem-solving and recognizing patient condition changes. Despite limitations like a small sample size and response rate, the study offers valuable insights into areas where nursing students may need further support. These findings can guide nursing education programs in enhancing curricula to better prepare students for clinical practice, emphasizing the need for future research with larger sample sizes to build on this foundation.

Exposure to Real-World Nursing Situations

Exposure to Real-World Nursing Situations: Participants reported that clinical rotations provided valuable exposure to real-world nursing situations, allowing them to develop the necessary skills and knowledge to function as a nurse in a clinical setting. One of the respondents said that.

"By participating in clinical rotations, nursing students are exposed to various patient populations and healthcare settings, which can help prepare them for the challenges of working in a diverse and dynamic healthcare environment. This exposure can also help students understand the importance of evidence-based practice as they see firsthand how different interventions and treatments affect patient outcomes. In addition, exposure to real-world nursing situations allows students to develop their clinical skills and confidence in their abilities to provide patient care. By working alongside experienced nurses and other healthcare professionals, students can learn from their expertise and develop clinical judgment and decision-making skills".

Exposure to real-world nursing situations is a crucial aspect of nursing education, as it allows students to apply theoretical knowledge in a practical setting. In this study, participants reported that clinical rotations provided them with valuable exposure to real-world nursing situations, which allowed them to develop the necessary skills and knowledge to function as a nurse in a clinical setting. By participating in clinical rotations, nursing students are exposed to various patient populations and healthcare settings, which can help prepare them for the challenges of working in a diverse and dynamic healthcare environment. This exposure can also help students understand the importance of evidence-based practice as they see firsthand how different interventions and treatments affect patient outcomes. In addition, exposure to real-world nursing situations allows students to develop their clinical skills and confidence in their abilities to provide patient care. By working alongside experienced nurses and other healthcare professionals, students can learn from their expertise and develop clinical judgment and decision-making skills. Our study's findings are consistent with those of Zhang (2015) and You *et al.*, (2015), who conducted an experimental study in Shanghai with 240 nursing students. The study involved 120 students who participated in teaching rounds, while the other 120 students had practical placements according to the traditional model. Zhang found that teaching rounds increased students' knowledge, with a focus on nosocomial infections. The consistency between our study's

findings and those of Zhang (2015) and You *et al.*, (2015) can be attributed to several factors. Firstly, both studies focused on the effectiveness of clinical rotations in preparing nursing students for real-world practice. This common research objective suggests that both studies addressed similar aspects of nursing education, which might have led to similar findings. Secondly, the studies employed a mixed-methods approach to data collection, combining quantitative and qualitative methods. This comprehensive approach allows for a more in-depth understanding of students' experiences and perceptions during clinical rotations. By using similar methodologies, both studies could capture a broad range of data that could potentially lead to parallel conclusions. In addition, a study (Sparis Teguido & Fernández Díaz, 2019) conducted in Cuba (albeit in medicine) demonstrated that teaching rounds helped students develop clinical skills through immediate feedback with critique and self-critique and facilitated the development of their criteria. Other authors have also drawn similar conclusions (Dyar *et al.*, 2019; Tan *et al.*, 2018). The consistency of the study's findings can be attributed to the concept of teaching rounds, which is a widely recognized and established educational method in healthcare disciplines. It involves real-life patient interactions, immediate feedback, and opportunities for self-reflection, which are known to be effective in enhancing clinical skills and decision-making abilities. Therefore, the positive impact of teaching rounds on students' development is likely to be consistent across different healthcare professions, including nursing and medicine. Additionally, the pedagogical principles underlying teaching rounds are grounded in active learning and hands-on experiences. This approach has been proven to be beneficial for students learning and skill acquisition in various educational settings. As such, the similarities in conclusions drawn by different studies may be due to the effectiveness of these instructional methods, which transcend specific disciplines.

Integration of Theory and Practice

Integration of theory and practice is a critical aspect of nursing education, and nursing students need to be able to apply theoretical knowledge in practical settings. In this study, participants reported that clinical rotations provided an opportunity to integrate theory and practice, which helped them understand how to apply theoretical knowledge in real-world nursing situations.

'Integration of theory and practice is a critical aspect of nursing education, and nursing students need to be able to apply theoretical knowledge in practical settings. In this study, participants reported that clinical rotations provided an opportunity to integrate theory and practice, which helped them understand how to apply theoretical knowledge in real-world nursing situations.'

Integrating theory and practice in nursing education is essential for helping students understand the practical relevance of theoretical concepts in patient care. This approach allows students to connect classroom learning with real-world patient scenarios, deepening their comprehension of diseases and their effects on patients during clinical rotations. Moreover, it nurtures a holistic understanding of patient care, enhancing students' capacity to deliver safe, effective, and compassionate nursing care (Aron, 2023; Ngozika Ugwu *et al.*, 2023). Furthermore, the integration of theory and practice cultivates critical thinking skills by teaching students to apply theoretical knowledge to real clinical situations. This fosters the development of crucial clinical judgment and decision-making skills that are indispensable in nursing practice (Romero-Silva *et al.*, 2022; Vosoughi *et al.*, 2022). However, the persistent theory-practice gap in nursing education, characterized by the disparity between classroom teachings and the realities of clinical practice, remains a challenge. This gap can be attributed to the contrast between the idealized version of nursing taught in classrooms and the practical challenges faced in actual clinical settings (Corlett *et al.*, 2003; Wong *et al.*, 2023). Addressing this gap is crucial for preparing nursing students effectively for their future roles in healthcare.

Development of Professional Identity

The study underscores the significance of clinical rotations in shaping the professional identity of nursing students. These experiences allow students to understand and internalize the values, norms, and expectations of the nursing profession. Interactions with patients and healthcare professionals during clinical rotations help students grasp the unique role of nurses in patient-centered care and instill a sense of responsibility for patient outcomes and continuous professional development. Professional identity

development is a gradual process influenced by personal experiences, socialization, and interactions within the nursing profession. A well-developed professional identity is crucial, as it equips graduates to advocate effectively for patients and enhance the quality of care. Previous research has also emphasized the importance of clinical placements in fostering professional identity, with factors like the quality and quantity of placements, as well as a positive learning environment, playing significant roles. Faculty and practice incivility can hinder this development and should be addressed by institutions. The first clinical placement is particularly vital in motivating students to continue their nursing education, and support during these placements is a shared responsibility between tertiary institutions and educators. (Amod & Mkhize, 2023; Ngozika Ugwu *et al.*, 2023; Ramluggun *et al.*, 2023; Vella *et al.*, 2023).

Inadequate Supervision

The study's theme of inadequate supervision is a concerning finding, highlighting the importance of adequate supervision in clinical rotations. Inadequate supervision can have significant implications for the safety of patients and the education of nursing students. Adequate supervision is critical during clinical rotations, ensuring nursing students provide safe and appropriate patient care. Supervisors should provide guidance and feedback to students and monitor their performance to identify areas for improvement. Inadequate supervision can occur for various reasons, including understaffing, lack of resources, or inadequate preparation of supervisors. Students who are not adequately supervised may risk making errors or providing inappropriate patient care, which can severely affect patient safety. Moreover, inadequate supervision can lead to a negative learning experience for nursing students. Without adequate guidance and feedback, students may not receive the support they need to develop their clinical skills and confidence, affecting their ability to provide safe and effective patient care. The issue of nurse shortages, a high number of students, and limited time for clinical duties and supervision of BScN students were identified as challenges by nurse supervisors. These challenges were also found in a study conducted by Cheraghi *et al.*, where inadequate supervision of students during clinical practice was attributed to staff shortages. In Botswana, a study found that nursing students struggled to apply theoretical knowledge to their clinical practice due to insufficient supervision, leading to subpar performance during their clinical placements. (Mumbi Ng'ang'a *et al.*, 2020).

Inadequate Preparation for Clinical Rotations

The study underscores the critical importance of adequately preparing nursing students for their clinical rotations. Inadequate preparation can lead to negative learning experiences, diminished confidence in clinical skills, and potential patient safety concerns. Preparing students comprehensively with a strong foundation in essential nursing knowledge and skills is essential. Inadequate preparation can arise from resource limitations, insufficient orientation, or a mismatch between student abilities and clinical settings. When students are not adequately prepared, they may feel overwhelmed, unconfident in their clinical abilities, and ill-equipped to handle patient care responsibilities. This deficiency can pose risks to patient safety as students may struggle to identify and address patient needs. To address this issue, nursing programs should focus on providing thorough orientation, identifying and bridging knowledge and skill gaps, and offering continuous support throughout the clinical experience. Additionally, matching students with appropriate clinical settings that align with their abilities can enhance learning and ensure patient care safety. Findings from a related study suggest that nursing students often experience anxiety during their initial clinical experiences due to factors such as limited previous clinical exposure, unfamiliar environments, complex patient cases, fear of errors, and faculty evaluation concerns (Gemuhay *et al.*, 2019).

Communication and Interpersonal Skills

Effective communication and interpersonal skills are fundamental in nursing education and practice, crucial for building trust, ensuring patient safety, and enhancing health outcomes. Clinical rotations provide a valuable opportunity for nursing students to develop and practice these skills by interacting with patients and healthcare professionals. This fosters improvements in verbal and non-verbal communication, active listening, and empathy. Furthermore, these skills are integral to the development of a professional nursing identity, allowing students to internalize the values and ethics of their profession (Lee *et al.*, 2023). Nursing educators also play a pivotal role in this process by establishing positive relationships with students, acting as role

models, and creating a conducive learning environment. Such supportive interactions contribute to motivation, enthusiasm for learning, and self-confidence among students (Ayu Eka *et al.*, 2023; Sayers *et al.*, 2015). In contrast, conflicts and improper treatment can hinder the learning experience, leading to frustration, anxiety, and reduced confidence (Bremer & Holmberg, 2020; Omeke *et al.*, 2023). However, effective communication with students has been shown to enhance their learning motivation (Zheng *et al.*, 2022). These aspects underscore the significance of communication and interpersonal skills in nursing education and practice, as they impact both students' development and patient care.

CONCLUSION

Clinical rotations play a crucial role in bridging the gap between theoretical knowledge and real-world nursing practice for nursing students. The findings of this study underscore the importance of enhancing the effectiveness of clinical rotations in nursing programs. By implementing a structured approach to clinical rotations and providing exposure to diverse patient populations and healthcare settings, nursing education can better prepare students for the challenges and realities they will face as future nurses.

Limitations of the Study

The study's utilization of a convenience sample consisting of 100 undergraduate nursing students from Ninevah Nursing College raises concerns about the generalizability of its findings beyond this specific group. This limited sample size may restrict the applicability of the results to nursing students in different institutions or regions. Furthermore, the potential introduction of selection bias due to convenience sampling means that the participants who volunteered for the study may not represent the broader population of nursing students accurately, potentially skewing the study's outcomes. Additionally, the reliance on self-reporting through surveys and focus groups introduces the possibility of social desirability bias, where participants may provide responses they perceive as socially desirable, possibly leading to an overestimation of positive aspects and underrepresentation of challenges related to clinical rotations. Lastly, in qualitative data collection like focus groups, recall bias may affect the accuracy of participants' recollections of their past experiences during clinical rotations, impacting the reliability of the qualitative data collected.

Conflict of Interest

The authors declare that they have no competing interests.

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