

**ASSESSMENT OF FACTORS ASSOCIATED WITH THE ACQUISITION OF  
CLINICAL COMPETENCIES AMONG UNDERGRADUATE NURSING  
STUDENTS IN GOVERNMENT AND PRIVATE UNIVERSITIES IN UGANDA**

**BY**

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DEGREE OF DOCTOR OF PHILOSOPHY IN MEDICAL EDUCATION, MOI  
UNIVERSITY**

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## DECLARATION

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## **DEDICATION**

This work is dedicated to all nurses in Uganda who toil day and night to keep the population healthy. Despite limited resources, you have done a tremendous job against all odds. Bravo to all of you.

## ABSTRACT

**Background:** Like many developing countries, Uganda faces significant challenges in ensuring that undergraduate nursing students acquire essential clinical competencies. These competencies include medication administration, patient assessment, critical thinking, and decision-making, fundamental to safe and high-quality patient care. However, research indicates that many nursing students in both government and private universities struggle to develop these competencies effectively. Several factors contribute to this challenge, including inadequate clinical training, limited supervision, resource constraints, and variations in the quality of clinical instruction. Students report difficulties translating theoretical knowledge into practical skills, leading to frustration, low self-confidence, and poor clinical judgment. This competency acquisition gap affects students' readiness for professional practice and poses a risk to patient safety and quality of care. Identifying the factors associated with acquiring clinical competencies among undergraduate nursing students is crucial for developing targeted interventions that enhance nursing education and clinical training in government and private universities.

**Objective:** The main objective of this study was to assess the factors affecting the acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda.

**Methods:** The study site was at the eight government and private universities from Uganda's central and western parts. The study employed a descriptive research design incorporating quantitative and qualitative methods. The participants included 108 students, 8 HODs, and 48 supervisors. Probability and non-probability sampling were done, and a sampling frame was used to select the universities and distribute the participants to the eight selected universities. Self-administered questionnaires were used after piloting. They were measured against the World Federation of Medical Education Global Standards for Quality Improvement. Cronbach's alpha, median, and interquartile range were calculated using IBM SPSS 22. A P-value less or equal to 0.05 was taken as statistically significant. Results are presented in frequencies, pie charts, percentages, and tables. Qualitative data was thematically analyzed. Chi-square tests were conducted to assess associations between variables.

**Results:** The study showed that the acquisition of clinical competencies is positively correlated with preceptors' participation ( $r=0.783$ ) ( $p=0.000$ ), students' perceptions ( $r=0.775$ ) ( $p=0.000$ ), Institutional factors ( $r=0.668$ ) ( $p=0.000$ ), and the clinical learning environment ( $r=0.556$ ) ( $p=0.000$ ). The study further shows that 69.9% ( $n=70$ ) had adequate clinical learning experience, while 31% ( $n=31$ ) had inadequate clinical learning experience. This implies moderate student supervision and an unfavorable clinical learning environment.

**Conclusion:** Competency acquisition among student nurses is positively influenced by the active involvement of preceptors, students' perceptions, institutional factors, and a supportive clinical learning environment. Adequate clinical experience is critical to developing competent nursing students, thus requiring more time for clinical practice. Overcrowding, inadequate supervision and feedback, and limited resources result in incompetencies. This results in lower-quality patient care, potentially leading to increased morbidity and mortality.

**Recommendations:** Nursing students should receive more time to practice in clinical settings, and resource availability should be improved. Overcrowding in clinical settings should be monitored and reduced, and supervision and feedback should be provided.

**Keywords:** clinical competencies, undergraduate nurses, competency.

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**LIST OF ACRONYMS AND ABBREVIATIONS**

CLE	Clinical Learning Environment
CME	Ongoing Continuing Medical Education
EdCaN	The National Cancer Nursing Education Project
FGD	Focus group discussion
GMC	General Medical Consultant
HOD	Head of Department
ICN	International Council of Nursing
ERIC	Institutional Research Ethics Committee
KII	Key Informant Interview
NMC	Nurses and Midwives Council
MHREC	Mulago Hospital Research Ethics Committee
MORE	Ministry of Education
MOH	Ministry of Health
NCHE	National Council for Higher Education
NGO	None Government Organization
UNMC	Uganda Nurses and Midwives Council
TPG	Theory Practice Gap
UNCST	Uganda National Council for Science and Technology
UNME	Uganda Nurses and Midwives Examinations
IBM	International Business Machine Cooperation.
WHO	World Health Organization

## DEFINITIONS OF OPERATIONAL TERMS

**Clinical Learning Environment:** This is an interactive network of forces within the clinical setting that influences the learning outcomes of a nurse student. It includes everything that surrounds students and affects their professional development in the clinical setting. These include the hospital, skills laboratory, medical equipment, staff, patients, preceptors, clinical supervisors, and nurse educators. According to Gopee and Deane (2018), the clinical learning environment is the set of conditions, circumstances, and events in the clinical setting that influence students' learning outcomes and experiences.

More so, Walker et al. (2016) found that a clinical learning environment is a place where students are exposed to actual patients, where they learn to apply their knowledge and skills, and where they are exposed to the culture of the nursing profession. Therefore, creating a supportive clinical learning environment that addresses these factors can contribute to nursing students' satisfaction and success in their learning journey.

**Clinical Learning:** Clinical learning is an active, experiential process where students or trainees apply theoretical knowledge and develop practical skills in real-world healthcare (O'Connor & Andrews, 2005.) It typically involves direct patient interaction or engagement in healthcare-related activities under the guidance of experienced professionals. Clinical learning aims to develop a proficient nurse to deliver nursing care grounded in solid knowledge and informed judgment.

From this competency, they can practice skills and professional values (Bruce et al., 2011). In my study, clinical learning is the educational process in which students acquire competencies, practical skills, knowledge, and experience in real-life clinical settings, such as hospitals, clinics, or healthcare facilities. Competencies, in this

context, refer to the combination of knowledge, skills, and attitudes necessary for effective performance in a specific role or profession. Clinical learning involves hands-on training under the guidance of experienced professionals to apply theoretical knowledge to practice situations, develop critical thinking skills, and gain proficiency in a specific field, particularly in healthcare.

**Preceptor:** A preceptor is a nurse/midwife or specialist community public health nurse facilitating learning, supervising, and assessing students in a practice setting. (*NMC, 2005a*).

**Clinical competency** is the ability to perform tasks and make judgments safely and effectively, with minimal need for guidance or supervision, and to use appropriate knowledge, skills, and attitudes to solve clinical problems in various situations." (Dehghani et al., 2021).

**Clinical supervision** is a formal process of professional support and learning that enables healthcare professionals to develop their practice through regular and systematic discussion with an experienced and knowledgeable colleague. This process can help ensure safe and effective care delivery, promote personal and professional growth, and enhance job satisfaction and retention" (Luker et al., 2021). Clinical supervision involves a professional nurse and clinical staff guiding and supporting a student nurse in a clinical learning environment.

The goal is to help the student develop the necessary skills and confidence to practice independently. This goal also forms the essence of the clinical staff's guidance, support, and assessment of student nurses. Saarikoski et al., (2013) affirm that this process occurs in an individualized or group supervision relationship.

**Clinical preceptorship** is a dynamic and interactive process between a more experienced and knowledgeable nurse (the preceptor) and a less experienced nurse (the mentee) to foster ongoing professional development and improve patient care quality. The preceptor provides guidance, support, and feedback to the mentee and helps to identify areas for improvement and opportunities for growth. (Ilesanmi et al., 2021)

**Self-efficacy:** Albert Bandura states self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations." In other words, self-efficacy is a person's belief in their ability to succeed in a particular situation. Bandura described these beliefs as determinants of how people think, behave, and feel (1994).

**Quality of care:** According to the World Health Organization (WHO), Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes.

Quality placement means that the preceptors have implemented whatever is required to make the clinical learning experience memorable.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Overview

This chapter covers the following areas: the background of the study, statement of the problem, justification of the study, the significance of the study, objectives of the study, research questions, and minimization of biases, assumptions of the study, theoretical framework, philosophical understanding, and conceptual framework of the study.

#### 1.2. Background

Like other developing countries, Uganda grapples with the critical challenge of equipping nursing students with essential clinical competencies (Okuonzi et al., 2021). This is evident in both government and private nursing education institutions. These competencies are fundamental for safe and effective nursing practice. They enable nurses to provide high-quality care, make sound clinical judgments, and positively impact patient outcomes (Kiwanuka et al., 2023).

These competencies encompass vital nursing skills, knowledge, attitudes, and behaviors crucial for effective nursing practice. This study's significance lies in its potential to address these challenges and improve the quality of nursing education in Uganda (Nakigudde et al., 2019). Clinical skills, such as medication administration and patient assessment, are central to these competencies and form the basis for safe, high-quality patient care (Kiwanuka et al., 2023).

These skills enable nurses to identify patient needs, administer appropriate treatments, and monitor for complications (Kiwanuka et al., 2023). Either way, a profound understanding of the complex healthcare landscape, including disease management and

evidence-based practice, is crucial. Nursing students must also be proficient in various aspects, including educational technologies, to avoid issues impacting their clinical judgment and patient care.

Moreover, Uganda's patient population confronts various chronic and acute illnesses. These include Cancer, COVID-19, HIV, Tuberculosis, Congestive Cardiac Failure, hypertension, pneumonia, and bronchitis (Ministry of Health Uganda, 2022). Addressing these challenges demands nurses skilled in emergency and critical care (Kiwanuka et al., 2023). In addition, a lack of these competencies jeopardizes patient safety and outcomes, leading to delays in diagnosis, inadequate treatment, and increased complications (Nakigudde et al., 2019).

Nursing addresses Uganda's healthcare challenges, like high maternal mortality rates, with 336 deaths per 100,000 live births (WHO, 2018). Consequently, nurses play a crucial role in maternal and child healthcare, and their competency directly impacts these outcomes. Therefore, urgent action is required to prepare clinically competent, motivated, and self-assured nurses (Kiwanuka et al., 2023). Emphasizing these challenges stresses the significance of nursing students gaining proficiency in clinical skills, knowledge, attitudes, and behaviors (Kiwanuka et al., 2023). Inadequate preparation carries far-reaching consequences, affecting patient care, safety, and Uganda's healthcare landscape (Okuonzi et al., 2021).

Notably, studies by Rajesswaren (2017; UDHS, 2016; Wachira, 2016; Cheraghi et al., 2012) suggest a pressing need for students to acquire additional skills, attitudes, and knowledge within a clinical environment. Without these, nursing students can become frustrated, suffer low self-esteem, and have poor clinical judgment. This can lead to a risk of compromising the care and safety of patients (Can't et al., 2015).

Clinical nurses draw upon the body of nursing theory knowledge acquired during their education to inform their practice and decision-making (Smith & Parker, 2022). In addition, the knowledge gained is maintained through continuing education programs, as opined by Al-Khawaldeh (2020; Kaphagwani et al., 2013). Competent nurses are capable of safe, independent practice, applying knowledge, skills, and judgment effectively. Therefore, nurses' acquisition of clinical competencies plays a significant role in providing patients safe care.

Several organizations and authors define clinical nursing competency differently. For example, the Texas State Board of Nurse Examiners (2017) described competency as the practical demonstration of knowledge, judgment, skills, and professional values acquired through nursing education by graduation. Furthermore, nurses must perform clinical procedures and utilize available resources effectively. They should also be capable of integrating theoretical knowledge into practical patient care and managing their workload efficiently (Fink, 2019; IO M 2004).

As stressed by the Institute of Medicine (IOM, 2010), nurses worldwide are responsible for delivering high-quality, evidence-based, patient-centered care to various populations of all ages. A robust theoretical background and equal amounts of hands-on clinical experience are needed to broaden nurses' perspectives on their roles. Student Nurses' Clinical learning is a vital component of nursing education in the clinical setting, as reported by (Bvumbwe et al., 2021).

This is achievable when nurses are knowledgeable and conversant with theory and hands-on experience. As Benner et al. (2010) suggested, nurse graduates are expected to provide humane, safe, and effective care in various settings while keeping abreast of the swift advances in healthcare. The nursing students' proficiency directly impacts healthcare by

influencing professional standards, delivering quality nursing care, and ensuring patient safety (WHO, 2010).

Therefore, nursing students who are proficient in their knowledge are more likely to meet professional standards and deliver high-quality patient care. This will ultimately contribute to better patient outcomes and a safer healthcare environment. Therefore, investing in nursing education and ensuring that nursing students receive the necessary support to develop their skills and knowledge is essential for improving healthcare overall. As graduation nears, nursing programs strive to ensure that students have developed the essential clinical competencies to transition seamlessly into professional practice (Ten et al., 2020).

This includes delivering high-quality, safe, patient-centered care that prioritizes evidence-based decision-making and effective communication (ICN, 2020). The World Health Organization (WHO) emphasizes the critical role of a competent and well-prepared nursing workforce in achieving optimal healthcare outcomes, particularly within resource-constrained settings (WHO, 2020). To address this growing need, nursing education has undergone significant transformations.

Curricula now incorporate diverse teaching strategies, such as problem-based learning (Elsner, 2018), objective structured clinical examinations (OSCEs) (National Council of State Boards of Nursing NCSBN, 2023), and simulation (Shin & Gastorf, 2019). Additionally, the flipped classroom model (Bergmann & Sams, 2014) is gaining traction, fostering active learning and deeper engagement with clinical concepts.

All these strategies have been identified as effective methods for improving psychomotor and problem-solving skills to strengthen patient-centered nursing care competencies in nursing students, as affirmed by (Fan et al., 2015; Senturk Erenel et al.,

2021). The National Council of State Boards of Nursing (NCSBN, 2023) states that clinical competency in nursing encompasses a broad range of skills. These include:

- ❖ **Assessment:** History taking for new admissions, performing and documenting comprehensive patient health assessments.
- ❖ **Communication:** Answering patient and family questions and educating patients and families about disease-related care.
- ❖ **Documentation and Planning:** Charting and documentation, developing patient individualized care plans.
- ❖ **Basic Care and Comfort:** Performing hygiene and daily care routines, providing rest and comfort measures, assisting with activities of daily living (ADLs) and mobility.
- ❖ **Physiological Assessment:** Assessing nutrition and fluid balance, elimination patterns.
- ❖ **Interventions:** Administer medications (oral, intravenous, intramuscular, subcutaneous), provide blood transfusions, and insert and care for urinary catheters.
- ❖ **Aseptic Techniques:** Maintaining sterile technique during procedures.
- ❖ **Respiratory Care:** Postural drainage and percussion are performed, and oxygen therapy is administered.
- ❖ **Preoperative/Postoperative Care:** Implementing pre-operative and post-operative care protocols.
- ❖ **Gastrointestinal Care:** Performing enemas, nasogastric tube feeding and care.
- ❖ **Wound Management:** Performing wound dressing changes.
- ❖ **Advanced Skills (may vary by specialty):** Tracheostomy care, chest tube care with underwater seal management.

Clinical nursing skills are a course unit in the curriculum where these clinical procedures or tasks are drawn (Giddens & Wilson, 2021). So, every nurse has to cover these course units in theory and practical aspects before graduation to acquire the required competencies. Nursing education aims to ensure professional clinical competencies and enhance the safe delivery of high-quality care (Kooli et al., 2023; WHO, 2011). However, Critics emphasize a global shortage of competent, experienced nurses despite this goal (Tesfay, 2020).

Nursing education faces a persistent challenge in ensuring a smooth transition from acquiring theoretical knowledge to developing practical clinical skills (Melnyk et al., 2018). For instance, McAllister et al. (2019) identified a disconnect between classroom learning and students' experiences in clinical placements. Similarly, Duchscher and Benner (2008) explored the challenges newly graduated nurses face in transitioning from theoretical knowledge to competent clinical practice. This gap can have significant consequences for patient care.

The Institute of Medicine report, *The Future of Nursing: Leading Change, Advancing Health* (IOM, 2014), highlighted the discrepancy between ideal healthcare delivery and current realities. The report emphasized the need for a well-prepared nursing workforce to bridge this gap and ensure high-quality patient outcomes. While nursing research provides a robust knowledge base for quality practice (Melnyk et al., 2018), effectively translating this knowledge into clinical settings requires ongoing effort.

The vast amount of information covered in nursing programs can overwhelm students, making it difficult for them to see the practical application of theoretical concepts. Additionally, clinical placements may not always provide opportunities to apply knowledge that aligns with classroom learning (McAllister et al., 2019). Learning

thrives on prior knowledge and active engagement, as emphasized by social learning theory (Bandura, 1977). Clinical instructors play a crucial role in facilitating this process by helping students bridge the gap between theory and practice.

This can be achieved through various strategies that encourage active learning and critical thinking. For example, instructors can incorporate case studies, simulations, and problem-based learning activities into the curriculum. These approaches allow students to apply theoretical knowledge to real-world scenarios and develop clinical reasoning skills. Educators can further enhance learning by developing strategies that encourage students to connect theoretical concepts to practical scenarios, ultimately fostering the acquisition of essential competencies.

One such strategy involves using concept mapping tools. Concept maps allow students to visually represent relationships between concepts, facilitating a deeper understanding of how theoretical knowledge translates into clinical practice (McClure et al., 2017). Building strong partnerships between universities and clinical sites is not just a strategy but a powerful avenue for potential growth and development in nursing education. It is a bridge that can lead to transformative learning experiences (Benner, 2019).

Strong partnerships between educators and clinical preceptors are beneficial and crucial for bridging the gap between theoretical knowledge learned in the classroom and the practical realities of the clinical environment (LeTourneau & Schultz, 2020). This collaboration ensures that students are exposed to the latest practices and protocols, fostering a smoother transition to professional life (Peterson & Tripp, 2014). Your partnership is vital to the success of nursing education. Mbakop and Fru (2020) highlighted that a lack of preceptors and insufficient preceptorship time in clinical settings negatively impacted nursing students' learning. This inadequate supervision

also raised concerns regarding patient safety. By providing continuous supervision, feedback, and guidance, preceptors play a crucial role in creating a safe learning environment where students can develop their skills and confidence.

Continuous learning and improvement are not just important; they are vital in the nursing profession. The study by Mohamud et al. (2014) on Malaysian nurses' skin care practices, experiences versus knowledge revealed that 80.5% of the respondents disagreed that they had a firm understanding of preterm infants' skin despite having more than five years of experience in a neonatal intensive care unit. This finding underscores the need for ongoing education and training, and it is a testament to your commitment and motivation in the nursing profession.

Clinical nurses use the body of nursing theory knowledge gained in nursing universities and maintained through continuing education (Smith & Parker, (2022)). A sound theoretical background and an equal amount of hands-on clinical experience are beneficial and necessary to broaden the context of nurses' roles.

This study has revealed that, although lecturers manage to teach all the theory parts and complete the course content, the practical aspect is given very little time. Most students reported spending only two weeks in hospitals doing clinical practice instead of eight weeks. These few hours of clinical practice do not adequately measure up to students' competency acquisition.

Across the globe, in Iran, researchers have also found that insufficient qualification of nursing lecturers and unsupportive learning environments influence clinical learning, as reported by (Baraz et al., 2015). Clinical placements are a cornerstone of nursing education, allowing students to apply theoretical knowledge in a real-world setting and develop essential clinical skills.

This practical experience strengthens student nurses' abilities to function effectively within the clinical environment, potentially mitigating some of the challenges hindering the advancement of the nursing profession (McAllister et al., 2019). However, the effectiveness of clinical learning hinges on the qualifications of the preceptor. These educators should possess strong content knowledge and demonstrate expertise in facilitating the integration of theory and practice for students (Benner, 2019).

A significant challenge in some clinical settings is the lack of dedicated preceptors or clinical instructors. Students may rely on the ward nurses available on their assigned clinical days. These nurses, including those with certificate or diploma qualifications, are expected to fulfill the preceptor role despite their workload (Liu et al., 2019). Assessing nursing students' clinical performance is essential for educators to understand and address the challenges students face in applying theoretical knowledge to practical situations. This evaluation helps identify factors contributing to the theory-practice gap, enabling tailored interventions to enhance student learning and professional development (Cantrell & Carlson, 2021).

Inadequate competency acquisition among undergraduate nursing students can jeopardize the community's quality of care and safety (Zhang et al., 2022). Therefore, the clinical learning environment and supervision are essential in nursing students' future intention to work as nurses. Thus, the absence of assigned preceptors or clinical instructors can compromise the quality of care and safety for patients. In most cases, the ward nurses are busy attending to patients and may not get time to guide the students on clinical practice.

The study revealed that students would get assistance and guidance from their fellow students if they faced any challenges in the ward. In addition, students reported that they were not supervised when carrying out a procedure because the nurse on the ward

assumed that bachelor in nursing students learn and know a lot, so they should be able to practice independently. This can cause anxiety and fear among the students and may also lead to medical errors.

Newton's (2017) study in Australia on nursing students' clinical practice experiences highlighted a significant issue in nursing students' dissatisfaction with the clinical component of their education. This dissatisfaction often stems from a feeling of incompetence and a lack of professional nursing skills and knowledge to care for patients in clinical settings. However, it is essential to remember that learning and caring go hand in hand in these contexts. Jeffries (2020) emphasizes the essential role of clinical practice in nursing education, as nursing is rooted in practice.

The importance of clinical practice requires much emphasis as it prepares nurses to become competent practitioners and reduces the challenges that may occur during practice. In Cameroon, Nkwati (2016) found that the clinical environment sites had insufficient clinical resources to train skilled and competent nurses. The same results were revealed by another study done in the North-West Province of South Africa.

Watkins (2010) and Chabeli and Mdletshe (2022) report that nursing students in resource-constrained settings often face challenges in clinical learning environments. These challenges can negatively impact their professional development and potentially lead to disillusionment with the nursing profession. Moreover, some even lost compassion for nursing as it was challenging to practice in such an environment due to the significant shortage of clinical resources.

Addressing the issue of inadequate clinical resources requires a collaborative effort between health facilities and learning institutions. By working together, they can develop effective strategies for acquiring and managing these resources. This is crucial,

as hands-on experience in clinical settings is essential for training students. The lack of these resources, whether from the beginning or due to a lack of replacement, can lead to students losing their passion for nursing due to the challenges of practicing in such an environment.

Regardless of these findings, some students experienced this because they were forced into a career that was not their choice or disliked the clinical environment. Counseling the students and explaining the course's benefits will reinforce this. A study by Banda et al. (2021) revealed that the shortage of clinical instructors and inadequate supervision in Malawian nursing education continues to contribute to students relying on trial and error during their clinical practice during clinical training; preceptors should have a dynamic psychosocial intervention that includes educative and supportive interactions between students, preceptors, and nurse teachers.

This could have been due to a lack of financial incentives, so they absentee themselves or deliberately refused to guide students. These interactions are based on preceptors' professional behavior, including teaching relevant skills, applying theoretical knowledge to clinical practice, and providing students with adequate support and encouragement (Foster et al., 2015; Saarikoski, 2018). Hence, exploring the engagement of preceptors in facilitating students' attainment of clinical competencies holds promise as an effective teaching strategy in nursing education.

In a study done in Tanzania by Muganyizi et al. (2014), where they analyzed pre-service family planning teaching in clinical and nursing education, the results showed that only one person met the criteria for suitability of family planning teaching. Training Institutions should be able to produce competent nurses who can teach and have hands-on experience to provide safe and quality services to communities. Therefore, this study has revealed the linkage between theoretical and practical knowledge.

When utilized adequately, knowledge can go a long way in closing the theory-practice gap, thus producing a competent nurse who can deliver safe and quality patient care. In a study done in Kenya, Wachira (2014) looked at the theoretical and clinical practice competency of new Bachelor in nursing graduates following an internship in Kenya; results revealed that 69 percent of the graduates lacked appropriate clinical judgment capacity. Most students appeared unable to apply their theory to practice after completing their education.

Furthermore, this implies that most students transition through their education before applying the theory learned in class to practice. In this study, students reported that nurse educators at the school of nursing schedule very little time for practice. Broadening nurses' performance theoretically and through hands-on clinical experience is essential. Therefore, nurses in clinical practice apply the body theory knowledge acquired in nursing institutions of higher learning and continue to do so through continuous education (Kaphagwani et al., 2013).

Like the rest of the world, nurses in Uganda must attain highly specialized clinical competency to accurately assess patients' conditions and manage any complications that may arise during treatment. However, in the current healthcare landscape, concerns have emerged about the lower-than-expected levels of nurse competency. In 1993, Makerere University made history by becoming the first university in Uganda to offer an undergraduate nursing program.

This pioneering initiative, from Uganda's oldest higher-learning institution, founded in 1922, set the stage for developing nursing education in the country. Today, more than ten (10) universities offer Bachelor of Nursing Programs, a testament to the growth and evolution of nursing education in Uganda. Since the Bachelor of Nursing program started in Uganda in 1993, no study has been conducted on acquiring clinical

competencies among undergraduate nursing students in government and private universities in Uganda. Hence, the motivation for undertaking this study is to enhance the existing health results of Uganda's population.

The health sector requires both quantity and quality of well-trained health workers. Without excluding those in Uganda, nursing professionals are the most significant healthcare workforce in the world, providing nursing care to the population.

Nursing students encounter several factors that affect the acquisition of clinical competencies, which may positively or negatively impact their learning skills. Furthermore, these factors may differ from one clinical learning environment to the other, as organizations of clinical education vary from country to country or place to place. Therefore, there was a great need for this study to assess the factors that affect the acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda.

### **1.3 Statement of the Problem**

Nursing students are trained both in classes and in the clinical area. The theory part includes basic sciences that are applied in the clinical area, including Anatomy, Physiology, Biochemistry, Microbiology, pharmacology, fundamentals of nursing, pathophysiology, sociology, and psychology, to mention but a few. How this is planned in the curriculum can influence the students' ability to integrate theory and practice.

This concerns the strategies or processes to incorporate theoretical knowledge into practice. However, it has been noted that some of the students have challenges meeting the patient's health needs. Nevertheless, there is still a gap in the database when transferring classroom learning to clinical practice, as observed by (González-Gutiérrez, & Sánchez-Reina, 2022; Cant et al., 2013).

The theory-practice gap in nursing education remains a significant challenge, affecting nursing students' preparedness for clinical practice. Despite acquiring theoretical knowledge in academic settings, students often find it challenging to apply these theory concepts effectively in real-world healthcare environments. This gap manifests as discrepancies between idealized nursing practices and actual clinical experiences, the practical application of taught principles, and the alignment of educational curricula with workplace demands.

Research, such as a study by Alzayyat and Al-Gamal (2021), highlights the need for strategies to enhance the integration of theoretical learning with clinical training. However, there remains a lack of structured approaches to systematically bridge this gap, ensuring that nursing graduates are adequately prepared for professional practice. The gravity of this issue is underscored by its direct impact on patient care outcomes, making it a critical area for improvement in nursing education.

The acquisition of clinical competencies is an essential part of student nurses' learning. Therefore, inadequate clinical competencies can compromise patient care and safety (Karami et al., 2021). The cause of all this is due to the increasing technological advancements, rising expectations, and demand for sustainability, magnified by staff shortages, turnover migration, and possible geopolitical instabilities (Muller et al., 2022) ;(WHO), 2021). When student nurses are well-trained in clinical competencies, the quality of care for patients in the hospitals and clients in the communities is improved.

The health sector requires both the quantity and quality of well-trained health workers to enhance the health results of Uganda's population (Nakiganda et al., (2019). This study sought to assess factors affecting competency acquisition among bachelor of

nursing students in government and private universities in Uganda. Nursing students encounter various factors that influence their acquisition of clinical competencies, potentially impacting their learning outcomes.

These factors can vary across clinical learning environments due to differences in educational approaches and healthcare systems. Unfortunately, no studies have been done in Uganda to assess the competency acquisition of undergraduate bachelor of nursing students in government and private universities.

#### **1.4. Significance of the Study**

Researchers have suggested that the clinical practice competency of nurses has been considered a topic of interest because of its significance on quality healthcare and is closely associated with job performance and satisfaction, as revealed by (Rizany et al., 2018). It has been indicated that a nurse with a higher level of clinical competency has a significant and positive relationship with clinical self-efficacy, sympathizing with colleagues and patients, job satisfaction, and professional commitment, as presented by (Faraji et al., 2019).

In contrast, low clinical practice competency leads to higher rates of psychological problems such as stress, anxiety, and inferiority complex among students (Jamshidi et al., 2016; Damodaran, 2015). The results of this study could be used by institutions of learning to review or develop a new undergraduate nurses' curriculum to enhance students' theory and practice. Studying the extent to which the learning environment enables or impedes the eventual acquisition of clinical competency among nursing students while in training will assist in identifying the constraining factors for the proper acquisition of competencies.

Identifying these factors will improve students' competency acquisition in the clinical

areas. Findings will inform the administrators, the Uganda Nurses and Midwives Council (UNMC), and the National Council for Higher Education (NCHE) of new approaches to improve the system by formulating appropriate clinical experiences and training policies. This will go a long way in guiding nurse educators and preceptors on the best strategies to facilitate clinical practice for student nurses to gain competencies.

A continuous University environment-friendly clinical relationship needs to be enhanced. This can assist the students in transitioning through their education after they have practiced at least what was studied in class. Both students and lecturers will have confidence in the theory learned and the practice being done once they know what is taught and practiced is understood. Also, lecturers will confidently teach, knowing students understand what they teach. Nurses' clinical competency acquisition plays a significant role in providing patients with safe care; this assessment will help students acquire clinical competency for quality and safe health care.

In contrast, low clinical practice competency leads to higher rates of psychological problems such as stress, anxiety, and inferiority complex among students (Jamshidi et al., 2016; Damodaran, 2015). The results of this study could be used by institutions of learning to review or develop a new undergraduate nurses' curriculum to enhance students' theory and practice. Studying the extent to which the learning environment enables or impedes the eventual acquisition of clinical competency among nursing students while in training will assist in identifying the constraining factors for the proper acquisition of competencies. Identifying these factors will improve students' competency acquisition in the clinical areas. Findings will inform the administrators, the Uganda Nurses and Midwives Council (UNMC), and the National Council for Higher Education (NCHE), which is responsible for approving the curriculum for higher education institutions in Uganda, of new approaches to improve the system by

formulating appropriate clinical experiences and training policies. This will go a long way in guiding nurse educators and preceptors on the best strategies to facilitate clinical practice for student nurses to gain competencies.

The enhancement of a continuous university environment-friendly clinical relationship is of paramount importance. This includes early communication from nursing educators to clinical facilities and maintaining a reasonable ratio of students for clinical practice in all disciplines. Moreover, a minimum practicing period of at least eight weeks per semester should be a standard for all government and private universities in Uganda.

This can assist the students in transitioning through their education after they have practiced at least what was studied in class. Both students and lecturers will have confidence in the theory learned and the practice being done once they know what is taught and practiced is understood. Also, lecturers will confidently teach, knowing students understand what they teach. Nurses' clinical competency acquisition plays a significant role in providing patients with safe care; this assessment will help students acquire clinical competency for quality and safe health care.

### **1.5 Justification of the Study**

What students acquire in different nursing training institutions may only sometimes be relevant, so undergraduate nurses must be updated with new and relevant knowledge through professional development. This requires the interventions of the government, Ministry of Health, Ministry of Education, and Institutions. The theory-practice gap in nursing education is a global issue that has led to inadequate competency acquisition among nursing students. Its severity is especially pronounced in low-resource settings like Uganda. In Sub-Saharan Africa, studies report that 60–70% of nursing graduates struggle to apply theoretical knowledge in clinical practice.

This is mainly due to a misalignment between academic training and real-world healthcare demands (Nakate et al., 2023). In Uganda, this gap is worsened by systemic challenges and outdated curricula that fail to incorporate modern healthcare priorities, such as infectious disease management and maternal-child health (Mukasa et al., 2021). Clinical placements are inadequate, with only 40% of nursing students in Uganda reporting access to sufficient hands-on training opportunities (Ministry of Health Uganda, 2022).

Poor supervision ratios, like one mentor per 20 students during clinical placements, limit skill acquisition (Tumwine et al., 2020). Resource inadequacy exists, as universities often lack simulation labs and institutions struggle with overcrowded teaching hospitals (Kwesiga et al., 2019). These challenges highlight a significant gap in preparing nurses to meet Uganda's healthcare needs, particularly in rural and underserved areas (WHO, 2021).

The inadequate acquisition of competency has severe consequences for Uganda's population. Patients risk their safety as nurses with inadequate clinical competencies contribute to medication errors and hospital-acquired infections, which account for 15% of preventable deaths in Ugandan healthcare facilities (Mbabali et al., 2020). Moreover, poor health outcomes result when unprepared nurses struggle to manage Uganda's high burden of HIV (5.4% prevalence) and maternal mortality rates (336 deaths per 100,000 live births), worsening national health indicators (UBOS, 2023; UNAIDS, 2022).

This will cause the erosion of public trust as communities in rural areas increasingly rely on informal healthcare providers due to the perceived ineffectiveness of formally trained nurses (Ssenigooba et al., 2022). Workforce inefficiency arises when hospitals

spend resources training new graduates, diverting support from critical services (Ministry of Health Uganda, 2023).

This study assesses the factors associated with acquiring clinical competencies among undergraduate nursing students. The gap can be addressed by generating context-specific solutions to enhance nursing education in Uganda. It will identify modifiable factors like curriculum design and preceptorship quality using mixed-methods data from government and private universities.

The study will assess institutional disparities to propose tailored interventions. For instance, findings may advocate for curriculum reforms to integrate the WHO's Nursing Education Framework (WHO, 2020) to prioritize competency-based learning. Public-private partnerships could be developed to expand clinical placements, reflecting successful models in Kenya (Karanja & Mwenda, 2022).

Rwanda's approach to reducing student-to-mentor ratios will inform standardized preceptorship programs (Nsanziimana et al., 2021). The study will also advocate for policy changes to earmark funding for simulation labs and digital training tools, as recommended by the Ugandan Nurses and Midwives Council (UNMC, 2023). This research will empower nurses to provide safer, more effective care by bridging the theory-practice gap and advancing Uganda's efforts toward Universal coverage. (SDG 3).

## **1.6 Objectives of the Study**

### **1.6.1. General Objective**

The main objective of this study is significant. It aims to assess the factors associated with acquiring clinical competencies among undergraduate nursing students in

government and private universities in Uganda. The focus is on their perceptions, the clinical learning environment, preceptor involvement, and institutional factors, all crucial in shaping the nursing education landscape.

### **1.6.2. Specific Objectives**

This study was guided by the following specific objectives which were to:

1. Explore undergraduate nursing student's perceptions of what influences the acquisition of clinical competencies in government and private universities in Uganda.
2. Establish the clinical environment factors that influence the acquisition of clinical competencies among undergraduate nursing students in Government and private universities in Uganda.
3. Examine the influence of preceptors' participation, who are experienced nurses responsible for guiding and supervising student nurses in clinical settings, in enabling undergraduate nursing students to acquire clinical competencies in government and private universities in Uganda.
4. Examine the institutional factors that influence the acquisition of clinical competencies among undergraduate nursing students in Government and private universities in Uganda.

### **1.6.3. Research Questions**

Burns & Grove (2013) inform us that the research questions seek solutions and guide the researcher to emphasize the data collection type. Hence, this study aimed to find answers to the following questions:

The following questions guided this research: -

1. What are the undergraduate nursing students' perceptions on what influences

the acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda?

2. What are the clinical learning environment factors that influence clinical competency acquisition among undergraduate nursing students in government and private Universities in Uganda?
3. To what extent does clinical preceptors' participation enable the acquisition of clinical competencies among undergraduate nursing students in government and private Universities in Uganda?
4. To what extent do institutional-related factors facilitate the acquisition of clinical competencies among undergraduate nursing students in government and private Universities in Uganda?

#### **1. 6.4. Limitations of the Study**

Limitations are possible weaknesses in the system being researched and the instruments used in collecting data, of which the researcher has no influence, although the researcher can mitigate them (Jones & Smith, 2022). This study was limited due to various research biases, including social desirability bias, the Halo and Horn effects, and the Hawthorne effect. For instance, social desirability bias, a common issue in studies dealing with sensitive topics, was addressed rigorously, comparing various data collection and response tools to eliminate the influence of socially desirable answers.

Participants were assured of their anonymity and confidentiality, and these principles were upheld throughout the study, reinforcing their importance and respect for the participants' privacy.

The Halo and Horn effects are cognitive biases whereby an error in thinking happens because of subconsciously misinterpreting the information, as (Mortimer, 2020) opined. This was mitigated in this study by using multiple raters like strongly agree, agree,

neutral, disagree, and strongly disagree. Hallgren (2012) suggested that inter-rater agreement, assuming rater independence, indicates consistency that is not influenced by a halo effect, thus enhancing the internal validity of findings.

The Hawthorne effect refers to how study participants behave differently when they become aware they are being watched or given special attention. In other words, the Hawthorne effect increases output in response to being watched, as opined by Sedgwick and Greenwood (2015). In so doing, the external validity of findings would be limited, which can impact the generalizability and applicability of the study's findings.

The researcher observed the data collection process throughout to mitigate the halo effect. They also placed a high value on participant anonymity/confidentiality, reducing the likelihood of altered behavior due to research participation Rosenthal & Rosnow, (2017).

#### **1.6.5. Delimitation of the Study**

Delimitations, in this study, were not arbitrary choices but carefully considered decisions made to control the scope and define the boundaries of the research. The selection of only eight universities in Uganda that offer Bachelor of Nursing programs was a strategic move to ensure the study's relevance and applicability. These universities (Bishop Stuart University, Bugema University, Kampala International University, Clarke International University, Makerere University, Mbarara University of Science & Technology, Mountains of the Moon University, and Uganda Christian University) were chosen for their alignment with the study's objectives.

All selected universities above follow a curriculum that the National Council has approved for Higher Education. Although there are other universities with Bachelor of Nursing programs, these were not included in the study as they did not have fourth-year

students when conducting this research. However, the employers who are the consumers of this nursing program and alumni were not involved.

#### **1.6.6. Minimization of Biases**

Several steps were taken to mitigate biases in the self-administered questionnaires used for data collection. First, the questionnaire was designed to be straightforward and easily understandable, aiming to minimize ambiguity in responses. A pilot test assessed its effectiveness, leading to necessary adjustments and rephrasing certain questions to enhance Comprehension. Specific biases were addressed, like acquiescence bias (where respondents tend to agree with researchers) and social desirability bias (where respondents give answers they believe researchers want to hear).

Respect for participant confidentiality was a top priority in this study. The researcher, who was not affiliated with the site, took measures to ensure that participants felt secure in sharing their responses. They were assured that their answers would remain confidential and anonymous, a practice that respects their privacy and deters them from feeling pressured to provide favorable answers. Furthermore, random sampling was used to prevent any bias in participant selection, and the questionnaires were distributed according to this unbiased process.

#### **1.6.7. Assumptions of the Study**

The study's assumptions provide a basis for the research and guide the interpretation of the findings. The first assumption was to obtain genuine answers from all the students, preceptors, and nursing department heads. Another assumption was that the graduates practicing in different health facilities have adequate competency, knowledge, skills, and attitude to work in the clinical environment.

It was also assumed that all nurse educators are qualified to train nurse students in government and private universities and that all these higher learning institutions have adequate facilities for training nurses. Finally, clinical educators were willing to guide students under their care, and all respondents were willing to participate in the study.

### **1.6.8 Theoretical Framework of the Study**

The theoretical framework is the cornerstone for developing a proposal into a thesis. It acts as a guide, connecting the researcher to the existing knowledge to address questions arising from an identified problem, such as the why, how, and significant variables that influence them. It gives one confidence to understand the scope of their research, selected methods, reviewed literature, collected and analyzed data, upon which the why or how questions can be approved or disapproved, and findings generalized.

This research was guided by the Social Learning Theory developed by Albert Bandura. The theory points out that individuals learn from Preceptors or mentors. For learning to occur, the following steps must be followed: observation, attention, retention, reproduction, and motivation Bandura, (1977). The clinical practice experience setting fits well into this theory. The theoretical framework also emphasizes learning, the interaction between cognitive and environmental influences and experiences to acquire or change one's knowledge and skills.

Albert Bandura's assumptions apply to the clinical setting where preceptors, supervisors, and students interact during clinical practice. During clinical practice, nursing students observe the preceptors' procedures and later conduct a return demonstration under supervision. The clinical environment in which the students and the preceptors interact is the practicum site in the health care facility setting.

Other stakeholders, such as the supervisors, reinforce a one-to-one interaction with the learners. Students, supervisors, and preceptors collaborate to develop clinical learning goals during the practicum.

Furthermore, Bandura asserts that adherence to a particular behavior or learning can lead to a positive change. Finally, Bandura says that knowledge and competencies are acquired through the modeling process. He also argues that modeling is a four-way process that starts with observation, followed by attention, retention, reproduction, and motivation.

#### **1.6.9. Philosophical Assumptions**

Philosophies are a basic set of beliefs that influence the research process, although they remain hidden. Their importance is based on the fact that they assist in formulating research problems and questions and the type of selected literature reviewed to answer them (Scotland, 2019). These assumptions develop from our training and are strengthened within our various disciplines as we learn and borrow from one another (Creswell, 2013). As for this study, pragmatism is the most suitable philosophy for mixed methods studies (Creswell et al., (2018); Teddlie et al., (2019). It is the most suitable philosophy for this study because it prioritizes the practical application of ideas. Research means valuing theories or methods that offer tangible benefits or solutions to real-world problems.

Pragmatism encourages adaptability; therefore, researchers can employ different methods or theories based on what works best in a particular context or situation, promoting flexibility in research design. It centers around addressing practical problems, for example, in research. This involves solving real issues and applying findings to improve situations or conditions. With its openness to new ideas,

pragmatism fosters a collaborative spirit among researchers. It does not rigidly adhere to established theories but instead encourages incorporating new information or modifying existing concepts based on empirical evidence and practical outcomes.

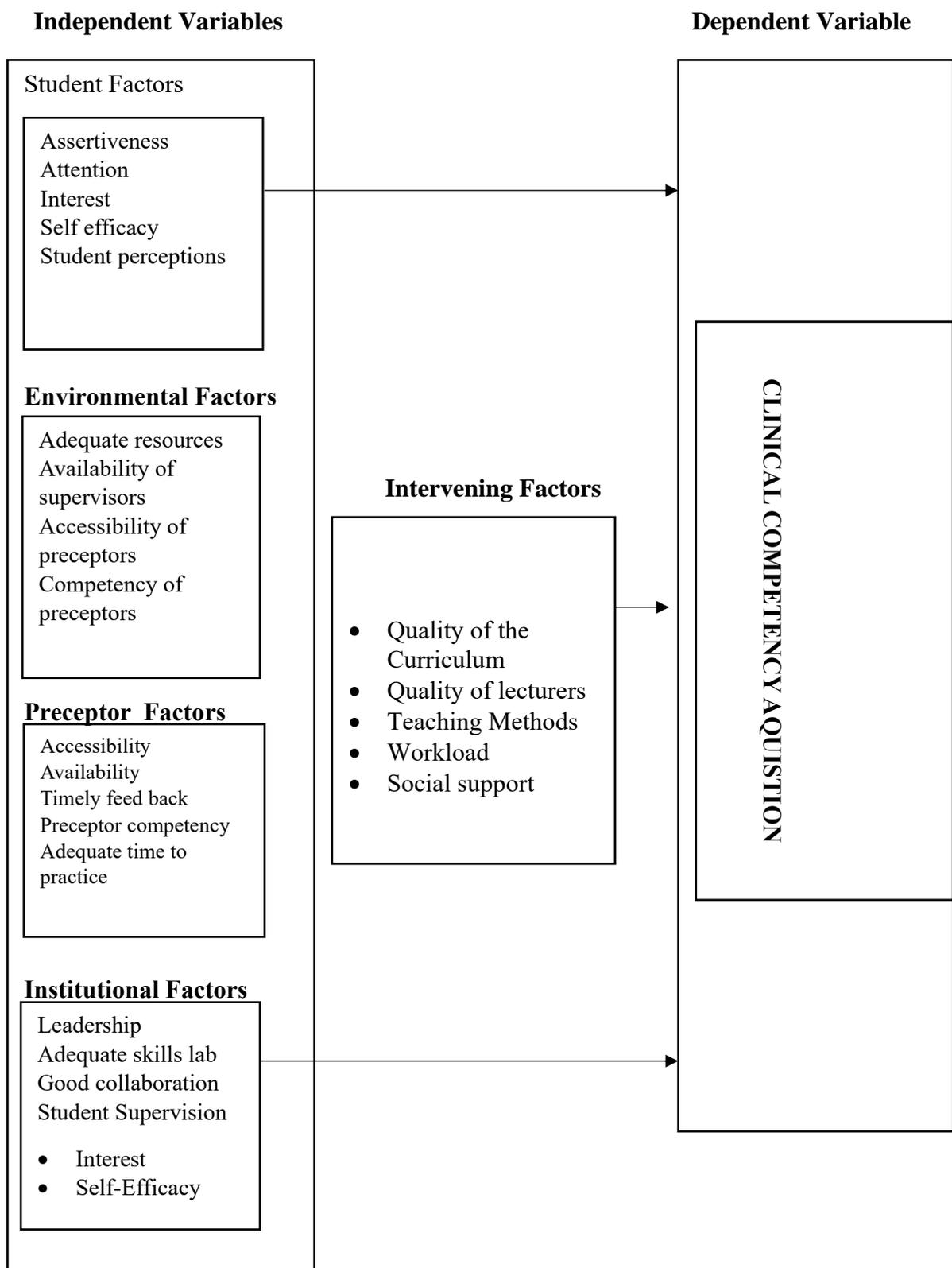
This often leads to interdisciplinary research, drawing from multiple fields to find innovative solutions. This approach can lead to comprehensive and innovative solutions to complex problems. Applying pragmatism in research can increase its relevance and applicability. Findings directly impact society, as it prioritizes practicality and the real-world implications of research outcomes.

### **1.7 Conceptual Framework**

Fig 1 below shows the link between different factors and competency acquisition of bachelor of nursing students. It shows how competency acquisition, as a dependent variable, is related to the independent variables: preceptor, environmental, institutional, and student factors. The researcher also identified extraneous variables that may affect the acquisition of clinical competencies, including curriculum, assessment, Faculty expertise, workload, and teaching methods, among many others.

These variables are part of the input and process explained in Ludwig's Input-Output model. They play a role in bringing out the output and acquisition of clinical competencies. If these variables are not controlled, they may interfere with the study results. The researcher maintained the effect of the extraneous variables by randomly selecting students because randomization, according to (Rubin, 2015), is one way to attempt to control many extraneous variables.

**Fig 1** Conceptual framework of the factors affecting acquisition of competencies.



Source: Adopted from Koontz and Weihrich (1988).

**Figure 1:** Conceptual framework of the factors affecting the acquisition of competencies.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1. Overview

This chapter reviews the literature related to this study. It is organized in order of the critical study variables and aligned with the four study objectives; thus, it includes an overview, introduction, clinical competency, clinical preceptorship, clinical learning environment, student-based, and institutional factors. It ends with a summary of the literature review. This chapter discusses the literature review conducted for the study, which assessed factors associated with acquiring clinical competencies among undergraduate nursing students in government and private universities in Uganda.

Chigbu et al. (2023) state that a literature review helps researchers easily understand the meaning and nature of the identified research problem. In turn, this will enable the researchers to clearly define the research problem, its scope, and its significance within the broader context of the field. This chapter provides an overview of the literature related to the study. It is structured according to the critical study variables and aligned with the four study objectives. The chapter includes an introduction, clinical competency, clinical preceptorship, clinical learning environment, and student-based and institutional factors.

It concludes with a summary of the literature review. This chapter delves into the literature review conducted for the study, which examined factors associated with acquiring clinical competencies among undergraduate nursing students in government and private universities in Uganda. This chapter provides an overview of the literature related to the study. It is structured according to the critical study variables and aligned with the four study objectives.

According to (LoBiondo-Wood & Haber, 2010 Polit & Beck, 2017), a literature review is a systematic, exhaustive, and critical examination of published literature on a particular topic. Meanwhile, Grove et al. (2013) state that a literature review is a written and well-organized presentation of what other scholars have published about a research topic. The English language was used to comprehensively search the relevant research literature using these databases: CINAHL Plus, Medline, Google Scholar, OVID, PubMed, Science Direct, Psych Info, and Ethos. Keywords in the title included Clinical competency, clinical skills, nurses, nursing, clinical, nursing students/undergraduate nursing, and clinical assessment.

## **2.2. Competency**

Competency is derived from the Latin word 'competentia,' meaning capability and permission. Later, Benner (1984) described competency in nursing as the ability to perform a task with intended outcomes (Lejonqvist, 2018). The World Health Organization (WHO) has clearly stated that nurses are the backbone of healthcare systems worldwide (WHO, 2020). Therefore, nurses' competency is a pivotal factor in determining the quality of healthcare services (ICN, 2020). Any deficiencies in nurses' competencies can have a detrimental impact on the quality of nursing care.

In the Fourth Industrial Revolution and globalization context, the WHO urges all nations to report on and enact strategies to enhance nurses' competencies (WHO, 2016). Nurses must cultivate their competencies to provide safe health care. Nevertheless, numerous external and internal factors can either facilitate or hinder the development of nursing competencies.

The increased technological advancements, demographic changes in the population, and increased prevalence of chronic illnesses highlighted the necessity of competent graduating students. Additionally, the existing evidence indicates a need for more competent healthcare providers globally (WHO, 2020). Moreover, worldwide, 530,000 women and 2 million newborns are estimated to die every year due to a shortage of competent health professionals.

Additionally, competency refers to an individual's or professional's ability to perform a specific task or action supported by the requisite training and education (Zumstein-Shaha & Grace, 2023). Nursing students must attain the highest level of clinical proficiency throughout their educational journey (Li et al., 2022). Given the profession's emphasis on practical application, exposure to clinical environments is indispensable in health sciences education (Biftu et al., 2016).

Engaging in clinical practice aids nursing students in perfecting their skills and transitioning into professional roles. Nurses are essential members of healthcare provision teams and comprise the most significant proportion of hospital staff (Fukada et al., 2018). As the most crucial element of the healthcare system, healthcare providers are directly responsible for maintaining and promoting health in human society (Poursadeqiyan et al., 2020).

Globally, nurses constitute the predominant segment of the healthcare workforce and play integral roles in delivering care within healthcare systems and overseeing patient management (Cengiz & Yoder, 2020). Additionally, nurses serve as the primary point of contact for approximately 90 percent of healthcare recipients. Therefore, nurse educators and training institutions must ensure the effective graduation of adequately skilled nurses (Bvumbwe & Mtshali, 2018). However, concerns have emerged recently

regarding newly graduated nurses' clinical competencies and preparedness for professional practice.

Clinical skills are crucial for nurses as they interact with healthcare providers and attend to the needs of patients and their families, highlighting the importance of a deeper understanding of the concept in Nursing education and practice. The term "clinical competency" has garnered significant attention in nursing literature over the past three decades due to growing public expectations of professional accountability.

Furthermore, the definition of clinical competencies remains unclear and differs among researchers in the healthcare field (Goh & Tang, 2020). The interchangeable usage of competency and competence has added to this lack of clarity, highlighting the need for a more exact definition. Competency pertains to the skill of performing a task, while competence encompasses the ability to evaluate a task while carrying it out, integrating both knowledge and proficiency (Song & McCreary, 2020). Establishing methodologies for nursing competency is essential for improving nursing care.

Nursing competency approaches are vital for improving nursing practice quality (American Association of Colleges of Nursing, 2021). These enhance organizational effectiveness and performance based on licensed expertise. Nursing competency is crucial for improving the quality of nursing care and establishing clear standards. Nevertheless, mechanisms for assessing competency still need to be revised due to diverse frameworks across nations and institutions.

As Takase (2013) described, nursing competency involves a nurse's ability to demonstrate various qualities, including personal attributes, professional ethics, standards, morals, values, expertise, and skills in executing assigned nursing tasks. Benner (1982) views competency as a continual developmental process, where a nurse

may excel in one area while remaining a novice in another. Building upon Benner's theory, Lojo (2020) suggests that nursing competency evolves through successive professional experiences, with individuals progressing from beginner to expert.

The culmination of practical learning in clinical settings is the acquisition of clinical competency, which denotes the adept application of professional knowledge, attitudes, and skills in novel situations (Fan et al., 2015). Competency is an individual's fundamental skills for job performance. Clinical competency seamlessly integrates cognitive, affective, and psychomotor skills within healthcare provision (Rusch et al., 2019).

Nurses in clinical settings need to bolster the quality of healthcare services. Clinical learning experiences are pivotal for skill development. Therefore, when entering healthcare institutions, health science students are equipped with the clinical competency to make informed decisions and uphold ethical standards concerning patient care (Nehrir et al., 2016).

Research indicates a prevalent issue of clinical incompetence among graduate nurses. Studies across various European countries have demonstrated varying levels of clinical incompetency, ranging from 39.9% to 50% (Kajander-Unkuri et al., 2021). Similarly, investigations at the University of Finland revealed a clinical incompetency rate of 32.3% among graduating nursing students (Kajander-Unkuri, 2015), while research in Iran found that 50% of nursing students lacked clinical competency (Faraji et al., 2019).

The inadequate skill quality of healthcare professionals is a pressing concern for many governments in the sub-Saharan region, both in the government and public sectors. Consequently, nursing is a professional activity, given the diversity and complexity of the role, which requires a sense of responsibility, tact, and accuracy. Any lack or

inadequacy of clinical skills or professional ethics training will significantly impact the quality and quantity of health services (Farokhzadian et al., 2015).

Nursing competency is the complex integration of knowledge, including professional judgments, skills, values, and attitudes. It involves an ingenious, practical skill set that combines different factors and issues in complex ways specific to each circumstance (Farokhzadian et al., 2015). The fast-paced evolution of health monitoring systems and the rising demands of society for top-notch services have led to a heightened focus on the adaptability and clinical proficiency of individuals working in healthcare professions. As a result, there is now a need to ensure that healthcare professionals can adapt to these changes while maintaining their clinical competency (Karami et al., 2017).

The role of nursing instructors in terms of theoretical teaching, clinical experience, professional growth, and the quality assurance of nursing care are among the factors that influence nursing professionalism (GUNET et al., 2018). Therefore, it is essential to ensure the clinical competency of nurses. Fan et al., 2015 lament that current healthcare institutions and organizations face various challenges, such as introducing new dynamics of information technologies, increasing amounts of information, decreased funding, demands for accountability, and the emergence of chronic and acute illnesses. This implies that nursing also requires a complex combination of various attributes to manage those challenges.

On the same note, Kelton (2014; Blažun et al., 2015) advises that nursing students trained in highly specialized competencies are required to accurately determine patients' states, predict and cope with problems that may occur during nursing care, and manage

issues that may arise. Nevertheless, adequate nursing competency is changing, and improving care is required to provide safe and quality nursing care.

Moreover, most employers expect new nursing graduates to be prepared to perform various functions and should have the skills to provide safe care, as revealed by Fan et al. (2015). Therefore, nurses at the undergraduate level must play an essential role in developing the competency of new routines to improve patient quality programs.

According to (Blažun et al.,2015), competency is a quality possessed by someone without exact specifications of what one can do in specific circumstances. However, many employers are concerned that recent graduates cannot perform basic clinical tasks competently or that their education and work competencies are disconnected. This calls for nurse educators to develop strategies to help students acquire competencies for better practice.

Park et al., 2016 note that assessing clinical competency has always been a critical component of clinical education for health professionals. As such, clinical placement experiences are integral to practice development for undergraduate nursing students. Students undertaking a bachelor of nursing degree acquire competencies and abilities to learn independently, make decisions, and express ethical commitments, as asserted by (Khatib et al., 2014.)

National League for Nursing (2019) has noted that the development of nursing practice requires the synchronicity of both knowledge application and clinical skills. Students must demonstrate the ability to integrate these professional requirements of the qualified nurse for which they are being prepared. On the contrary, if not done, the situation can result in disappointed employers, frustrated new graduates, and dissatisfied patients NCSBN (2023).

According to many authors, the most effective way to ensure students acquire competencies is to integrate the teaching of those skills into course curricula. This is done holistically through teaching disciplinary knowledge and generic skills, as Pereira et al. (2014) advised. The role of nursing educators in shaping the future of nursing is crucial and inspiring, as it allows them to contribute significantly to the profession. Integrating competency-based teaching into course curricula can lead to a more comprehensive and practical learning experience for students. This approach allows students to develop both disciplinary knowledge and generic skills in a practical and applicable manner. Brown and Crooks (2014) affirm that a consensus was reached on effective strategies for evaluating the competency of nursing students during their academic journey based on the input of experienced clinical staff and medical educators. This consensus highlighted the importance of incorporating formative and summative assessments throughout the program and utilizing various assessment methods, including objective structured clinical examinations (OSCEs), simulation-based assessments, and clinical evaluations, to comprehensively review the student's competency.

### **2.3 Definitions of Nursing Competency**

It should be noted that competency is a construct that has been difficult to define. This is predominantly because it has several definitions. The word competency is an English word that appeared in the 1590s to mean rivalry, and by 1600, the meaning had changed to adequate supply. In the 1630s, competency referred to the sufficiency of living at ease, and from 1790, the definition changed to sufficiency to deal with what is at hand (online Collins English Dictionary).

The 10<sup>th</sup> edition of the Oxford Dictionary of Current English (2020) views competency as having sufficient knowledge, judgment, skill, or strength for a particular duty or specific aspect. On the other hand, Dictionary.com (2017) defines competency as the quality of being competent, adequate, and possessing the required skill, knowledge, and qualification or capacity. As can be deduced from the definitions above, different meanings can be derived from different understandings.

Ram (2019) avers that clinical competency is the outcome of nursing education and is defined as knowledge, skill, attitude, and ability for safe and effective practice without others' supervision. Meanwhile, Takase and Teraoka (2018) define nursing competency as a nurse's ability to effectively demonstrate traits, such as personal characteristics, professional attitude, values, knowledge, and skills, and to fulfill their professional responsibility through practice.

A competent student nurse must possess these attributes, can apply them, and must adequately utilize them to provide safe, effective, and professional nursing care to their patients.

Roe (2004) alludes that competency builds on knowledge, skills, and attitudes acquired through primary academic education and initial professional training and refined through professional practice. Nakayama et al., (2012) add that adding competency is the ability to take action by combining knowledge, skills, values, beliefs, and experience acquired as a nurse. Both authors explained that competency could be viewed as an integrated performance reflecting the professional nurse's feelings, thoughts, and judgment.

Nursing competency involves the acquisition of relevant knowledge, the development of psycho-motor skills, and the ability to apply the knowledge and skills appropriately

in a given context. The Board of Nurse Examiners for the State of Texas (2017) described competency as a practical manifestation of the knowledge, judgment, skills, and professional values emanating from nursing education by graduation.

Roger (2016) defines competency as reliably fulfilling subject-specific demands under normal circumstances. Nehrir et al., (2016) generally define competency as the ability to perform a task with desirable outcomes under the varied circumstances of the real world. While the definitions of competency may vary, they all share the common thread of being able to perform tasks effectively and adapt to different situations. Competency is crucial to success in various fields and industries, including healthcare, education, and business.

Furthermore, the World Health Organization (2015) describes competency as requiring knowledge, appropriate attitudes, and observable mechanical or intellectual skills to deliver professional services. Thus, competency indicates being able to do something well and is measured against a standard, especially the capacity acquired through experience or training. Hickey (2010) adds that competency can effectively integrate cognitive, affective, and psycho-motor skills while providing practical, quality health care. It can be noted that nurses' clinical competency is a significant factor affecting nursing care quality and patient outcomes.

Nursing education aims to enhance the knowledge and skills of nursing students primarily through practical training in clinical settings, where they undergo professional development. Canadian nursing regulatory bodies define clinical competence as the capability of registered nurses to effectively apply their knowledge, skills, judgment, and personal attributes to practice safely and ethically in their designated role and environment (Barton et al., 2017). The American Academy of Care Nursing describes

clinical competence as the ability to demonstrate technical proficiency, critical thinking, and interpersonal skills required for performing one's job (Blažun et al., 2015). Notarnicola et al., (2016) conceptualize clinical competence in nursing as a combination of skills, knowledge, attitudes, and abilities necessary for nurses to execute patient care duties effectively within specific clinical contexts to promote, maintain, and restore patients' health.

While these definitions offer different perspectives on clinical competency, they collectively recognize it as a complex and multi-dimensional concept essential in clinical settings. However, a challenge lies in perceiving clinical competency as a static state. It could be beneficial to view it as a dynamic process with various stages that can be continually refined throughout a nurse's career. Another hybrid concept analysis on professional competence in nursing suggests that competency is multifaceted, context-dependent, and involves a blend of knowledge, skills, attitudes, and attributes, enabling professionals to fulfill their roles according to standards and make sound clinical judgments across diverse situations (Valizadeh et al., 2019).

Consequently, the Nursing Clinics of North America (2014) emphasize competency as acquiring relevant knowledge, developing psychomotor skills, and applying the knowledge and skills appropriately in a given context. Nursing competency is generally viewed as a complex integration of knowledge, expertise, professional judgment, skills, values, and attitude, indicating that holism is widely accepted for safe practice. Benner (2001), on the other hand, views competency as the ability to perform a task and achieve a desirable outcome under certain circumstances within a clinical context. It is also stressed that effective communication and knowledge transfer to workplace practice is critical for safe and quality nursing practice. Zhang, Ye, and Fan (2015) affirm that

clinical competency in nursing differs according to an individual's environment. Safe and effective practice requires a sound underpinning of theoretical knowledge that informs practice and is informed by that practice. Blažun et al. (2012) add other facets to the competency definitions and describe it as a quality possessed by someone with exact specifications of what one can do in specific circumstances.

It can be concluded that Clinical competency in nursing is a multifaceted concept that encompasses theoretical knowledge, practical skills, and the ability to adapt to specific circumstances, which are shaped by an individual's environment. Additionally, Kim and Kim (2014) define needed competency as the capacity to integrate and apply skill, knowledge, and decision-making to a task. Thus, the definition of clinical competency needs to be operationalized and evaluated.

Scanlon (2017) alludes that within a complex and changing healthcare environment, the best available evidence must inform practice, and this mostly remains reflected in the above definitions and propositions. It is worth noting that the definitions of competency vary among individuals, societies, organizations, and groups. These variations give such a table a universally acceptable definition of competency.

In conclusion, nursing competency is a complex integration of knowledge, including professional judgment, skills, values, and attitudes. It is an intelligent, practical skill set that integrates or combines different factors and issues in complex ways specific to each circumstance. Furthermore, the learning experience of the nursing curriculum can affect the competency used in practice after graduation. Therefore, designing an educational curriculum centered on nursing competency is required, and there is a continuous need to explore the nursing capacity to adapt to changing times and keep us motivated and engaged in the field.

Clinical competency is one of the requirements for effective practice in nursing education, and it is also cited as the ultimate goal of nursing education. It involves skill application, knowledge and information, problem-solving and technical skills, communication, and interpersonal skills. As a key player in promoting clinical competency, the nursing faculty plays a crucial role in shaping the future of nursing, and their efforts are highly valued and respected. The nursing faculty plays a pivotal role in promoting clinical competency. They are responsible for shaping the student's preparation through curriculum design, teaching, and learning, ensuring their readiness for clinical practice.

#### **2.4. Conceptualizing Competency**

Competency, a cornerstone of nursing practice and education, is a complex entity that encompasses the knowledge, skills, and abilities required for safe and effective patient care. Despite its paramount importance, defining and conceptualizing competency can be a challenging task. In their article, Fagerström and Berglund (2021) comprehensively analyze clinical competency in nursing. Studies suggest that nurses are unprepared, shocked, and confused during emergencies (Malakoutikhah et al., 2022); therefore, it is essential to increase their clinical competency. Clinical competency is a critical component of nursing care, and it has received more attention from health managers (Imanipour et al., 2022).

Clinical competency is a significant issue in various medical fields; therefore, paying attention to clinical competencies among nurses is essential, too. The leading cause of this attention is the rapid changes in healthcare systems, the need to provide safe and cost-effective services, improvement of the level of community health awareness, expectations for receiving higher quality services, and the desire of health organizations to use a competent health workforce. Through a meta-synthesis of qualitative research

studies, the authors delve into the multifaceted nature of clinical competency in nursing. This complexity concerns not only the knowledge and skills of individual nurses but also the resources and support provided by healthcare organizations and the broader community.

## **2.5 History of competency in nursing education**

The concept of clinical competency, which encompasses moral and value dimensions along with science and skill, has a rich historical background. This historical journey of competency in nursing education provides a profound understanding of its evolution and importance. The root of the word *keno* means to arrive. In ancient Greece, the word *ikanótis* refers to the quality of being capable, having the ability to achieve something, or accomplishing something. Aristotle (1999) developed the competency discussion and introduced the three forms of knowledge: *techné*, *episteme*, and *phronesis*.

*Techné* refers to know-how, a context-bound craft or art aiming to produce something and learn by hands-on experience. *Episteme* is to know why an intellectual, independent act intends to understand and learn through thoughtful efforts. *Phronesis* is an intelligent, practical action that is justifiable or well-founded wisdom. The fast-paced evolution of health monitoring systems and the rising demands of society for top-notch services have led to a heightened focus on the adaptability and clinical proficiency of individuals working in healthcare professions.

As a result, there is now a need to ensure that healthcare professionals can adapt to these changes while maintaining their clinical competency. It is a reasoned capacity to act for the exceptional of humankind; it is destined to lived experiences but not a set of approaches. Competency also exists in Latin as *competens*, which means legally being allowed by a principle governing procedure. By the sixteenth century, the concept of

competency was found in English, French, and Dutch (Mulder, 2006). This suggests a long-standing recognition of the importance of the necessary skills and knowledge to perform a task effectively. In contemporary professional contexts, competency encompasses technical skills and attributes like critical thinking, communication, and ethical decision-making (Snyder & Dill, 2021).

According to Brinkley and McInerney (2020), the history of nursing competency dates back to the early days of nursing when the focus was on technical skills and knowledge. Over time, competency expanded to include technical skills, critical thinking, ethical decision-making, and the ability to work collaboratively in interprofessional teams. Nursing competency encompasses a broad range of knowledge, skills, and attitudes essential for safe and effective patient care.

AACN (2021) emphasizes that the nursing faculty should satisfy society's needs by training nurses with extraordinary levels of clinical competency. However, literature shows that faculty members and preceptors who are inadequate to direct learning could influence learning outcomes (Mabuda et al., 2008); (Kim & Kim, 2023). In addition, workload, lack of role clarity, and lack of knowledge among lecturers and preceptors impact students' clinical learning (Shin & Kim, 2020). All these factors emphasize the need to address them to improve students' clinical learning experiences. Suboptimal clinical learning environments negatively impact nursing students' clinical competence and professional identity formation. These environments are often characterized by insufficiently qualified preceptors and unsupportive faculty (Sharif et al., 2020).

Iran's researchers have also found inadequate nursing lecturers' qualifications and uncooperative learning environments influence clinical learning (Baraz et al., 2015). Inadequate nursing lecturers' qualifications can lead to a lack of effective teaching

methods and the inability to provide practical and applicable knowledge to students. This can result in a significant gap between theoretical knowledge and clinical practice, negatively impacting the quality of care offered by future nurses.

A qualitative study by Rajeswaran (2016) showed that psychosocial factors affect students' clinical learning. Lawal et al. (2015) identified several factors significantly impacting students' clinical learning. These included preceptorships, support from clinical staff, preceptor-to-student ratio, pre-clinical conference quality, and interpersonal relationships with staff and preceptors. This shows the importance of the learning environment and the role of clinical staff and preceptors in shaping students' clinical learning experiences, fostering a sense of empathy and understanding towards the challenges students face in their learning journey.

The researcher has adopted the definition of clinical competency as a psychological construct that includes psychomotor, cognitive, and emotional areas. Additionally, this categorization is derived from Bloom's taxonomy (Bloom et al., 1956) for educational goals. Consequently, if the student nurse can competently perform skills related to all three areas, they have remarkable clinical competency.

Yanhua and Watson's (2012) observation underscores the enduring significance of clinical competency in nursing, a cornerstone for delivering high-quality patient care. This study is poised to pinpoint areas ripe for enhancement in nursing education and training by scrutinizing the factors shaping clinical competency acquisition in undergraduate nursing students. Identifying these factors is essential for nurturing a new generation of nursing graduates. Additionally, this knowledge inspires us to improve our education and training methods continuously. By doing so, we can ensure

that our future nurses are competent and confident in meeting the diverse needs of patients.

According to a study by Mohamud et al. (2014) about Malaysian nurses' skincare experiences versus knowledge, 80.5% disagreed that they had a strong knowledge understanding of infants' skin. Despite having work experience in the neonatal intensive care unit for more than five years, none of the respondents believed they had a good knowledge of -pre-term infant skin care. These study studies suggest that there may be a significant gap between student nurses' knowledge and their actual practices when it comes to the acquisition of competencies, which may be due to a lack of adequate education and training on the subject, even among experienced nurses. This gap in knowledge and practice could lead to a decline in the quality of patient care.

Furthermore, a study by Sharif and Masoumi (2005) in Iran on nursing students' clinical practice experiences showed that nursing students were not satisfied with the clinical component of their education. They experienced anxiety due to feeling incompetent and lacking professional nursing skills and knowledge to care for various patients in clinical settings. Therefore, assessing factors associated with acquiring clinical competencies of undergraduate nursing students in government and private universities in Uganda is hoped to help develop effective clinical teaching strategies in nursing education.

Another study by Carina (2013) on registered nurses' views on nursing competency at residential facilities revealed that registered nurses require varied and broad advanced nursing knowledge and technical and medical knowledge to understand nursing care despite the way of working. Several studies have been reviewed, and Kapaghawani and Useh (2013) allude that some students doing internships in several learning environments cannot transition from theory to practice. Perhaps the difficulty in

transitioning from theory to practice arises in part from the failure of the lecturer to integrate both theory and practice into the same course in the curriculum in ways that are relevant and meaningful to the students.

Despite this, Pereira (2014) further reveals that the most effective way to ensure students acquire competencies is through a holistic approach to integrating the teaching of skills into course curricula. Such integration would help students associate the practical value of learning theoretical concepts. Students must always be able to perform and put what they know from the classroom into practice. However, these attributes focus on knowledge acquisition and skill building to become competent nurses.

The contextual aspect of students' developing skills, theoretical education, and practical experience is necessary. Fiszer (2004) advises that an ongoing professional development model that directly connects training and practice may be required to enhance students' success in work settings. Therefore, it is implicit that students' continuous professional development is an ongoing process to prepare them for clinical practice.

In their study, Hagbaghery et al. (2004) conducted a qualitative study of Iranian nurses' understanding and experiences of competency. The authors found that Iranian nurses strongly emphasized technical competency but also recognized the importance of ethical and humanistic aspects of nursing practice. MacDonald et al. (2018) critically reviewed competency-based nursing education and its implications for nursing practice.

The authors explored the development of competency-based education, driven by the need to ensure that nurses were prepared to meet the demands of a rapidly changing

healthcare environment. Fagerström and Berglund (2021) reviewed the literature on conceptualizing competency within the nursing profession. They found that the concept of competency has evolved from focusing on technical skills to a more holistic approach that includes technical skills and thinking, ethical decision-making, problem-solving, and communication.

This implies that the history of nursing competency dates back to the early days of nursing and has evolved to encompass a broader range of skills and competencies. Competency is essential in nursing and practice as nurses strive to provide safe and effective care in an increasingly complex healthcare environment. The authors also identify several key factors contributing to clinical competency: experience, critical thinking, communication, and professionalism.

Overall, their analysis provides valuable insights into clinical competency in nursing and highlights the importance of measuring and evaluating clinical competency in nursing education and practice. According to ANA (2010) and ANMC (2010), clinical competency in nursing varies according to concepts like clinical competency, professional competency, competency, ability, and clinical performance.

Johnson (1966) contends that competency entered nursing as late as the 1960s, although nursing education had discussions and writings. Butler (1978) defined it as an ability to meet prevailing standards for a particular activity. Benner's work in 1984 established this concept, which is still used in clinical nursing (Benner, 1984). This shows that the idea of competency, established by Benner in 1984, remains relevant and widely used in clinical nursing.

Although research on competency in nursing has increased during the last thirty years, and even as early as 1994, it has been identified as a behavioristic, generic, and holistic way of defining competency. On the other hand, Sasso et al., (2017) and Cowan et al., (2005) reveal that the concept of competency remains vague, controversial, and elusive. Pantelidou et al. (2016) add that different working environments make conceptualizing even more challenging.

Therefore, the concept of competency in nursing remains controversial and elusive, with varying working environments making it even more challenging to define. This could have been due to the varying working environments nurses operate in. Karami (2017) affirms that competency plays a vital role in the quality of healthcare services nurses provide and is an essential requirement that nurses should have in clinical settings. Nursing students acquire this competency during their clinical practice in clinical learning environments.

Blažun et al. (2012) stress that clinical competency is not just a requirement for patient care but a central issue in nursing education. A clear understanding of this concept is critical for nursing students' development and advancing the nursing discipline. This reiterates the importance of clinical competency in the education and training of future nurses, making the learning process more relevant and meaningful.

## **2.6 Indicators of Clinical Competency**

According to the Journal of Nursing Education and Practice (2014), indicators of clinical competency include being able to demonstrate the following:

- ❖ Take history for new admissions,
- ❖ Perform and document patient health assessments,

- ❖ Answer questions for patients or families,
- ❖ Educate patients or families with disease-related care knowledge,
- ❖ Chart and documentation,
- ❖ Develop a care plan for patients,
- ❖ Perform shift reports,
- ❖ Perform hygiene and daily care routines,
- ❖ Provide rest and comfort measures,
- ❖ Assess nutrition and fluid balance,
- ❖ Assess elimination,
- ❖ Assist in activities and mobility, and change position,
- ❖ Provide emotional and psychosocial support,
- ❖ Perform venipuncture,
- ❖ Start intravenous injections,
- ❖ Change intravenous fluid bottle or bag,
- ❖ Administer intravenous medications (or into intravenous bags),
- ❖ Administer intramuscular medications,
- ❖ Perform subcutaneous (or intracutaneous) injection,
- ❖ Administer oral medications,
- ❖ Administer blood transfusion,
- ❖ Perform urinary catheter insertion and care,
- ❖ Perform sterile techniques,
- ❖ Perform postural drainage and percussion, oxygen therapy,
- ❖ Perform pre-operative/post-operative care,
- ❖ Perform enema,
- ❖ Perform upper airway suction

- ❖ Perform tracheotomy care,
- ❖ Perform nasogastric tube feeding and care,
- ❖ Perform chest tube care with underwater seal management
- ❖ Perform wound dressing

## **2.7 Core Competencies in Nursing**

In response to a growing number of errors in the health care system and efforts to increase patient safety and quality of care, the Institute of Medicine (IOM) proposed that students in health care professions learn to implement five core competencies IOM (2003). The five core competencies for nursing students are : ( 1) To provide patient-centered care, (2) To work in interdisciplinary teams, (3) To employ Evidence-Based Practice, (4) To apply quality improvement, and ( 5) To utilize informatics.

## **2.8 Provide patient-centered care**

Students should recognize, value, and care for each patient's uniqueness, preferences, and needs. They need to listen, inform, and educate patients. They should also share in management and decision-making. They must constantly promote disease prevention, wellness, and healthy lifestyles, emphasizing population health.

## **2.9 Work in interdisciplinary teams**

Nursing students need to learn to collaborate and work with other healthcare professionals from different fields. This collaboration is what makes interdisciplinary teams so effective. These teams, made up of individuals from various healthcare professions, work together to address the complex needs of patients, emphasizing the value of teamwork in healthcare.

In nursing education, working in interdisciplinary teams means that nursing students should be trained to communicate effectively with other healthcare professionals, understand their roles and responsibilities, and collaborate to develop comprehensive care plans for patients. This approach recognizes that healthcare is a team effort and that each member, including nursing students, brings expertise, making them an integral part of the healthcare system. By working in interdisciplinary teams, nursing students can better understand the broader healthcare system and the different perspectives of healthcare professionals. They can also learn to appreciate the importance of interprofessional communication and collaboration in providing high-quality care to patients. This approach can improve patient outcomes, reduce errors, and enhance the overall quality of care.

In nursing education, developing competency in evidence-based practice means nursing students should learn how to identify and critically appraise research evidence. Students must also understand the principles of research design and statistical analysis and apply research evidence in clinical practice. By doing so, they can provide high-quality, safe, and effective patient care based on knowledge and evidence.

The importance of EBP in nursing education lies in its ability to improve patient outcomes and reduce healthcare costs. By incorporating research evidence into clinical practice, nurses can provide care based on the best available evidence, improving patient outcomes, such as reduced hospital readmissions, fewer complications, and improved quality of life. Additionally, EBP can help healthcare organizations reduce costs by avoiding unnecessary procedures, medications, and interventions that may not be effective.

## **2.10 Apply quality improvement**

Quality improvement (QI) is another core competency that nursing students need to develop to become competent and effective healthcare professionals. QI uses systematic and data-driven methods to improve the quality, safety, and effectiveness of healthcare services.

In nursing education, developing competency in QI means that nursing students should learn how to identify opportunities for improvement, design and implement QI initiatives, and evaluate their impact on patient outcomes and healthcare delivery processes. By doing so, they can contribute to the ongoing improvement of healthcare services and the delivery of patient-centered care.

The importance of QI in nursing education lies in its ability to improve patient outcomes, reduce healthcare costs, and enhance patient satisfaction. By using QI methods to improve the quality and safety of healthcare services, nursing students can help reduce errors, decrease hospital readmissions, and improve the overall quality of care. Additionally, QI can help healthcare organizations to reduce costs by improving the efficiency of healthcare delivery processes and reducing waste.

Therefore, applying quality improvement as one of the core competencies of nursing education emphasizes the importance of using systematic and data-driven methods to improve the quality, safety, and effectiveness of healthcare services. By developing competency in QI, nursing students can contribute to the ongoing improvement of healthcare services and the delivery of patient-centered care. This approach can improve patient outcomes, reduce healthcare costs, and enhance the overall quality of care.

### **2.10.1 Utilize informatics**

In nursing education, developing competency in informatics means that nursing students should learn how to use technology and data to improve patient care, ensure patient safety, and enhance the efficiency of healthcare services. To provide high-quality care, they should learn to use electronic health records (EHRs), clinical decision support systems (CDSSs), telehealth, and other technologies.

Informatics is essential in nursing education because of its ability to improve patient outcomes and enhance the quality of care. Using technology and data to manage patient information, nurses can make better-informed clinical decisions, ensure continuity of care, and improve patient safety. Additionally, informatics can help healthcare organizations reduce, improve efficiency, and enhance the overall quality of care.

Therefore, utilizing informatics as one of the core competencies of nursing education emphasizes the importance of using technology and data to improve healthcare services and patient outcomes. By developing competency in informatics, nursing students can provide high-quality, safe, and effective care informed by the latest technological advancements. This approach can enhance patient outcomes, improve healthcare efficiency, and enhance the overall quality of care.

### **2.10.2 Student Factors Affecting Competency Acquisition.**

#### **2.10.3 Introduction**

Clinical competency includes moral and value dimensions and represents science and skill; honesty, accuracy, communication skills, and adaptability are the leading indicators of professional competency (Roudbari et al., 2016; Cruz et al., 2018).

Bachelor of Nursing students must acquire various competencies during their education to become successful nursing professionals. However, several student factors, such as

retention, assertiveness, interest, and self-efficacy, can influence acquiring these competencies. Understanding how these factors affect the acquisition of competencies can help educators and nursing programs develop effective strategies to support student success.

#### **2.10.4 Attention**

Attention is a fundamental cognitive process essential in competency acquisition among Nursing students. It allows students to focus on relevant information and filter out distractions, critical in clinical settings where patient safety and quality care are paramount. Attention can also impact a student's ability to acquire competencies such as patient assessment, clinical decision-making, and communication.

Distractions and interruptions can negatively impact attention and hinder the development of essential competencies. Studies have shown that distractions in clinical settings can disrupt attention and negatively impact competency acquisition among nursing students (Bremner et al., 2016). Furthermore, the impact of distractions on nursing students' clinical reasoning and patient safety has been well-documented (Hatcher & Arroliga, 2019).

In contrast, attentional training can enhance competency acquisition among nursing students. McNamara, Fealy, and Casey (2019) found that attention is critical in acquiring competencies and that novice nurses may benefit from attentional training to enhance their clinical decision-making skills.

Nursing educators and programs can use this information to develop interventions and training programs that promote attentional processes and enhance the acquisition of competencies among nursing students. Strategies such as mindfulness training, time

management, and reducing distractions in clinical settings can be used to promote attention and enhance competency acquisition.

Therefore, attention is a critical cognitive process affecting nursing students' competency acquisition. Distractions can negatively impact attention and hinder the development of essential competencies, while attentional training can enhance competency acquisition. Nursing educators and programs should prioritize attentional processes in their curriculum and training programs to promote optimal learning and competency acquisition among nursing students.

#### **2.10.5 Assertiveness.**

Assertiveness is an important trait that can significantly impact competency acquisition among Bachelor of Nursing students. Assertiveness allows individuals to communicate effectively and advocate for their patients' needs, which is critical in clinical settings. Assertiveness can impact a student's ability to acquire competencies such as patient advocacy, communication, and leadership. Studies have shown that nursing students' assertiveness is positively associated with clinical competency.

For instance, a study by Rong et al. (2018) found that nursing students with higher levels of assertiveness were likelier to have better communication skills and clinical competency. Similarly, another study by Gómez-Urquiza et al. (2017) found that assertiveness was significantly associated with nursing students' clinical competency. This suggests that developing assertiveness skills may be beneficial for nursing students in enhancing their clinical competency. Furthermore, assertiveness training can enhance competency acquisition among nursing students.

A study by Bahreini et al. (2016) found that assertiveness training improved nursing students' communication skills, confidence, and assertiveness, enhancing their

competency in clinical settings. Nursing educators and programs can use this information to develop interventions and training programs that promote assertiveness and enhance competency acquisition. Strategies such as role-playing, assertiveness, and communication skills training can promote assertiveness and enhance competency acquisition among nursing students.

In conclusion, assertiveness is critical to nursing students' competency acquisition. Assertiveness is positively associated with clinical competency, and assertiveness training can enhance competency acquisition. Nursing educators and programs should prioritize assertiveness training in their curriculum and training programs to promote effective communication, patient advocacy, and leadership skills among nursing students.

#### **2.10.6 Interest**

Interest is an essential aspect of competency acquisition among Bachelor of Nursing students. Interest refers to the degree of attraction or inclination towards a particular subject or topic.

According to Deci and Ryan (1985), when individuals are interested in an activity, they are likely to engage in it more, persist longer, and perform better. Similarly, in nursing, students interested in the subject matter are more likely to learn and acquire competency more effectively than those who lack interest (Tariq et al., 2020). Therefore, exploring how interest affects competency acquisition among Bachelor of Nursing students is crucial.

Interest is a pivotal factor in learning, particularly in nursing education. It significantly influences cognitive processes such as attention, memory, and comprehension. When students are intrigued by a specific clinical area, they are more likely to remember and

apply the information effectively in practice. This underscores the crucial role of interest in nursing education (Tariq et al., 2020).

Furthermore, interest also influences affective processes such as motivation and attitudes. When students are interested in a topic, they are more likely to use these strategies effectively, which enhances their competency acquisition. Similarly, in nursing, students interested in a particular clinical area are more likely to use effective learning strategies such as seeking out additional information and reflecting on their experiences to enhance their competency (Tariq et al., 2020).

In conclusion, interest plays a crucial role in competency acquisition among Bachelor of Nursing students. It facilitates the cognitive and affective domains of learning, influences motivation and attitudes toward learning, and enhances the selection of learning strategies. Therefore, educators and instructors should aim to foster interest in the subject matter to enhance student competency acquisition.

### **2.10.7 Observation**

Observation, as a learning tool, plays a significant role in acquiring new behaviors. Individuals learn by observing a role model with whom they identify, and later, they model this behavior through imitation (Bandura, 1977). Bandura's social learning theory (1977) suggests that individuals develop their desired behaviors through environmental factors, achieved by imitating their role models. This underscores the impact of observation on the learning process.

This happens through four stages of learning, starting with the youngster paying attention to the person from whom they want to copy their behaviors, by Bandura. Usually, this is a close friend or someone they look up to. They eventually continue to act in the manner they have been seeing. This process involves remembering the actions

that they have displayed, plus the responses they have received.

In so doing, this behavior is reproduced to receive the same reaction as their role model received; this may include acceptance by others. Later, when the response they seek is received, they will be motivated to reproduce the same behavior again. Bandura stressed that observational learning could be used to explain why young children imitate positive and undesirable behavior, as seen in Bandura's Bobo doll study, where children copied the aggressive behavior an adult model inflicted on a Bobo doll.

### **2.10.8 Retention**

This results from persistently learning a behavior for some time. Retention of the newly learned behavior is necessary; learning would not be established without it. The learner may need to get back to observe the preceptor perform the procedure again since the student was not very observant initially and, therefore, unable to store it. The ability to store information is also essential to the learning process. The capacity to recall information and later take action on it is essential to tracking learning. However, retention can be impacted by a variety of reasons.

Student nurses must possess basic knowledge of how to support people's routines and be able to apply it through the retention of knowledge (Logrippo et al., 2020). Indeed, using theoretical knowledge (for example, transfusing a patient with blood) in professional nursing practice is a significant component of nursing competency (Faked, 2018); (Bergman et al., 2013). Moreover, all nurses must swiftly apply their expertise in a disaster or emergency, even outside the hospital. All this is facilitated by retention.

### **2.10.9 Motivation**

Motivation is a word that originates from the Latin *movere*, which means to move or everything that can move. Therefore, based on this concept, motivation can be

understood as personal and individual, according to experiences, culture, and needs, and also relates to objectives one wishes to achieve. (Chantal 2001); (Ryan, 2000). Self-determination theory is used to study human motivation and its interfaces with education. Its primary focus is improving motivation at work, interpersonal relationships, and the teaching and learning process. (Zhu et al. 2011).

This theory is divided into intrinsic and Extrinsic Motivation (Zhu et al., 2011). Intrinsic Motivation is linked to doing something intentionally because one feels satisfaction without being rewarded, also known as autonomous motivation (Kusurkar, 2013). It deals with accomplishing something through pleasure, personal fulfillment, and discovering new things and expressions. It is a specific action to satisfy learning and understanding (Vallerand, 1993; Deck& Ryan, 2008; Dec et al., 1999; Kusurkar, 2013). Extrinsic motivation is unintentional and consists of doing something not for satisfaction but employing external regulation to pursue a better future, fulfill an objective, or obtain a reward; it is also known as Controlled Motivation (Kusurkar, 2013). Therefore, for observational learning to be successful, students have to be motivated to imitate the behavior that has been modeled. One of the essential principles of learning is motivation. As Howard et al. (2021) opined, academic motivation is a psychological component in the education process and is strongly linked to academic success in university and continuing education.

Academic motivation is the propelling force behind scholastic pursuits. It is essential to determine whether students finish their school or college programs. According to Rafii et al. (2019), the significance of academic motivation stems from motivated learners being more engaged in learning activities and achieving goals in educational contexts. Stein Mayr et al. (2019) lament that one of the most difficult challenges confronting today's instructors is motivation. Unfortunately, low academic motivation

among learners is a widespread problem in educational institutions, and it can result in significant academic, social, and economic losses.

Academic motivation is critical in nursing school because offering effective nursing care necessitates students having the adequate drive to learn a significant quantity of knowledge and skills and to continue their studies. There has been evidence of a positive and substantial association between academic drive and professional dedication in nursing students. Furthermore, Moghadari-Koosha et al. (2020) revealed that motivated nursing students are less likely to experience academic melancholy and have greater self-esteem.

Therefore, healthcare workers and students require immediate motivation to collaborate with individuals and other institutions, recognize difficulties, carry out health-related obligations, and design and execute initiatives. They must be sufficiently driven to learn and develop the abilities required for their career. However, according to research, student nurses typically experience a loss of motivation and significant amounts of anxiety during their training. Sakineh and Ali (2020) affirm that this category of students is more likely than students enrolled in other Universities and clinical disciplines to feel depressed.

Nurse turnover has been realized as a significant difficulty in managing global healthcare demands, and motivational elements have been proven to have the most significant impact, as revealed by Efendi et al. (2019). Demotivating influences among nursing students include negative ideas about the profession, often founded on inadequate knowledge, and the effect of colleagues and family unaware of the nursing field (Godsey et al., 2020). Because nursing is a practical vocation, clinical experience

is an integral aspect of nursing practice and plays a significant role in forming essential experiences crucial among learners.

According to the respondents, clinical and instructional quality improvements impact students' motivation (Soler et al., 2021). According to Donely and Norman (2021), students can be motivated by enhancing the quality of clinical instruction and by selecting skilled trainers with strong interpersonal skills. Another valuable component, according to the respondents, was improving interactions between students and staff nurses. Cooper et al. (2020) consistently found that the quality of interaction and how nurses engage with students were helpful in nursing students' academic motivation.

### **2.11 Reproduction**

This is the final stage of replicating the behavior or task we witnessed, which is made possible by all the previous ones. After observing, paying attention to, and remembering the behavior/task, we should be able to perform it ourselves. However, following all these steps will not guarantee the correct reproduction of the behavior since other factors may influence performance, such as limiting our physical ability. Positive experiences play a crucial role in clinical learning. As O'Rourke (2006) suggests, students need positive experiences to achieve the most during clinical learning.

This is the ability to replicate the behavior that the model has just demonstrated. Once the student pays attention to the model and retains the information, it is time to perform the observed behavior. Furthermore, practicing the learned behavior leads to improvement and skill advancement. Mattila et al., (2010) and D'Souza et al. (2015) advise that students must feel accepted and that their contribution to their practice placement is valued and noted. Dimitriadou et al. (2015) suggest that belonging to a learning environment would promote learning and teaching at all levels, thus providing students with motivation and confidence during learning.

More so, Papastavrou et al. (2016) and Mattila et al., (2010) advise that appropriate leadership, a well-prepared student, and high-quality clinical preceptors have been shown to provide opportunities for students to practice with a level of comfort. Student-centered learning is a crucial aspect of nursing education. Björk et al. (2014) agree with other studies that nursing students' learning is enhanced when learning is student-centered. This approach includes effective communication, encouraging autonomy, asking questions, giving feedback, and where students' views and preferences are considered.

Therefore, a student must optimize the available opportunities, as asserted by Ford et al. (2016). Consequently, a lack of knowledge and skills in the clinical environment may result in a lack of confidence or self-esteem, leading to despondency (Dale et al., (2013). Self-efficacy is another concept in social learning theory and is crucial to students' learning. The concept, which means the belief in one's abilities, is highly regarded by Bandura, who says: "To succeed, people need a sense of self-efficacy, to struggle together with resilience to meet the inevitable obstacles and inequities of life." When students are motivated and helped to build their self-efficacy, they will approach the challenges in a better light and will be encouraged to keep growing. Although self-belief does not always ensure success, it enables the student to move on, as Dharmaraj (2021) suggested.

### **2.11.1 Self-efficacy**

Academic success and good grades are primary goals at all education levels. These achievements benefit learners and educational systems. Identifying factors influencing academic success is crucial for researchers and educational psychologists (Mega C. et al., 2014). This identification is also challenging for health institutions (Artino et al., 2010; Saghebet al., 2018). Understanding these factors is essential for improving

educational outcomes. Self-efficacy, which Bandura first introduced, is defined in its most general definition as the individual's belief that he will initiate an effort to perform an action and continue it until he gets a result (Bandura, 1968).

Academic self-efficacy is defined as students trusting their performance and striving for it instead of relying on other people in their education life. (Honick; Broadbent, 2023). In other words, academic self-efficacy is expressed as individuals' beliefs and efforts that they can achieve an academic task or an academic goal at the desired level (Pekrun, 2011). Increasing nursing students' academic self-efficacy will spread the entrepreneurial behavioral attitudes they need, making nursing diagnosis, care, and treatment methods more effective and efficient (Ngwira, 2017). Students with increased academic proficiency will feel more competent and self-confident in clinical practices, and thus, their attitudes toward clinical practices will be positively affected.

The current emphasis on self-efficacy as a pivotal factor in bolstering student academic performance is significant. Self-efficacy, as defined by Bandura (2012), is the belief in one's ability to succeed in a particular situation or to accomplish a specific task. This belief in personal efficacy is crucial to human agency (Bandura, 1997). Numerous studies have demonstrated the profound impact of self-efficacy beliefs on students' performance (Mojavezi & Marzieh, 2012; Lin & Papageorgiou, 2016).

The influence of students' self-efficacy beliefs on their performance is profound. Students with strong self-efficacy beliefs are likelier to excel in the classroom than those with a low sense of self-efficacy. Moreover, students with high self-efficacy are more receptive to new approaches and can adapt new strategies during teaching and learning, which bolsters their performance. This is well illustrated in the study conducted in the USA by Candace (2013) on Self-efficacy and student learning: A case

study of the implementation of common core state standards in mathematics in a parochial middle school.

The setting and study participants were a purposeful sample. The researcher chose the study site, aware that the middle school would implement Common Core State Standards in Mathematics in 2012-2013. The study collected data and analyzed teacher perceptions and student performance in sixth and seventh-grade mathematics under the Common Core State Standards in Mathematics. The study used mainly qualitative research methods to collect data. Quantitative methods were included to support qualitative findings.

In like manner, many studies have proved that self-efficacy or optimism (self-confidence) can positively impact many aspects, including students' academic performance (Bressler et al., 2010). In this context, the results of a study conducted in Iran by Mojavezi and Marzieh (2012) on the influence of self-efficacy on students' motivation and performance affirmed it. In this sample, eighty senior university students were randomly selected from four different Iranian Universities.

Self-efficacy and academic performance questionnaires for students were used to gather data. The study results showed that self-efficacy positively influences the motivation and achievement of the students. The study reached a large group of participants because it employed a quantitative approach. Despite that, the study did not gain in-depth data because it lacked qualitative approaches.

The study's findings underscore a robust correlation between self-efficacy and students' academic performance. This research, along with a study conducted in Spain by Regueiro, Blas, Valle, Pineiro, and Cerzo (2014), which focused on self-efficacy and its relationship with students' affective and motivational variables in higher education,

suggests that self-efficacy is a critical factor in students' learning orientation. These insights can inform the development of effective educational strategies.

While the research was conducted in a university setting in Spain, a more developed country than Uganda, it is essential to note that the findings may not universally apply. This highlights the need for further research to validate the findings in different educational environments, such as Uganda, where Makerere University is located.

Regardless of the domain, several types of research show that self-efficacy helps predict academic performance, and studies testing causal models highlight the vital role of self-efficacy (Wan & Madya, 2017). Students with a high level of self-efficacy also possess higher academic motivation. This is clearly articulated in a study done in South Korea by Kim and Seo (2018).

They conducted a meta-analysis by synthesizing the results of 16 studies involving 4,130 students to explore whether or not the relationship between students' self-efficacy and academic performance was influenced by the scale used to measure students' efficacy and by the sub-factors of teacher efficacy length of teaching experience, location of the school, or the student's educational level.

The results revealed a significant, albeit small, relationship between students' self-efficacy and academic performance. This suggests that even minor improvements in self-efficacy could lead to positive changes in academic performance, offering hope for students and educators alike. Studies on perceived academic self-efficacy and student performance have confirmed that it impacts students' aspirations, levels of interest in academic pursuit, academic accomplishments, and how well they prepare themselves for different occupational careers (Momanyi et al., 2010). This is in line with a study in Egypt by Abdelmotaleb and Sudhir (2013), which examined the mediating influence of

academic self-efficacy on the link between perceived academic climate and academic performance among university students.

The study recommends enhancing academic self-efficacy using counseling strategies based on its findings. This underscores the research's practical implications and guides educators and policymakers on potential strategies for improving students' academic performance. Self-efficacy beliefs also contribute to student academic performance because they influence thought, process, motivation, and behavior (Bandura, 1997). Student academic performance can fluctuate due to varying beliefs in self-efficacy.

The importance of self-efficacy in students' academic performance is well articulated in a study conducted in Nigeria by Garba, Munira, and Nobaya (2017). In this research, they examined the rates of students' academic self-efficacy beliefs and the connection between academic self-efficacy and students' academic performance in one of the Nigerian Education Colleges.

The questionnaire was used to collect data. The research involved a total sample of 339 respondents stratified and randomly selected from the College's five faculties. The results showed a significant positive association between beliefs in academic self-efficacy and students' academic performance.

Equally important is a study carried out in Uganda by Mbabazi (2016), aimed at determining the influence of attitude and self-efficacy towards academic performance in Mathematics. It employed a causal correlational research design. The results showed a satisfactory level of students' academic performance. It is either positive or negative in terms of the level of attitude towards the subject of mathematics. As for the self-efficacy of the graduates, it is not high or low. When grouped according to gender, no significant difference was observed in attitude and self-efficacy.

It was also found that only attitude toward mathematics significantly influenced academic performance. Students who have a positive attitude toward the subject tend to perform well. Therefore, it is possible to improve performance in mathematics by cultivating a positive attitude toward the subject. This underscores the role of parents, lecturers, and other stakeholders in supporting students in this field, making them feel responsible and engaged.

Further, a study done in Uganda by Acheng (2017) investigated the relationship between students' self-efficacy in mathematics and achievement in terms of attitudes toward math. The statistical population of this study was the Islamic University Mbale students in the field of Chemistry engineering. Academic self-efficacy is mainly about the students' perception of what they can or cannot do, as opposed to individual resources. Students with high self-efficacy tend to choose challenging tasks, while students who cannot do well independently often avoid them. Self-efficacy involves learning to control oneself, which helps the student to use his / her resources to plan, control, and analyze the performance of tasks, activities, and the preparation of learning products (Zhang et al., (2021) ;(Schunk & Zimmerman, 1995).

Additionally, students with high self-efficacy tend to earn better grades and show more remarkable perseverance in engineering and science subjects than those with low self-efficacy. In addition, high self-efficacy students use practical comprehension techniques when learning, scheduling their time, and managing their efforts. A study conducted in Lima, Peru, showed a positive relationship between academic self-efficacy and first-year university students' academic performance (Alegre, 2014). There was also a positive association between self-regulated learning and academic performance.

According to a study by Fenning and May (2013), relationship results showed a significant, positive relationship between average performance and high school GPA. Also, because gifted students have better experiences with academics, these experiences increase self-confidence (Taylor, 2014). Taylor explains that student performance levels increase, and their independence and inner motivation translate into more tremendous success in the classroom. To maintain high self-efficacy, students must believe they have the skills and abilities for a particular task (Zimmerman, 2015).

Bandura et al. (1996) further state that “in the social cognition theory, personal efficacy works within a broad network of social and psychological impacts where functional beliefs play an influential regulatory function. The classroom environment plays a more significant role in education than most people imagine. The student environment, including teachers and peers, influences student learning. For example, if students’ peers do well in their studies and are recognized, some students will be more likely to believe in their abilities (Siegle & McCoach, 2007). Students are easily influenced, and teachers can choose to have a positive impact on their lives (Taylor, 2014).

Students with a high level of self-efficacy also possess higher academic motivation. This is clearly articulated in a study done in South Korea by Kim and Seo (2018). They conducted a meta-analysis by synthesizing the results of 16 studies involving 4,130 students to explore whether or not the relationship between students’ self-efficacy and academic performance was influenced by the scale used to measure students’ efficacy and by the sub-factors of teacher efficacy length of teaching experience, location of the school, or the student’s educational level.

The results showed that the mean relationship between students’ self-efficacy and academic performance was significant, but the effect size was small. The results also

indicated that the relationship was influenced by some teacher efficacy measures and subfactors and by the length of teaching experience. The reviewed study of Kim and Seo was a meta-analysis that synthesized the results of 16 studies to come up with the results.

Studies on perceived academic self-efficacy and student performance have confirmed that it impacts students' aspirations, levels of interest in academic pursuit, academic accomplishments, and how well they prepare themselves for different occupational careers (Momanyi et al., 2010). This is in line with a study in Egypt by Abdulmutallab and Sudhir (2013), which examined the mediating influence of academic self-efficacy on the link between perceived academic climate and academic performance among university students.

The study's participants were 272 undergraduate students at the University of Assiut, Egypt. A scale to measure perceived academic climate was developed. The results demonstrated that perceived academic climate and self-efficacy significantly correlated with students' academic performance. Based on the findings, it was recommended that academic self-efficacy be enhanced using counseling strategies.

Meanwhile, Bandura (1993) asserts that students with low self-efficacy will avoid situations that lead to past failures; therefore, a strong sense of self-efficacy and job satisfaction are crucial in reducing attrition in the nursing profession. As future healthcare practitioners and bachelor of nursing students, clinical self-efficacy and competency are essential for providing quality healthcare and ensuring patient safety.

According to Zhang et al. (2015), evidence has suggested that older age, being married, more working experience in the nursing field, individual interest, and willingness to work in a nursing unit contribute to high nursing self-efficacy in students, which is also

an essential factor in creating clinical confidence. Abdal et al. (2015) noted that clinical educators' capabilities in clinical environments and nursing colleagues can influence the creation of clinical self-efficacy in nursing students.

On the other hand, Ekstedt (2019) and Nabolisi (2012) stressed that a lack of staff and training facilities, a weak relationship between faculty and hospitals, and unprofessional trainers could adversely influence self-efficacy. However, according to Abdal et al., (2015), reports from students reveal that more ward time, positive feedback, using logbooks, having more authentic clinical simulations, being under the guidance of one instructor, working alone, and receiving constant verbal validation, and support can increase one's sense of self-efficacy. These affirm components of the self-efficacy theory of Bandura (1993) regarding mastery experiences, vicarious experiences, and verbal persuasion.

Bisholt et al. (2014) noted that students view hospital practice areas as more meaningful and educative because they provide them with opportunities for clinical practice and link the theoretical aspect of their studies. This is meant to provide them with necessary feedback for clinical education and potential curriculum revisions.

Chan (2001) advises that attaining specific outcomes of a clinical placement may be enhanced by transforming the CLE in ways that make it more harmonious with the student's preferred environment. This may be due to different conceptual approaches across the relevant studies. However, it may also be because the students' factors seem to depend on various dimensions of teaching and learning in clinical settings, as Ansari and Oskrochi (2005) opined.

Moyimane et al. (2017) reveal that several factors have been reported to affect student learning in the clinical area. These include nurse educator factors, individual-level

factors, socio-economic status, and the nature of the hospital environment. A study conducted by Rajeswaran, as reported by Pulido-Martos (2012) in Botswana, revealed that nursing students failed to translate the theory into practice because they did not have adequate supervision in the clinical facilities, thus resulting in low performance in the clinical practicum.

Papathanasiou, Tsaras, and Saraf (2014) point out that student factors influencing competency acquisition are complex and have multifactorial issues. For example, according to relevant studies, Lee et al., (2009) and Papastavrou et al., (2010) reveal positive links between students' satisfaction factors and the quality of nursing care. The ward's pedagogical atmosphere and leadership style are crucial in competency acquisition. On the other hand, D'Souza et al., (2015) and Skaalvik, Normann, and Henriksen (2011) emphasize the sense of belonging, peer support, and motivation (Brynildsen et al., 2019; Dimitriadou et al. (2015).

On the other hand, students' supervision and the relationship between the nursing students and preceptors may influence students' competency acquisition. Dimitriadou et al., 2015; D'Souza et al. (2015), however, note that nurse teachers' level of education has also been considered as one factor that influences competency acquisition of student nurses in the CLE concerning nursing students' learning and professional development.

Previous studies by D'Souza et al. (2015) and Sandler et al. (2015) highlighted the importance of interpersonal relationships on the effectiveness of the clinical experience and student satisfaction. Brynildsen et al. (2014) and Sandler et al. (2014). Patients, peer ward staff preceptors, and clinical teachers are the major stakeholders involved in that experience with a supportive relationship.

Students' positive clinical experiences are more likely related to how valued and supported students feel than the physical aspects of placement. Hartigan-Rogers et al., (2007). Bisholt (2014) and Mattila & Pitkääjärvi (2010) support this notion and add that levels of satisfaction have been reported when students get satisfaction when someone ensures that their learning needs are addressed when the clinical staff is well briefed when the students are treated with respect and appreciated as being part of the health care team.

Consequently, Saarikoski et al. (2013), Dimitriadou et al. (2015), and Sandler et al. (2014) pointed out other factors regarding which students expressed concern, such as adequate levels of preceptor expertise and guidance, continuous feedback on their professional performance, frequent clinical conferences with their preceptor and nurse teacher, and the concurrence of clinical practice with theory. However, the degree of these factors seems to be influenced by the unique organizational atmosphere of each nursing ward, educational supervision, the duration of clinical placement, and the years of study (Murphy, 2012; Warne et al., 2010; Papastavrou et al., 2010 and Sandler et al., 2014).

Saarikoski et al., (2013) and Sandler et al., (2014) further elaborate that efforts at producing a high-quality CLE have recently been focused on creating a pedagogical atmosphere and strengthening the connection between university classwork and placement experience using adaptive supervision models. This will focus on translating knowledge into skillfulness through preceptors and the nurse teachers employed by the educational institutions to act as liaisons, thus confirming the theory-practice continuum.

The supervisory role in the clinical settings is undertaken mainly by preceptors, who are members of the academic staff of each University. Preceptors' work supports nurse students' professional development and assesses their competencies (NMC, 2008). Abdal et al. (2015) advise that the other way to achieve goals as students is to apply self-efficacy concerning nursing education and training in the healthcare setting. Practical clinical training should establish a sense of self-efficacy among nursing students, which is crucial for acting competently and independently. Mohamadirizi et al. (2015) affirm that students' motivations for course completion, clinical performance, and achievement depend on individual perceived self-efficacy.

## **2.12 Preceptorship factors that influence the acquisition of clinical competencies.**

### **2.12.1 Introduction**

A preceptor is a seasoned professional who offers guidance and oversight during clinical practice, aiding learners in applying theory to real-world situations (Myall et al., 2023). They collaborate with learners for a specific duration to help them gain the necessary skills for safe, ethical, and high-quality practice. Preceptors establish clear expectations, offer constructive feedback on performance, and ensure learners have suitable opportunities to achieve their learning goals.

Preceptorship in clinical learning is widely used in nursing to assist students in transitioning from novice level to their new professional clinical roles, performing their new tasks, and gaining a basic level of knowledge and skills necessary to apply in the nursing profession (Newton al., 2023). The nursing curriculum comprises theory and clinical practice, enabling nursing students to acquire knowledge, competencies, and attitudes to become qualified practitioners in the real world (Dias & Khowaja, 2017; Jamshidi et al., 2016). Clinical learning is an essential and integral component as more than half of the formal part of nursing education is carried out in clinical

environments where nursing students integrate theory and practice (Jamshidi et al., 2016). With the constant changes in nursing education, nursing students require support to develop reflection, critical thinking, and problem-solving skills (Cloete & Jeggels, 2014; Lawal et al., 2015). Undergraduate nursing students expect a supportive clinical environment that is innovative, creative, and highly individualized, which could be achieved when educators cooperate with clinical nurses (Lawal et al., 2015; Lienert-Brown et al., 2018). To enable a harmonious relationship, students must maintain good relationships with clinical staff and preceptors, as these relationships are crucially important factors that influence learning in the clinical areas (Lawal et al., 2015; Lienert-Brown et al., 2018). The focus of this study was to determine the preceptor participation in clinical learning in an undergraduate program from the perspectives of the preceptors, preceptors, and unit managers.

Existing research shows that preceptorship and mentorship are sometimes confused as terms for supporting nursing students' clinical learning. However, mentorship involves a more profound, longer-lasting connection, while preceptorship offers briefer, more specific assistance (Hale, 2018).

Globally, the acquisition of clinical competencies relies on the collaborative efforts of nurse educators and clinical facilitators or preceptors who mentor and guide students in clinical practice within authentic environments (Mhango, 2021). Students undergo supervision both individually and in groups during their clinical training. The aim is to provide a supportive atmosphere conducive to acquiring nursing skills, competencies, and standards while integrating theoretical knowledge into practical patient care scenarios (Grobeck, 2016; Stefaniak & Dmoch-Gajzlerska, 2020).

Clinical facilitation is pivotal in ensuring students gain authentic clinical experience. Consequently, professional nursing councils worldwide have established minimum

clinical hour requirements for students in healthcare facilities (Gustafsson et al., 2020). For instance, Australia mandates at least 800 hours of supervised clinical experience, while the UK requires 2,300 hours for registration (Forber et al., 2015; Rebeiro et al., 2017).

However, the discord between academia and clinical practice regarding teaching responsibilities poses a significant obstacle to collaborative clinical facilitation (Ford et al., 2016; Jamshidi et al., 2016; Mbakaya et al., 2020). Two primary models are utilized: the preceptor model, involving teaching and role modeling, and the facilitator model, which offers direct or indirect supervision by a facilitator (Dobrowolska et al., 2016; Hilli et al., 2014; Franklin, 2020).

Despite a preference for the facilitator model, opinions diverge on who should oversee students' clinical skills acquisition (Ford et al., 2016). Some researchers note that nurse clinicians view nurse educators as outsiders during clinical supervision, potentially due to perceived theoretical detachment from the clinical setting (Anarado et al., 2016; Atakro & Gross, 2016; Zyl, 2014). Franklin (2021) argues that nurse educators may not be best suited for the role of clinical facilitator due to competing academic demands. Additionally, increasing clinical workloads and insufficient preceptor training can diminish the effectiveness of nurse clinicians as clinical facilitators (Sundler et al., 2019).

As a strategy, the preceptorship model could influence the learning process within clinical placements for nursing students to garner caring attributes and apply situational knowledge (Lawal et al., 2015; Serrano-Gallardo et al., 2016). The quality of the learning environment depends on various factors, such as the capacity to provide

opportunities for students to learn, appropriate supervision, and preceptor support (McSharry & Lathlean, 2017).

The interpersonal relationship between the preceptor and the student and experienced nurses appears to be the main factor affecting the clinical learning experience. This can impact clinical learning positively or negatively (Lawal et al., 2015; McSharry & Lathlean). Precepting is a critical aspect of professional development for nurses, particularly those entering the field as Bachelor of Science in Nursing (BSN) graduates. Precepting allows experienced nurses to support and guide new nurses as they transition from academic studies to clinical practice.

Influential preceptorship nurses acquire the skills and knowledge required for safe and competent patient care (Ibrahim & Qalawa, 2018). For this research, we use preceptorship, which typically provides shorter-term assistance or support at specific intervals, while mentorship involves a longer-term, more in-depth, and personalized connection (Hale, 2018). As a pedagogical approach, the preceptorship model can shape the learning dynamics within nursing students' clinical placements, facilitating the development of compassionate attributes and the application of contextual knowledge (Lawal et al., 2015; Serrano-Gallardo et al., 2016).

Several factors influence the learning environment's effectiveness, including providing learning opportunities, ensuring appropriate supervision, and offering preceptor support (McSharry & Lathlean, 2017). The interpersonal dynamics between the preceptor, student, and experienced nurses emerge as pivotal factors impacting the clinical learning experience, which can either enhance or impede the learning process (Lawal et al., 2015; McSharry & Lathlean, 2017). This paper underscores the crucial role of

preceptors in the e-clinical learning environment for BSN nurses, emphasizing its profound importance, benefits, and challenges.

### **2.12.2 Definition of a Preceptor**

A preceptor is defined as a trusted and experienced advisor or guide who provides support, advice, and direction to a less experienced individual, the mentee. This definition underscores the significant role of preceptors as trusted advisors, which is crucial in developing student nurses. However, the specific definitions of preceptorship vary depending on the context and the discipline. For instance, a preceptor is typically a mature, professionally competent colleague who guides and collaborates with student nurses. In contrast, in academic medicine, a preceptor may be defined as someone who fosters the professional development of junior faculty members (Klasen and Clutterbuck (2012).

The definition of preceptorship can also vary based on the goals and objectives of the precepting relationship and the preceptor and mentee's personal and professional characteristics. Some definitions of preceptorship emphasize the importance of creating a supportive and positive learning environment, while others focus on transferring skills from the preceptor to the mentee.

Despite the definition, mentoring plays a pivotal role in nursing, particularly in fostering student growth. Consequently, it is seen as a shared responsibility to bridge the gap between theory knowledge and practical application (Setati & Nkosi, 2017). While mentoring is expected to enhance teaching abilities, interpersonal skills, and professional advancement, its impact on nurse education in underdeveloped nations still needs to be studied (Ekong & Sun, 2017).

The multi-disciplinary team in the CLE should be considered as preceptors for student nurses. As Bruce, Klopper, and Melish (2018) described, a preceptor is an experienced and competent colleague who works with students, offering guidance and positive feedback while sharing their clinical experiences. Communication is essential in a relationship. A preceptor should communicate well and provide orientation to the organization's culture. Kgafela (2016) found that the unit manager in Gauteng had a negative attitude towards students in Gauteng Province and struggled to give positive feedback for good work.

The literature suggests that unit managers should have strong communication skills when working with student nurses to encourage effective clinical learning. According to (McDonald, 2017), a preceptor is a registered nurse who facilitates nursing students' personal and professional development by providing guidance, support, and feedback throughout their clinical education. Precepting is a dynamic and collaborative process that involves building a relationship based on trust, mutual respect, and open communication. The preceptor also serves as a role model, encouraging the nursing students to develop critical thinking skills, clinical competency, and a commitment to lifelong learning.

Meanwhile, the Nursing and Midwifery Council (NMC) views a preceptor as a "registrant who, following successful completion of an NMC-approved preceptor preparation program or comparable preparation that has been accredited, can facilitate learning, and supervise and assess students in a practice setting" (NMC, 2018). The role of the preceptor is to facilitate the integration of theory and practice, provide constructive feedback, promote critical thinking, and help students develop the necessary clinical competencies and become safe and effective practitioners.

Although the term preceptor is clearly defined differently in the UK policy documents, in particular by the NMC (2008a), preceptorship in nursing is defined differently in other countries, like in Canada (Billay & Yonge, 2004), and even in the UK in the medical profession (General et al. (GMC), 2010). As for their case, a preceptor refers to qualified healthcare professionals who are more experienced and mutually selected colleagues. Furthermore, in some UK professions, especially psychologists, the term “protégé” is used whenever referring to the mentee (Rodger et al., 2011; Pack, 2012).

Additionally, different authors hold varying definitions; according to Klasen and Clutterbuck (2002), preceptorship involves a preceptor guiding a mentee to fulfill their learning needs. This guidance aims to foster the mentee's self-reliance in acquiring skills, new knowledge, and abilities through ongoing development and motivation.

Therefore, the term preceptor has evolved, been used to define student support, and been named in many ways. According to Jokelainen (2013), related terms to preceptors include preceptors, clinical guides, supervisors, and practice teachers.

Additionally, Klasen and Clutterbuck (2012) define preceptorship as a process by which a preceptor encourages the mentee to meet the needs of their learning so that the mentee can be self-reliant in the acquisition of new knowledge, skills, and abilities, continuously developing motivation to do so. The term preceptor defines student support and has evolved and been named in many ways. Related terms include preceptors, clinical guides, supervisors, and practice teachers (Jokelainen, 2013).

Dobrowolska et al. (2016) further elaborate that there is a lack of consensus regarding the competencies required for preceptors in clinical practices, which impacts the quality of precepting. Moreover, in countries like the United Kingdom, the United States of America, Ireland, and Poland, precepting is regulated by national policies, as

Dobrowolska et al. (2016) opines. For example, in the United Kingdom and Canada, the assigned preceptor has to be a registered nurse who has completed a preceptor course, as reported by (The Nursing and Midwifery Council and the Nursing Association).

Precepting in Uganda's healthcare system may vary depending on the institution and the context. However, according to the Uganda Nurses and Midwives Council (UNMC), preceptorship is essential to nursing. Therefore, registered nurses are expected to serve as preceptors to nursing students and newly qualified nurses. The UNMC provides guidelines for developing and implementing preceptorship programs in Uganda, emphasizing the importance of precepting professional growth and improving patient outcomes. However, the specific requirements for preceptors differ from those in the United Kingdom and Canada, as the UNMC's guidelines have not completed a formal precepting course.

The extent of a preceptor's involvement in clinical training environments also varies from one country to another (Dobrowolska et al., 2016). The role of nurse teachers in clinical practice has decreased, and clinical nurse preceptors are left with the vital role of guiding, supporting, and evaluating students. Warne et al., 2010 Vinales, 2015 Rahnavard, Nodeh, and Hosseini (2013) add that preceptors ensure a student is skilled, effective, and practices safely in the clinical environment. Mikkonen, 2017; Korhonen et al. (2019) affirm that preceptorship of culturally and linguistically diverse students requires culturally competent preceptors.

Moreover, Papadopoulos and Lee's (2002) model for developing the cultural competency of preceptors in nursing includes cultural awareness, sensitivity,

knowledge, and skills. Consequently, preceptors need to possess cultural awareness of their and others' backgrounds.

They should demonstrate empathy and sensitivity toward cultural differences and handle diverse learning situations (Mikkonen, 2017; Korhonen et al., 2019). Moreover, it is essential to recognize that student preceptorship and preceptors play a crucial role in fostering collaboration between educational institutions and healthcare facilities.

Kuiper et al. (2018) emphasize the importance of proper guidance and support for nursing students during clinical practice due to the hands-on nature of the profession. Vinales (2015) further highlights that students acquire essential skills and competencies through preceptor supervision in the clinical setting. Therefore, adequate guidance during practical training is crucial for students to achieve positive clinical outcomes. The Royal College of Nursing (RCN, 2007) states that the competencies required for student nurses to become registered nurses are honed in clinical settings under preceptorship, where they apply evidence-based knowledge and develop practical skills. Myrick and Yonge (2019) emphasize that preceptors can significantly impact the student learning experience, underscoring the importance of a positive relationship. Given students' substantial placement time, clinical preceptors should dedicate sufficient time to each student to facilitate assessment, instruction, and feedback.

### **2.12.3 How Preceptorship has Evolved in Nursing**

Preceptorship has evolved significantly in nursing over the years, with increasing recognition of its importance in promoting professional development, improving patient outcomes, and addressing workforce challenges. To give the reader a better understanding, it is crucial to comprehend the evolution of preceptorship in the nursing

field. The concept of preceptorship can be traced back to ancient Greece, where the word "preceptor" was used to describe a trusted advisor who provided guided and experienced individuals.

The term 'preceptor' originated from American education and curricula and was quickly adopted as part of the nursing educational language in the 80s and 90s (Burnard, 1990). In the nursing profession, preceptor-ship is historically connected with Florence Nightingale. According to (Udlis, 2008), Nightingale used her educational model on students working alongside nurses trained to train others. The preceptor ship that Florence Nightingale received from Sir Sidney Herbert during the Crimean War was an experience that greatly influenced and shaped her nursing practice. This preceptor ship became an integral and pivotal part of Nightingale's approach to nursing (Fee & Garofalo, 2010).

#### **2.12.4 Benefits of Precepting in the Clinical Learning Environment**

Precepting in the clinical learning environment offers numerous benefits for preceptors and mentees. For mentees, precepting can enhance their clinical skills and knowledge and provide support and guidance as they navigate the challenges of clinical practice (Smith & Johnson, 2023). Mentees can also benefit from exposure to different perspectives and approaches to patient care and learning about more comprehensive healthcare and its complexities. For preceptors, precepting is a significant responsibility and a source of pride, as they play a crucial role in shaping the next generation of nurses. It also offers professional growth and development opportunities

The clinical learning environment provides a unique opportunity for BSN nurses to gain hands-on experience in patient care. Undergraduate nursing students anticipate a supportive clinical setting characterized by innovation, creativity, and personalized

attention, achievable through collaboration between educators and clinical nurses (Lawal et al., 2015; Lienert-Brown et al., 2018).

Establishing positive relationships with clinical staff and preceptors is crucial as these relationships significantly impact learning during clinical experiences (Lawal et al., 2015; Lienert-Brown et al., 2018). Clinical placements are integral to nursing education, though they pose challenges such as stressful work environments, high student numbers, and limited placement opportunities (McKellar & Graham, 2017).

Clinical preceptors play a vital role in guiding and supporting students during these placements, employing a one-to-one teaching approach known as precepting, widely used in healthcare professions (McClure & Black, 2013). Evidence shows that a preceptor's support is critical to the professional development of nursing students in clinical practice, and positive experiences of a preceptor can enhance students' motivation to continue in the nursing profession (Mikkonen et al., 2020).

The nurse's role as a preceptor is pivotal in fostering students' confidence and nursing abilities. A proficient preceptor should demonstrate self-efficacy, which refers to their perceived capability to perform specific tasks or behaviors (Bandura, 1982). Precepting in the clinical environment is a crucial bridge that helps to connect academic studies with real-world clinical practice, ensuring that students feel prepared and confident in their abilities.

Preceptors are instrumental in helping new nurses acclimate to the healthcare setting by providing support, guidance, and feedback. They also help new nurses develop clinical skills and knowledge and foster professional growth. Precepting relationships can also help new nurses develop effective practical skills with patients, families, and other healthcare providers (Tuttle, 2019).

### **2.12.5 through teaching and feedback (Horton-Deutsch & Sherwood, 2018).**

### **2.12.6 Development of preceptorship in nursing**

In nursing, preceptorship emerged in the early 1900s, when experienced nurses were assigned to guide and support student nurses. However, it was not until the 1960s and 1970s that preceptorship became more formalized, with the introduction of structured preceptorship programs in nursing education and practice (Fletcher & Blair, 2019). Yoder (1990) took the first step in analyzing preceptorship across disciplines of business, education, and nursing di, disciplines) viewed preceptorship when a senior person, in terms of age or experience, provides information, advice, and support to a junior person.

Over the years, the concept of preceptorship has gained momentum with many but similar definitions of a preceptor in the nursing literature ( for example, Burns, 2009; Hodgson & Scanlan, 2013; McCallum et al., 2016). Preceptors in nursing are typically experienced practitioners with a wealth of knowledge, skills, and expertise. They serve as role models and provide guidance and support as they navigate their professional journey. Effective preceptorship requires a commitment from both the preceptor and the preceptee, and it is a process that evolves as the needs and goals of the preceptee change.

### **2.12.7 Roles of Preceptors**

The Royal College of Nursing (RCN) (2007) lists several roles of preceptors. Evidence shows that preceptors' roles are vast and complex, and preceptors are sometimes unprepared for them or their time with students (Vinales, 2015). Preceptors are often nurses and have patient care and safety as their key priorities, contributing to students'

stress. Moreover, preceptors are expected to be proactive in finding student learning opportunities despite the nature of the learning environment.

Tuomikoski et al. (2019) and Comparcini et al. (2020) allude to clinical practice as an essential part of nursing education that plays a vital role in supporting the development of nursing students' knowledge, practical skills, and competencies. Nursing students placed in a clinical environment work with a nurse preceptor on the ward, where a therapeutic relationship between a student and preceptor is enhanced.

The excellent relationship between the preceptor and the student creates a positive learning experience as they practice. Thus, nursing students can achieve their educational goals as professional nurses. Mikkonen et al. (2020) and Tuomikoski et al. (2019) suggest that nurse preceptors require pedagogical and precepting education towards competency regarding precepting, goal orientation, identifying student needs, supporting student learning processes, providing constructive feedback, student-centered evaluations, and guiding clinical reasoning to bridge the theory-practice gap.

The IOM's report on the Future of Nursing acknowledged the need to change nursing education radically (Glynn et al., 2017, 2010). Innovation was required to meet the goals set by the IOM, addressing healthcare needs and the declining nursing workforce (Glynn et al., 2017; Nishioka et al., 2014). A clinical learning environment is central to students' success and prepares student nurses to enter professional practice (Immonen et al., 2019).

Glynn (2017) states that the traditional way of teaching students in the clinical setting using one clinical faculty with eight students effectively prepares student nurses for the future of nursing (Krampe et al., 2013). An educational organization is an academic partnership that collaborates with a healthcare organization that utilizes clinical nurses

employed at the organization to precept nursing students. Bedside nurses possess the knowledge and are experts when caring for patients (Savukoski et al., 2020; Tuomikoski et al., 2019).

Karacay and Karadag (2019). Preceptors play a vital role in the clinical setting, and an effective preceptorship program is pivotal to ensuring successful learning among nursing students. Moreover, Pramila-Savukoski et al. (2020) and Tuomikoski et al. (2020), in more recent research, asserts that preceptor competency can cooperate with stakeholders, providing goal-oriented precepting, creating an interactive relationship with the students, developing preceptors' characteristics, support the student's learning process and, support students' development to the nursing profession.

Therefore, the role of Preceptors is to be found in precepting practice, in the workplace with assigned recourses and required education of nursing students' clinical practice, as Pramila-Savukoski et al., (2020) suggested. Thus, the motivation of the preceptors needs to be involved in the student's learning process and support them. This support may be through continuous program development to keep abreast with the changing environment.

Čuk et al., (2014) lament that preceptors lack competency in teaching and have reported not having enough time to provide quality precepting. However, Oikarainen et al., (2018) and Mikkonen et al., (2020a) warn nurses who have demonstrated an inability to grasp the cultural diversity of precepting and patient care to make more effort to grasp it.

Preceptorship can be considered a dynamic psychosocial intervention that includes educative and supportive interactions between students, preceptors, and nurse teachers

at the clinical training site. These interactions are based on preceptors' professional behavior, including teaching relevant skills, applying theoretical knowledge to clinical practice, and providing students with adequate support and encouragement (Foster et al., 2015; Saarikoski, 2018). Bruce et al. (2017) outline some of the characteristics of a preceptor as one who;

- ❖ Has a high level of competency
- ❖ Is a role model of leadership with patience
- ❖ Has superior problem-solving skills
- ❖ Is enthusiastic about the subject and life
- ❖ Is knowledgeable
- ❖ Gives advice and guidance
- ❖ Promotes independent decision making
- ❖ Instills vision, encourages, and inspires by sharing a dream

Preceptors can be found in many health institutions where students go for clinical practice. Student nurses often view clinical preceptors as crucial people in connecting theoretical knowledge to practical application in the clinical setting (Liu et al., 2019). Preceptors are expected to demonstrate professionalism as all role models for nursing students.

According to Tuomikoski et al. (2019), precepting also involves focusing on strategies to achieve goals and overcome problems. Preceptors need to ensure that nursing students have the right mix of skills to work in registered health facilities, and educational institutions must provide preceptors with adequate education and support. Tuomikoski et al. (2019) noted that nurses who completed preceptor education were more skilled at precepting nursing students and supporting their learning processes.

However, Dobrowolska et al. (2016) add that many countries still do not require clinical practice preceptors to have formal educational preparation or a certain number of years of experience working as a qualified nurse. Nurse teachers (lecturers of bachelor in nursing students) are essential to the clinical environment due to their interaction with clinical preceptors. In addition, their cooperation with preceptors reinforces the transfer of advanced clinical knowledge to nursing students.

Nevertheless, Mikkonen et al., 2017) caution that the nurse-teacher role is being phased out from clinical nursing practice, meaning preceptors must be highly competent in supporting nursing students. Moreover, Pramila-Savukoski et al., 2020 and Tuomikoski et al., 2020 argue that the clinical setting should be student-Centered to acquire advanced practical skills. Nursing students have an active role in learning and must be provided with a conducive environment to effectively connect their theoretical knowledge to practical application (Steinaker et al., 2018).

The primary purpose of precepting is to support a less experienced individual in acquiring the knowledge and competencies necessary to provide professional, responsible, and high-quality nursing care (Ramdoo et al., 2021). Clinical placements, guided by preceptors, bridge the gap between theoretical knowledge and practical skills for student nurses. This allows them to develop the competencies to transition to registered nurses (National Council of State Boards of Nursing, 2022).

Studies show that preceptors can make or break student learning experiences that rely on an effective relationship (Papastavrou et al., 2016). In addition, students spend a tremendous amount of time in the placements; thus, clinical preceptors should spend ample time with students to provide assessment, teaching, and feedback (Morton et al., 2023). As nurses, preceptors have patient care and safety as their key priorities,

contributing to some of the stress that students face. Preceptors are expected to be proactive in finding learning opportunities for students despite the nature of the learning environment (Morton et al., 2023). The role of the preceptor is to support learning in practice settings. It is vital for preceptors to actively guide student learning, provide feedback, and create a supportive learning environment. Ehrenberg (2019) conducted a study that examined the distinct roles of preceptors, lecturers, and link tutors. Results showed that preceptors mainly concentrate on individual students and tutors on creating a conducive learning environment.

The Tutors were linked to facilitating knowledge acquisition so that students meet the course requirements. In addition, the supervisor, preceptor, and learner characteristics contribute to the managerial relationship. When clinical educators adopt an effective communication style, student clinicians are more willing to participate in discussion sessions. Feedback helps learners adjust their thinking and actions to meet goals, closing the gap between current performance and desired skills (Kluger et al., 2023). It also helps share ideas and feelings and positively changes clinical behaviors, thus improving the students' chance of acquiring skills and competencies. As stated by Kluger et al., (2023), feedback is information provided to learners that can be used to modify their thinking or actions toward a goal or standard to reduce the gap between current and desired performance.

It is given to validate or strengthen behavior, correct behavior, and improve future performance (Wiggins, 2018). Some factors can influence the validity of feedback, as suggested by Hattie and Clarke (2019), and these include tone (positive, negative, or balanced); scheduling (it can be immediate or delayed); frequency (more or less often); form (spoken or non-spoken); and relevancy (more or less detailed/specific).

Each feedback exchange can include different combinations of these components; thus, each exchange is unique (Lipnevich & Smith, 2018). Creating a classroom environment where feedback is valued and used constructively can promote deeper learning and growth. According to (Archer, 2019), feedback should be undertaken so that the clinical educator and student clinician collaborate with a common goal. To maximize the effectiveness of feedback, it should be delivered at the appropriate time and be anticipated by the recipient. Unexpected feedback, particularly when negative, often triggers emotional responses and can hinder the learning process.

### **2.12.8 Key changes and challenges in preceptorship**

One of the critical changes in preceptorship in nursing has been the shift from a hierarchical, one-way relationship to a more collaborative, two-way relationship between the preceptor and preceptee. This shift has been driven by changes in the healthcare system, including the increasing emphasis on patient-centered care, interprofessional collaboration, and the need to address workforce shortages and retention (Duchscher & Cowin, 2004); (Barrett, 2023).

Another significant change has been the increasing recognition of the importance of diversity and inclusion in preceptorship. Historically, preceptorship in nursing was often limited to individuals who shared similar backgrounds, experiences, and perspectives. However, there is growing awareness of the need to ensure that preceptorship is accessible to individuals from diverse backgrounds, including those from underrepresented (AACN, 2019). Nursing programs must actively recruit preceptors from diverse backgrounds. This ensures equitable access to mentorship and creates a learning environment that mirrors the diversity of the communities' nurses will serve.

Challenges in preceptorship have included role ambiguity, power imbalances, and the need for adequate support and training for preceptors. Sometimes, preceptors may feel uncertain about their roles and responsibilities or struggle to balance their clinical and preceptor roles. This can also occur, mainly when the property is over the mentee, such as in the workplace (Barker et al., 2017). Finally, there is a need for adequate support and training for preceptors to ensure they have the knowledge, skills, and resources to provide adequate guidance and a state of preceptorship in nursing.

Today, preceptorship in nursing is widely recognized as an essential component of professional development and clinical practice. The American Nurses Association (ANA) has developed guidelines for precepting in nursing, emphasizing the importance of creating a positive learning environment, promoting open communication, and establishing clear expectations and goals for the precepting relationship (ANA, 2016). Many student nurses believe preceptors are the ideal way to bridge the gap between theory and practice, as they are typically present in the clinical learning environment (Watson et al., 2020; Chow, 2019).

Preceptors are commonly utilized to improve the clinical nursing education system, and they are expected to demonstrate appropriate behavior to serve as role models for their student nurses. Clinical learning and teaching can be non-existent without preceptors in the CLE. This underscores the weight of preceptors' responsibility and their readiness to aid students during clinical learning. As Seekoe (2014) points out, the preceptor's solemn duty is to ensure that their student nurses are academically and emotionally prepared and adequately empowered to succeed. Therefore, preceptorship is also increasingly integrated into nursing education and practice. Many nursing schools and healthcare organizations have implemented structured preceptorship

programs, providing formal training and support for preceptors and mentees (Fletcher & Blair, 2019).

These programs often concentrate on cultivating key competencies for preceptors, such as communication, leadership, and critical thinking skills. However, there is a pressing need to ensure that preceptorship is within reach and impactful for all nurses, irrespective of their background or experience. This involves tackling issues related to diversity and inclusion in preceptorship, providing substantial support and resources for preceptors, and fostering a culture of preceptorship that cherishes and prioritizes the professional development of all nurses.

#### **2.12.9 Challenges of Precepting in the Clinical Learning Environment**

precepting in the clinical learning environment is not without its challenges. One of the most significant challenges is finding the time to establish and maintain effective preceptor relationships. Preceptors may have busy schedules and competing demands on their time, making the level of support and guidance that preceptors need complex and challenging. Preceptors may also face challenges in adapting their teaching and feedback styles to suit the individual learning needs of their mentees. Additionally, preceptors may struggle to balance their role as preceptors with their other responsibilities, such as providing patient care (Tuttle, 2019).

Therefore, precepting and signing students in the clinical learning environment is critical to students' learning, practice, and professional development. Effective preceptor relationships can help student nurses develop the skills and knowledge required for safe and competent patient care during their professional growth and development. While precepting in the e-clinical learning environment is not without its

challenges, the benefits of precepting both preceptors and mentees make it a worthwhile investment in the future of nursing.

In conclusion, having a knowledgeable and engaged preceptor who can guide students through becoming competent and compassionate caregivers requires excellent acknowledgment. Furthermore, a preceptor who is available, accessible, and able to set clear objectives and demonstrate essential skills can make all the difference in developing clinical competency. Preceptorship has evolved significantly in nursing from a largely informal and hierarchical relationship to a more collaborative and structured approach. Despite the challenges over time, preceptorship remains a critical component of nursing practice and education, with the potential to promote professional growth, improve patient outcomes, and address workforce challenges.

Nevertheless, a preceptor's attitude and interpersonal relationships are equally crucial beyond technical proficiency. A preceptor who inspires, motivates, and fosters a positive learning environment can help instill a passion for lifelong learning and a commitment to delivering the highest standard of care. Through meaningful preceptorship, we can shape the future of healthcare, thus positively impacting countless patients' lives.

### **2.12.10 Clinical Learning Environment**

The clinical learning environment is multifaceted, encompassing staff, patients, and nurse educators. It can positively or negatively impact nursing students' professional growth. It envelops learners and significantly influences their performance (Fernández-Feito et al., 2022; Rabia & Mastourah, 2017). Clinical learning objectives aim to empower nursing students, fostering the development of clinical competencies and integration into the nursing profession.

It is generally accepted internationally that clinical placement is the heart of education and learning in nursing. Al-Anazi et al. (2019), Atakro et al. (2019), and Ramsbotham et al. (2019) allude that the clinical experience allows students to apply theory into practice and to experience multiple humanitarian experiences. Flott & Linden (2016); (and Zhang et al. (2022) state that the clinical learning environment includes four aspects that benefit student learning: physical space, psychosocial and interaction factors, organizational culture, and teaching and learning components.

In an optimal clinical learning setting, students can integrate theoretical knowledge into practical clinical scenarios, refining the psychomotor skills essential for delivering high-quality care. Various factors in clinical practice may influence students' learning experiences. Clinical learning environments include hospitals, school clinics, health departments, hospice units, and other healthcare settings utilized for student learning (Steivy et al., 2015) ;(Zhang et al., 2022). Clinical learning environments include hospitals, school clinics, health departments, hospice units, and other healthcare settings utilized for student learning (Steivy et al., 2015) (Zhang et al.,2022).

Many factors can influence student nurses' clinical learning environment; however, in this paper, the researcher assesses factors affecting competency acquisition in government and private universities in Uganda. Preceptors empower students' learning and bridge the theory-practice gap. They enhance students' sense of responsibility and provide opportunities to demonstrate nursing competency (Steivy et al., 2015).

#### **2.12.11 Physical space**

Mbakaya et al. (2020) affirm that the physical space comprises the surroundings of clinical learning and the learning tools, including facilities, equipment, and standard operating procedures. These should be of excellent quality, routinely maintained,

sufficient, and up to date so that students can enjoy a positive experience during their practicum in the CLE. Despite this, Bvumbwe & Mtshali (2018) and Moyimane et al. (2017) assert that hospitals in Uganda and other sub-Saharan African countries have written most of their critical infrastructures in an outdated, insufficient, or outnumbered manner, leading to adverse outcomes for students' clinical learning.

Moreover, Franz (2019) laments that despite increasing attention to designing learning environments conducive to synchronous pedagogy, there is still limited understanding of how physical spaces affect undergraduate nursing students' acquisition of clinical competencies. The inadequacy of resources can hurt students' learning as they may be required to improvise when providing nursing care to patients, as noted by Haraldseid, Friberg, and Aase (2015). Therefore, it is necessary to adequately resource and organize the clinical learning environment to enhance the acquisition of clinical competencies.

Baraz et al. (2015) allude that the psychosocial and interaction attributes refer to attitudes, interactions, behaviors, communication, and mannerisms of the health professionals and students involved in clinical learning. An understaffed CLE with few qualified staff members who work overtime to cope may result in negative attitudes and behaviors. According to Martin & Daniels (2014), Such Staff may view the students as more of a burden to them and, thus, become reluctant to precept them properly.

The clinical Staff may not participate thoroughly in solving the students' learning problems or show concern in listening to any form of feedback from students. Martin & Daniels (2014) further explain that this, in turn, can lead to mistrust issues towards the clinical Staff by students who may even think they are not at the CLE for learning but to be used as cheap labor to relieve the Staff's workload.

In so doing, a breakdown of effective communication may arise between CLE staff and students, leading to increased pressure, mental strain, and stress. A conducive CLE should have qualified clinical educators and preceptors to supervise and guide students' clinical learning. Ali et al. (2015) emphasize that a good CLE should provide an atmosphere where the Staff makes students feel like part of the team, understands them, is interested in teaching, and considers students' feelings. These will boost student confidence and motivate them to want to learn more.

In contrast, Castillo-Angeles et al. (2017) allude that an environment where the Staff is unwelcoming to students, unsupportive in their clinical practice, and unwilling to teach can cause fear, anxiety, and disappointment in the students' learning experience. However, a hostile learning environment can hinder students' ability to acquire new knowledge and skills, ultimately impacting their future practice.

#### **2.12.12 The organization culture**

Another crucial component of the clinical learning environment is the organization's culture, whether a government or private institution. Mbakaya et al. (2020) relate to providing quality care to patients, the organizational policies related to students' scope of practice, and the healthcare managers' perception of nursing education. Dale et al. (2013) (Zhang, 2022) note that nurse managers should provide guidance and adequate time to qualified nurses to support students during their practicum. Providing sufficient advice and support to students during their practicum period can lead to better learning outcomes, increased confidence, and a more favorable clinical experience.

Nursing managers must equip their staff with knowledge and skills by promoting a culture of learning and teaching to support students. Qualified staff members should be assigned to work with students during all shifts. According to Dale et al. (2013),

qualified nurses should be given a manageable workload for sufficient time to teach students. Clinical instructors and preceptors teach, supervise, and evaluate students in the clinical area as part of the teaching and learning components.

Doyle et al. (2017) and Schmiedeknecht et al. (2015) affirm that students acquire clinical competencies most effectively from the clinical learning environments where they provide care. Nursing students practice alongside healthcare staff who support and encourage learning. The acquisition of required competencies needs monitoring and evaluation. To ensure alignment with its intended goal, we must ensure that the clinical teaching and learning program is designed accordingly.

Flott and Linden (2016) state that nursing students undergo evaluation in clinical learning environments, where they can apply their skills and knowledge to patient care. However, two qualitative studies conducted in South Africa and Tanzania by Donough, Van der Heever (2018), and Gemuhay (2019) found that students do not receive sufficient clinical supervision. The studies revealed that clinical facilitators were either unavailable or spent less time with students in the clinical area.

This experience can create a damaging setback for students and cause them to fear practicing without supervision. Kalyani et al. (2019) advise that for nursing students to gain the required competencies for delivering high-quality patient care, clinical-based knowledge and competency through clinical experiences should be prioritized and greatly emphasized.

### **2.13 Teaching and Learning Components**

According to Mbakaya et al. (2020), teaching and learning factors include management of the practice experience, teaching methods, and scoring or evaluating the nursing students in the CLE by their preceptors and clinical instructors. Proficiency in nursing

students results from a CLE that prioritizes learning necessary skills through qualified, dedicated, and supportive healthcare staff. Meanwhile, Doyle et al. (2017) inform us that students acquire competency quickly from a welcoming, happy, and motivated instructor.

Many studies have contended the importance of clinical practice in contributing to nursing students' precious learning experiences from two perspectives. The first is that clinical practice facilitates integrating and translating nursing students' theoretical knowledge from theory to practice, enabling apprenticeship-based learning in an appropriate clinical setting. This develops clinical competencies central to their real-life professional practices, as asserted by Chan & Taylor-Piliae, 2018 Cross, 2010 Sundler et al. (2014).

However, Donough & Van der Heever (2018), in a study involving undergraduate nursing students on clinical supervision in South Africa, students mainly reported negative experiences such as misuse of power and lack of consistency regarding clinical procedures by different preceptors and clinical instructors.

### **2.13.1 Availability of Resources**

The clinical practice enables nursing students to gain exposure to the realness and demands of the job responsibilities of a wholly developed nurse and the broader healthcare environment. As stated by Creedy and Walker (2012) and Tang and Chan (2019), this enables them to build perspectives and enhance their anticipations regarding nursing, thereby getting ready for their forthcoming career responsibilities.

A study by El-Masri et al. (2022) in Egypt evaluated the effectiveness of a blended learning approach in nursing education. The study found that blended learning, which combines traditional classroom instruction with online learning, can improve nursing

students' clinical competencies. However, the authors noted that the success of blended learning depends on the availability of adequate resources and support for both students and faculty.

Additionally, a qualitative study by Al-Husban et al. (2022) Jordan explored nursing students' experiences in clinical practice. The study found that inadequate resources, such as limited access to equipment and supplies, negatively impacted students' clinical learning experiences. The authors recommended that nursing educators and healthcare institutions work together to ensure adequate resource availability for student nurses.

A study by Al-Husban et al., (2019) in Jordan investigated the impact of a simulation-based learning program on nursing students' clinical competencies. The study concluded that simulation-based learning could be an effective method for developing nursing students' clinical skills. Still, it highlighted the importance of adequate resources and support for successful implementation.

Adeyemi et al., (2021) conducted a literature review exploring nursing students' clinical practice challenges. The review identified inadequate resources, including equipment, supplies, and facilities, as significant barriers to effective clinical learning. The authors emphasized the need for more research on the impact of resource availability on nursing students' clinical competencies.

Consequently, a successful clinical practice program should aim to deliver a good and constructive learning experience to nursing students to ensure their clinical competency and confidence in future practice. As a result, a supportive and favorable clinical learning environment is critical for promoting optimal learning during clinical practicums. Bjørk et al. (2014) assert that skills, knowledge, and attitudes developed in

the curriculum's theoretical part are applied, integrated, and produced at the clinical placement.

Therefore, for student nurses to practice at their best, there should be adequate availability and accessibility of resources. However, some studies have revealed the need for more resources for clinical learning in various environments. For example, a survey by Msiska et al. (2014) in Malawi showed that undergraduate nursing students needed more equipment and supplies in the health facilities to perform procedures.

The nursing environment must track the variations in the healthcare settings to guarantee the continuous production of efficient patient services of high quality and security. Equipping student nurses with the necessary competencies requires providing them with the required training and resources. For that reason, Fawaz et al. (2018) advise that nurse educators and policymakers must primarily evaluate claims for the future workforce based on the requirements of the working environment.

Fawaz et al. (2018) continue to inform us that outcome-oriented education is emphasized instead of process-based learning. For example, skill-based and evidence-based techniques in education provide students with a rich learning journey that differs from the lecturing model and incorporates innovative learning technologies in various programs.

### **2.13.2 Experiences of Students in the clinical learning environment**

According to the American Nurses Association (ANA) (2022), nursing is a rigorous academic discipline that prepares graduates for a dynamic and evolving healthcare environment. It equips nurses with the theoretical knowledge, critical thinking skills, and clinical judgment to deliver safe, patient-centered care. According to Needham,

Mccuray, and Shabar (2016), clinical teaching is an integral part of the undergraduate nursing curriculum achieved in the clinical learning environment.

Dunn (1995) and Flott & Linden (2016) defined the clinical learning environment as a complex interactive network of forces in a clinical setting in which students' clinical learning outcomes are influenced by how students, preceptors, and teachers interact in that context.

Flott and Linden (2016) further describe the clinical learning environment as multidimensional and based on four attributes: the physical space, psychosocial elements, organizational setup, and components involved in teaching and learning. These attributes profoundly influence student learning experiences and professional development. Nursing students set out in the clinical environment to bridge the gap between skills and attitudes taught in the classroom context to practice (Björt et al., 2014; Needham et al., 2016).

D'Souza et al. (2015) and Haraldseid et al. (2015) emphasize that nursing students learn to approach patient care holistically, considering physical, social, cultural, biological, psychological, and organizational aspects. This comprehensive approach extends beyond safe, evidence-based practice. It includes developing skills in clinical judgment, decision-making, communication, and collaboration with various healthcare professionals and patient's families, as highlighted by Papastavrou et al. (2016).

The clinical learning environment provides students with valuable real-world experience, exposing them to diverse patient cases and fostering professional competencies like critical thinking, ethical decision-making, and effective communication (Hustad et al., 2019; Dimitriadou et al., 2015).

However, Papastavrou et al. (2016) argue that the complexity of students' experiences and the relationship between student satisfaction and the quality of nursing care remain

poorly understood. While some students find clinical practice rewarding, others find it challenging, indicating a need for further research to assess the factors affecting the acquisition of competencies among undergraduate nursing students in government and private universities in Uganda.

A recent study highlighted the intense stress of clinical learning, with one student describing it as the most overwhelming aspect of nursing education (Smith, 2023). This could have been due to the need to achieve goals as students and future employees in the field. Furthermore, the negative experiences could have been associated with an unfavorable clinical learning environment. Different themes raised by other students include high clinical workloads, stressful work conditions, and limited learning time, which results in a lack of time to reflect and discuss and under appreciation.

Research suggests that negative experiences during clinical placements, such as harsh feedback, unrealistic expectations, and language barriers, can hinder nursing students' learning and professional development (Papastavrou et al., 2016; Pitkäljärvi et al., 2012; Mattila et al., 2010). Conversely, a supportive clinical environment characterized by positive experiences, a sense of belonging, and feeling valued contributes significantly to positive learning outcomes and workplace acculturation (D'Souza et al., 2015; Levett-Jones et al., 2009; Dimitriadou et al., 2015).

Effective leadership, well-prepared students, and high-quality clinical preceptors create a conducive environment for student satisfaction and learning (Papastavrou et al., 2016; Mattila et al., 2010). Student-centered learning approaches that encourage questioning, communication, feedback (Björt et al., 2014), and autonomy (Newton et al., 2010) further enhance the learning process by acknowledging and incorporating students' perspectives. However, negative experiences linked to excessive workloads, stressful

conditions, limited reflection time, and under appreciation can undermine the clinical learning environment (Papastavrou et al., 2016). These challenges collectively emphasize the critical role of a supportive environment in fostering positive learning and preparing nursing students for their professional roles (Pitkäljärvi & Nordquist et al., 2019).

Given the importance of clinical competency in nursing practice, educational institutions increasingly focus on evaluating and enhancing students' skills in real-world settings. The present study addresses this concern by investigating the factors associated with acquiring clinical competencies among bachelor of nursing students in government and private universities in Uganda.

### **2.13.3 Institutional factors affecting acquisition of clinical competencies.**

Nursing education is critical in developing competent and safe healthcare practitioners. The acquisition of clinical competencies among undergraduate nursing students is a complex process influenced by various institutional factors. These factors include leadership, adequacy of skills lab, good institution collaboration, and student supervision. According to Jayasekara (2018), clinical learning is a vital aspect of students' education that involves practical activities and theoretical reflections.

More so, a significant demand is placed on the clinical learning environment, posing challenges for universities and healthcare organizations. The shortage of clinical education placements results from an upsurge in the number of students and a concurrent decrease in hospital beds, a trend noted by Rodger (2008). These challenges are exacerbated by the emergence of new health models, creating a complex situation that impacts the availability of valuable clinical opportunities for students. Blažun et al.

(2012) define competency as a quality individuals acquire by meeting specific requirements of what they can do in particular situations.

Recent studies highlight employers' concerns regarding new nursing graduates' ability to perform essential clinical tasks and their disconnect between academic knowledge and practical skills (Benner et al., 2010; Fan, 2015). This gap between education and practice underscores the importance of the context in which clinical competence is acquired, as suggested by Lasater (2017). This context encompasses the educational, professional, and societal demands placed on nursing programs and the availability of resources like experienced faculty, clinical placement opportunities, and adequate equipment.

The availability of these resources is critical for compelling clinical learning experiences and producing competent healthcare professionals (IOM, 2010). Research by Aiken et al. (2003) emphasizes the positive correlation between competent nurses and improved patient outcomes, including higher satisfaction, safer care, and increased survival rates. This aligns with the mission of higher education institutions to prepare nursing students for successful careers.

To achieve this goal, nursing programs must have a well-defined curriculum that equips graduates with the necessary skills to address the healthcare needs of their communities, including disease prevention, treatment, rehabilitation, and health promotion (QSEN, 2023). However, various factors can influence the effectiveness of clinical training in nursing, including the curriculum philosophy, the context in which training occurs, and the availability of resources (Billings & Halstead, 2016). Therefore, each nursing institution must carefully consider these factors and make informed decisions to ensure their students' successful development of clinical competence.

The transition from nursing student to competent practitioner hinges on integrating theoretical knowledge with practical clinical skills. Moagi et al. (2013) emphasize that clinical training also serves as an introduction to workplace norms, expectations, and culture. This highlights the need for educational institutions and healthcare facilities to collaborate to create a supportive learning environment that fosters competency acquisition and professional socialization.

Clinical education is a cornerstone of nursing education (Jayasekara, 2018). Effective collaboration between educational institutions and clinical facilities is crucial for students to successfully acquire the necessary competencies and integrate into the clinical environment. This involves ongoing communication, information sharing, and regular meetings to address student-related issues (SANC, 2013a).

Research by Bos (2014) underscores the importance of collaboration between these institutions to bridge the gap between theory and practice. This integration should adhere to the professional standards outlined in the curriculum by accreditation agencies. Effective leadership and management within educational institutions play a pivotal role in ensuring the quality of nursing education. Contemporary leadership theories emphasize the importance of establishing a clear vision, fostering collaboration, and aligning actions with institutional values (Northouse, 2022; Bush, 2020).

Furthermore, research by Leith Wood et al. (2020) highlights the significance of effective leadership in driving institutional improvement and student achievement. The influence of leadership extends beyond individual actions and encompasses various institutional factors. Current research suggests that effective leadership can significantly impact the quality and availability of resources essential for nursing

education, such as well-equipped skills laboratories, robust supervision processes, accessible online learning resources, and comprehensive library collections (MacPhee et al., 2017). By focusing on these aspects, educational institutions can create an environment that nurtures the development of competent and well-rounded nursing professionals.

#### **2.13.4 Nursing students' experiences in the clinical learning environment**

Dale et al. (2013) conducted a study in Norway that emphasized the importance of effective communication between Nursing Education Institutions (NEIs) and Clinical Learning Environments (CLEs) to ensure a positive clinical learning experience for nursing students.

Their research found that when clinical staff were adequately informed about upcoming practicums, students were welcomed warmly, and their level of training was understood. They were addressed by name, fostering a positive rapport between preceptors and students. This demonstrates the significant impact of clear and timely communication on the clinical learning environment.

However, research conducted in South Africa by Mampunge and Seekoe (2014) revealed a contrasting scenario. The study found that communication between NEIs and CLEs was substandard, with NEIs failing to provide CLEs with essential information, such as student learning objectives. This lack of communication can hinder the alignment between theoretical learning and practical application, potentially compromising the quality of clinical education.

Further studies by Rikhotso, Williams, and De Wet (2010) and Padayachee (2014) emphasized the negative consequences of poor communication between NEIs and CLEs. These studies reported instances where CLE staff were unaware of student

schedules and lacked access to essential procedure manuals, impacting student performance and assessment. This highlights the need for consistent and comprehensive communication channels between NEIs and CLEs to ensure that students receive adequate support and guidance during their clinical placements.

Recent research by Mabapa (2021) in Limpopo Province, South Africa, revealed significant communication gaps between NEIs and CLEs. This lack of communication led to confusion among CLE staff regarding student schedules and clinical allocations, hindering the smooth integration of students into the clinical environment. Similarly, Padayachee (2022) identified the absence of procedure manuals in CLEs due to poor communication, negatively impacting student performance during assessment and supervision.

Chippis et al. (2023) advocate for regular monitoring and feedback by clinical supervisors from NEIs to enhance student motivation and support, emphasizing the need for consistent guidance throughout the clinical experience. The importance of accompaniment, a supportive clinical activity where clinical facilitators guide students in the clinical environment, is also highlighted in contemporary nursing literature (National League for Nursing, 2020), as it fosters a safe and nurturing learning and skill development space.

The South African Nursing Council (SANC, 2022) and the World Health Organization (WHO, 2021) stress ongoing communication and information sharing between NEIs and CLEs to maintain effective collaboration. This includes sharing curriculum expectations, student learning objectives, and assessment criteria to ensure alignment between theoretical knowledge and practical application. This underscores the critical role of collaboration in creating a cohesive and effective clinical learning environment.

Despite the recognized importance of collaboration and accompaniment, studies by Van Graan (2019) and Ndlovu (2021) found that clinical facilitators often did not spend enough time with students or provided uninspiring mentorship. This lack of dedicated support can hinder students' confidence and limit their ability to ask questions and seek guidance, thus impacting their overall learning experience. Research by Nxumalo (2018) and Mthembu (2020) in South Africa revealed inconsistent clinical facilitator accompaniment schedules. This caused anxiety and fear among student nurses due to the lack of confidence in their skills and the perceived lack of support in the clinical setting. This further highlights the need for structured and consistent support systems in the clinical learning environment to ensure student success and well-being.

In contrast, a recent study by AlQahtani and Choi (2023) in Saudi Arabia found that clinical facilitators who were attentive to students' feelings and provided individualized support during clinical work positively impacted their learning experience and overall well-being. The literature underscores that effective communication, collaboration, and mentorship between NEIs and CLEs are essential for ensuring student nurses' successful clinical learning experience.

This involves regular communication and information sharing between clinical facilitators and students. Pre-planned clinical visits, supportive mentorship, and readily available facilitators attentive to student needs are also crucial. By addressing these factors, NEIs and CLEs can create a more conducive learning environment for students, ultimately contributing to developing competent and confident nurses.

#### **2.14 Clinical supervision**

Nursing supervision is a multifaceted process to optimize resource use and ensure quality care delivery while fostering a positive learning environment for nursing students (Daye et al., 2021). This study emphasizes that adequate supervision involves

managing physical resources, adhering to clinical guidelines, and creating a supportive atmosphere that encourages student growth and development. However, the most crucial aspect is the supervisor-student relationship, which is paramount in this process. A strong, positive connection is essential for effective learning (Blumberg, 2019). This research indicates that a positive rapport between supervisor and student can significantly impact the student's ability to absorb and apply information in clinical practice.

Essential supervisor qualities include commitment, objectivity, and effective communication (Setati & Nkosi, 2017). This means that supervisors should be dedicated to their student's success, unbiased in their performance assessment, and able to convey expectations and feedback. Supervisors have a fiduciary duty to teach, mentor, and oversee students, with informal learning opportunities during patient care being particularly valuable (Bruce, 2017). This highlights the importance of formal instruction and spontaneous teaching moments that arise during real-world clinical scenarios.

Constructive feedback and positive role models are essential for student development, as they help students identify areas for improvement and aspire to higher standards (Alharbi & Happell, 2019).

This research suggests that providing specific, actionable feedback and showcasing exemplary nursing practice can help students identify areas for improvement and aspire to higher standards. Active student participation also fosters a sense of accomplishment and belonging (Kahu, 2019). This suggests involving students in decision-making and care planning can enhance their engagement and motivation.

Research consistently highlights the critical role of the supervisory relationship in effective learning (Tuomikoski, 2020). This study underscores that the quality of the supervisor-student interaction can significantly impact the student's overall learning experience. A foundation of trust, communication, and respect significantly enhances the clinical learning experience. It contributes to successful student learning (Neupane et al., 2018), emphasizing the interpersonal dynamics underpinning adequate supervision.

### **2.14.1 Institutional leadership**

Institutional culture is another critical factor that can impact competency acquisition. Through its values, norms, and practices, an institution's culture can influence individuals' learning experiences. An institution that promotes a culture of excellence, innovation, and continuous learning can enhance competency acquisition (Al-Hosni & Al-Shibli, 2023). In contrast, an institution characterized by mediocrity, complacency, and resistance to change can impede the acquisition of new competencies and skills, hindering individual and organizational progress (Schein, 2010; Ferreira & Rocha, (2023).

Creating a culture of innovation in higher education Institutions will likely enhance competency acquisition. Institutional leadership is not just another factor but a significant one that can directly impact competency acquisition. Effective leadership can create a supportive and enabling environment for learning and development. However, poor leadership can lead to a lack of direction, inadequate resources, and a negative culture that can hinder competency acquisition. Alismail and McGuire (2015) found that leadership played a significant role in technology integration in K-12 classrooms.

Finally, the institutional support system can impact competency acquisition. Support systems such as preceptorship, coaching, counseling, and other forms of support can facilitate learning and development. Adequate support can help individuals overcome challenges, enhance their motivation, and increase their confidence in their competency. Self-efficacy beliefs fostered through preceptorship and coaching positively impact students' academic achievement in learning institutions (Duchscher, 2018).

In conclusion, acknowledging the interplay between various elements allows institutions to foster an environment where individuals can cultivate essential skills. This approach empowers individuals to thrive in their respective domains and propels personal and institutional advancement.

#### **2.14.2 Leadership of the clinical manager**

The role of the unit manager is pivotal in providing guidance and precepting to clinical staff and student nurses. This role is to improve the quality of patient care and the overall performance of student nurses (Neupane & Pandey, 2018). The unit manager's leadership style significantly impacts the clinical environment and is a crucial consideration. Together with the clinical staff, it is their responsibility to supervise and teach nursing students in the clinical learning environment.

Hughes & Quinn (2013) and Mannix et al. (2019) noted that the unit manager's pleasing personality and leadership style are beneficial and essential in promoting a positive learning experience for student nurses. Nursing students must adhere to the standards as they practice in the clinical learning environment. This is not just a requirement but a crucial step towards producing competent and caring nursing professionals who can meet society's evolving healthcare needs. Unit managers must possess academic

competency, attitude, and management skills. This will ensure the healthcare team is actively engaged in teaching and learning.

The primary responsibility of the unit managers and clinical staff is to ensure that the best possible healthcare is provided to patients. This requires adequate teaching and learning of student nurses, who must be supervised to deliver quality care (Newton et al., 2020). Clinical staff must always be available to guide and teach student nurses during patient care. These teachable moments often arise in the clinical setting. Setati and Nkosi (2017) found that clinical supervision was perceived to be less critical than ward routine. However, it has a positive influence on the academic and personal development of student nurses.

Each student should be treated as an individual with unique learning needs, and the unit manager should be aware of their performance and learning outcomes (Levett-Jones et al., (2019). Peer group teaching and learning can effectively motivate and inspire student nurses, where successful students can be role models for their peers. The unit manager is responsible for actively participating with student nurses to ensure the quality of their clinical learning (Polit & Beck, 2017; Timmins, 2020).

### **2.14.3 Collaboration of Institutions**

Teaching institutions, such as universities and colleges, are responsible for training healthcare professionals, while health institutions, such as hospitals and clinics, provide practical training and experience. Collaboration between these institutions can take many forms, such as joint research projects, exchange programs, and training programs. The teaching institutions must inform the clinical facilities about their needs and any changes that may occur over time.

The partnership between the two entities should be maintained through sharing information and communication to link theoretical and practical training (Bos, 2014). A study by Dale et al. (2013) in Norway revealed that clinical staff were adequately informed in advance about the clinical schedule of student nurses. Consequently, students were welcomed warmly in the clinical learning environment, and the clinical staff knew their level of training and addressed them by name.

In the study by (Jagannath et al.,2022) at a university in South Africa, nursing students generally perceived the clinical learning environment as satisfactory. Educators were noted to strive to employ exciting and innovative methods in this environment. This positive perception indicates a conducive learning atmosphere within the clinical setting, emphasizing the efforts made by educators to enhance the learning experience for nursing students.

However, a study by Mampunge and Seekoe (2014) in East London, South Africa, revealed a discrepancy in communication between nursing education institutions and clinical learning environments. Nursing education institutions do not supply clinical learning facilities with students' clinical objectives. Rikhotso, Williams, and De Wet (2010) also conducted a study in Limpopo Province, South Africa, which found poor communication between NEIs and CLEs. Clinical staff at the CLEs were not aware of the traveling days and clinical allocation of student nurses.

Similarly, a study by Padayachee (2014) in Kwazulu-Natal reported poor communication between NEIs and clinical facilities, leading to the professional nurses at the CLE not having procedure manuals to guide students during assessment and supervision. These findings emphasize the importance of maintaining effective

communication between nursing education institutions and clinical learning facilities to inform each other about student activities and academic progress.

#### **2.14.4 Adequate Skills Laboratory**

Nursing requires theoretical knowledge, practical skills, and professional values to provide safe and effective patient care (NCSBN, 2015). Therefore, nursing education programs need to provide an environment that facilitates the acquisition of practical skills. A skills laboratory is one of the essential components of nursing education, where nursing students can develop and enhance their clinical skills in a safe and controlled environment (AACN, 2019).

The Importance of a Skills Laboratory is to provide a simulated environment that allows nursing students to practice clinical skills without the risk of harm to patients. The laboratory includes mannequins, simulators, and other equipment that simulate real-life situations. The laboratory is essential to nursing education because it allows students to develop and enhance their skills in a controlled environment. Nursing students can practice skills such as taking vital signs, administering medications, wound care, and performing various procedures.

An adequate skills laboratory provides a safe and supportive learning environment that allows nursing students to practice skills repetitively until they achieve competency. The laboratory allows students to make mistakes without consequences and receive immediate instructor feedback. This feedback helps students to identify areas that require improvement and focus on improving their skills. Furthermore, the laboratory allows nursing students to work collaboratively with their peers, developing their teamwork and communication skills.

An adequate skills laboratory has several effects on nursing education. Firstly, the laboratory helps to bridge the gap between theoretical knowledge and practical skills. Nursing students can apply the knowledge they acquire in the classroom to real-life situations in the laboratory.

The laboratory allows students to integrate their theoretical knowledge with practical skills, enhancing their understanding and competency. Secondly, the laboratory empowers nursing students by preparing them for clinical practice. It allows students to develop and enhance their skills in a safe and controlled environment, instilling the confidence and competency to provide safe and effective patient care. Nursing students can practice skills repeatedly until they achieve proficiency, preparing them for clinical placement (AACN, 2019).

Additionally, an adequate skills laboratory enhances the quality of nursing education. The laboratory allows nursing educators to teach and assess students' skills in a controlled environment. Educators can identify students' strengths and weaknesses and provide immediate feedback to help students improve their skills. The laboratory also allows educators to develop and evaluate new teaching strategies and materials, enhancing the quality of nursing education (AACN, 2019). An adequate skills laboratory promotes patient safety. Nursing students can practice skills in a controlled environment, reducing the risk of patient harm. The laboratory allows students to develop and enhance their clinical judgment and decision-making skills, promoting safe and effective patient care (NCSBN, 2015).

**Conclusion:** An adequate skills laboratory is an essential component of nursing education. The laboratory provides a safe and supportive learning environment for nursing students to develop and enhance their clinical skills. An adequate skills

laboratory bridges the gap between theoretical knowledge and practical skills, prepares nursing students for clinical practice, enhances the quality of nursing education, and promotes patient safety. Therefore, nursing institutions of learning should invest in an adequate skills laboratory to provide nursing students with a comprehensive education that prepares them for safe and effective patient care.

The students evaluated the supervisory relationship as the most influential factor in acquiring clinical competencies in the clinical learning environment. Students' acceptance within the nursing team and well-documented individual nursing care are also related to students' satisfaction. The pedagogical atmosphere is considered pivotal concerning students' learning activities and competency development within the clinical setting. Therefore, institutional factors influencing the acquisition of clinical competencies could contribute significantly to developing clinical learning environments to satisfy the needs and expectations of students. The value of creating an organized and collaborative supervision system is crucial in promoting clinical competency acquisition among Bachelor of Nursing students.

#### **2.14.5 Literature Review Summary**

A gap between theory and practice among Bachelor of Nursing students has been identified, contributing to a lower quality of care (Greenway et al., 2019). Researchers report that newly qualified graduate nurses often lack the necessary skills and competencies for clinical practice. Employers also perceive them as lacking proficient clinical skills, which raises concerns about patient safety and care standards (Smith et al., 2023).

Clinical competency is a fundamental requirement for effective nursing practice and is widely recognized as the ultimate goal of nursing education. Integrating knowledge, problem-solving abilities, technical skills, and interpersonal communication (McGilton et al., 2021). Nursing faculties are critical in promoting clinical competency by ensuring students have the skills to meet healthcare demands. Henderson et al. (2022) define nursing competency as the ability to perform nursing duties effectively by integrating cognitive, emotional, and psychomotor skills in patient care. Similarly, Jamshidin et al. (2016) emphasize that clinical learning is vital to nursing education, enabling students to apply theoretical knowledge in real healthcare settings. However, various factors influence clinical learning experiences.

One of the key challenges in clinical training is the shortage of faculty members and preceptors to guide student learning (Chan et al., 2022). Factors such as excessive workload, unclear roles, and inadequate knowledge among lecturers and preceptors further hinder students' clinical learning (Smith et al., 2023). Clinical preceptorship is a practical strategy to guide and mentor nursing students, fostering professional development and ensuring high-quality patient care (WHO, 2006). It is a crucial tool in clinical training, as effective preceptorship improves students' confidence, competence, and ability to transition into professional practice.

Multiple studies have identified key factors that influence the acquisition of clinical competencies. These include effective communication between students and preceptors, a supportive clinical learning environment, the competency of faculty members, and timely, constructive feedback (Melnyk & Fineout-Overholt, 2019). Clinical placements are particularly important in bridging the gap between theoretical instruction and real-world practice. The success of clinical placements depends on the

quality of training environments, the level of student engagement, and the degree to which learning experiences are tailored to individual student needs (Cant et al., 2016).

After reviewing the literature on nursing education, it was unveiled that there is a gap between theory and practice among bachelor of nursing students, leading to lower quality of care (Greenway et al., 2019). Nationally, researchers report that newly qualified graduate nurses lack adequate skills and competency for working in a clinical environment and are also perceived by their employers as lacking competent clinical skills (Smith et al., 2023).

Clinical competency is one requirement for effective practice in nursing education. It has been cited as the ultimate goal of nursing education. Clinical competency involves application knowledge and information, problem-solving and technical skills, and communication and interpersonal skills. The nursing faculty is one organization responsible for promoting clinical competency. It should satisfy society's needs by training nurses with extraordinary levels of clinical competency (McGilton et al., 2021).

Moreover, (Henderson et al., 2022) view nursing competency as the skill to perform nursing duties effectively through integrating cognitive, emotional, and psychomotor skills during nursing care. Consequently, Jamshidin et al. (2016) allude that Student Nurses' clinical learning is vital to nursing education in the clinical setting. Learning in the clinical setting could be influenced by many factors. Additionally, (Chan et al., 2022) assert that inadequate faculty members and preceptors to direct learning could affect learning.

In addition, workload, lack of role clarity, and lack of knowledge among Lecturers and Preceptors impact students' clinical learning (Smith et al., 2023). Clinical Preceptorship is a pragmatic way of giving guidance and discussions to students during

clinical practice to encourage continuous professional education to maintain quality health care (WHO, 2006). It is one of the main tools used to promote learning for students who are in clinical practice in Health facilities. Several studies have indicated several factors that influence the acquisition of clinical competency. Some of these factors include effective inter-communication between students and preceptors on one side and supervisors on another side.

Additionally, a conducive clinical learning environment, the competency of the preceptors and supervisors, and effective feedback equally influence the acquisition of clinical competencies (Melnyk & Fineout-Overholt, 2019). Clinical placements successfully execute the aims of clinical education in the clinical practice environment. These aims include but are not limited to the quantity and quality of learning students experience and the degree to which the experience is personalized to meet student needs (Cant et al., 2016). Therefore, clinical placements are essential for ensuring nursing students develop the competencies to provide safe and effective care in clinical practice.

Clinical placements are primarily defined in terms of the student learning process and also occur in high-quality environments for clinical learning. Some other intricate factors affect students' acquisition of clinical competencies. These may include the curriculum philosophy, the context for clinical nursing training, and the resources needed for practical clinical training in nursing (Oermann et al., 2018). Therefore, each university must make decisions congruent with its planned curriculum to acquire clinical competencies successfully. This study was therefore carried out to assess factors associated with the acquisition of clinical competencies among undergraduate nursing students in Government and private universities in Uganda.

## CHAPTER THREE

### RESEARCH DESIGN AND METHODOLOGY

#### 3.1. Overview

This chapter describes the research methodology, outlining the steps, strategies, and procedures used to capture and analyze data in the study (Polit & Beck, 2008).

This chapter will address the following: an overview of the chapter, the research design, study area, study population, target population, sample size determination, sampling procedures, data collection instruments, pilot study, validity, reliability, data collection tools, data collection process, data entry and analysis, inclusion criteria, exclusion criteria, and ethical considerations.

#### 3.2. Research Design

Research design is a systematic way of solving a research problem by using logically chosen techniques that allow other researchers to evaluate findings (Kothari, 2009); it can also be defined as a blueprint or framework for collecting and analyzing data that portrays causal relationships among them (Lawrence, 2011; Bryman, 2008). Polit & Beck (2020) affirm that the research design covers the entire plan chosen to seek answers to the research questions identified in the study.

Methodology refers to specific techniques or procedures the researcher selects to identify, choose, and analyze information on a topic. This can allow readers to evaluate a study's overall validity and reliability. The study utilized a mixed-method research approach as the most suitable (Creswell et al., J. D. (2018), which strengthened the

qualitative and quantitative approaches of the study and adopted a descriptive survey design.

This (descriptive survey design) is the process of collecting data to test a hypothesis or answer questions concerning the subject's current status in the study; it determines and reports behaviors, attitudes, values, and characteristics as they are.

In support of this design, (Seyff et al., 2020) emphasized that it provides a snapshot of a situation at a particular moment. The first steps involve formulating the study's objectives to ensure that the data collected is related to the questions through a questionnaire survey, interviews, or observation. Then, findings from the selected sample are generalized to the whole target population.

Orodho (2003);(and Alvi (2016) affirm that when a researcher intends to collect data by interviewing or administering the questionnaire to a population sample, the most appropriate design would be a descriptive survey design. Johnson et al. (2007) and Creswell& Creswell (2018) argue that mixed-method research brings elements of qualitative and quantitative research approaches to the depth and breadth of understanding and corroboration. The advantage of using a mixed method approach is getting an explanation of the findings in statistical form and an in-depth explanation of qualitative data.

When one checks the qualitative data obtained for the same questions, the same statistics will have a deeper meaning. The qualitative data give the statistical data explanation a better interpretation, giving the researcher a clear picture of the research site. This method was chosen to enable the researcher to get the answers to the research questions concerning the current status of acquiring clinical competencies by Bachelor of Nursing Students in Uganda.

### 3.3. Study area

Grove, Burns, and Gray (2017) define the study area as a place where the data is gathered. The area where a particular study occurs usually encompasses the physical, social, and cultural environment where the study was conducted (Given, 2008). This study was conducted from eight (8) Government and private Universities in Uganda that offered Bachelor of Nursing programs at the beginning of this study.

The study purposively sampled eight universities offering fourth-year Bachelor of Nursing programs accredited by the National Council for Higher Education of Uganda (NCHE). These institutions were selected to capture final-year students' preparedness for clinical practice, a phase marked by integrating theoretical knowledge and hands-on training. Geographical diversity and institutional partnerships further ensured representativeness while balancing feasibility constraints. Universities without a fourth-year bachelor of nursing cohorts were excluded to maintain focus on students at the critical transition point to professional practice.

The universities consisted of Bishop Stuart University (BSU), Bugema University (BU), Kampala International University (KIU), Clarke International University (CIU), Makerere University (MUK), Mbarara University of Science & Technology (MUST), Mountains of the Moon University (MMU), and Uganda Christian University (UCU). The universities are in the western and central parts of Uganda. In addition, three universities are Government (public), while the other five are private. Four of these are in the Central part of Uganda, and the other four are located in the Western part of Uganda.

### **3.4. Study Population**

Polit and Beck (2020) note that a population refers to the bigger group from which the sampling frame is drawn and to which research findings are generalized. Additionally, Brink (2013) asserts that the whole group of persons (P) must satisfy the criteria the researcher is interested in. Consequently, the population selected for the study should be those to whom the research question applies and who are most likely to benefit from the research outcomes, so they should bear the burden of the research (Wassenaar, 2006).

The study population included bachelor of nursing students, preceptors, and clinical supervisors from Bishop Stuart University (BSU), Bugema University (BU), Clarke International University (CIU), Kampala International University, Makerere University (MUK), Mbarara University of Science and Technology (MUST), Mountains of the Moon University, and Uganda Christian University (UCU).

Therefore, according to Grove et al. (2017), a population includes all the people that will be included in the criteria that meet the requirements. In addition, the students must have completed their mandatory clinical placement rotations in the supposed health clinics; therefore, they could provide extensive and reliable information about their competency acquisition experiences.

### **3.5. Target Population**

In this study, a total of 8 Universities that offer bachelor's in nursing programs purposively participated in the study. Each participating university provided the list of all the 4th year nursing students to the principal researcher. The total number of all-year nursing students in the eight universities was 150 students, and this determined the target population for the students and was distributed as follows: - Bishop Stuart

University 15(10%), Bugema University 16 (11%), Clarke International University 18 (12%), Kampala International University 16 (11%), Makerere University 19 (13%), Mbarara University 47 (31%) Mountains of the moon University 05 (3%), Uganda Christian University 14 (9%). All 8 preceptors and 48 Supervisors were purposively selected, bringing the overall target population to 206. See the table below:

**Table 1: Target Population of the Study and sample size**

University	Students	Preceptors	Supervisors	TOTAL
<b>Bishop Stuart University</b>	15	1	6	<b>22</b>
<b>Bugema University</b>	16	1	6	<b>23</b>
<b>Clarke International University</b>	18	1	6	<b>25</b>
<b>Kampala International University</b>	16	1	6	<b>23</b>
<b>Makerere University</b>	19	1	6	<b>26</b>
<b>Mbarara University of Science and Technology</b>	47	1	6	<b>54</b>
<b>Mountains of the Moon University</b>	05	1	6	<b>12</b>
<b>Uganda Christian University</b>	14	1	6	<b>21</b>
<b>Target population</b>	150	8	48	<b>206</b>
<b>Overall sample size</b>	<b>108</b>			

**Source:** From the eight participating universities and practicum sites (2021)

### 3.6. Sample Size Determination

Probabilistic and non-probabilistic techniques were used in recruiting research participants. The sample size of 108 students represents all eight (8) Universities distributed in the figure of 108 to eight universities; stratified sampling was used. In a stratified procedure, 108 sample sizes were divided into BSU, BU, CIU, KIU, MUK, MUST, MMU, and UCU as per the number of students in each school, resulting in 11, 12, 13, 12, 14, 33, 04, and 10 recruits respectively, see table 3.2. By use of Table 1, the sample size was identified as follows: -

The total number of the student target population in the eight (8) participating universities was found to be 150, and as per Krejcie and Morgan, 150 correspondents have a sample size of 108. The selected HODs were 8, and the supervisors were 48. Since this number was small, they were all included in the research using Krejcie and Morgan (1970), see Appendix V.

### **3.7. Sampling**

Sampling is carefully selecting a sample to be included in a study (Ngulube, 2015). For sampling to be scientific, the number of elements to be had for the observation, which elements should be included, and how they should be selected for a given study. It should be carefully considered (Polit & Beck, 2020). Generally, sampling techniques are classified as either probability or non-probability (Babbie, 2016).

A probability sampling scheme is one in which every unit in the population has a chance (greater than zero) of being selected in the sample, and this probability can be accurately determined. Random, systematic, and stratified sampling are examples of probability sampling (Babbie, 2016). Non-probability sampling refers to any sampling method where some population elements cannot be selected.

These are sometimes regarded as 'out of coverage' or 'under covered' or where the probability of selection cannot be accurately determined (Babbie, 2016). The non-probability technique involves selecting elements based on assumptions regarding the population of interest, which forms the criteria for selection (Etikan, 2016). Accidental or convenience sampling, quota sampling, snowball or respondent-driven sampling, and purposive or judgmental sampling are some examples of non-probability sampling methods (Babbie, 2016).

For this study, the judgmental or purposive sampling technique was used to recruit critical informants or participants to be interviewed. The questionnaire method was chosen for this purpose. According to Given (2018), judgmental or purposive sampling refers to the sampling procedure in which the researcher selects the sample based on who is most appropriate for the study. Purposive or judgmental sampling, as described by Saunders et al. (2009), allows researchers to strategically choose cases that effectively address research questions and fulfill study objectives.

In this context, final-year students who completed clinical placements at various hospitals were selected based on their suitability for meeting the study's goals. This approach enables a focused and intentional sampling method to enhance the relevance of the research. This form of sampling is often used when the researcher wishes to select particularly informative cases (Neuman, 2016). In this aspect of the recruitment process, a deliberate effort was made to ensure that participants come from various ages, genders, educational levels, locations, and leadership backgrounds (Smith et al., 2018).

After the purposive sampling, appointments were made with prospective participants via mobile phones. By calling mobile phones, the researcher introduced himself, described the aims, purpose, and benefits of the study, and gave a clear explanation of the purpose of calling and, lastly, how the gathered data was to be used. Furthermore, the researcher spelled out that their responses would be used for the research report but with pseudonyms. A consent form written in the respondent's language was signed as well. The research confirmation and ethical clearance letters were also made available to each participant as proof that the university permitted the research.

### 3.7.1. Sampling Procedure for Quantitative Data

Polit and Beck (2012) inform us that sampling is a method of choosing a part of the population to represent the whole population. Furthermore, according to Brink (2013), sampling refers to hand-picking the sample from the researcher's population to obtain information on a process in a way that represents the population of interest. Probabilistic and non-probabilistic techniques were used in recruiting research participants.

The sample size of 108 students is representative of all 150 students in the participating universities. A proportionate distribution was used to distribute 150 to the eight universities. In a proportional method, the number of students at each university was divided into the target population. The result was multiplied by the sum of the sample size. For example, the sample size for Bishop Stuart University is 15 divided by 150, the result multiplied by 108, and the sample size is 11. See Table below:

**Table 2: Sample size distribution of universities based on the weight of their Population**

Participating Universities	University population	Sample Size
Bugema University (BU)	16	12
Bishop Stuart University (BSU)	15	11
Clarke International University (CIU)	18	13
Kampala International University (KIU)	16	12
Makerere University (MAK)	19	14
Mbarara University (MUST)	47	33
Mountains of the Moon University (MMU)	5	4
Uganda Christian University (UCU)	14	10
TOTAL	150	108

**Source: Researcher 2021**

A Simple random sampling technique was used on the lists of students per university until the proportionate required numbers were obtained. Participating students were requested for their consent using informed consent forms as provided (Appendix 2). The students'

admission numbers were uploaded to the computer randomizer and used to select participants. After all the selected participants had been identified, the admission numbers were coded to avoid identifying particular students in the data. The same procedure was used when recruiting student participants from all other universities. The researcher developed a pre-coded self-administered questionnaire to collect quantitative data from the sampled undergraduate nursing students. The class representatives played a crucial role in identifying the randomly selected students, and the principal researcher handed out questionnaires to each of them, fostering a sense of collaboration. Furthermore, Student research participants were requested to hand the filled questionnaires to the research assistants, who later handed them to the principal researcher, ensuring a smooth data collection process. Key informants were purposively selected according to nursing training and administration roles. All respondents were requested to consent before data was collected, ensuring the ethical conduct of the study and the inclusion of all participants in the research process.

### **3.7.2. Sampling Procedure for Qualitative Data**

#### ***Focus Group Discussion***

Thirty-two participants who completed the questionnaire verbally consented to participate in the focus group discussions. Eight focus group discussions consisting of one focus group per university were undertaken. Each focus group discussion comprised of four students from the same training institution. Two male lecturers, BA and DA, and health science lecturers with qualitative research backgrounds facilitated the focus group discussions.

The discussions were conducted in a quiet room within one of the university's board rooms. A focus group discussion guide was used to ensure that the topics around

assessing the acquisition of clinical competencies among undergraduate Nursing students in government and private universities in Uganda were discussed systematically. The focus group discussions were audio-recorded, and both lecturers recorded the notes, which were considered and included in the qualitative analysis. The focus group discussions took between 40 and 50 minutes to finalize.

### **Key Informant Interview (KII)**

Regarding the KIIs, the researcher purposively selected 54 key informant interviewees. Their selection was based on their administrative and teaching involvement with students. Eight supervisors and forty-eight preceptors (See Table 3) below. For one to participate, the said individuals must have interacted with students in the clinical learning environment. In this regard, each preceptor was selected from the rotation areas where students went for practice. These areas were the pediatric, medical, surgical, maternity, obstetrics/Gynecology, and maternity wards. Who consented to the study were selected from each participating university. Also included in the study were lecturers who accompanied and supervised students during their practicum.

**Table 3: Showing the composition of the KII**

<b>University</b>	<b>Students</b>	<b>preceptors</b>	<b>Supervisors</b>	<b>TOTAL</b>
Bishop Stuart University	5	6	1	12
Bugema University	5	6	1	12
Clarke International University	5	6	1	12
Kampala International University	5	6	1	12
Makerere University	5	6	1	12
Mbarara University of Science and Technology	5	7	1	13
Mountains of the Moon University	5	5	1	11
Uganda Christian University	5	6	1	12
<b>Total Sample Size</b>	<b>40</b>	<b>48</b>	<b>8</b>	<b>54</b>

### **3.7.3 Data collection instruments**

#### **3.7.4 Pilot Study**

Gray et al. (2017) allude that piloting the questionnaire unearths whether the study will be feasible regarding participant availability, time, and financial resources. The pre-testing allows the researcher to experience the participants and the setting. According to Julious (2022), a pilot study is a trial run to assess whether the instrument is worded, free of significant prejudices and whether the desired information is being requested.

Pre-testing detects issues in the order of questions and the design and establishes the reliability and validity of the questionnaire, as reported by LoBiondo-Wood and Haber (2017). The researcher piloted the tool or the questionnaire on ten consenting students from a private medical university in the nursing department. The main aim of the questionnaire pre-testing was to check any uncertainty, whether the questions were clearly understood and interpreted as being intended by the researcher, and to eliminate any ambiguous aspects that could affect data collection.

This piloting was used to assess readability and ease of understanding. The pre-test participants were asked for feedback, and some adjustments and suggestions were made. The students who participated in the piloting were excluded from the main study. Piloting the instruments aims to teach their strengths and weaknesses (Julious, 2022); Leon et al., 2011). After feedback was obtained from the pilot study participants, the researcher made changes before the instruments were distributed to the research participants. The researcher constructed the questionnaires with open-ended and closed-ended questions and used them to collect data.

Results were discussed with peers, and they were all found to have been correctly prepared. The questionnaires were reviewed with the proposal by external reviewers

(IREC) to see if it would produce the required results. Supervisors of this research went through all the questionnaires to ascertain the accuracy of the answers. The questionnaires were edited, and corrections were made by eliminating the ones that did not add value to this research.

### **3.7.5. Validity**

This refers to the accuracy of the instruments used in data collection and sampling procedures if done correctly (Leung, 2015). The instrument's validity refers to the measurement standard that the instrument is expected to measure, as Bolarinwa (2015) asserts. In this study, the researcher designed the questionnaire concerning the topic under study and assured content and face validity.

### **3.7.6 Content validity**

Bolarinwa (2015) informs us that content validity in a study ensures that all items included in the research instrument measure the study objectives. Polit & Beck (2023) assert that content validity is the examination of all parts of the instrument to check if all the features of the variables to be measured have been included in the instrument. The researcher ensured content validity by constructing the instrument based on the literature review to include the variable aspects necessary in the content. The researcher also presented the instrument to experts in the field to evaluate the content validity.

### **3.7.7 Face validity**

Bolarinwa (2015) asserts that face validity determines whether the questionnaire addresses the research questions of the study of interest. In adapting the questionnaire, the researcher ensured that the meaning of concepts about this study was clearly defined to ensure face validity.

### **3.7.8. Reliability**

The reliability of an instrument refers to its consistency in measuring the target characteristics. It indicates the degree to which the instrument produces stable and consistent results across different situations and over time (Taherdoost, 2016). A reliable questionnaire should yield similar results if administered multiple times under identical conditions, demonstrating its ability to measure the construct consistently (Polit & Beck, 2018). Therefore, reliability is a fundamental psychometric property that ensures the dependability and trustworthiness of research findings.

Data collection instruments were piloted to ascertain reliability. This aligns with Creswell (2018), who affirms that piloting data collection instruments is meant to predict their strengths and weaknesses. In addition, the piloted questionnaires were re-edited to improve clarity, and some questions were eliminated as they did not add value to the research. Furthermore, the researcher's supervisors reviewed all the questionnaires to ascertain whether they were accurate, had internal consistency, and could give precise results (Boateng et al., 2018; Yilmaz, (2013). Scrutinizing questionnaires by a second party, such as a supervisor, acts as an extra safeguard for quality. This review process helps to confirm that the questionnaire is well-structured, measures what it intends to measure consistently, and produces reliable, informative data.

### **3.7.9 Data Collection Tools**

The questionnaires consisted of open-ended and closed-ended questions, which gave the researcher an in-depth understanding of the participants' views (Bhandari, 2021). This mixed-methods approach provides a comprehensive view of the topic by combining the breadth of numerical data with the depth and richness of narrative responses. In the close-ended questions, participants had to choose from the provided

list of choices. In the open-ended ones, participants wrote and expressed their views and gave some suggestions. All questionnaires were prepared in English as this has been the participants' language of instruction. The other advantage of self-administered questionnaires is that the research participant can postpone answering until appropriate.

Furthermore, unlike interview methods, self-administered questionnaires do not require the researcher to be present while participants respond, offering flexibility and convenience (Denscombe, 2017). This approach also allows researchers to reach a larger sample size efficiently. To understand the research problem comprehensively, the researcher employed a mixed methods approach, integrating quantitative and qualitative data collection (Creswell & Creswell, 2018). The qualitative data complemented and validated the quantitative findings, enriching the overall interpretation. As Creswell (2018) emphasizes, a rigorous analysis of qualitative data, including systematic coding and thematic development, is crucial for ensuring the validity and reliability of the findings. This approach aligns with the researcher's meticulous analysis process.

### **3.8.0 Data Collection Process**

#### **3.8.1 Quantitative data collection**

Data were collected using a self-administered questionnaire with two sections: participants' sociodemographic characteristics and assessing factors associated with acquiring clinical competencies among undergraduate nursing students. The sociodemographic characteristics of the questionnaire were collected in the form of gender, age, year of study, program of study (PhD, Master's, and bachelor's degree), duration, and the number of clinical placements completed since the start of the study program.

The second section of the questionnaire had questions assessing the acquisition of clinical competencies. The questionnaire comprises 62 items grouped into four subscales. The subscales include 1) Perception of students- students' perceptions on what influences the acquisition of clinical competencies; 2) Clinical environment factors - Clinical environment factors influencing competence acquisition. 3) Preceptors' Participation- preceptors' participation in competency acquisition; 4) Institutional factors – the influence of institutional factors on competency acquisition.

The responses to each item are rated on the 4-point Likert scale: 1 = Strongly Disagree to 4 = Strongly Agree (Cronbach's  $\alpha = 0.85$ ). The principal researcher recruited research assistants to help with data collection and questionnaire administration. The research assistants were trained to administer the questionnaires and instructed on administering consent forms and handling the questionnaires. The questionnaires contained open-ended and closed-ended questions, which enabled the researcher to understand the participants' views (Bhandari, 2021). For the close-ended questions, participants had to select from different choices. In the open-ended questions, participants could express their views or suggestions. The self-administered questionnaires were unbiased, so participants did not have to answer questions as the researcher required (Denscombe, 2019). This approach fosters a greater sense of anonymity and reduces the potential for social desirability bias, thereby increasing the likelihood of obtaining accurate and authentic data.

All questionnaires were in English because the participants' language of instruction allowed them to communicate in English. The other advantage of self-administered questionnaires is that the research participant can postpone answering until an appropriate time is available.

### 3.8.2 Qualitative data collection

For the focus group discussions, thirty-two of the 101 student participants who had earlier participated in the survey verbally consented to participate. Eight focus group discussions, four per selected University, were undertaken. Each focus group discussion comprised four students from the same selected university.

Two male lecturers from the Department of Nursing who knew qualitative research backgrounds facilitated the focus group discussion. The two lecturers conducted the focus group discussions in a quiet room on different university campuses. All student participants used the focus group discussion guide to ensure that the topics concerning students' perceptions of clinical competency acquisition, clinical learning environment factors that influence competency acquisition, the extent of preceptor participation in students' competency acquisition, and the influence of institutional factors on competency acquisition were all discussed at length and adequately. The two facilitators audiotaped and recorded all the focus group discussions and the interview, which was later used in the qualitative data analysis. The focus group discussions took between 30 and 40 minutes to complete. Self-administered questionnaires were used because they efficiently reached many participants, facilitating data collection from a diverse sample (Denscombe, 2019). The researcher also used a mixed data collection method to get in-depth views of research participants (Creswell & Plano Clark, 2017). Information concerning the acquisition of clinical competencies formed the in-depth data, which later validated the quantitative data.

The reason for using these two methods was to ensure that data came up with the same results. Qualitative data complements quantitative data, which requires good analysis, especially when coding qualitative data (Saldana, 2021). The researcher adhered to all this. Collecting data using qualitative and quantitative methods provides a deep

understanding of the research (Creswell et al., 2017). Furthermore, quantitative data gives an idea of whether an item is there. In contrast, qualitative data will explain whether the data was enough or not. This brings about better results for the research being done, which is why it was used.

### **3.8.3 Data Entry and Analysis for quantitative data**

Quantitative data was checked, cleaned, coded, and entered into the Microsoft Excel database and then exported to the IBM SPSS computer software. The descriptive statistics included measures for central tendencies such as the range, the mean, and the mode as appropriate. They were presented as figures and tables, such as pie charts, bar graphs, and texts. Chi-square tests were used to check for possible associations between dependent and independent variables, and a P-value of  $\leq 0.05$  was considered statistically significant.

Chi-square was used to test the associations of the responses to the clinical perceptions of students, the clinical learning environment, preceptors' participation, and institutional factors with competency acquisition. All figures representing the same values were grouped, thus making quantitative data easier to group than qualitative data (Guest et al., 2022). This facilitates a more streamlined analysis and interpretation. The Chi-square tests, frequencies, and percentages were interpreted according to each objective. Statistical procedures help researchers arrange the data, sum it up, analyze, interpret, and communicate numerical information (Lo-Biondo-Wood, 2017).

### **Data analysis for qualitative data**

Qualitative data was grouped into themes. Collected data had to be coded before grouping, which assisted in identifying the themes (Braun & Clarke, 2019). All themes were grouped using direct quotes to achieve the correct meaning (Nowell et al., 2017).

Below is the process of how qualitative data was analyzed.

Qualitative data analysis followed an inductive reasoning approach guided by Saldana's data analysis framework (Saldana, 2021). Saldana's qualitative data analysis framework involves three consecutive steps. Initially, the recorded interviews were transcribed verbatim, assigned unique identifiers, and securely stored in a password-protected electronic folder. Before coding, the researchers thoroughly familiarized themselves with the transcripts by reading and re-reading to grasp the overarching ideas discussed in the focus groups.

The coding process involved the application of initial, open, axial, and in-vivo coding methods. Units of analysis were coded, such as sentences, phrases, and paragraphs related to the research questions. The primary researcher performed the coding, while the other authors served as co-coders. The peak of this second step was a finalized code list, achieved through collaborative discussion among all the authors. In the final step of data analysis, the codes generated in the second step underwent further examination using pattern coding methods. The researchers grouped codes with similar meanings, identifying themes. To collectively ensure that qualitative research is rigorous, transparent, and trustworthy. The data analysis followed the Graneheim approach (Shafaroodi et al., 2014). Interview transcripts were carefully reviewed multiple times to identify and condense key meaning units, which were then conceptualized and assigned codes. These codes were analyzed for similarities and differences, with comparable codes organized into subthemes. Subsequently, related subthemes were consolidated into overarching themes (Shafaroodi et al., 2014). The study assessed credibility, transferability, dependability, and confirmability to ensure trustworthiness.

- ❖ Credibility is the degree to which the research findings are accurate, believable, and reflect the participants' perspectives and experiences.

- ❖ Transferability is the extent to which findings can be applied or generalized to other contexts, settings, or groups.
- ❖ Dependability is the consistency and stability of the research process and findings over time.
- ❖ Confirmability is the degree to which findings are shaped by the participants' voices and data rather than the researcher's biases, assumptions, or interests.

Peer review was conducted by consulting qualitative research experts, who evaluated the accuracy of concepts, categories, and codes. Their feedback guided necessary revisions, with continuous guidance from mentors and advisors throughout the research. Additional validation strategies included (i) dedicating ample time to the study and interviews, (ii) maintaining active researcher involvement over the nine-month period, (iii) recruiting participants of varied ages, academic backgrounds, work experiences, and institutional affiliations, and (iv) fostering rapport and open communication with participants. To ensure data adequacy for addressing research questions, the following measure was implemented : (I) sharing transcribed interview records with participants to verify alignment between their statements and intended meanings. The study's findings are presented in the form of themes, supported by verbatim quotes as units of analysis.

#### **3.8.4 Inclusion Criteria**

Polit & Beck (2020) refer to inclusion criteria as the central features that determine a study's population by the eligibility standards that confer the capacity to answer the research questions as accurately as possible. Therefore, the study included all registered 4<sup>th</sup>-year Bachelor of Nursing students who consented to it. In addition, preceptors, supervisors, and HODs who interacted with students during their clinical practice and were willing to take the interview were also included.

### **3.8.5 Exclusion Criteria**

Exclusion criteria are characteristics in addition to those found in study participants who met the inclusion criteria that can influence the potential achievement of the study's objectives or outcomes unfavorably, as Polit & Beck (2020) alluded to. Consequently, Patino and Ferreira (2018) describe exclusion requirements as those individuals theoretically eliminated from the study. This targeted sampling ensures a homogenous and representative sample, enhancing study validity and generalizability.

Students in year four who were absent from the University on the day of data collection were excluded from participating in this research. One was required to be physically present to be randomly selected. Universities that had no fourth-year nursing students were excluded from participating. Supervisors and preceptors absent or gone on annual or study leave were excluded from this study.

### **3.8.6 Ethical Consideration**

Resnik (2020) refers to Ethics as moral principles that show the researcher's rules and expected behavior during the study. Therefore, ethical considerations are essential to the design of any research involving human subjects to protect the rights of the research respondents. Furthermore, ethics in research aims to ensure that no one is harmed or suffers adverse effects from research activities (Schramme, 2020). Thus, the researcher endorsed the ethical principles of autonomy, justice, beneficence, and non-maleficence when conducting the study.

Consequently, when recruiting research participants, their autonomy had to be considered. Every individual was respected and valued in their way. Beauchamp and Childress (2019) affirm that individuals can choose what to participate in. The principle of natural justice was equally followed. All participants were given adequate

information and then requested to join and participate in the research, as suggested by Beauchamp and Childress (2019). The anticipated participants were requested to join this research voluntarily, and each participant was given a consent form to sign. These consent forms had previously been piloted, so the participants found them easy to read and understand. The principal researcher received signed consent forms after explaining the purpose of the study to the participants.

They informed me they could opt out of the study whenever they wished. All their information was treated with maximum confidentiality. The research proposal was then submitted to the Institutional Research and Ethics Committee (IREC) of Moi University College of Health Sciences. Both committees ensured that all ethical standards were adhered to. Also, the School of Medicine Postgraduate Committee assessed the proposal to ensure the research adhered to the ethical and academic standards required for a doctorate thesis.

Furthermore, the research was reviewed and approved by the Mulago Hospital Research and Ethics Committee (MHREC), one of the Ugandan Local Research and Ethics Committee. The Uganda National Council for Science and Technology (UNCST) finally cleared and approved the research protocol.

## CHAPTER FOUR

### RESULTS

#### 4.1 Overview

This chapter presents results collected during the study, and presented according to the four research objectives. It begins with an overview and then discusses the participants' response rate, social demographic characteristics of respondents, level of clinical competency acquisition, preceptors' participation, clinical learning environment, institutional factors, and students' perceptions.

#### 4.2. Participants' Response Rate

The response rate among students was 101/108 (94%), preceptors 48/48 (100%), and supervisors 7/8 (87.5%). This response was very successful, with the highest at one instance (100%) and the lowest (87.5%). The table further illustrates that out of the 164 respondents, preceptors had the highest response rate of 100%, followed by students with 94% and supervisors with 87.5%.

The preceptors had the highest response because they were available on duty, as they both worked as ward nurses simultaneously as preceptors. In Uganda, we do not have a particular category of preceptors. This role is done by the nurses on duty, so they were available. The response rate is presented in Table 4 below:

**Table 4: Participants' Response Rate**

<b>Participants</b>	<b>Sample Size</b>	<b>Return Rate</b>	<b>Percentage %</b>
Students	108	101	94
Preceptors	48	48	100
Supervisors	8	7	87.5
<b>Total</b>	<b>164</b>	<b>156</b>	

### 4.3 Demographic Characteristics of the Students

The student participants who returned the questionnaires were 101 students drawn from the eight Government and private universities in Uganda, which had fourth-year bachelor of nursing students at the time of data collection. The highest number of students were from Mbarara University of Science and Technology, 25/101 (%), with the lowest from Mountains of the Moon University, 4/101 (3.9%), as per Table 5 below

**Table 5: Students demographics**

Universities	Frequency	Percentage %
BU	12	11.9
BSU	11	10.9
CIU	13	12.9
KIU	12	11.9
MAK	14	13.9
MUST	25	24.8
MMU	4	3.9
UCU	10	9.9
Total	101	100

### 4.4 Student respondents

Table 6 below illustrates that the highest percentage of respondents (43%) were aged between 21 and 24 years, and the least number of respondents (3%) were above 40 years of age. The mean age of the respondents was 22.4 years, which is the appropriate mean age for tertiary students in Uganda. Over three-quarters (80%) of the respondents were below 28 years old, which is also the right age bracket for university students in Uganda. Less than three percent of the respondents were over 41 years old; such respondents studied and worked simultaneously, and they were few in government and private universities in Uganda.

**Table 6: Showing Students demographic characteristics**

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Sex</b>		
<b>Male</b>	37	36.6
<b>Female</b>	64	63.4
<b>Age</b>		
<b>21-24</b>	43	43
<b>25-28</b>	28	28
<b>29-32</b>	12	12
<b>33-36</b>	7.0	7.0
<b>37-40</b>	7.0	7.0
<b>41 &amp; above</b>	3.0	3.0.
<b>Marital Status</b>		
<b>Divorced</b>	1.0	1.0
<b>Married</b>	27	26.7
<b>Single</b>	73	72.2
<b>Number of placements attended</b>		
<b>1-2</b>	6.0	6.0
<b>3</b>	7.0	7.0
<b>4</b>	21	20.7
<b>5 &amp; above</b>	67	66.0
<b>Enrollment in the program</b>		
<b>Direct entry</b>	66	65.3
<b>Extension</b>	35	34.7

Table 6 illustrates that out of the 101 respondents, the Female students had the highest representation, 64%, and the male respondents had less than 40%. This was because the female respondents were more cooperative than their male counterparts. Another reason is because nursing is known to be a female dominated profession, so few males tend to join the profession. Most respondents were single (72%) while the least (1%) were divorced. This could be because most respondents

were young students under 24 years and pursuing their education. More than half of the students who responded (68.4%) had attended more than four placements. Their purpose was to gain vast knowledge from their placement experience, and majority respondents (65.3%) were enrolled through direct entry, while only 34.7% were enrolled through the extension program.

**Table 7: Bachelor of Nursing Students Level of Clinical Competence**

<b>Clinical Competences</b>	<b>Agree n (%)</b>	<b>Neutr al n (%)</b>	<b>Disagr ee n (%)</b>
Apply critical thinking to patient care	68(68)	14(14)	18(18)
Develop a care plan for patients.	58(57.4)	36(35.6)	7(6.9)
Assess the patient's nutrition and fluid balance.	68(67.3)	20(19.8)	13(12.9)
Administer intravenous and intramuscular. Medications	67(67.6)	20(20.2)	12(12.1)
Perform urinary catheter insertion and care	74 (73.2)	15(14.9)	12(11.9)
Perform pre-operative and post-operative care.	72(71.3)	11(10.9)	18(17.8)
Administer blood transfusion	69(68.3)	7(6.9)	25(24.8)
Demonstrate capacity to secure the patient's upper airway	74(74.8)	6(6.1)	19(19.2)
Perform chest tube care with underwater	51(51)	23(23)	26(26)
Collect information from the client (history taking) and interpretation of their laboratory results.	69(68.3)	14(13.9)	18(17.8)
Analyze and interpret data obtain	51(50.5)	8(7.9)	42(41.6)

**Table 8: Showing confidence in application of advanced skills**

<b>Clinical competencies as perceived by students</b>	<b>Frequency</b>	<b>Mean</b>	<b>S/d</b>
History taking and examination for a differential diagnosis	101	3.2	1.2
Ability to perform chest care with an underwater bag	100	3.34	1.1
Ability to administer a blood transfusion	101	3.6	1.2
Administer pre and post-operative care for patients	101	3.7	1.0
Insert and care for a urinary catheter	101	3.9	1.2
Confidently administer intravenous medications	101	3.9	1.2
Assess Nutrition and fluid balance	101	3.8	1.0
Develop a patient care plan	101	3.7	0.9
<b>Total average score on competence acquisition</b>	<b>101</b>	<b>3.63</b>	<b>0.59</b>

Table 8 illustrates that students perform highest in insertion and care for Urinary catheters and administering IM and IV medicines (3.9) and lowest in history taking the examination and making differential diagnoses (3.2). Considering reflected means, students rated themselves as moderately competent. Because individual variables can affect the performance towards the application of acquired competencies, the researcher thought it significant to relate background variables to the dependent variable confidence in the application of acquired competencies. Furthermore, to test whether the respondents' background affected performance in the application of acquired competencies, the researcher aggregated all items in Section E of the questionnaire for the dependent variable (acquisition of clinical competencies) in one index (Aqicomp) with arithmetic mean = 3.63 and standard deviation = 0.59. as shown in the table above.

**Table 9: shows the Arithmetic mean and standard deviation on the score of the dependent variable (Aquicomp)**

<b>Skill acquisition</b>	<b>Frequency</b>	<b>Mean</b>	<b>Std. deviation</b>
Average performance on Acquisition of clinical competence (Aquicomp)	101	3.631	0.59

#### **4.4.1 Variation of application of acquired clinical competencies (Aquicomp) by Gender.**

The researcher also wanted to determine whether acquiring clinical competencies (Aquicomp) varied with gender. Table 14 shows the relationship between gender and perceived clinical competence acquisition as determined using the independent sample t-test results.

**Table 10: Summary of the t-test results for the relationship between gender and perceived application of clinical competency acquisition.**

<b>Gender</b>	<b>Frequency</b>	<b>Mean</b>	<b>SD</b>	<b>T</b>	<b>Sig</b>
Male	37	3.60	0.646	0.82	0.778
Female	64	3.64	0.563	0.82	0.778
Total	101	7.24	1.209	0.82	0.778

According to the means in Table 10 above, there is no significant difference between perceived confidence in acquiring clinical competencies among male and female students. This is proved by the t value of 0.82, and its calculated sig = 0.778, which is more significant than alpha = 0.05. Therefore, the conclusion is that there is no significant difference in perceived confidence in the application of acquired clinical skills between male and female students.

#### **4.4.2 Application of Acquired Clinical competences by Age**

The relationship between age and perceived confidence in applying acquired clinical

competencies (Aquicomp) was determined using ANOVA. Below is a table showing the relationship between age and perceived confidence in applying acquired clinical competence using ANOVA.

**Table 11: Descriptive statistics and ANOVA results for the relationship between age and confidence in applying acquired clinical competencies.**

Age	Frequency	Mean	SD	F	Sig.
21 – 24 years	43	3.6	0.67	0.5	0.78
25 -28 years	28	3.7	0.66		
29 -32 years	12	3.6	0.37		
33 -36 years	7	3.9	0.16		
37 – 40 years	7	3.5	0.47		
40 + years	3	3.6	0.29		
<b>Overall</b>	<b>101</b>	<b>3.6</b>	<b>0.6</b>		

The Mean in Table 15 suggests that different age groups scored slightly differently on confidence in applying acquired clinical competencies, with those aged 33 – 36 scoring highest and those aged 37–40 scoring lowest. The researcher considered the F value of 0.5 to confirm whether the differences were significant. The significance value of 0.78 is more excellent than  $\alpha = 0.05$ . This shows that there is no significant relationship between age and academic performance.

#### **4.4.3 Application of acquired clinical competencies by number of clinical placements**

The study was interested in whether confidence in applying acquired clinical competencies (Aquicomp) varied with the number of placements the student had attended. Table 16 summarizes the descriptive statistics, and ANOVA results on how confidence in applying acquired clinical competencies varied with the number of placements the student attended.

**Table 12: The relationship between the number of placements attended and application of clinical competencies.**

Placements	Mean	SD	F	Sig.
1 -2 placements	3.6	1	0.5	0.77
Three placements	3.6	0.2		
Four placements	3.7	0.6		
5 + placements	3.6	0.6		
<b>Overall</b>	<b>3.6</b>	<b>0.6</b>		

The means in Table 16 suggest that the difference in the number of placements scored on confidence in applying acquired clinical competencies, with the students who had attended four placements scoring highest and the rest scoring almost the same. To confirm whether the differences were significant, we consider the F value 0.5, whose significance of 0.77 is more significant than  $\alpha = 0.05$ . The conclusion, therefore, is that there is a significant difference between the number of placements attended and students' confidence in applying acquired skills.

#### **4.4.4 Confidence in the application of clinical competencies by method of entry into the program**

The study was interested in whether the mode of entry into the nursing program varied with the acquisition of clinical competencies.

**Table 13: Relationship between student mode of entry and application of clinical competence**

Number of clinical placements attended	Frequency	Mean	St. deviation	F	Sig.
Direct entry	66	3.6	0.7	0.46	0.002
Extension program	35	3.6	0.4		
Overall	101	3.6	0.6		

The means in Table 13 suggest that different methods of student entry into the program scored similarly in confidence to apply acquired competencies. To verify whether this similarity in the mean was significant, the researcher considered the F value of 0.46, whose significance (Sig) value of 0.002 is less than  $\alpha = 0.05$ . In conclusion, there is no significance in the method of entry and student confidence in applying acquired competencies.

#### **4.4.5 Verification of the Study Objectives**

This Subsection gives an insight into how the four study hypotheses were verified.

#### **4.4.6 Objective one: Student perceptions and confidence in applying clinical competencies.**

The objective hypothesis was stated: “There is a positive relationship between students' perceptions and confidence in the application of acquired clinical competencies by undergraduate nursing students.” The researcher tested this hypothesis by asking respondents to rate themselves on their confidence level in applying essential nursing competencies. The conceptualized factors include Congruence in what is learned in class and what is practiced on the ward, enough time to practice, regular assessments, desire to achieve goals, demand for nurses on the job market, sufficient theory learned, and courage to ask questions in practice. The rating was according to a Likert scale: strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. The descriptive statistics of respondents' rating their level of performance as per their conceived perceptions was summarized in order of means as shown in Table 14 below,

**Table 14: Perceptions of undergraduate nursing students on what influences the acquisition of competencies**

Student perception of what influences the acquisition of clinical competencies	Frequency	Mean	SD
There is enough time to practice skills	101	3.7	0.9
There is congruence with what is learned in class and practiced on the ward.	101	3.5	1.1
My peers influence my ability to acquire skills.	101	3.7	1.0
Students will learn skills	99	2.7	1.2
Students perceived the capacity to understand	101	3.8	1.0
Student adequately prepared	101	3.8	1.2
Having sufficient theoretical knowledge	101	3,2	1.2
When a student has the desire to achieve goals	101	3.6	1.1
Student courage to ask and be corrected	101	3.5	1.2
Students' intention to open my clinic	99	3.6	1.1
I have a positive attitude	101	3.8	1.2
Desire to further my education career	101	3.6	1.1
The high demand for nurses on the job market	101	3.8	1.1

Table 14 suggests that the respondents who were driven by the perception of natural ability to understand and adequately prepare for the practicum, those who had a positive attitude, and those who thought there was high demand for nurses on the Job market scored highest (3.8). The respondents who thought it was their will to learn the skills were the lowest. Overall, the means suggest that the respondents' performance in applying skills was fair (3.6). All four items were aggregated into one index (StudePerc) to test for objective one. The dependent variable application of acquisition of competencies (Aquicomp) was then related to each variable (StudePerc)

The index for students' perceptions (Studeperc) was already calculated with mean = 3.59 and standard deviation = 0.651 in section 4.2.1. To correlate the two indices, the Spearman's product-moment coefficient was used;

**Table 15: students' perceptions and student acquisition of clinical competencies**

		Student perceptions	Competency acquisition
Average Student perceptions	Pearson Correlation	1	.775**
	Sig. (2-tailed)		.000
	N	101	101
Competence Score on Skill Development	Pearson Correlation	.775**	1
	Sig. (2-tailed)	.000	
	N	101	101

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 15 shows a positive Pearson correlation index,  $r = 0.775$ . The significance or p-value = 0.000, less than the predetermined  $\alpha=0.01$  or  $\alpha = 0.05$ . This result indicates a significant relationship between students' perceptions and the acquisition of clinical competencies.

#### **4.4.7 FGDs on the theme of students' perceptions of what influences the acquisition of clinical competencies**

The interviews on students' perceptions of contribution to student acquisition of clinical skills demonstrated that the most critical factor contributing to the acquisition of skills was the time they were allowed to practice the skills on the ward. The study also revealed that personal motivations assisted them in acquiring the skills in the short time they were allowed on the ward. The statements on the feedback that have been pointed out in the FGDs are as indicated by the following quotes;

*"As students from various institutions, we come together in the clinical area.*

*"We collaborate to enrich our learning experience through knowledge exchange gained from our different educational institutions. Additionally, we motivate*

*ourselves and provide support and assistance to one another throughout our practicum process." (Participant FGD 2).*

*"In the past, our clinical Supervisors accompanied us to the hospitals. However, nowadays, you might be allocated somewhere without any supervisor accompanying you. This change has affected us as students in terms of more guidance on specific procedures (participant FGD 1).*

*"Time to practice in the wards is minimal. Just two weeks cannot be enough." let the administrators make it at least two months ( Participant FGD 3 and 2).*

*"We are faced with a shortage of resources and a need for our preceptors in the clinical area. We do not get any feedback, which is impeding our ability. Despite these obstacles, we remain committed to learning and are determined to overcome these challenges." Participant (FGD3).*

#### **4.4.8 Students' perceptions on what influences the acquisition of clinical competencies as viewed by Preceptors**

##### **Demographic Characteristics of Preceptors**

Table 17 below shows the characteristics of the preceptors. Of the 48 preceptors who responded, 20.8% (n=10) were males, while 79.1% (n=38) were females. Results in Table (10) also reveal that the majority of the respondents, 43.7 % (n= 21) of the preceptors, were between the age of 45-54 years, followed by 33.3% (n=16) who were 35-44 years. The rest, 22.9%(n=11), were between 55 and above years. In addition, 75 % (n=36) of the preceptors were married, while 25% (n=12) were still single. The highest level of education indicated that the majority, 60.4% (n=29) of the Preceptor possessed a bachelor's degree as the highest professional qualification, followed by those with a master's degree, 22.9 % (n=11), while only 16.6% (n= 8), had a diploma qualification. Furthermore, for

most of the preceptors, 39.5% of n=19 never held a preceptorship position, and 60.4% (n=29) of the preceptors none had ever been appointed or allowed to work as preceptors. As shown in the table below.

**Table 17: Characteristics of Preceptors**

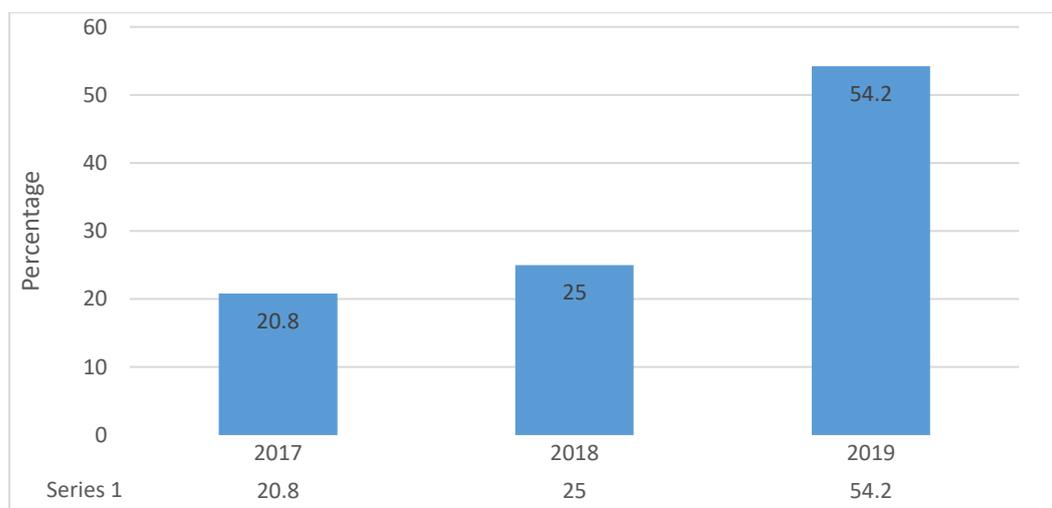
<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Sex</b>		
<b>Male</b>	10	20.8
<b>Female</b>	38	79.1
<b>N=48</b>		
<b>Age</b>		
<b>35-44</b>	16	33.3
<b>45-54</b>	21	43.7
<b>55 and above</b>	11	22.9
<b>N =48</b>		
<b>Marital Status</b>		
<b>Married</b>	36	75
<b>Single</b>	12	25
<b>N = 48</b>		
<b>Highest level of Professional Education</b>		
<b>Bachelors</b>	19	39.5
<b>Masters</b>	11	22.9
<b>Diploma</b>	8	16.6
<b>N=48</b>		
<b>Held the previous position</b>		
<b>Yes</b>	19	39.5
<b>No</b>	29	60.4
<b>N= 48</b>		

Table 18 below shows the preceptor's training status. One hundred percent (n=48) have never attended a preceptorship training program. The table also shows that most preceptors with experienced medical education have a diploma (62.5% n=30), and less than fifty percent, 37.5 % (n=18), have a bachelor's degree. In comparison, 0% of the preceptors had a master's degree qualification.

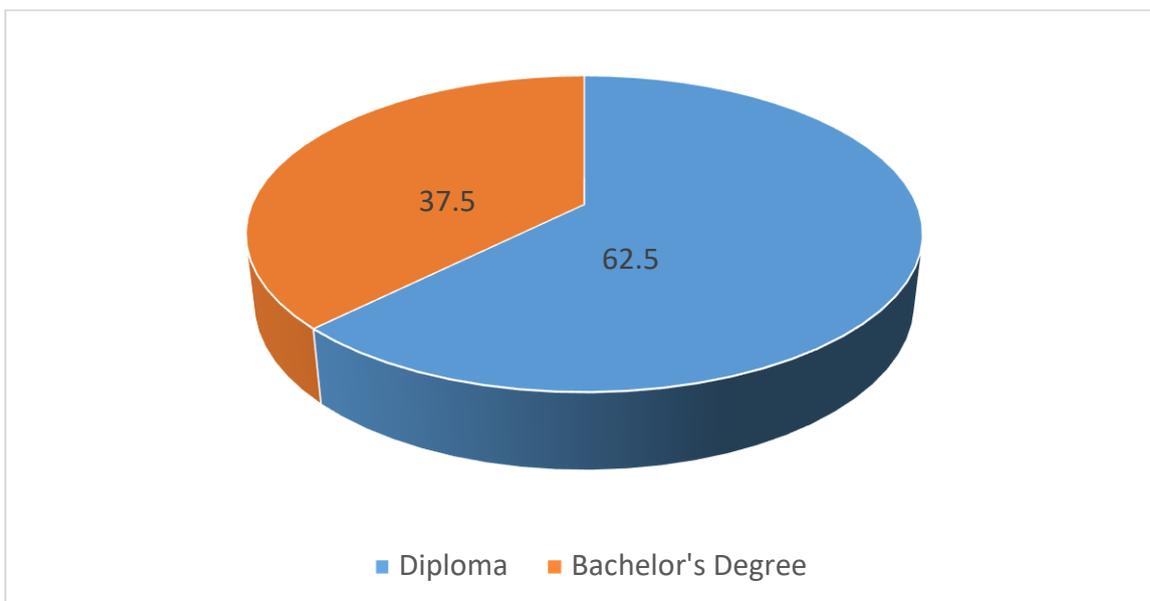
**Table 18: Showing the preceptors' Training Status**

Trained preceptor	Frequency	Percentage
Yes	0	0
No	48	100
<b>N= 48</b>		
<b>Level of medical education training</b>		
Bachelors	18	37.5%
Diploma	30	62.5%
Masters	0	0%
<b>N= 48</b>		

Fig 2 below shows that the highest number, 26(54.2%) of the preceptors, had previously attended a continuous program development course in 2019, followed by 12(25%) in 2018, and 10(20.8%) attended in 2017.

**Figure 2: Showing the preceptors' medical education training status.****Figure 3: Level of Medical Education Training**

The results of Figure 3 below indicate that the majority, 62.5% (n=30) of the preceptors, had a diploma in medical education, while 37.5% (=18) had a bachelor's degree.



**Figure 3: Showing Preceptors' Level of Medical Education Training**

**Table 19: Preceptors' perceptions on what influences the acquisition of clinical competencies.**

	Responses	N=48	%
	<b>Preceptors</b>		
1.	Adequate time for practice is required.	N=20	41.6 %
2.	Many resources required	N=11	22.9%
3.	It needs much supervision, which needs to be improved.	N=17	35.4%
4.	<b>What factors affect the acquisition of competencies among undergraduate nursing students</b>		
	Student accompaniment to the wards by their supervisors at the respective universities needs to be improved because, most of the time, preceptors are busy with patients on the wards.	N=11	22.9 %
	little time to practice and a Lack of resources onward	N=18	37.5%
	Students need more time to learn the procedures in the ward. They keep moving from place to place.	N=19	39.5%

#### **CHARACTERISTICS OF SUPERVISORS**

Table 20 below shows that 71.4% (n=5) of the supervisors were females, while 28.6; (n=2) were males. More than half of the supervisors were between the ages of 45- and 54, followed by 28.5% (n=2) and then 14.3. The majority of the supervisors, 71.4 % (n=5), were Married, while 28.5 (n=2) were single. The majority, 42.8% n= 3 of the supervisors, held their current positions for less than five years, while the rest had their positions for 6-8 years. Over half, 57.1% (n 4) of the supervisors held similar positions before, while the others, 42.8% (n =3), had never held any similar position.

**Table 20 Characteristics of Supervisors (n=7)**

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Sex</b>		
<b>Male</b>	2	28.5
<b>Female</b>	5	71.4
<b>Age</b>		
<b>35-44</b>	2	28.5
<b>45-54</b>	4	57.1
<b>55 and above</b>	1	14.3
<b>Marital Status</b>		
<b>Married</b>	5	71.4
<b>Single</b>	2	28.5
<b>Period I have held the position.</b>		
<b>Less than five years</b>	3	42.8
<b>6-9 years</b>	2	28.5
<b>10-15 years</b>	2	28.5
<b>Had ever held the supervisory position</b>		
<b>Yes</b>	4	5.71
<b>No</b>	3	42.8

**Table:21 Supervisors demographics**

<b>How long have you worked as a supervisor/lecturer?</b>		
	<b>Frequency</b>	<b>Percentage %</b>
00-05 Years	3	43.0
06-15 Years	2	28.5
16-25 Years	2	28.5
Total	7	100
<b>Have you ever supervised students during their practicum?</b>		
	<b>Frequency</b>	<b>Percentage %</b>
Yes	4	57.1
No	3	42.9
Total	7	100

The table shows that 43% of the supervisors have been supervisors for 0- 5 years, 28.5% for 6-15 years, and 28.5% for 16-25 years.

#### **4.5 Undergraduate nursing students' Level of Clinical Competency**

In this study, nursing students were asked to rate their current acquisition level of the various clinical competencies that are key in practicing their nursing profession after graduation (Table 14). The majority of the study participants mentioned that they were able to secure the patient's upper airway (74.8%), catheterize patients (73.2%), perform pre- and postoperative care (71.3%), take the patient's health history, and interpret their laboratory results (68.3%), administer blood to patients (68.3%), could apply critical thinking while caring for patients (68%), administer intravenous and intramuscular medications (67.6%), and could assess the patients' nutritional and fluid status (67.3%). Nevertheless, fewer study participants could develop patients' care plans (57.4%), perform chest tube care during underwater seal drainage (51%), and analyze and interpret data obtained during their client's assessments (51%). This is shown in the table below;

**Table 22: Undergraduate Nursing Students' Level of Clinical Competency**

<b>Clinical Competencies</b>	<b>Agree n (%)</b>	<b>Neutral n (%)</b>	<b>Disagree n (%)</b>
Apply critical thinking to patient care	68(68)	14(14)	18(18)
Develop a care plan for patients.	58(57.4)	36(35.6)	7(6.9)
Assess the nutrition and fluid balance of the Patient.	68(67.3)	20(19.8)	13(12.9)
Administer intravenous and intramuscular Medications	67(67.6)	20(20.2)	12(12.1)
Perform urinary catheter insertion and care	74 (73.2)	15(14.9)	12(11.9)
Perform pre-operative and post-operative care.	72(71.3)	11(10.9)	18(17.8)
Administer blood transfusion	69(68.3)	7(6.9)	25(24.8)
Demonstrate capacity to secure the patient's upper airway	74(74.8)	6(6.1)	19(19.2)
Perform chest tube care with underwater	51(51)	23(23)	26(26)
Collect information from the client (history taking) and interpretation of their laboratory results.	69(68.3)	14(13.9)	18(17.8)
Analyze and interpret data obtained in the client's assessments	51(50.5)	8(7.9)	42(41.6)

Table 22 illustrates that students perform highest in insertion and care for Urinary catheters and administering of IM and IV medicines (3.9) and lowest in history taking, examination, and making of differential diagnosis (3.2). On the whole, considering the means reflected, the students rated themselves as performing moderately well. Since personal variables affect performance in the application of acquired skills, the researcher thought it essential to relate background variables to the dependent variable confidence in the application of acquired skills. For purposes of testing whether the background of respondents affected performance in the application of acquired skills, all items in Section E of the questionnaire (Appendix A) for the dependent variable (acquisition of clinical skills) were aggregated in one index (Aquiskill) with arithmetic mean = 3.63 and standard deviation =0.59. as shown below.

**Table 23: Confidence in the application of basic clinical skills as perceived by the students**

<b>Clinical competencies students perceived as well grasped</b>	<b>Frequency</b>	<b>Mean</b>	<b>Standard deviation</b>
Ability to take patient history and examination for a differential diagnosis	101	3.2	1.2
Ability to perform chest care with an underwater sill bag	100	3.34	1.1
Ability to administer a blood transfusion	101	3.6	1.2
Administer pre and post-operative care for patients	101	3.7	1.0
Insert and care for a urinary catheter	101	3.9	1.2
Confidently administer intravenous medications	101	3.9	1.2
Assess Nutrition and fluid balance	101	3.8	1.0
Develop a patient care plan	101	3.7	0.9
<b>Total average score on competency acquisition</b>	<b>101</b>	<b>3.63</b>	<b>0.59</b>

#### **4.6 Variation of application of acquired competencies (Aquicomp) with Gender.**

The study was interested in whether performance in applying acquired clinical competencies (Aquicomp) varied with gender. Table 24 below shows the relationship between gender and the perceived application of acquired competencies as determined using the independent sample t-test results.

**Table 24: Relationship between gender and application of acquired clinical competencies.**

<b>Sex</b>	<b>Frequency</b>	<b>Mean</b>	<b>St. deviation</b>	<b>T</b>	<b>Sig.</b>
Male	37	3.60	0.645	0.81	.776
Female	64	3.64	0.563		

The means in Table 17 suggest no significant difference in perceived confidence in applying acquired skills among male and female students. This is proved by the t value of 0.81, and its calculated sig = 0.776, which is more significant than alpha = 0.05. Therefore, the conclusion is that there is no significant difference in perceived confidence in applying acquired clinical competencies between male and female students.

#### 4.6.1 Variation with Age

The relationship between age and perceived confidence in applying acquired competencies (Aquicomp) was determined using ANOVA. Table 18 below summarizes the relationship between age and confidence in applying acquired clinical competencies using ANOVA.

**Table 25: The Relationship between age and confidence in applying acquired skills**

Age	Frequency	Mean	St. deviation	F	Sig.
21 – 24 years	43	3.6	0.67	0.5	0.78
25 -28 years	28	3.7	0.66		
29 -32 years	12	3.6	0.37		
33 -36 years	7	3.9	0.16		
37 – 40 years	7	3.5	0.47		
40 + years	3	3.6	0.29		
<b>Overall</b>	<b>101</b>	<b>3.6</b>	<b>0.6</b>		

The means in Table 25 suggest that different age groups scored slightly differently on confidence in applying acquired skills, with those aged 33 – 36 scoring highest and those aged 37 – 40 scoring lowest. To confirm whether the differences were significant, we consider the F value 0.5, whose significance value of 0.78 is more critical than alpha = 0.05. Therefore, the conclusion is that there is no significant relationship between age and academic performance.

#### 4.6.2 Variation of confidence in the application of acquired clinical skills

The study was interested in whether confidence in applying acquired clinical competencies (Aquicomp) varied with the number of placements the student had attended. Table 26 summarizes the descriptive statistics and ANOVA results on how confidence in applying acquired clinical competencies varied with the number of placements the student attended.

**Table 26: relationship between the number of placements students attended and application of acquired competencies**

<b>Number of clinical placements attended</b>	<b>Frequency</b>	<b>Mean</b>	<b>SD</b>	<b>F</b>	<b>Sig.</b>
1 -2 placements	18	3.6	1	0.5	0.77
Three placements	26	3.6	0.2		
Four placements	30	3.7	0.6		
5 + placements	27	3.6	0.6		
<b>Overall</b>	<b>101</b>	<b>3.6</b>	<b>0.6</b>		

The means in Table 29 suggest that the difference in the number of placements scored differently on confidence in the application of acquired clinical competencies, with the students who had attended four placements scoring highest and the rest scoring almost the same. To confirm whether the differences were significant, we consider the F value 0.5, whose significance of 0.77 is more significant than  $\alpha = 0.05$ . The conclusion, therefore, is that there is no significant difference between the number of placements attended and students' confidence in applying acquired competencies.

#### 4.6.3 Variation of confidence in the application of acquired clinical competencies

The means in Table 30 suggest that different methods of student entry into the program scored similarly in confidence to apply acquired competencies. To confirm whether the similarity in the mean was significant, we consider the F value of 0.46, whose significance (Sig) value of 0.002 is less than  $\alpha = 0.05$ . The conclusion, therefore, is

that there is no significant relationship between the method of entry and student confidence in the application of acquired clinical competencies.

**Table 15: The relationship between students' mode of entry into the program and application of acquired clinical competencies.**

<b>Number of clinical placements attended</b>	<b>Frequency</b>	<b>Mean</b>	<b>St. deviation</b>	<b>f</b>	<b>Sig.</b>
Direct entry	66	3.6	0.7	0.46	0.8
Extension program	35	3.6	0.4		
Overall	101	3.6	0.6		

#### **4.7 Verification of Objectives**

This subsection verifies the four study objectives.

##### **4.7.1 Objective one:**

The study's first objective was to explore undergraduate nursing student's perceptions of what influences the acquisition of clinical competencies in government and private universities in Uganda.

The Hypothesis was that there is a positive relationship between students' perceptions and their acquisition of clinical competencies among Bachelor of Nursing students in government and private Universities in Uganda.

To test this hypothesis, the researcher asked the respondents to rate their level of confidence in the application of basic nursing skills regarding their perceived supportive factors conceptualized as Congruence between what is learned in class and what is practiced on the ward, enough time to practice, regular assessments, desire to achieve goals, demand for nurses on the job market, sufficient theory learned and courage to ask questions in practice.

The rating was according to the Likert scale, with one representing strongly disagree, two representing disagree, three representing neither agree nor disagree, four representing agree, and five representing strongly agree. A summary of the descriptive statistics of respondents rating their level of performance as per their conceived perceptions is given in Table 31 in the form of means.

**Table 16: Perceptions of undergraduate nursing students on what influences the acquisition of clinical competencies.**

<b>Student perception of what influences competency acquisition</b>	<b>Frequency</b>	<b>Mean</b>	<b>Standard deviation</b>
Congruence between what is learned in class and what is practiced on the ward	101	3.5	1.1
My peers influence my ability to acquire skills	101	3.7	1.0
Students will personally learn skills	99	2.7	1.2
Students perceived the capacity to understand	101	3.8	1.0
Students are adequately prepared to practice	101	3.8	1.2
Having sufficient theoretical knowledge	101	3.2	1.2
Student courage to ask and be corrected	101	3.5	1.2
Students intend to open their own clinics	99	3.6	1.1
When a student has the desire to achieve goals	101	3.6	1.1
There is enough time to practice clinical skills	101	3.7	0.9
I have a positive attitude	101	3.8	1.2
Desire to further my education career	101	3.6	1.1
High demand for nurses' job market in the country	101	3.8	1.1

The means in Table 31 suggest that the respondents who were driven by the perception of natural ability to understand and adequately prepare for the practicum, those who have a

good attitude, and those who thought that there was high demand for nurses on the Job market scored the highest (3.8). The respondents who believed their will to learn the skills would influence them to learn the skills scored the lowest (2.7). Overall, the means suggest that the respondents' performance in applying skills was fair (3.6). For purposes of testing objective one, all the items were aggregated into one index (StudePerc). The dependent variable application of acquired competencies (Aquicom) was then related to each variable (StudePerc), as shown in the table below.

**Table 17: Students' perceptions of what influences them to acquire clinical competencies**

	N	Minimum	Maximum	Mean	Std. Deviation
Student perceptions (Studeperc)	101	1.47	4.75	3.5971	0.65178

The index for students' perceptions (Studeperc) was calculated with an arithmetic mean of 3.59 and a standard deviation of 0.651 (Table 32). Spearman's product-moment coefficient was used to correlate the two indices, as shown in Table 33 below.

#### **4.7.2 Students' perceptions and students' acquisition of clinical competencies**

Table 33 below illustrates that the Pearson product-moment correlation index obtained is positive at  $r = 0.775$ . The significance or p-value = 0.000, less than the predetermined  $\alpha=0.01$  or  $\alpha = 0.05$ . This result indicates a significant relationship between students' perceptions and their acquisition of clinical competencies, thus confirming the research hypothesis that there is a positive relationship between students' perceptions and their acquisition of clinical competencies among undergraduate nursing students in Government and private universities in Uganda.

**Table 34: Relationship between students' perceptions and students' acquisition of clinical competencies**

		Student perceptions	Competency acquisition score
Average Student perceptions	Pearson Correlation	1	.775**
	Sig. (2-tailed)		.000
	N	101	101
Competency acquisition score	Pearson Correlation	.775**	1
	Sig. (2-tailed)	.000	
	N	101	101
**. Correlation is significant at the 0.01 level (2-tailed).			

#### **4.7.3 FGDs on the theme of students' perceptions' contribution to students' acquisition of clinical competencies.**

The interviews on students' perceptions of their contribution to student acquisition of clinical skills demonstrated that the most critical factor contributing to their acquisition of skills was the time they were allowed to practice them on the ward. The study also revealed that personal motivations assisted them in acquiring the skills in the short time they were allowed on the ward.

#### **Inadequate preparations for the practicum**

The students emphasized that the limited number of qualified staff in the clinical setting needed to improve their learning and practical experience. Many students expressed concern about the need for more preceptors, which resulted in inadequate supervision of students in the different wards. This sentiment is reflected in the following statements:

*"As students, we come together in the clinical area to learn and be guided.*

*Sometimes, nurses on the ward look as if they need to prepare for the student's*

*practice. We collaborate and actively support and assist one another throughout the learning process."*

*"In the past, our clinical instructors accompanied us to the hospitals. Nowadays, however, you might be allocated somewhere with someone following you. This change has affected us as students."*

*"We are faced with an issue of shortage of human resources, and the need for preceptors in the clinical area is impeding our ability to achieve our educational objectives. Despite all this, we remain committed to learning, and we are determined to work and study even harder so that we graduate."*

#### **4.7.4 Objective Two:**

Clinical learning environment factors that affect the acquisition of clinical competencies among undergraduate Nursing students in Government and private universities in Uganda. The objective was to establish the clinical learning environment factors that influence the acquisition of clinical competencies among undergraduate nursing students in government and private Universities in Uganda. The hypothesis was stated; "There is a positive relationship between the clinical learning environment and acquisition and application of clinical competencies among the undergraduate nursing students." To test this objective, the researcher asked respondents to rate the learning environment in the practicum. The learning environment was conceptualized as access to the necessary equipment, practicum at a teaching hospital, and not enough patients on which to practice. The rating was according to the Likert scale, with one representing strongly disagree, two representing disagree, three representing neither agree nor disagree, four representing agree, and five representing strongly agree. A summary of

the descriptive statistics of respondents' rating their level of performance as per their conceived perceptions of a good learning environment is given in Table 34 below.

**Table 18: Clinical Learning environment factors and the acquisition of competencies.**

<b>Clinical environmental factors influencing acquisition of clinical competencies</b>	<b>Frequency</b>	<b>Mean</b>	<b>Standard deviation</b>
Student having access to necessary equipment they need	99	3.89	1.0
When students do Practicum at their teaching hospital	96	4.28	0.86
The learning environment supports learning to take place	101	3.5	0.91
When exposed to many different patients in the hospital	98	3.7	1.1
The Clinical environment encourages participation	101	3.6	1.2
We have adequate equipment to use during the practicum	99	3.3	1.2
The learning environment does not support learning	101	3.2	1.2
There are not enough patients in the health facilities.	101	3.4	1.1
Nurses in the wards would demonstrate procedures.	99	3.1	1.2

The means in Table 35 suggest that doing a practicum at the University teaching hospital had the highest contribution to the acquisition of clinical competency (4.283), followed by access to adequate necessary equipment (3.89), and the least was that staff nurses in the ward would demonstrate procedures (3.1). Overall, the means in Table 35 Also suggest that the perceived good learning environment of the respondents was high. For purposes of testing Hypothesis Two, to see whether there is a positive relationship between clinical learning environment and acquisition of clinical competencies, all the items in the clinical learning environment (Appendix A, Section C) were aggregated into one index, Clilerenv.

With arithmetic mean = 3.63 and standard deviation = 0.59, as shown in Table 35. To correlate the two indices, the Spearman's product-moment coefficient was used;

**Table 19: Clinical environment factors influencing students to acquire clinical competencies**

			Competency Score	Clinical learning environment
Spearman's rho	Average Competency Score On Skill Development	Correlation Coefficient	1.000	.556**
		Sig. (2-tailed)	.	.000
		N	101	101
	The average clinical learning environment	Correlation Coefficient	.556**	1.000
		Sig. (2-tailed)	.000	.
		N	101	101
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 36 illustrates that Spearman's correlation index is positive at  $\rho = 0.556$ . The significance or p-value = 0.000 is less than the predetermined  $\alpha=0.01$  or  $\alpha = 0.05$ . This result indicates a significant relationship between a perceived conducive clinical learning environment and students' acquisition of clinical competencies, thus confirming the research hypothesis that a positive relationship exists between clinical learning environment and clinical competencies among undergraduate nursing students.

#### **4.7.5 FGDs Clinical learning environment factors influencing acquisition of clinical competencies**

Within this theme, hindrances to acquiring clinical competencies and meeting clinical objectives were explored, mainly focusing on inadequate resources and poor adherence

to standards and guidelines.

### **Inadequate Resources**

Beyond human resources, students also highlighted a need for more necessary resources to support their development of clinical competencies, including clinical equipment and protective gear. The resource deficiency fell within students' expectations. It contributed to a decline in the quality of their clinical learning and the delivery of substandard nursing practices due to the improvisation of resources. Student statements on this matter include:

*"In real practice, I often encounter a situation where most of the equipment or accessories taught in class are unavailable in the ward. I failed to get gloves when I was told to inject a patient. By midday, all gloves were finished." (Participant in Focus Group Discussion 2)*

*"Improvising poses a significant challenge during our practicum. It sometimes becomes difficult because what you learn in class aligns differently with the resources available in different health units. We need more resources and end up improvising. (Participant in a focus group discussion)*

#### **4.7.5 Objective Three: Preceptors' participation in enabling undergraduate nursing students to acquire clinical competencies**

The hypothesis was stated; "There is a positive relationship between preceptors' participation in enabling students' acquisition of clinical competencies and acquisition of competencies by undergraduate students." To test this hypothesis, the researcher asked respondents to rate the level of preceptors' participation in terms of availability, accessibility, setting objectives, demonstration of skills, attitude, and interpersonal relationships. The rating was according to the Likert scale, with one representing strongly disagree, two representing disagree, three representing neither agree nor

disagree, four representing agree, and five representing strongly agree. A summary of the descriptive statistics of respondents' rating their level of skill application as per their conceived perceptions on preceptors' participation is given in Table 37 below;

**Table 20: Preceptors Participation in enabling nursing students to acquire clinical competencies.**

<b>Preceptors' participation in competency acquisition</b>	<b>Freq</b>	<b>M</b>	<b>SD</b>
Preceptor available whenever needed by students	101	3.5	1.0
Preceptor accessible physically when required	101	3.6	1.1
Preceptor provides students with learning objectives	101	2.7	1.3
preceptor demonstrates, and students practice under supervision	101	3.39	1.14
The preceptor has good behavior and a positive attitude	100	3.63	1.2
The preceptor has excellent and regular communication when needed	101	3.2	1.2
preceptors prepare students before placements	100	3.6	1.0
the preceptor is competent with professional skills	101	3.9	1.1
The preceptor has an adequate interpersonal relationship with the student	99	4.1	0.8
preceptor gives adequate and timely feedback to students	99	3.6	1.1

According to the means in Table 38 below, the respondents indicated that interpersonal skills between preceptor and student (4.1) and their competency with high professional skills (3.9) score highest in enabling students to acquire and confidently apply clinical skills. The results of Table 38 seemed to imply that, on the whole, the respondents gained many skills from the preceptor's personal competencies and professional knowledge. For purposes of testing Hypothesis Three, that is, whether there was a positive relationship between preceptors' participation and acquisition of clinical competencies, all the ten items on preceptors (Appendix A, Section B) were aggregated into one index (Preceptor Part) with arithmetic mean = 3.7 and standard deviation = 0.6 as shown in Table 38;

**Table 21: Preceptors' participation in enabling nursing students to acquire competencies**

Preceptors' participation in enabling nursing students to acquire clinical competencies	Frequency	Mean	Standard deviation
	101	3.7	.6

Table 39 below illustrates that Pearson's Correlation  $r = 0.781$  computed for the Preceptor's participation in enabling nursing students to acquire competencies (Preceptor Part) and acquisition of competencies (Aquicom) was positive with the significance of  $p\text{-value} = 0.000$ , which is less than  $\text{Alpha} = 0.01$  or even  $\text{alpha} = 0.05$ . This result indicates a significant relationship between preceptor participation in enabling nursing students to acquire competencies. Thus, the research hypothesis confirms a positive relationship between preceptors' participation and the acquisition of clinical competencies among bachelor of nursing students.

**Table 22. Preceptors' participation in enabling nursing students to acquire competencies**

		Average Competency Score	Preceptor Participation
Average Competency Score	Pearson Correlation	1	.781**
	Sig. (2-tailed)		.000
	N	101	101
Preceptor Participation	Pearson Correlation	.781**	1
	Sig. (2-tailed)	.000	
	N	101	101

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### **4.7.6 FGDs on the theme of preceptor's participation in enabling nursing students' acquisition of clinical skills.**

The students' perception of preceptors' participation in enabling the students' acquisition of clinical competencies was thematically analyzed using FGDs to supplement the quantitative analysis of preceptors' participation. Most participants said there is very little feedback from the preceptors, though some are dedicated. The statements on the feedback that have been pointed out in the FGDs are as indicated by the following quotes;

##### **Issues with Lack of respect for students**

Specific individuals intensely disliked being scolded in front of their peers. Here are some examples of such statements:

*"While performing a procedure in the ward, there are instances where, as a student, you may lack the necessary skill and struggle to execute the procedure competently. In such situations, staff members criticize you immediately. This significantly lowers my morale, making me uneasy about performing procedures with them. I prefer to receive criticism in private when there is an issue, rather than in the presence of all patients, as it erodes trust" (Participant in focus group discussion 1).*

*"When a student makes a mistake, the preceptor tends to shout and belittle them in front of patients and everyone else. The preceptors on the ward think that a bachelor of nursing student should know every procedure. Most of them forget that we are still students and that we have come to learn. (Participant in focus group discussion 3).*

### **Clinical Assessments and Feedback**

Students raised concerns about the untimely completion of clinical assessments and the inconsistent provision of feedback. Some students shared experiences where their clinical assessments for a specific departmental allocation were overlooked during clinical placement. To address this, an arrangement was made to defer and conduct the assessments at a different hospital and a convenient time for the preceptors. However, students complained that this approach led to assessments in various areas based on what they had learned in their original clinical placement. Others pointed out that deferring clinical assessments worked to their disadvantage, causing stress due to accumulating multiple assessments quickly. One student in a focus group discussion mentioned:

*"Most clinical assessments originally scheduled for completion in the first year are deferred to the third year. This situation creates heightened pressure and delays in receiving feedback, as the assessments become too numerous for preceptors to mark within the required time" (Participant in Focus Group Discussion 2).*

*"Feedback is not constantly provided and is not provided on time. Sometimes, you end the rotation without knowing how you previously performed. This can demoralize us as students." (Participant in Focus Group Discussion 3).*

#### **4.7.7 Objective Four: The influence of institutional factors on the acquisition of clinical competencies**

The hypothesis was stated; "There is a positive relationship between learning institutions and students' acquisition of clinical competencies among undergraduate nursing students in Government and private Universities in Uganda." To test this

hypothesis, the researcher asked respondents to rate the factors that influence convenience, the presence of adequate and competent nursing staff, the supportive head of the department, and the competency of supervisors. The rating was according to the Likert scale, with one representing strongly disagree, two representing disagree, three representing neither agree nor disagree, four representing agree, and five representing strongly agree. A summary of the descriptive statistics of respondents' rating their level of skill application as per their conceived perceptions on institution adequacy was given in Table 40 below;

**Table 23; Institutional factors influencing the acquisition of clinical competencies**

<b>Institutional factors that enable competency acquisition.</b>	<b>Frequency</b>	<b>Mean</b>	<b>SD</b>
The head of the department fully supports us in getting the required Skills	101	3.61	1.2
The Head of the department participates in the preparation of students before going for clinical education.	99	3.7	.97
The head of the department creates a conducive environment for learning to take place	100	3.34	1.0
The Head of the department checks on us while on placement and solves some problems that may have cropped up.	101	3.6	1.1
The supervisor prepares and debriefs us on our expectations before beginning clinical practice.	101	3.2	1.2
The supervisor provides us with regular feedback on our progress.	100	3.6	1.1
I have received meaningful performance progress reports.	101	4.3	3.3
The supervisor observed student performance frequently.	101	4.2	0.9
The supervisor corrected mistakes without belittling me.	99	4.2	0.9
The supervisor/s provided support and encouragement.	98	3.7	1.2

According to the means in Table 41 below, the respondents indicated that receiving meaningful progress reports (4.3) and supervisor observing and correcting mistakes (4.2) scored highest in enabling students to acquire and confidently apply clinical skills. These imply that, on the whole, the respondents gain many skills from adequate and convenient institutional arrangements. For purposes of testing Hypothesis Four, that is, whether there was a positive relationship between institutions' organization and acquisition of clinical competencies, all the ten items on institutional factors were aggregated into one index InstituteFac with arithmetic mean = 3.7 and standard deviation = 0.68 as shown in Table 41.

***Table 24: mean and standard deviation of institutional factors enabling nursing students to acquire competencies ().***

Institutional factors enable nursing students to acquire clinical competencies.	Frequency	Mean	<b>SD</b>
	101	3.7	.68

**Table 25: correlation analysis for the relationship between institutional factors**

			Average Competency Score	Average Institutional factors
Spearman's rho	Average Competency Score	Correlation Coefficient	1.000	.668**
		Sig. (2-tailed)	.	.000
		N	101	101
	Average Institutional Factors	Correlation Coefficient	.668**	1.000
	Enabling Competency Acquisition	Sig. (2-tailed)	.000	.
		N	101	101

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 42 illustrates that Spearman's Correlation rho = 0.668 computed for institutional factors enabling the acquisition of clinical competencies. According to the means in Table 42, the respondents indicated that receiving meaningful progress reports (4.3) and supervisor observing and correcting mistakes (4.2) scored highest in enabling students to acquire and confidently apply clinical skills. The results of Table 42 seemed to imply that, on the whole, the respondents gained many skills from adequate and convenient institutional arrangements. For purposes of testing hypothesis four, that is, whether there was a positive relationship between the institutional organizations and acquisition of clinical competencies, all the ten items on institutional factors (Appendix A, Section B) were aggregated into one index Institute with arithmetic mean = 3.7 and standard deviation = 0.68 as shown in Table 42;

#### 4.7.8 FGD on Institutional factors influencing acquisition of clinical competencies

Students generally preferred their supervisors from their respective universities, as it was more convenient to approach them when facing clinical challenges, incredibly when uncertain about how health workers in unfamiliar allocations would react. Unlike when working under preceptors, students emphasized their comfort in asking questions and acquiring diverse skills when their university supervisor or head of the department was present, which significantly facilitated their learning. Quotations from the students include

*"I expect regular visits from our campus supervisors. We know and feel at ease asking questions. In the clinical setting, seeking guidance from preceptors is challenging and intimidating given our unfamiliarity." (Participant in Focus Group Discussion 2)*

*"I have been anticipating increased visits from the head of the department, fostering a more open environment for addressing issues related to the ward. However, this occurs infrequently." (Participant in Focus Group Discussion 1)*

*"It is crucial for supervisors to spend at least a week in the clinical area during our practicum allocation. Additionally, more frequent visits, exceeding the current three, especially within specific allocations, such as a 4-week surgical nursing period, would provide us with more opportunities to seek guidance and ask questions." (Participant in Focus Group Discussion 3)*

#### Limited time on the wards

The majority of the students were dissatisfied with the amount of time allocated to them during the practicum, as quoted below;

*I wish the head of the department would add more time for practice on the ward.*

*Two weeks cannot be enough. We need to spend a complete month doing hands-on.*

## CHAPTER FIVE

### DISCUSSION OF RESULTS

#### 5.1 Overview

This chapter discusses the findings and their implications based on the research objectives and reviewed literature. This research sought to fulfill the following goals: to explore the perceptions of undergraduate nursing students on what influences the acquisition of clinical competencies in government and private Universities in Uganda, to establish the clinical learning environment factors that influence the acquisition of clinical competencies among undergraduate Nursing students in Government and private Universities in Uganda, to determine the extent of preceptors' participation in enabling undergraduate nursing students to acquire clinical competencies in government and private Universities in Uganda and to Investigate the influence of institutional factors on acquisition of clinical competencies among undergraduate nursing students in Government and private Universities in Uganda.

This study utilized a mixed-method research approach as the most suitable (Creswell & Plano. 2017; Creswell et al., 2018), which gave an overall strength of the qualitative and quantitative methods of the study and adopted a descriptive survey design. This (descriptive survey design) is the process of collecting data to test a hypothesis or answer questions concerning the subject's current status in the study; it determines and reports things the way they are regarding behaviors, attitudes, values, and characteristics. In addition, the researcher used a descriptive design because it allows the researcher to gather information about the situation under the study (Grove, 2019). In support of this, Kate (2021) emphasized that it provides a snapshot of a problem at a particular moment.

### **5.2.1 Participants' Response Rate**

The response rate among students was, (94%, equivalent to the return rate of 101/108). The preceptors were 48/48 (100%), and the supervisors were 7/8 (87.5%). This response was successful, with the highest at 100% and the lowest at 87.5%. These percentages fairly represent the target population. Baruch and Holtom (2008) argue that a response rate of 50% is adequate for most research, while others, like Nulty (2011), suggest that even lower response rates can still be representative if the sample is carefully selected.

### **5.2.2 Participants' demographic profile**

This section analyses the various demographic characteristics of the research participants. Demographics refer to particular population characteristics, such as age, gender, religion, level of education, etc. It provides data regarding research participants (Connely, 2013).

### **5.2.3 Age**

Out of the 101 respondents, the highest percentage of respondents (43%) were aged between 21 and 24 years, and the least number of respondents (3%) were above 40 years of age. The mean age of the respondents was 22.4 years, which is the appropriate mean age for tertiary students in Uganda. Over three-quarters (80%) of the respondents were below 28 years old, which is also the right age bracket for university students in Uganda. Less than three percent of the respondents were over 41 years old; such respondents studied and worked simultaneously, and there are few in government and private universities in Uganda.

Additionally, the age range is between adolescence and early adulthood. This is a critical stage of growth that tends to impact the participants' learning progress. This assertion

aligns with the findings of Sawyer et al. (2018), who highlight that adolescence is a period marked by significant physical, emotional, and social changes, which can create challenges for learning and development. They emphasize the importance of support and guidance from healthcare professionals and educators during this critical stage.

The demographic analysis of participants revealed that the majority (63.4%) were females, while 36.6% were males. This aligns with global trends where nursing is predominantly seen as a female profession. Studies in various regions, including Uganda and the United States, and global reports from the WHO consistently show a disproportionate representation of males in nursing, ranging from 20% to 36.6% (WHO, 2020).

These statistics highlight a concerning gender imbalance within the nursing profession, a trend noted in previous research as well. Such disparities conflict with the principle of equal employment opportunities outlined in the Declaration of Philadelphia. Gender disparities in nursing are significant issues in healthcare, impacting the quality of patient care.

Patients may feel limited in their choice of care provider based on gender, potentially leading to the withholding of crucial personal information crucial for tailored nursing care. In essence, the notable gender inequality in nursing goes against the principles of equality. Limited patient-provider gender choices may hinder the provision of personalized and comprehensive nursing care.

### **5.3. Objective one: Perceptions of Bachelor of Nursing students on what influences the acquisition of clinical competencies**

The hypothesis was stated, "There is a positive relationship between students' perceptions and acquisition of clinical competencies among undergraduate nursing students in government and Private Universities in Uganda.

Concerning objective one of the studies on the perceptions of bachelor of nursing students on what influences the acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda. The researcher aggregated all fifteen items of students' perceptions: enough time to practice the clinical skill, Congruence between what is learned in class and practice onward, peer influence, Students' will, perceived capacity to understand, adequately prepared, having sufficient theoretical knowledge from class, desire to achieve goals, courage to ask, intention to open own clinic, positive attitude, desire to further my education career and the perceived high demand for nurses on the job market.

The Pearson Product Moment Correlation was used to determine the relationship between students' perceptions and acquisition of clinical competencies; the Pearson product-moment correlation index  $r$  gave a significance or  $p$ -value of 0.000, which is less than  $\alpha = 0.01$ , as shown in Table 16. The results revealed that students' perceptions are significantly related to acquiring clinical competencies among undergraduate nursing students in government and private Universities in Uganda.

The Pearson product-moment correlation index  $r$  of Studeperc (the variable representing the aggregated students' perceptions) and Aquicomp (the variable representing the aggregated variables on the acquisition of clinical competencies) gave a significance or  $p$ -value of 0.000, which is less than  $\alpha = 0.05$ , as shown in Table 16. This implies that the positive students' perceptions influence the acquisition of clinical competencies.

More so, the Pearson product-moment correlation index  $r$  of students' perceptions and acquisition of clinical competencies was positive at 0.775, far greater than 0.5. This indicates a robust and significant relationship between students' perceptions and acquisition of clinical competencies. Since it is a positive relationship, it implies that

students who perceive their courses as essential and have a positive attitude are more likely to acquire clinical competencies than their counterparts.

The findings of this study are consistent with several scholars, including (Wan and Madya, 2017), who demonstrated that the less self-efficacy students have, the less opportunity they have to pass academic courses. Bandura (1995) states that self-efficacy is one of the personal beliefs people need to succeed and may show their thinking and actions.

Various studies, including those by Hayat et al. (2020), Oyuga et al. (2019), and de Fátima Goulão (2014), have demonstrated a strong correlation between students' self-efficacy and their academic performance. Research conducted by Mojavezi and Marzieh (2012) and Lin and Papageorgiou (2016) have consistently highlighted the impact of self-efficacy beliefs on students' academic achievements. Essentially, students with robust self-efficacy beliefs tend to excel academically compared to those with lower confidence levels. Additionally, high self-efficacy enables students to be more adaptable to new learning methods and strategies, enhancing their performance, as observed in Candace's (2013) study on self-efficacy and student learning in the USA.

Self-efficacy beliefs are crucial in shaping students' academic performance by influencing their thoughts, processes, motivation, and behavior (Bandura, 1997). Fluctuations in students' academic performance often correspond to changes in their self-efficacy beliefs (Tenaw, 2013). This significance of self-efficacy with academic performance was further emphasized in a study conducted by Garba, Munira, and Nobaya (2017) in Nigeria. Their research focused on the levels of academic self-efficacy beliefs among students and the correlation between these beliefs and their academic achievements in a Nigerian Education College.

The findings revealed a significant positive correlation between academic self-efficacy beliefs and student performance. This promising result, further supported by a study in Uganda by Acheng (2017), investigated the relationship between students' self-efficacy in mathematics and mathematics achievement in terms of attitudes toward math. The statistical population of this study was the Islamic University Mbale students in the field of Chemistry engineering who registered for basic mathematics from August to December 2015.

Parents, lecturers, and other stakeholders are pivotal in supporting students in their fields. Their involvement is crucial as professional eligibility is closely related to self-efficacy. Functional failure does not necessarily stem from weak performance, but less self-efficacy may be a factor in the ineffective use of achieved skills (Bandura, 1997). This underscores the importance of their support. Harvey and McMurray (1994), who have stated that self-efficacy affects the professional improvement of clinical nurses, may explain this result.

Recent studies have supported the idea that students' satisfaction and motivation are closely linked to their interest in the skills they are acquiring. A study published in 2020 in the *Journal of Education Sciences* found that students' intellectual curiosity directly predicts skill acquisition and that motivation plays a mediating role in this relationship (Vos et al., 2020). This is consistent with Sims's findings in 1997, which suggest that students' satisfaction with their learning experience is enhanced when they are engaged in activities that align with their interests. As educators, we play a crucial role in guiding students toward activities that align with their interests and fostering their intellectual curiosity. He noted that for a student with an interest and a positive attitude, learning gives satisfaction, and this cycle continues to support the acquisition of skills and required competencies.

Similarly, Meloni (2010), while studying Students' performance in clinical experiences and, therefore, clinical competency, also found out that student performance in competency application depended on whether students had a positive attitude towards nursing subjects, liked nursing subjects, felt that nursing science would be helpful, and were not afraid to ask questions (Meloni, 2010).

The self-concept of students, their perception of themselves as learners and future nurses, is a pivotal factor in their success during clinical training. Osang's (1990) research established a significant, positive correlation between self-concept and performance, emphasizing the crucial role of fostering a positive self-image in students. Our findings further underscore this, demonstrating a strong, statistically significant relationship between students' self-perceptions and their acquisition of clinical competencies. The cultivation of positive self-perceptions that foster a confident and motivated attitude significantly contributes to a student's ability to learn and master essential skills.

The connection between self-concept and performance is not solely influenced by internal factors. Research by Morris (2007) and Anderson et al. (2011) underscores the detrimental impact of hostile learning environments on student development. Their findings highlight the urgent need for fostering a supportive and respectful clinical environment. Exposure to condescending or insensitive instructors, hostile and humiliating comments, and supervisors' lack of active listening hinders student learning and impedes competency acquisition. Creating a supportive and respectful clinical environment is crucial, where students feel valued and empowered to ask questions and learn from their mistakes.

Beyond the instructor's role, the learning environment can influence student success. Our qualitative data aligns with the work of Habimana et al. (2016) in revealing

concerns about insufficient resources and a lack of dedicated preceptors in clinical settings. Students reported being assigned routine tasks outside nursing practice, limiting valuable learning opportunities. Additionally, a lack of adequate supervision and overcrowding due to a high student-to-patient ratio can hinder a student's ability to gain hands-on experience and develop essential clinical skills.

In conclusion, fostering a positive self-concept, creating a supportive learning environment, and ensuring adequate resources are crucial in optimizing student success in nursing clinical training. By prioritizing student learning, reducing competition for patient care opportunities, and promoting a nurturing clinical atmosphere, nursing education programs can more effectively prepare students for the demands of the healthcare profession and ultimately contribute to a higher quality of patient care.

Guo et al. (2021) proposed encouraging students to practice diverse tasks. This can boost their confidence, mastery, perception, and learning from their mistakes. This approach prepares students for the complexities of healthcare. It cultivates a workforce that can effectively address the diverse needs of patients and communities, ultimately leading to improved healthcare delivery and patient satisfaction.

### **5.3.1 Clinical learning environment factors and acquisition of clinical competencies among undergraduate Nursing students**

The second hypothesis stated, 'Clinical learning environment factors influence nursing students' acquisition of clinical competencies among undergraduate Nursing students in government and private universities in Uganda. The objective was to determine the relationship between the learning environment and the acquisition of clinical competencies among undergraduate nursing students.' To test this objective, the researcher asked respondents to rate the learning environment in the practicum. The

learning environment was conceptualized as access to the necessary equipment, practicum at one's teaching hospital, and enough patients on the ward. The data was collected through a structured questionnaire and analyzed using statistical methods to determine the relationship between the learning environment and the acquisition of clinical competencies.

The rating was according to a Likert scale, a commonly used psychometric scale in which respondents indicate their level of agreement with a statement. In this scale, one represents strongly disagree, two represents disagree, three represents neither agree nor disagree, four represents agree, and five represents strongly agree. A summary of the descriptive statistics of respondents rating their level of performance as per their conceived perceptions of a good learning environment. The researcher aggregated all items of clinical environmental factors, including Students having access to the necessary equipment they need, the hospital where practicum is done, a supportive learning environment that supports learning, and exposure to different patients in the teaching hospital.

The means in Table 34 suggest that the students doing a practicum at their teaching hospital performed highest in the acquisition of clinical skills score (4.28), followed by access to adequate necessary equipment (3.89), and the least was perceived supporting environment (3.5). Overall, the means in Table 34 suggest that, generally, the students perceived their university hospital as a good learning environment for nursing competencies. For purposes of testing objective two, Hypothesis, that is, whether there is a positive relationship between clinical learning environment and acquisition of clinical competency, all the nine items of clinical learning environment were aggregated into one index Clilerenv. With arithmetic mean = 3.63 and standard deviation = 0.59

The research (Table 34) found a significant relationship between the clinical learning environment and the student's capacity to acquire clinical skills. This is shown by

Spearman's correlation index, which was positive at  $\rho = 0.556$ . The significance or p-value = 0.000, less than predetermined  $\alpha=0.01$ , or  $\alpha = 0.05$ . This study's findings indicate a significant relationship between a perceived conducive clinical learning environment and student's acquisition of clinical competencies. These findings are of utmost importance, as they confirm the research hypothesis that a positive relationship exists between the clinical learning environment and undergraduate nursing students' acquisition of clinical skills.

This confirms the research hypothesis that a positive relationship exists between the clinical learning environment and undergraduate nursing students' acquisition of clinical skills. The relationship at 0.556 is above 0.5, demonstrating a strong positive correlation. This suggests that students' chances of acquiring skills will significantly improve if they perceive the clinical learning area as conducive and appropriate. These findings have significant implications for nursing education, as they underscore the importance of creating a supportive and respectful clinical environment to facilitate student learning and competency acquisition.

The findings indicate that students perceive a conducive learning environment as practicing from their teaching hospital and accessing patients to practice their skills within their hospital would be conducive to acquiring competencies.

The findings of this study align with numerous previous research, including (Perli & Brugnolli, 2009 D'Souza et al., 2015 Doyle et al., 2017). These studies, conducted at different times, consistently support the notion that the Clinical Learning Environment, encompassing the clinical settings, resources, staff, patients, preceptors, and nurse educators, significantly influences the student nurse's learning process. This alignment

with established research provides a strong foundation for the current study's findings, instilling confidence in their validity.

The study's results also highlight the students' dissatisfaction with the conduct of clinical assessments and feedback by lecturers and preceptors during clinical practice. Effective learning during clinical placements hinges on students' understanding of correct and incorrect actions. This underscores the gravity of the student's role in their learning process and the urgent need for fair and timely evaluations by clinical nurse educators to enhance learning.

This dissatisfaction echoes findings from a study in Iran where nursing students expressed discontent with clinical assessments and evaluations, citing a perceived lack of knowledge and experience among assessing clinical nurses (Baraz et al., 2015). Feedback is crucial for boosting student confidence by reinforcing positive performance and identifying areas for improvement (Hardavella et al., 2017).

Numerous studies recommend strategies to narrow the theory-practice gap, such as promoting reflection and implementing problem-based learning. These initiatives, conducted under the guidance of both lecturers and clinical staff, aim to enhance problem-solving and critical thinking skills in clinical practice. The conclusion is that students must be adequately taught, supervised, and encouraged to connect theoretical knowledge with the practical realities of nursing practice (Botman et al., 2017).

The findings from this study align with the broader literature on the importance of the learning environment. For instance, Bloom's (1964) concept of a learning environment as a network of interconnected factors that influence an individual's learning experience is echoed in more recent research by Fraser (2019). Fraser emphasizes the dynamic

nature of learning environments, highlighting the interplay between physical, social, and psychological factors in shaping student perceptions and outcomes.

The results are also consistent with those of Brown et al. (2020), who, in their study of clinical placements, defined quality placement as one that successfully achieves the aims of clinical education in the practice environment. Brown stated that Quality clinical placements are primarily defined in student learning outcomes and, accordingly, occur in high-quality environments for clinical learning. There is a need for robust educational frameworks and supportive environments to facilitate meaningful clinical learning experiences.

Brown stressed issues about the quality of the placement environments process. Actual learning comes from neutral environments and is a necessary component of clinical education (Yardley et al., 2012). This study also agrees with what was acknowledged in Skaakvik's findings: the clinical learning environment is starkly different from the controlled academic settings that students are familiar with and, therefore, is subjectively judged by the student based on expectations. Skaalvik et al. (2011) say that the learning environment includes everything surrounding the student in the placement setting. Similar findings were made by Pitkänen (2018; D'Souza, 2013; Holcomb, 2012), who all agree that the environment's exposure to nursing students, provided by the learning environment, supports integrating theory into their clinical reasoning practice.

The clinical learning environment is dynamic and often unpredictable for student nurses. As D'Souza et al. (2020) point out, the inherent social interaction and unpredictability within this setting provide a unique training ground. Unlike a sterile classroom environment, the clinical setting throws student nurses into the real-world complexities of healthcare delivery. Here, they navigate dynamic patient interactions, unexpected situations, and the pressures

of time constraints while striving to deliver high-quality care. This constant interplay between theory and practice fosters the development of a vital trifecta of skills: cognitive (critical thinking and clinical reasoning), behavioral (technical skills and patient care techniques), and emotional (empathy, communication, and resilience).

Multiple studies (Byra et al., 2022; Hassan et al., 2019; Kitson et al., 2018) agree that a well-structured clinical learning environment is crucial for student nurses. This environment directly impacts their ability to acquire technical skills necessary for their profession.

Additionally, it fosters confidence in students, enabling them to effectively apply these skills in real-world healthcare settings.

Byra et al. (2022) explored the link between the quality of the environment and student nurses' satisfaction, well-being, and intention to pursue a nursing career. Their findings highlight the importance of supportive supervision from experienced nurses and a positive learning environment that encourages open communication and error-free learning. Similarly, Hassan et al. (2019) investigated the connection between student satisfaction with clinical placements, self-efficacy (confidence in their abilities), and academic achievement. Their research suggests that a well-structured learning environment with opportunities for deliberate practice under the guidance of qualified mentors fosters confidence and better academic outcomes.

Furthermore, Kitson et al., (2018) conducted a qualitative study delving into student nurses' experiences within the clinical environment. They emphasize the importance of positive role models who demonstrate compassionate care, constructive feedback that helps students identify areas for improvement, and mentorship opportunities that foster a sense of belonging and professional growth. This revised passage incorporates additional details to flesh out the narrative and strengthen the impact of the information. It emphasizes the

complexities of the clinical environment and elaborates on the skillset nurtured within. It also provides a deeper understanding of how a well-structured learning experience empowers student nurses.

The World Health Organization (WHO, 2021) emphasizes that effective clinical learning environments allow students to acquire essential knowledge, skills, and values while fostering professional socialization. These environments are crucial for cultivating competent healthcare professionals who can effectively bridge the gap between theoretical understanding and practical application.

Moreover, the significance of authentic learning environments in clinical education is well-established. Yardley et al. (2012) highlight that natural environments are crucial for actual learning, a sentiment echoed in recent literature. For instance, the National League for Nursing (NLN, 2020) emphasizes the importance of clinical experiences in fostering competence and professional development among nursing students. Similarly, the American Association of Colleges of Nursing (AACN, 2022) recognizes clinical practice as a cornerstone of nursing education, essential for preparing graduates to become safe and effective practitioners.

The study's results also indicate that student dissatisfaction with the conduct of clinical assessments and feedback by lecturers and preceptors during clinical practice affected competency acquisition (Smith & Jones, 2023). Effective learning during clinical placements relies on students understanding correct and incorrect actions.

Additionally, clinical nurse educators enhance learning by providing opportunities, support, and guidance in fair and timely evaluations. This dissatisfaction echoes findings from a study in Iran, where nursing students expressed discontent with clinical assessments and evaluations, citing a perceived lack of knowledge and experience among assessing clinical

nurses (Baraz et al.,2015). Feedback is crucial for boosting student confidence by reinforcing positive performance and identifying areas for improvement (Hard Avella et al., 2017).

Numerous studies recommend strategies to narrow the theory-practice gap, such as promoting reflection and implementing problem-based learning. These initiatives, conducted under the guidance of both lecturers and clinical staff, aim to enhance problem-solving and critical thinking skills in clinical practice. The conclusion is that students must be adequately taught, supervised, and encouraged to connect theoretical knowledge with the practical realities of nursing practice (Botma et al.,2017).

This study highlighted students who encountered a strained working relationship with preceptors, aligning with findings from a Greek study in which students reported hostility and poor communication with preceptors (Papathanasiou et al.,2014). Positive interpersonal relationships and effective communication between staff and students create a conducive learning environment in the clinical setting.

Supportive interactions within the clinical learning environment are widely recognized for their positive impact on students. They alleviate anxiety, foster socialization, and bolster confidence and self-esteem. All these factors contribute to the successful acquisition of clinical competencies. Recent research, such as the study by Thomas et al., (2023), further underscores the importance of these supportive behaviors in facilitating students' learning and professional development.

However, the findings disagree with Blažun et al., (2012), who state that Clinical training institutions for nurses and other clinical professionals must have a prescribed curriculum for training their graduates. The students should have the necessary skills to meet the job and society's disease prevention, cure, and rehabilitation needs. The study focuses on the pivotal

role of preceptors in enabling undergraduate nursing students to acquire clinical competencies in government and private Universities in Uganda.

The participation of preceptors is not just a factor but a critical one in the professional development of students. The study's hypothesis, "There is a positive relationship between preceptor's participation in enabling student's acquisition of clinical competencies among undergraduate nursing students," guides the research. To test this hypothesis, the researcher employed a method where respondents rated the level of preceptor's participation in terms of availability, accessibility, setting objectives, demonstration of skills, attitude, and interpersonal relationships.

The rating was done using the Likert scale, a commonly used tool in research. In this scale, one represents strongly disagree, two represents disagree, three represents neither agree nor disagree, four represents agree, and five represents strongly agree. A summary of the descriptive statistics of respondents' rating their level of skill application as per their conceived perceptions of the preceptor's participation is presented (Table 16). According to the means in the descriptive statistics (Table 16), the respondents indicated that interpersonal skills between preceptor and student (4.1) and their competency with high professional skills (3.9) score highest in enabling students to acquire and confidently apply clinical skills.

The results of Table (16) seemed to imply that, on the whole, respondents gained many skills from the preceptors' personal competencies and professional knowledge. For purposes of testing hypothesis three, that is, whether there was a positive relationship between preceptors' participation and acquisition of clinical competencies, all the ten items on preceptors (Appendix A, Section B) were aggregated into one index Preceptor Aver with arithmetic mean = 3.7 and standard deviation = 0.6.

Findings (Table 39) illustrate a positive statistically significant relationship between preceptors' participation and student acquisition of clinical skills. The Pearson's Correlation of  $r = 0.781$  computed for the Preceptor's participation in enabling nursing students to acquire competencies (Preceptor Aver), and acquisition of skill (Aquicomp) was positive with significance or p-value = 0.000, which is less than Alpha=0.01 or even alpha=0.05.

This result indicates a positive relationship between Preceptor participation and nursing students' acquisition of clinical competencies. This confirms the research hypothesis that there is a positive relationship between Preceptors' participation and the acquisition of competencies among undergraduate nursing students.

These findings concur with previous findings in the literature, including those by Safadi et al. (2022), who identified preceptorship as a pivotal component of nursing education, fostering student learning and professional socialization in clinical settings. Preceptors serve as invaluable guides, providing support, feedback, and role modeling to facilitate the transition from theoretical knowledge to competent practice.

These highlight the necessity for ongoing investment in robust preceptorship programs to ensure the continued success of future healthcare professionals. Furthermore, research by Duchscher (2017) highlights the challenges new graduates face during their transition to practice. This suggests that effective preceptorship programs may be crucial in preparing students for the realities of professional practice and easing this transition.

However, qualitatively, in this study, some student nurses perceived their preceptors as too busy with their workload, which led to feeling unsupported or neglected. While it does not explicitly state that preceptors ignore students due to patient overload, it suggests that

heavy workloads can impact the quality of preceptorship. This is in line with a study done by Henderson et al. (2016).

This qualitative study explored nursing students' negative clinical placement experiences, where they felt unsupported or bullied by their preceptors or other staff members. This directly contrasts with the positive perception of preceptors as supportive figures, as Saarikoski et al. (2012) suggested.

The positive relationship between preceptors' participation and student acquisition of clinical competencies concurs with and hence confirms research findings by Lawal et al. (2015) and Lienert-Brown et al. (2018), whose findings all seem to agree that, evidently, expectations of the supervisory relationship influence students' effectiveness in acquiring skills. Similarly, the supervisor, preceptor, and learner characteristics contribute to the supervisory relationship.

Moreover, the qualitative findings also highlighted that student encountered a strained working relationship with clinical staff. These results align with findings from a Greek study where students reported hostility and poor communication with qualified nurses (Papathanasiou et al.,2014). Positive interpersonal relationships, effective communication, and supportive interactions between staff and students also foster a conducive learning environment in the clinical setting. Such behaviors alleviate anxiety, promote socialization, and enhance confidence and self-esteem, facilitating clinical learning (Papastavrou et al.,2010).

The study's results also indicate student discontent with lecturers' and preceptors' conduct of clinical assessments and feedback during clinical practice. Effective learning during clinical placements relies on students understanding correct and incorrect

actions. Additionally, the role of the preceptors is to enhance learning by providing opportunities, support, and guidance in conducting fair and timely evaluations.

This discontent echoes findings from a study in Iran, where nursing students expressed dissatisfaction with clinical assessments and evaluations due to a perceived lack of knowledge and experience among assessing clinical nurses (Baraz et al., 2015). Feedback is crucial for boosting student confidence by reinforcing positive performance and identifying areas for improvement (Hard Avella et al., 2017).

Numerous studies recommend strategies to narrow the theory-practice gap, such as promoting reflection and implementing problem-based learning. These initiatives, conducted under the guidance of both lecturers and preceptors, aim to enhance problem-solving and critical thinking skills in clinical practice. The conclusion is that students must be adequately taught, supervised, and encouraged to connect theoretical knowledge with the practical realities of nursing practice (Botma et al., 2017).

#### **5.4 Institutional factors affecting the acquisition of clinical competencies among undergraduate nursing students**

The objective hypothesis was stated: “There is a positive relationship between learning institutions and students' acquisition of clinical skills by undergraduate students.” To test this hypothesis, the researcher asked respondents to rate adequacy in terms of convenience, the presence of adequate and competent nursing staff, the supportive head of department, and the competency of supervisors.

The rating was based on a Likert scale, with one representing strongly disagree, two representing disagree, three representing neither agree nor disagree, four representing agree, and five representing strongly agree. A summary of the descriptive statistics of respondents rating their level of skill application as per their conceived perceptions of

institutional adequacy was given (Table 30). According to the means (Table 30), the respondents indicated that receiving meaningful progress reports (4.3) and supervisor observing and correcting mistakes (4.2) scored highest in enabling students to acquire and confidently apply clinical skills. The results implied that the respondents gained many skills from adequate and convenient institutional arrangements.

For purposes of testing hypothesis Four, that is, whether there was a positive relationship between institution organization and acquisition of clinical skills, all the ten items (Appendix A, Section B) were aggregated into one index Institute with arithmetic mean = 3.7 and standard deviation = 0.68 (Table 31)

The relationship test (Table 32) illustrates that Spearman's Correlation  $\rho = 0.668$  was computed for institutional factors enabling competency acquisition. Table (30) results imply that the respondents gained many skills from adequate and convenient institutional arrangements.

The  $\rho = 0.668$  shows a relationship between institutional factors and nursing students' skill acquisition; 0.668 is also above 0.5, indicating the positive relationship between variables. Thus, it confirms the research hypothesis that a positive relationship exists between preceptor participation and nursing students' skill and competency acquisition. This means that improving the institutional factors the students consider necessary will enhance their capacity to acquire the competencies.

These findings concur with previous findings in the literature, including those by Brunero et al. (2011), who, in a statement after his studies, stated that institutional factors affecting students' acquisition of clinical competencies include the adequacy of the skills lab, the supervision process, the availability and accessibility of online learning resources, and a well-stocked library.

However, the findings disagree with those of Blažun et al., (2012) WHO, 2006, who state that Clinical training institutions for nurses and other clinical professionals must have a prescribed curriculum for training their graduates, who should be equipped with the necessary skills to meet the job and society's needs of disease prevention, cure, and rehabilitation.

The study findings highlight challenges students face in integrating theory into practice, attributed to inadequate support from lecturers, resource shortages, and a failure of qualified staff to provide comprehensive patient care. The mismatch between the ideal nursing taught in classrooms and the clinical reality can lead to confusion, stress, and anxiety among students if not adequately taught and supervised (Jamshidi et al.,2012).

Consequently, academic institutions and teaching hospitals in Uganda should identify and implement improved strategies to support students in the clinical setting, including allocating more clinical supervisory hours for lecturers. Additionally, hospitals should foster professional integrity among qualified nurses, ensuring standard nursing care is aligned with institutional policies and guidelines while serving as positive role models for students.

## CHAPTER SIX

### CONCLUSION AND RECOMMENDATIONS

#### 6.1 Overview

This chapter presents the conclusions of the research and subsequent recommendations. The general objective of my study was to assess the factors associated with the acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda.

The specific objectives were to explore the perceptions of undergraduate nursing students on what influences the acquisition of clinical competencies in government and private universities in Uganda and establish the clinical learning environment factors that influence the acquisition of clinical competencies among undergraduate nursing students in government and private Universities in Uganda, determine the extent of preceptors' participation in enabling undergraduate nursing students to acquire clinical competencies in government and private Universities in Uganda and to Investigate the influence of institutional factors on acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda.

**The research questions that guided this study were: -**

1. What are the undergraduate nursing students' perceptions on what influences the acquisition of clinical competencies in government and private universities in Uganda?
2. What are the clinical learning environment factors that influence clinical competency acquisition among undergraduate nursing students in government and private universities in Uganda?
3. To what extent does clinical preceptors' participation enable the acquisition of

clinical competencies among undergraduate nursing students in Uganda?

4. To what extent do institutional-related factors facilitate the acquisition of clinical competencies among undergraduate nursing students in government and private Universities in Uganda

## **6.2 Conclusion**

The first objective of this study was to explore undergraduate nursing student's perceptions of what influences the acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda. Evidence shows that students' positive perceptions about their nursing course were strongly and positively correlated with acquiring clinical competencies. Evidence from the findings strongly suggested that undergraduate students who have positive perceptions had higher chances of acquiring clinical competencies.

The research concludes that students' perceptions of the course they pursue strongly correlate with their chances of acquiring clinical competencies. Therefore, enhancing positive attitudes among undergraduate nursing students in government and private Universities in Uganda can improve the student's ability to acquire clinical competencies and reduce the time they take to acquire them.

The second objective was to establish the clinical learning environment factors that influence the acquisition of clinical competencies among undergraduate nursing students in government and private Universities in Uganda. The results from the analysis of all variables examined indicated a significant relationship. Therefore, results suggest that the clinical learning environment plays a crucial role in shaping and enhancing the clinical competencies of undergraduate nursing students across both government and private universities in Uganda. These findings underscore the importance of maintaining

and further optimizing positive clinical learning environments to foster the development of essential competencies among nursing students in the Ugandan higher education context.

The third objective was to determine the extent of preceptors' participation in enabling undergraduate nursing students to acquire clinical competencies. The results from the analysis of all variables examined indicated a significant relationship. Therefore, the results confirm a positive relationship between the extent of preceptors' participation and the undergraduate nursing students' acquisition of clinical competencies.

The research concludes that the extent of preceptor participation and involvement is correlated with students' acquisition of clinical competencies. It also confirms that the preceptors' skills and competencies in clinical preceptorship have a positive relationship with the student's ability to acquire clinical competencies. Objective four of the study was to determine the influence of institutional factors on the acquisition of clinical competencies among undergraduate nursing students in government and private Universities in Uganda.

In conclusion, the findings suggest a robust and affirmative correlation between the flexibility of institutional organization and the availability of clinical training requirements within the institution. These factors significantly contribute to students' ability to acquire clinical competencies. The findings underscore the critical role of institutional adaptability and the provision of necessary clinical training resources in shaping and enhancing the clinical capabilities of undergraduate nursing students.

### **6.3 Recommendations**

Based on the study findings and the conclusions, the researcher derived the following recommendations: -

**Objective one: To explore undergraduate nursing students' perceptions of what influences the acquisition of clinical competencies.**

- i. Government and private Universities training clinical and nursing courses should conduct student attitude tests during the orientation of the students, identify students with negative and unrealistic perceptions, and appoint counselors to support such students in the early stages of the course.
- ii. Nursing and clinical training universities should hold confidence-building activities in and outside the institutions to give students open time to develop attitudes and, hence, perceptions.
- iii. Universities training nurses and clinical students should invite experienced, successful, and senior Nurses and other related cadres to share career experience and build realistic expectations to enhance realistic perceptions among the undergraduate nursing students

**Objective Two: To establish the clinical learning environment factors that influence the acquisition of clinical competencies.**

- i) The clinical and Nurse Training institutions should form clinical learning environment committees and include student representatives on such boards to get students' feelings about the clinical learning environment.
- ii) The nurse training universities should prioritize equipping clinical learning environments with adequate learning equipment for the students attending clinical practice. Where adequate learning equipment cannot be afforded, schedule smaller numbers to attend clinical learning environments at different times.
- iii) Training institutions for nurses and clinicians should prioritize having a teaching hospital as part of the requirements for training nursing and other clinical courses

- iv) The Nurses Council and other medical councils should adopt adequate clinical equipment and school-based training hospitals as part of the requirements to start clinical and nurse training schools.

**Objective Three: To determine the extent of Preceptors' participation in enabling undergraduate nursing students to acquire clinical competencies.**

- i.) The universities training Nurses in the country should adopt the preceptorship scheme as a mandatory requirement for students to practice and graduate in universities
- ii.) The allocated preceptors should be given orientations and training on how to manage students' expectations, make proper communication, and assess their students' satisfaction during the preceptorship process
- iii.) The university administration should develop a scheme where the students can make evaluations on how they think their preceptors are supporting them in acquiring the required competencies

**Objective four: To investigate the influence of institutional factors on the acquisition of clinical competencies among undergraduate nursing students .**

- i.) Nurse training schools and universities nationwide should share research findings from different scholars on students' perceptions of their curriculum and improve nursing curricula to make them more trainee-friendly.
- ii.) The training supervisors, school administration, and lectures/tutors should hold periodic meetings to evaluate the training and supervisory methods and agree on action plans that are student-friendly

#### **6.4 Areas of Further research**

This study has identified the need to investigate and analyze the students' perceptions

and attitudes in different skills and competency training areas as a recipe for success in acquiring clinical competencies. More research should, therefore, focus on the quantitative analysis of preceptor-student relationships and supervisor-student relationships as contributions to student pre-training and post-training performance.

## **6.5. Study limitations**

### **6.5.1 Limitations of the Study**

Limitations are possible weaknesses in the system being researched and the instruments used in collecting data, of which the researcher has no influence, although the researcher can mitigate them.

(Jones & Smith, 2022). This study was limited due to various research biases, including Social desirability bias, the Halo and Horn effects, and the Hawthorne effect.

Social desirability bias occurs when respondents answer questions that they believe will make them look good to others or out of fear of victimization, concealing their actual opinions or experiences. As Dodou and de Winter (2014) asserted, it often affects studies focusing on sensitive or personal topics. This was mitigated by comparing several data collection and response tools to rule out social answers.

In addition, participants were assured of their anonymity and confidentiality and that nobody would relate the questionnaire to them. The researcher also guaranteed total confidentiality to the participants and ensured anonymity, assuring each participant that she would never release anything like the respondents' answers to a third party in any form. When someone feels certain personal information will remain private, they are more likely to answer sensitive questions openly (Sullivan & Cain, 2021).

The Halo and Horn effects are cognitive biases whereby an error in thinking happens because of subconsciously misinterpreting the information, as (Mortimer, 2020) opined.

This was mitigated in this study by using multiple raters like strongly agree, agree, neutral, disagree, and strongly disagree. When multiple raters, either on a single task or across many tasks, agree to assume the raters and ratings remain independent, this indicates a consistency not influenced by a halo effect, as Law (2009) suggested. This can significantly impact the internal validity of the findings.

The Hawthorne effect refers to how study participants behave differently when they become aware they are being watched or given special attention. In other words, the Hawthorne effect increases output in response to being watched, as opined by Sedgwick and Greenwood (2015). In so doing, the external validity of findings would be limited, which can impact the generalizability and applicability of the study's findings.

To mitigate this effect, the researcher was available to observe the data collection exercise from beginning to end. Furthermore, all the participants were assured that their responses were anonymous or confidential. This made the participants less likely to alter their behavior due to participating in the research, as suggested by Adler and Clar (2003).

### **6.5.2. Delimitation of the Study**

Delimitations are choices that the researcher undertakes to control the scope and define the boundaries of particular research; however, to meet the objective of this study, only eight universities that offer Bachelor of Nursing programs in Uganda were selected as research sites. Bishop Stuart University, Bugema University, Kampala International University), Clarke International University, Makerere University, Mbarara University of Science & Technology, Mountains of the Moon University, and Uganda Christian University.

All selected universities above follow a curriculum that the National Council has approved for Higher Education.

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## APPENDICES

### APPENDIX 1: INFORMED CONSENT FORM

**Title Study:** Assessment of Factors Associated with Acquisition of Clinical Competencies among Undergraduate Nursing Students in Government and Private Universities in Uganda.

**Introduction:** My name is Joan Kempango (Telephone Numbers: +256 753 329377/781 174156, e-mail: [joankempango@yahoo.com](mailto:joankempango@yahoo.com)). I am a Ugandan student pursuing a Doctorate program in Medical Education from Moi University, Department of Medical Education, School of Medicine, and College of Health Sciences.

The study I will conduct is titled Assessment of Factors Associated with Acquisition of Clinical Competencies among Undergraduate Nursing Students in Government and Private Universities in Uganda.

**Clinical competency:** In this study, competency is defined as the skill and ability to practice safely and effectively without the need for direct supervision and as a level of performance demonstrating a practical application of knowledge, skill, and judgment.

**Rationale:** Globally, researchers continue to report that newly qualified graduate nurses not only lack adequate skills and competency for working in a clinical environment but are also perceived by their employers to be lacking in competent clinical skills (*Sportsman (2010)*; Beyea, et al (2007); Burns (2008), hence the need to study what impedes the acquisition of clinical competency. It is said that the challenges confronting today's rapidly changing healthcare environments have highlighted the necessity for graduating nursing students to be both competent and prepared for practice. This necessity has, in turn, highlighted the increasing significance of the nature and quality of student's clinical learning experience (*Ghaljie et al., 2008*). The results of this study

will highlight issues that impede the acquisition of clinical competencies among undergraduate nurses in Uganda.

**Significance of the Study:** Studying the extent to which the learning environment enables or impedes the eventual acquisition of clinical competency among nursing students while in training will assist in identifying the constraining factors for the proper acquisition of these competencies. Identifying these factors will improve students' training in the clinical areas. Findings will inform the University administrators and the National Council for Higher Education (NCHE) of the new approaches to improve the education system by formulating appropriate curricula for clinical experiences and training. This study will go a long way in guiding nurse educators and supervisors on the best ways to facilitate the acquisition of clinical competencies for these students and widen the scope of the stakeholders on providing adequate personnel, for example, nurse educators, supervisors in schools, and clinical areas, and other issues that this study will bring to light. The results of this study will advance and inform the training schools and practicum site staff on what is required during the practicum placement. Thirdly, the results of this study will inform supervisors/preceptors on the type of competency areas to evaluate during both formative and summative evaluation. Finally, the results of this study may help the NCHE in policy formulation regarding the practicum of nursing students and stimulate further studies, especially on the impact of leadership on the acquisition of clinical competencies.

### **Study Objectives**

#### **General Objective**

The general objective of this study is to examine the factors influencing the acquisition of clinical competencies among undergraduate nursing students in Government and

private Universities in Uganda, focusing on their perceptions, the clinical learning environment, preceptor involvement, and institutional factors.

### **Specific Objectives**

- 1) To determine the preceptorship factors that influence the acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda.
- 2) To establish the clinical environment factors that influence the acquisition of clinical competencies among undergraduate nursing students in Government and private universities in Uganda;
- 3) To investigate the institutional factors that influence the acquisition of clinical competencies among undergraduate nursing students in Government and private universities in Uganda.
- 4) To establish the student-based factors that influence the acquisition of clinical competency among undergraduate nursing students in Government and private universities in Uganda.

**Study Procedure:** If you agree to take part in this study, you will be given a questionnaire to complete. The questionnaire will take you about 30 minutes to complete. Once you complete it, the research assistant will collect, seal, and deliver it to the investigator.

**Benefits:** You have no direct benefits for participating in this study. However, your participation will add value to the available literature on the factors that impede or enhance the acquisition of clinical competencies. The evidence-based information

collected will inform future nursing students' teaching. Students, clinical site staff, and supervisors will benefit from understanding why nurses may perform differently than expected even after taking clinical practice.

**Risk/discomfort:** There is no potential risk to you. However, you are allowed to express your concerns, and this will be handled confidentially.

**Confidentiality:** The information collected from you shall be strictly confidential and kept under lock and key. Your name or any other information that can identify you will not be sought to be used in this study, reports, publications, or presentations. All the raw data shall be destroyed immediately after the data is analyzed and research completed.

**Cost:** There is no cost to be met meant by you for participating in the study.

**Statement of voluntariness:** Participation in this study is voluntary, and no risks are involved. Suppose you wish to withdraw from participating in the study at any time. In that case, you can do so, and this will not affect any future participation or relations with anyone or any institution.

**Compensation for time, effort, and inconvenience:** For time, effort, and inconvenience, you are getting UG SHS 5,000 plus a bottle of soda and a piece of cake.

**Dissemination of results:** You will receive feedback, findings, and the study's progress. Any information that affects the study regarding the acquisition of clinical competencies will be available to the participants and nurse training universities.

**Ethical Approval:** This study has been technically reviewed and approved by Moi University's Institutional Research and Ethics Committee (IREC), Mulago Hospital Research and Ethics Committee (MHREC), and the Uganda National Council for Science and Technology (UNCST).

**Questions and Contacts:** If you have any questions concerning this study, please contact Ms. Joan Kempango at +256 753 329377/781 174156 and e-mail [joankempango@yahoo.com](mailto:joankempango@yahoo.com). Any issue concerning Ethical issues regarding the survey, you can contact the Chairperson, Institutional Research and Ethics Committee, Dr. Nakwagala Nelson Fredrick on 0772325869 or [irec@gmail.com](mailto:irec@gmail.com)

**STATEMENT OF CONSENT:** I state that I have read and understood the information stated above, that I am over 18 years and I have voluntarily agreed to participate in research being conducted by Kempango Joan of Moi University, Department of Medical Education, School of Medicine, and College of Health Sciences. I understand that I am free to ask any questions or withdraw from participating in the research study at any time without penalty or prejudice. In the use of this information, my identity will be concealed.

I am willing to participate in this study since I have received adequate information about it and can seek clarification at any time.

Participant's Signature.....Date.....

Researcher's Name.....Signature.....Date.....

## APPENDIX 2: QUESTIONNAIRE FOR FINALISTS BACHELOR OF NURSING STUDENTS

My name is Joan Kempango, a PhD student of Moi University, School of Medicine; Department of Medical Education. As partial fulfillment of the requirements for the award of a PhD, I am undertaking a study titled:

**“ASSESSMENT OF FACTORS ASSOCIATED WITH ACQUISITION OF CLINICAL COMPETENCIES AMONG UNDERGRADUATE NURSING STUDENTS IN GOVERNMENT AND PRIVATE UNIVERSITIES IN UGANDA”**

You have been randomly selected to participate in this study. Due to the significance of this study, you are kindly requested to provide the answers as honestly as possible. As you may be aware nurses are by far the largest part of the work force and therefore student nurses need to acquire clinical competencies as required. The result of this study will go a long way in guiding the nurse educators, supervisors and preceptors on the best ways to facilitate the acquisition of clinical competencies to students.

**The questionnaire has part A, B, and C. Kindly answer all the questions**

### SECTION 1 (A): DEMOGRAPHIC CHARACTERISTICS

*(Please either tick in the box or write on the dotted lines)*

1) What is the name of your University?

a. ....

2) Department/Program.....

3) How did you enter this program? (Tick where applicable)

1	By Direct Entry From A level	
2	By Extension/Top up/Completion	

4) (Your Name (Optional) .....

5) Gender (Tick what is applicable to you)

1	Male	
2	Female	

6) **What is your age?** (Tick the box where your age falls)

1	Below 20	
2	21 – 24	
3	25 – 28	
4	29 – 32	
5	33 – 36	
6	37 – 40	
7	41 and above	

7) **What is your marital status?** (Tick your appropriate status)

1	Single	
2	Married	
3	Widow/Widower	
4	Divorced	

8) How many clinical placements have you attended so far?

1	One to Two	
2	Three	
3	Four	
4	Five and above	

## SECTION 1 A: ASSESSING COMPETENCY ACQUISITION

**Tick the answers that represent what you know and believe**

### **KEY:**

**Strongly Disagree = SD,**

**Disagree = DA,**

**Not Sure = NS,**

Agree = AG,

Strongly Agree =SA

	STATEMENT	1 SD	2 DA	3 NS	4 AG	5 SA
	<b>Students Assessing the Preceptors</b>					
1	The Preceptors provided us with learning objectives and expectations to guide the learning process at the beginning of the practicum.					
2	The preceptors demonstrated the skills to be learned and gave us the opportunity to practice them under his/her supervision.					
3	The preceptor's behavior and attitude generally is an example of professionalism.					
4	There was enough time to practice the clinical skills.					
5	The preceptor was available whenever I needed him/her.					
6	The preceptor was accessible whenever I needed his/her service					
7	The preceptor communicated with me regularly and as needed.					
8	The preceptor always prepared me for clinical learning.					
9	We were continuously assessed during and at the end of the practicum showing our performance.					
10	The preceptor was competent and had adequate professional skills to impart to us clinical skills.					
11	There is strong relationship between the student nurse and the preceptor that enables clinical learning to take place.					
12	There is always prompt feedback from the preceptoring staff and from the supervisor.					
13	Overall, my preceptor was an asset and enabled me to learn the desired clinical skills.					
	<b>Clinical Learning Environment</b>					
14	I have access to the necessary equipment for my work and learning in clinical area.					
15	We do practicum at our teaching hospital or at our health facility					
16	There is congruence between the things learnt in class and the practice in the ward.					
17	We do practicum at a third party facility that we don't have control of.					
18	The Clinical environment encourages participation					
19	We have adequate learning equipment to use during practicum.					

20	The learning environment does not support learning to take place					
21	There are no enough patients in the health facilities.					
22	The nursing staff in the wards would always demonstrate procedures .					
	<b>Institutional Factors</b>					
23	The head of department fully supports us to get required Skills					
24	Head of department participates in the preparation of students before going for clinical education.					
25	The Head of Department creates conducive environment for learning to take place					
26	The head of department checks on us while on placement so as to encourage and solve some problems that may have cropped up.					
27	The supervisor prepares and debriefs us on our expectations before we begin our clinical practice.					
28	The supervisor provides us with regular feedback on our progress.					
29	I have received meaningful performance progress reports.					
30	The supervisor observed student performance frequently.					
31	The supervisor corrected mistakes without belittling me.					
32	The supervisor/s provided support and encouragement.					
33	The supervisor was always there for me whenever I needed her/his intervention.					
34	The supervisors didn't care about our learning and we are just there struggling on our own.					
35	There is a well-stocked library for reference and subject related .					
36	There is availability and accessibility of online learning resources.					
37	There is a well-equipped skills Lab where we practice before going for real-life clinical environment.					
38	There is always enough time to practice in the clinical laboratory.					
39	The clinical laboratory staff is knowledgeable about lab issues and he/she helps us to learn .					
	<b>Student Perceptions</b>					
40	There is enough time to practice skills					
41	There is Congruence with what is learnt in class and practiced on the ward					
42	My peers influence my ability to acquire skills					
43	Students personal will to learn skills.					

44	Students perceived the capacity to understand					
45	Student adequately prepared					
46	Having sufficient theoretical knowledge					
47	When a student has the desire to achieve goals					
48	Students' intention to open their own clinic					
49	I have a positive attitude					
50	The high demand for nurses on the job market					
	<b>Students' Level of Clinical Competency</b>					
51	Apply critical thinking to patient care					
52	Develop a care plan for patients.					
53	Assess the nutrition and fluid balance of the Patient.					
54	Administer intravenous and intramuscular Medications					
55	Perform urinary catheter insertion and care					
56	Perform pre-operative and post-operative care.					
57	Administer blood transfusion					
58	Demonstrate capacity to secure the patient's upper airway					
59	Perform chest tube care with underwater					
60	Collect information from the client (history taking) and interpretation of their laboratory results.					
61	Analyze and interpret data obtained in the client's assessments					

### SECTION 1 (C): GENERAL QUESTIONS

#### *The Precepting Processes*

1) Please describe your experiences during your clinical practice in terms of precepting processes.

2) Describe the skills/competencies of your preceptor.

3) List skills that you learned during the practicum that you can ably perform.

- 1)
- 2)
- 3)
- 4)
- 5)

6)

7)

8)

9)

10)

4) How were the skills and competencies imparted to you: (tick any that is applicable)

a) Discussion

b) Demonstration

c) Instructions

d) Hands on

***Learning Environment***

5) Did your clinical learning environment at the health facility where you did your practicum and the training meet your expectations?

Learning environment at the practicum facility

-----  
 -----  
 -----  
 -----

Learning Environment meeting your expectation

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 -----  
 -----  
 -----

6) How did the following cadres relate to you?

a) The preceptor/s

b) The supervisors

c) The Head of Department

d) Any other person (specify)

7) What category of instruction:

Which of the categories imparted most skills? Lecturers, preceptors, supervisor (others specify)

8) According to your experience during the clinical practice, list what promoted learning and what hindered learning.

(a) What enabled or promoted learning of clinical skills:

1)

2)

3)

4)

(b) What factors made it hard for you to acquire clinical skills?

1)

2)

3)

- 4)  
9) What would be your recommendation to improve acquisition of clinical skills during clinical learning:

***Institutional concerns***

- 10) What do you see as the major institutional issues that affect acquisition of clinical competencies by nursing students?

- 11) What per cent would you award to the following items as far as contributions to your clinical competency acquisition are concerned?

Clinical Preceptorship ..... %

Clinical Learning Environment ..... %

Institutional factors ..... %

Student Factors ..... %

**Student Variables**

- A) What are your main personal weaknesses that hinder you from acquisition of clinical competencies if any?

1

2

3

4

- B) What are your main personal strengths that have enabled you to acquire clinical

### APPENDIX 3: QUESTIONNAIRE FOR SUPERVISORS

My name is Joan Kempango, a PhD student of Moi University, School of Medicine; Department of Medical Education. As partial fulfillment of the requirements for the award of the PhD degree, I am undertaking a study titled:

**“ASSESSMENT OF FACTORS ASSOCIATED WITH ACQUISITION OF CLINICAL COMPETENCIES AMONG UNDERGRADUATE NURSING STUDENTS IN GOVERNMENT AND PRIVATE UNIVERSITIES IN UGANDA”**

You have been randomly selected to participate in this study. Due to the significance of this study, you are kindly requested to provide the answers as honestly as possible. As you may be aware nurses are by far the largest part of the work force and therefore student nurses need to acquire clinical competencies as required. The result of this study will go a long way in guiding the nurse educators, preceptors and supervisors on the best ways to facilitate the acquisition of clinical competencies to nursing students.

#### SECTION 1 (A): DEMOGRAPHIC CHARACTERISTICS

*(Please either tick in the box or write on the space/dotted lines)*

1) What is the name of the University, Hospital or Health facility you work with?

.....

2) **Gender** (Tick what is applicable to you)

1	Male	
2	Female	

3) What is your role in this institution?

1	Preceptor	
2	Supervisor	
3	Other (Specify)	

1) **What is your age?** (Tick the box where your age falls)

1	Below 25	
2	26 – 30	
3	31 – 35	
4	36 – 40	
5	41 – 45	
6	46 - 50	
7	51 -55	
8	56 and Above	

5) **What is your highest level of Education?**

1	Certificate	
2	Diploma	
3	Bachelor's Degree	
4	Masters	
5	PhD	

6) **For how long have you served in this current position?**

1	Less than 3 years	
2	4 –5	
3	6 – 7	
4	8 – 9	
5	Above 10 years	

7) **Have you ever been promoted?**

1	Yes	
2	No	

8) **If Yes, what do you think was reason for your promotion?**

.....

If No, what do you think is a reason for non-promotion?

.....

**SECTION 2 (B) Acquisition of clinical competencies**

Qn1. What do you consider to be the environmental factors influencing learning and acquisition of clinical competencies for the undergraduate nursing students?

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Qn 2. what are the major clinical competencies facilitated and monitored among the nursing undergraduate students?

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Qn3. What do you think would promote motivation of undergraduate nursing students as far as clinical competency acquisitions are concerned?

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Qn4. What qualities should a good Supervisor possess so as to enhance acquisition of nursing students' clinical competencies?

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Qn5. What recommended methods and factors do you believe can enhance clinical competencies among the undergraduate nursing's students

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Qn.6. Suggest what should be done to improve acquisition of clinical competency in undergraduate nursing students?

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Qn.7. How does supervision relate to acquisition of clinical competencies?

.....

.....

Qn.8. In accordance to your experiences in clinical training, is the time allocated for clinical skills practice adequate? If NO what do you think should be the time for practicum?.

**APPENDIX 4: KEY INFORMANTS INTERVIEW GUIDE FOR PRECEPTORS  
AND SUPERVISORS**

- 1) For how long have you been participating in Clinical Practice?
- 2) Do you think the teaching hospitals/ health facilities where nursing students go for clinical practice are well equipped for the purpose?
- 3) What are some of the students' based challenges that affect learning of clinical skills or competencies?
- 4) According to your experiences in clinical practice what are some of the challenges that you encounter during clinical practice?
- 5) Are you satisfied that your products will perform as expected when they begin practicing?
- 6) What do you think are some of the challenges/factors that affect acquisition of clinical skills in your university?
- 7) Do you think that students that come for practicum are well prepared for it?
- 8) What recommendations would you make to ensure that student nurses can learn clinical skills and competencies while at the practicum site?
- 9) What institutional challenge do you experience during practicum?

### APPENDIX 5: ANALYSIS PLAN MATRIX BY TOOLS AND QUESTIONS

Objective	What to Examine	How it will be examined	Tool & Questions	Expected Outcomes
1) To determine the preceptorship factors that influence acquisition of clinical competencies among undergraduate nursing students in government and private universities in Uganda.	<p><b>Whether:</b></p> <p>*Availability &amp; accessibility of preceptors during clinical learning</p> <p>*The extent of Timely feedback</p> <p>*Level of involvement in the students' learning</p> <p>*Competency/ Skills of preceptors' during clinical learning.</p>	By asking nursing students perceptions on adequacy of the precepting processes that promote or inhibit clinical learning	<p>-Likert ranking</p> <p>-Survey Questionnaire</p> <p>Section 1(B) Questions: 1, 2, 3, 4, 5,6 &amp; 7, 8, 9, 10, 11 &amp; 12</p> <p>Section 1(C) Questions: 7 (a)</p> <p>Section 2 (A) &amp; Section 2 (B)</p>	<p>*Extent of Preceptors availability and accessibility in clinical learning</p> <p>* Existence or nonexistence of feedback mechanism</p> <p>*The extent of preceptors involvement</p> <p>* Adequacy of preceptors' skills/ competency</p>
2) To establish the clinical learning environment factors that influence acquisition of clinical competencies among undergraduate nursing students in Uganda;	Students expression of degree of satisfaction or dissatisfaction	By assessing and analysing student responses	<p>Section 1 (B) Questions: 13,14, 15, 16, 17, 18, 19 &amp; 20</p> <p>Section 1(c) 1</p>	Expression of their feelings of their clinical set-up

3) To investigate the institutional factors that influence competency acquisition by the undergraduate nurses in Uganda.	Leadership, Adequacy of skills Lab, Supervision processes, Availability & accessibility of online learning resources	By examining of students responses on institutional variables	Likert ranking -Survey Questionnaire  Section 1(B) Questions: 29, 30, 31, 32, 33, 34, 35, 36, 37, 38 – 44 Section 3 (A) Questions: 1 - 9	Establish a List of institutional variables that influence clinical competency
4) To establish the student based factors that influence acquisition of clinical competency among the undergraduate nurses in Uganda.	Students' Motivation, Self-efficacy, Assertiveness, Attention, Interest,	By examining of students responses on students' variables	Section 1(B) Questions: 21 -28 45, 46, 47, 48, 49, & 50 Section 1(C) Questions: 1 - 8	Effects related to students' variables

### APPENDIX 6: Krejcie and Morgan Table of Determining Sample Size

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

## APPENDIX 7: IREC CLEARANCE LETTER



MOI TEACHING AND REFERRAL HOSPITAL  
P.O. BOX 3  
ELDORET  
Tel: 334712/3

## INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)



MOI UNIVERSITY  
COLLEGE OF HEALTH SCIENCES  
P.O. BOX 4606  
ELDORET  
Tel: 334712/3

5<sup>th</sup> December, 2019

Reference: IREC/2019/167  
**Approval Number: 0003475**

Joan Kempango,  
Moi University,  
School of Medicine,  
P.O. Box 4606-30100,  
**ELDORET-KENYA.**



Dear Ms Kempango & Team,

**ASSESSMENT OF FACTORS ASSOCIATED WITH ACQUISITION OF CLINICAL COMPETENCES AMONG UNDERGRADUATE NURSING STUDENTS IN UGANDAN UNIVERSITIES**

This is to inform you that *MU/MTRH-IREC* has reviewed and approved your above research proposal. Your application approval number is *FAN:0003475*. The approval period is **5<sup>th</sup> December, 2019 – 4<sup>th</sup> December, 2020**.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by *MU/MTRH-IREC*.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to *MU/MTRH-IREC* within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to *MU/MTRH-IREC* within 72 hours.
- v. Clearance for export of biological specimens must be obtained from relevant institutions
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to *MU/MTRH-IREC*.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://ons.nacosti.go.ke> and also obtain other clearances needed.

Sincerely,

PROF. E. WERE  
CHAIRMAN

**INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE**

cc	CEO	-	MTRH	Dean	-	SOP	Dean	-	SOM
	Principal	-	CHS	Dean	-	SON	Dean	-	SOD

## APPENDIX 8: MHREC CLEARANCE LETTER

TELEPHONE : +256-41554008/1  
 FAX : +256-414-5125591  
 E-mail: [admin@mulago.or.ug](mailto:admin@mulago.or.ug)  
 Website: [www.mulago.or.ug](http://www.mulago.or.ug)



MULAGO NATIONAL REFERRAL HOSPITAL  
 P.O. Box 7051  
 KAMPALA, UGANDA

IN ANY CORRESPONDENCE ON THIS  
 SUBJECT PLEASE QUOTE NO.

16<sup>th</sup> March, 2020.

Ms. Joan Kempango  
 Principal Investigator  
 Department of Medical Education  
 Moi University.

Dear Kempango,

**Re: Approval of Protocol MHREC 1838: "Assessment of Factors Associated with Acquisition of Clinical Competences among Undergraduate Nursing Students in Ugandan Universities".**

The Mulago Hospital Research and Ethics Committee reviewed your proposal referenced above and granted approval of this study on 16<sup>th</sup> March, 2020. The conduct of this study will therefore run for a period of one (1) year: from 16<sup>th</sup> March, 2020 to 15<sup>th</sup> March, 2021.

This approval covers the protocol and the accompanying documents listed below;

- Informed consent form
- Questionnaire for students
- Questionnaire for mentors

This approval is subjected to the following conditions:

1. That the study site may be monitored by the Mulago Hospital Research and Ethics Committee at any time.
2. That you will abide by the regulations governing research in the country as set by the Ugandan National Council for Science and Technology including abiding to all reporting requirements for serious adverse events, unanticipated events and protocol violations.
3. That no changes to the protocol and study documents will be implemented until they are reviewed and approved by the Mulago Hospital Research and Ethics Committee.
4. That you will submit this approved protocol and all accompanying documents for approval to UNCST before starting the study. In case of studies involving drug and medical devices, approval must be obtained from the National Drug Authority before starting the study.
5. That you provide quarterly progressive reports and request for renewal of approval at least 60 days before expiry of the current approval.
6. That you provide an end of study report upon completion of the study including a summary of the results and any publications.
7. That you will include Mulago Hospital in your acknowledgements in all your publications.

I wish you the best in this Endeavour.

DR. NAKWAGALA FREDERICK NELSON  
 CHAIRMAN- MULAGO HOSPITAL RESEARCH & ETHICS COMMITTEE

Vision: "To be the leading centre of Health Care Services"



## APPENDIX 9: UNCST CLEARANCE



**Uganda National Council for Science and Technology**  
*(Established by Act of Parliament of the Republic of Uganda)*

Our Ref: HS639ES

22 October 2020

JOAN KEMPANGO  
 FINS MEDICAL UNIVERSITY  
 Kabarole

Re: Research Approval: "Assessment of Factors Associated with Acquisition of Clinical Competences Among Undergraduate Nursing Students in Ugandan Universities"

I am pleased to inform you that on 22/10/2020, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of 22/10/2020 to 22/10/2021.

Your research registration number with the UNCST is HS639ES. Please, cite this number in all your future correspondences with UNCST in respect of the above research project. As the Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. Keeping all co-investigators informed of the status of the research.
2. Submitting all changes, amendments, and addenda to the research protocol or the consent form (where applicable) to the designated Research Ethics Committee (REC) or Lead Agency for re-review and approval prior to the activation of the changes. UNCST must be notified of the approved changes within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local REC for review with copies to the National Drug Authority and a notification to the UNCST.
4. Unanticipated problems involving risks to research participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST notification after review by the REC.
5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.
6. An annual progress report and approval letter of continuation from the REC must be submitted electronically to UNCST. Failure to do so may result in termination of the research project.

**APPENDIX 10: MAKERERE UNIVERSITY ADMINISTRATIVE CLEARANCE**



September 23, 2020

The Executive Secretary  
 Uganda National Council of Science and Technology

Dear Sir/Madam,

**RE: PERMISSION TO CONDUCT A STUDY – ASSESSMENT OF FACTORS ASSOCIATED WITH ACQUISITION OF CLINICAL COMPETENCIES AMONG UNDERGRADUATE NURSING STUDENTS IN UGANDAN UNIVERSITIES.**

The Department of Nursing and Dean's office, School of Health Sciences at Makerere University College of Health Sciences have received and considered the request by Ms. Joan Kempango to conduct a study among the students of the Bachelor of Science in Nursing programme.

Permission is hereby granted to her to proceed with your research. She is advised to adhere to the approved research protocol and the prevailing guidelines for conduct of research involving human research participants, obtain informed consent and to ensure that her research activities are in compliance with the Ministry of Health COVID-19 guidelines.

I look forward to receiving a progress and final report from her research work.

Sincerely,

  
 Dr. Freddy Kitutu  
 DEAN

MAKERERE UNIVERSITY  
 COLLEGE OF HEALTH SCIENCES  
 23 SEP 2020 ★  
 SCHOOL OF HEALTH SCIENCES  
 OFFICE OF THE DEAN

CC Chair, Department of Nursing, MakSHS  
 Ms. Joan Kempango

## APPENDIX 11: BUGEMA UNIVERSITY ADMINISTRATIVE CLEARANCE

**BUGEMA UNIVERSITY**

**Main Campus**  
32km, Gayaza - Ziobwe Road  
P.O. Box 6529  
KAMPALA - UGANDA  
Tel: 256-312-351400  
Fax: 256-312-351460



**Kampala Campus**  
2 miles Bombo Road  
Between Total Petrol Station  
& Makerere Yellow Primary Sch.  
Muganzi-Awongerera Rd  
P.O. Box 6529 KAMPALA - (U)

Website: [www.bugemauniv.ac.ug](http://www.bugemauniv.ac.ug)

Tel: +256 312 266 630 / 631

**RESEARCH DIRECTORATE****BU-REC**

26<sup>th</sup> August, 2020

Joan Kempango  
Moi University, School of Medicine  
Department of Medical Education,  
P.O.Box 4606, Eldoret, Kenya

Dear Joan,

**RE: CLEARANCE TO CONTINUE WITH DATA COLLECTION AT BUGEMA UNIVERSITY**

Whereas Mrs. Joan Kempango requested to collect data from Bugema University Nursing students; Whereas she has an IRB approval letter from a Recognize REC (MULAGO REC); where as Bugema University REC is still under the Registration process, but will recognize approval of a Recognized REC; Whereas you have requested for clearance letter to carry out Research from Bugema University, Fourth Year Bachelor of Nursing Students; I hereby provide you with the same, provided you receive clearance from the National Council of Science and Technology towards the same objective; and you will abide by the conditions stated in MULAGO HOSPITAL RESEARCH & ETHICS COMMITTEE; and provide a final report to Bugema University upon completion of study, including a summary of the results and any publications where Bugema University is part; and **acknowledge** Bugema University in all your publications as pertinent.

I wish you successful completion of your study.

Paul M. Mukasa, PhD  
**RESEARCH DIRECTOR &  
REC CHAIRMAN**

cc Ms Rosemarie Cacho  
cc BU Academic Dean

**A CHARTERED SEVENTH-DAY ADVENTIST INSTITUTION**

**MISSION:** "To offer an excellent and distinctive holistic Christian education designed to prepare our students through teaching, research and scholarship for productive lives of useful service to God and to Society with uncompromising integrity, honesty and loyalty."

## APPENDIX 12: KIU ADMINISTRATIVE CLEARANCE



School of Nursing Sciences,  
P.O.BOX 71 Bushenyi, Ishaka  
Tel: 256 (0) 701 975 572  
E-mail: akabanyoro@gmail.com  
Website: <http://www.kiu.ac.ug>

**Office of the Dean School of Nursing**  
**10<sup>th</sup> August 2020**

Ms. Kempango Joan  
MOI University School of Medicine  
P.O.Box 4606,  
Kenya.

Dear Madam,

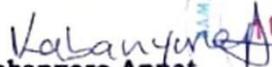
**RE: PERMISSION TO RECRUIT BACHELOR OF NURSING STUDENTS IN YOUR STUDY.**

This is to inform you that after reviewing your proposal on **Factors Associated With Acquisition of Clinical Competencies Among Undergraduate Nursing Students In Ugandan Universities**, it was established that the study subjects will not be harmed as long as the following precautions would be observed during data collection

1. Participants will be protected with cloth face masks before being enrolled in the study
2. All participants will have their hands sanitized before receiving the questionnaires
3. A social distance of two meters must be observed between the study participants and the researcher during data collection

I am therefore happy to inform you that permission has been granted and you can recruit the students in your study.  
In case of further support, do not hastate to contact me again.

I wish you the best in your study

  
**Kabanyoro Annet**  
**Dean School of Nursing**  
**Kampala International University**



**APPENDIX 13: MUST ADMINISTRATIVE CLEARANCE****MBARARA UNIVERSITY OF SCIENCE AND TECHNOLOGY  
FACULTY OF MEDICINE  
OFFICE OF THE DEAN**

P.O. Box 1410, Mbarara Uganda, Tel.256-703 818336; Tel 256 712 324830  
E-mail: [jngonzi@must.ac.ug](mailto:jngonzi@must.ac.ug)  
Website: [www.must.ac.ug](http://www.must.ac.ug)



12<sup>th</sup> August 2020

JOAN KEMPANGO  
MOI UNIVERSITY, SCHOOL OF MEDICINE  
DEPARTMENT OF MEDICAL EDUCATION  
P.O BOX 4606, ELDORET, KENYA

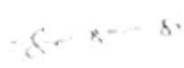
Dear Joan

**Re: ASSESSMENT OF FACTORS ASSOCIATED WITH ACQUISITION OF  
CLINICAL COMPETENCES AMONG UNDERGRADUATE NURSING STUDENTS  
IN UGANDAN UNIVERSITIES**

We are in receipt of your letter seeking for clearance to allow you collect data from our finalist year undergraduate nursing students in regard to the above research title. This is to give you permission from the faculty of Medicine to collect data from the Nursing students. However, you are requested to give us a copy of your research protocol, and ethical approval letters. You are also requested to give a copy of your research findings to our Library for information.

We wish you success in your academic endeavours

Yours faithfully,

  
Dr. Joseph Ngonzi  
**DEPUTY DEAN**



**APPENDIX 14: BISHOP STUART UNIVERSITY ADMINISTRATIVE  
CLEARANCE**

**BISHOP STUART UNIVERSITY  
P.O. BOX 09, MBARARA**

Tel: 0454 43468, 0752990371  
Plot: 150, Kushari Block 4, Kakaba Hill  
5 KM from Mbarara Town, Burembe Road



E-mail: [bsu@bsu.ac.ug](mailto:bsu@bsu.ac.ug)  
Website: [www.bsua.ac.ug](http://www.bsua.ac.ug)

**FACULTY OF NURSING AND HEALTH SCIENCES**

11<sup>th</sup> August 2020

To: Joan Kempango  
Moi University School of Medicine  
Department of Medical Education  
P. O. BOX 4606, Eldoret Kenya

Dear Joan

**RE: ACCEPTANCE LETTER TO CONDUCT RESEARCH**

We are in receipt of your letter seeking for clearance to allow you collect data from our final year undergraduate nursing students under the topic "Assessment of factors associated with acquisition of clinical competences among undergraduate nursing students in Ugandan Universities".

This is to state that this institution has no objection to you to collect data from our students. However you are requested to give a copy of your research findings to our library for information. We wish you success in your academic endeavours.

Yours faithfully

*Otwine*

**Otwine Anne Tweheyo  
Faculty Dean.**

cc. HOD Nursing and Health Sciences  
cc. Faculty Administrator

## APPENDIX 15: MMU ADMINISTRATIVE CLEARANCE



☎ (+256) 0312 307400  
 ✉ deanson@ciu.ac.ug  
 🌐 www.ciu.ac.ug

2<sup>nd</sup> September 2020

The Executive Secretary,  
 Uganda National Council for Science and Technology  
 Kampala,  
 Uganda

Dear Sir / Madam,

**RE: PERMISSION TO CONDUCT DATA COLLECTION FROM CLARKE INTERNATIONAL UNIVERSITY.**

Greetings from Clarke International University formerly known as International Health Sciences University.

This is to acknowledge that **Joan Kempango**, is a student at Moi University, School of Medicine, Department of Medical Education, P.O. Box 4606, Eldoret, Kenya pursuing her PhD in Nursing Education. As part of the requirements for the award mentioned, the student is required to carry out research.

She has expressed interest in carrying out her research in our University among the fourth year Bachelor of nursing students and we are ready to render her the necessary support required in her data collection process.

The topic is entitled: **Assessment of Factors Associated with Acquisition of Clinical Competences among Undergraduate Nursing Students in Ugandan Universities.**

This therefore is to kindly request you to also render the student assistance as may be necessary for her research

I and indeed the entire University are grateful in advance for all assistance that will be accorded to the student.

Thank you

  
**CLARKE INTERNATIONAL UNIVERSITY**  
**32 SEP 2020**  
**Agwang Agnes**  
**SCHOOL OF NURSING & MIDWIFERY**  
**LEAD • INNOVATE • TRANSFORM**  
 Dean, School of Nursing and Midwifery  
 P.O. Box 7782, Kampala, Uganda

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St. Barnabas Road, Kampala-Namuwongo  
 3rd Floor, International Hospital Kampala  
 P.O. Box 7782 Kampala, Uganda

## APPENDIX 16: CIU ADMINISTRATIVE CLEARANCE

**MOUNTAINS OF THE MOON UNIVERSITY****OFFICE OF THE VICE CHANCELLOR**

Our Ref: VC/MMU/1482020

Date: 14<sup>th</sup> August, 2020

Your Ref:

**TO: JOAN KEMPANGO  
 MOI UNIVERSITY, SCHOOL OF MEDICINE  
 DEPARTMENT OF MEDICAL EDUCATION  
 P.O.BOX 4606, ELDORET, KENYA**

Dear Joan,

**RE: ASSESSMENT OF FACTORS ASSOCIATED WITH ACQUISITION OF  
 CLINICAL COMPETENCES AMONG UNDERGRADUATE NURSING  
 STUDENTS IN UGANDAN UNIVERSITIES.**

We are in receipt of your letter seeking for clearance to allow you collect data from our final year undergraduate nursing students in regard to the above research title. This is to inform you that the institution has no objection to your collection of data from our students. However you are requested to give a copy of your research findings to our library for information.

We wish you success in your academic endeavors.

Yours Sincerely,

*[Handwritten Signature]*  
 Prof.Dr. John M Kasenene  
 Vice Chancellor, MMU

Copy to: The Dean School of Health

File



