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ASSESSMENT OF CLINICAL PRACTICE COMPETENCY AND ASSOCIATED FACTORS AMONG GRADUATING NURSING STUDENTS IN UNIVERSITIES OF AMHARA REGION, NORTHERN ETHIOPIA, 2018 GC

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A THESIS TO BE SUBMITTED TO GRADUATE PROGRAM OF ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY, FOR PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN ADULT HEALTH NURSING.

JUNE, 2018

ADDISABABA, ETHIOPA

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APPROVAL BY THE BOARD OF EXAMINATION

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By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every effort has been made to avoid plagiarism in the preparation of this thesis.

This thesis is submitted in partial fulfillment of the requirement for a graduate degree from the Addis Ababa University at College of Health Sciences, School of Nursing and Midwifery. The thesis is deposited in the Addis Ababa University Digital Library and is made available to local, national and international scientific community. I solemnly declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

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ACRONYMS AND ABBREVIATIONS

AAU	Addis Ababa University
ANS	American Nursing Association
BDU	Bahirdar University
BScN	Bachelor of Science in Nursing
COC	Certificate of Competency
DBU	Debre Birhan University
DC	Data Collector
DEUM	Dedicated Education Unit Model
DMU	Debre Marcos University
DTU	Debretabour University
GC	Gregorian Calendar
HWs	Health Workers
MScN	Master of Science in Nursing
PI	Principal Investigator
RN	Registered Nurse
UoG	University of Gonder
WDU	Woldia University
WHO	World Health Organization
WU	Wollo University

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ABSTRACT

Background: Health workers, including nurses, are not adequately prepared to meet the needs of society, especially in developing countries. The practice of nursing requires a complex combination of various attributes and nursing students require highly specialized competencies to accurately predict and determine patients' status and cope with the problems that may occur during nursing care. Clinical experiences are critically important to achieve the maximum level of clinical competence after receiving adequate theoretical and practical instructions. However, most new bachelor graduates have adequate theoretical knowledge but lack clinical competence.

Objective: To assess clinical practice competency and associated factors among graduating nursing students in universities of Amhara region, Northern Ethiopia, 2018

Methods: Institutional based Cross-sectional study was carried among 307 graduating BSc nursing student. The study was conducted in Amhara region universities. Simple random sampling technique was applied to select study subject and the data was collected by using a self-administered questionnaire and observation from February 25/2018 –April 25 /2018 G.C. Descriptive analysis was employed to describe the percentages and distributions of the respondents for socio-demographic characteristics. Bivariate and multivariate analysis was also used to see the association of independent with the dependent variable. Crude and adjusted odds ratios together with the corresponding 95% confidence intervals were computed. P-value < 0.05 was considered statistically significant.

RESULT: The study revealed that 103 (33.6%) of the study participants were clinically competent. Clinical instructor factors [AOR: 3.051; 95% CI (1.717-5.421)] and student-staff interaction factors [AOR: 2.348; 95% CI (1.337-4.124)] were statistically significant variables with level of competency of the student. Students who had good clinical instructor were 3.1 times clinically competent than students who had not and students who had good interaction with clinical staffs were 2.348 times clinically competent than students who had no good interaction.

CONCLUSION AND RECOMMENDATIONS: Generally, the results of this study revealed that about more than half of graduating nursing students were clinically incompetent. Variables such as clinical instructor and staff-student interaction were significantly associated with clinical practice competency among graduating nursing students. So designing appropriate clinical practice protocol which includes improving supervision of clinical instructor is important to enhance clinical practice competency of student.

1. INTRODUCTION

1.1. Background of the Study

Nursing is a dynamic, caring, helping relationship in which nurses assist the client to achieve and obtain optimal health. As a profession, it undergoes a huge transformation since the time of Florence nightingale. Now, nursing is a profession with its own body of knowledge, regulatory bodies and standard of practice. Apart from being a care provider, nurses also have more expanded roles like collaborator, advocator, leader, manager, educator, researcher and counselor(1). Nurses are very important in the health care profession. Their work is focused on the care of individuals, families and communities and their approach to patient care, training and scope of practice is different from other health care providers. Graduating nurse should apply the core competencies which are professional role, responsibility and accountability; health assessment and diagnosis; therapeutic management; and health promotion and prevention of illness and injury(2, 3).

At the end of undergraduate program, students are expected to achieve the maximum level of clinical practice competence. Learning in the clinical practice is an important component of health sciences education considering that health sciences education is practice-based profession. Clinical practice is the means by which nursing student learn to apply the theory of nursing, facilitating integration of theoretical knowledge and practical skills in the clinical setting. This correlation of theory and practice, and the building of meaningful experience, take place during clinical practice in the health care services. It is through experience in the clinical setting that nursing students acquire the learning domains (knowledge, skills, and attitudes) essential to professional practice and become socialized into the nursing profession. New graduates also acquire the five domain of competency (ethical practice, holistic approaches to care and the integration of knowledge, interpersonal relationships, organization and Management of Care and personal and professional development) (4-6).

One of the outcomes for effective learning in clinical practice is clinical competence. The word competency is used in many different ways and defined and interpreted in multiple ways, competence as an ability to successfully apply professional knowledge, skills and attitudes to new situations as well as familiar ones. As the term increasingly is used very useful in many fields of nursing, it is important to come to some agreement on its use. This analysis offers an approach to competency that can be used in nursing practice, education, management and for professional regulation. It is an essential concept in nursing and become a contemporary global nursing issue. extensive writing on varying perspectives and definition of nursing competence emerged but with no clear agreement due to the complexities of nursing practice itself(1, 7) It can be classified into behavioral and technical. Technical competencies embrace the actual psychomotor skills like administering and managing parenteral and enteral medication as well as calculating medication dosage and other practical skills in a comfortable and knowledgably way. On the other hand, behavioral competencies include the articulation of nursing scope of practice to others, practicing ethical code for nurses, use evidences and critical inquiry to challenge, and support nursing practice. moreover, these competencies are also practiced in collaboration with other health care providers to respond to rapidly changing complex health(3).

Nursing competency is conceptualized by two approaches. The first approach is behavioristic which focuses on skills and based on direct observation of performance. Competence depends on the level of every specific competency. Another approach is holistic approach which regards competence in terms of broad cluster of abilities which are conceptually linked and focuses on general attributes that are essential to effective performance. these underlying attributes, such as knowledge or critical thinking, provide the basis for transferable or more specific attributes(8).

Nursing competency is important to the profession because nurses deal directly with the safety of healthcare service consumer. The recent changes in the health care environment such as increased population, chronic disease, informed society and advanced technologies also made the clinical competency of each nurses very much needed(1). In health care education, the role of competence has grown dramatically as health care employers and educators have identified the gap between education and practice. The globalization, rapid technological development and increasing scientific innovations and demands of cost-effectiveness have created an interest of understanding competence. And also many changes in health care system like the rise of health care costs, new technologies with new treatments and increasing number of people living with chronic conditions and needing long-term care lead to increased demand with respect to nurse's competence(7, 9)

Around the world, the rapidly shifting of balance in availability and demands of competent health care workforce, the number of competent health professionals must be expanded to meet these new complexities. The rapidly changing health care system have highlighted the necessity for graduating students to be clinical competent. This necessity also in turn highlighted the increasing significance of the quality of student clinical learning experience(10). Improving the productivity and performance of health care workers in order to enhance efficiency in health interventions, is a major challenge for African countries. Performance of health care organizations depends on the knowledge, skills and motivation of individual employees. Employers should provide working conditions which support the performance of employees. Currently there is great concern from Ethiopian government and the public sector over poor quality of skills of health professionals(4).

1.2. Statement of the Problem

Health workers (HWs), including nurses, are not adequately prepared to meet the needs of society, especially in developing countries. It is due to the reason that educational institutions are not provided with support and guidance to develop competence-based curricula for their education programs. The challenges to be met in the adaptation of these competencies include diversity in regional nursing education programs and the resources available to implement the programs. The practice of nursing requires a complex combination of various attributes and nursing students require highly specialized competencies to accurately determine patients' states and predict and cope with the problems that may occur during nursing care. Most employers expect new nursing graduates to be prepared to perform a wide range of functions and have the skills to provide safe care. However, many new nursing graduates cannot competently perform basic clinical tasks or that their education and work competencies are disconnected(11, 12). Clinical practice competency acquisition takes place in a dynamic social complex environment where patient care is provided as students learn. Student's performances in a clinical learning environment have profound impact on their learning associated with skill of educator, staff-student interaction, and assessment guideline, relationships with clinical staff, lack of support from educators and lack of challenging learning opportunities(4).

A global report into health education sees educational institutions as crucial to transform health care systems. However, in many countries there is a lack of capacity in training, budget support and infrastructure. Unlike the traditional training in the past; today nursing training has moved into tertiary level and this might give a profound impact to the clinical competency of the new graduated nurses when they need to transit from the academic settings into the real clinical setting. But, new graduated nurses often reported a lack of preparedness for their role as a staff nurse still. Nursing degree program has produced many nursing graduates. however, no feedback is obtained from them weather they are able to integrate their theoretical knowledge into the practice and shown competency in their practice or do they only have advanced theoretical knowledge but unable to perform well in clinical procedure(1).

Countries vary in their response to increase competent health worker shortages. Some countries like South Sudan focus exclusively on increasing the numbers of competent health workers through pre-service training but most sub-Saharan countries do not give pre-service training. It is important to improve the skill of nurses to provide productivity and quality of care through the assessment methods that improve the quality of learning as it identifies training deficiency, provides feedback, monitors progress, determines whether the learning outcome is met; decides whether the student should progress to the next higher of learning. The characteristics of clinical education that can influence satisfaction are categorized as organizational domain, which included number of teachers, patients, educational methods, and practical skills that the students learn(4, 13)

In Ethiopia, government is the main health care service provider. A number of strategies have been developed to improve the quality of health care delivery system, but the health care system of Ethiopia is facing a serious shortage of skillful health workforce. So, when students start clinical practice, during which they gain experience and skills by taking part in the provision of patient care and management, they encounter different problems that can affect their clinical competency(14).

2. LITERATURE REVIEW

2.1. Clinical Practice Competency of nurses

Competency has a key role in the assurance of quality professionals in health care system and it has importance to the input of qualified, productive and skilled professionals. According to Americans Nursing Association(ANA), nursing competence is expertise, responsibility and domains of practice as evidenced by behavior based on beliefs, attitudes and knowledge matched to and in the context of a set of expected outcomes as denied by nursing scope of practice, policy, code of ethics, standards, guidelines and benchmarks that assure safe performance of professional activities (15). Competency is often used to describe the knowledge to be performed at a particular task. It includes the understanding of knowledge, clinical, technical, and communication skills, and the ability to problem solve through the use of clinical judgment. Nursing skills competence is the use of evidence based procedures aimed at promoting patient's health by use of applicable procedure and it is the ability to effectively integrate cognitive, affective and psychomotor skills when delivering nursing care. In traditional competency programs, competency is validated on hire and once a year using skill stations. Most often only psychomotor skills are validated with no attention given to the clinical reasoning that contributes to quality patient focused care. Promoting competency-based practice is a method to consistently facilitate the application of what a nurse knows into their actual practice (4, 16, 17). The organizational competency validation strategy for nurses define competency-based practice as a patient care delivery system that emphasizes the nurse's ability to demonstrate competence in the high-risk, problem-prone aspects of care related to a specific role and clinical setting(16).

According to the study conducted on assessing competence in technical skills of nurses in India and Sweden, competence was understood as an evolving process. Competences as performance, knowledge, clinical skills, and safe and ethical practice, management of time and workload, utilization of resources, as limited independence, were found as conceptions of competence of the graduate nurses. The staff understands the term competence as ability to cooperate, being able to perceive the situation correctly, being aware of abilities and limitations, being able to act, and being able to disregard the technology which is the most correct way of caring for a patient(7).

Study done among health science students of Hawasa University shows that, the prevalence of clinical practice competency of study participant from second year to fourth year was 25.2%. From these participants, fourth year students were 27.2% competent clinically(4). According to the study conducted at Debre Birhan health science college the prevalence of clinical practice was 78.6% and examiner problem, assessment questions, candidate's lack of preparation and low preparation for competency assessment by concerned bodies and clinical environment were the major factor affecting clinical competency(18). The study conducted in Annals' University of Finland among graduating nursing students department of Nursing Science showed 66.7% of prevalence for graduating nursing students.(9)

2.2. Factors Related to Clinical Instructors

Clinical instructor is qualified academic or skilled practitioner who teaches, supervises and assesses student in hospital. He /she support and helps nursing student to develop the necessary nursing skills to become a competent and knowledgeable practitioner. Constructive supervision helped students to integrate clinical knowledge into clinical practice, summarize patient's histories and solve patient's problem. Supervision during the clinical placement supports the development of competence (9). A qualitative study conducted in Iran Tarbiat Modares university nursing department on 12 nursing students and 10 clinical instructors stated that, a competent instructor is a role model. He has an understanding behavior with the patients, students and even the environment. He did not focus on only practical or theoretical tasks. Participants of this study believed that instructors are the communicative bridge between the students, staff and hospital departments. Overall, the characteristics of a competent instructor in stressful situations were as follows: respecting students in front of others, providing a peaceful learning environment and using encouragement instead of punishment(19).

A qualitative study conducted in Walden university among 9 nursing students and 6 clinical instructors, 2015 concluded that clinical instructors should be able to discern the student behaviors that will ultimately result in patient harm(20). Study made on Cyprus stated supervisors who showed a flexible attitude towards students and their knowledge stimulated students to use a focused study strategy and a deeper approach to learning (21). A shortage of staff in clinical practice field was perceived by participants as one of the reasons contributing to students' poor clinical competencies and the study results showed that some of the instructors did not have the required qualification to be preceptors and thus could not improve the students(22).

According to the cross-sectional study done among 345 health science students of Hawasa University, majority of the participants (71%) respond as, clinical instructors do not use different learning methods during clinical practice. Regarding the influence of instructor support on clinical practice, 55% of the participants were agreed. As majority of the respondent (84.6%) responds, there was no provision of constructive feedback during clinical practice. Instructor's skill demonstration and problem solving during clinical practice was also a major problem as (83.8%) of the participant responds. This study also shows that instructor supervision while student conduct procedures during clinical practice were poor which is student with clinical instructor support had 2 times most likely clinical practice competency with adjusted odd ratio (1.042, 3.694) and 95% CI than student which didn't have clinical instructor support and also integration of theory to clinical practice, orientation about the objective of clinical practice and feedback provided by instructor had significant association to students clinical competency with p-value of 0.003, 0.004 and 0.013 respectively (4).

Clinical instructors accepted that they did not perform the clinical evaluation of the students in a timely manner. They perform clinical evaluation without having any objective evidence. (23). A cross-sectional study among 120 conveniently sampled nursing students on undergraduate nursing students' perception of effective clinical instructor at Oman shows that professional competence is the most important characteristic of clinical instructor (77.6%) with p-value 0.89, followed by instructor's relationship with students (72.9%) with p-value 0.034 and (53.2%) with p-value 0.83 rated personal attributes as highly important(24).

2.3. Factors Related to Clinical Practice Environment

Quality placements provide students with opportunities for skill development, socialization into the profession, and a bridge between academic and workplace learning. Students encounter some challenges in dealing with clinical learning environment and in interaction with instructors, patients, and department personnel. A qualitative study made in Shiraz university of Iran on 17 nursing students and 5 clinical instructors shows that, clinical environment is a suitable context for learning skills needed to care for patients. However, some of them are considered basic health care skills and any deficit in them affects the quality of care. In this regard, students had difficulties in performing procedures and distressed in dealing with new experiences within the clinical learning environment(25).

A cross sectional study conducted among graduating nursing student of Turun Yliopisto states that the final clinical placement helped them to develop competence(9). The participants of the study conducted on lived experiences of student nurses during clinical practice at Banquet state university, Philippines describe their clinical placements as stressful, nerve-raking and typified by a fear of making mistakes or saying something foolish. Members were confronted with feelings of anxiety and apprehension as they traversed different clinical placements(26). According to the study conducted in Queensland university school of nursing indicate that positive experiences for students are more likely to be related to their actual clinical experience and how valued and supported they felt rather than the physical aspects of a placement. Interestingly, the rural and metropolitan students rated similarly. in addition, the rural students, regardless of time reported greater confidence, competence and organizational skills(27). According to the study done among health science students of Hawasa University, clinical placement is not well conducive for clinical practice which was not meets the objective of clinical practice. This study shows that, Student with conducive clinical practice environment were 2 times most likely clinical practice competent with odd ratio (1.908, 3.126) and 95% CI than student who haven’t get conducive clinical practice environment.(4).

Dedicated Education Unit Model (DEUM) is one of the health workforce Australia clinical supervision models which is a combined model of the preceptor and facilitator model that states there should be partnership between health service and university and there should be nurse educator that provides the link. This model strongly encourages and fosters a positive clinical education environment for nursing students, and strongly supports students in the clinical education environment by fostering critical thinking through reflective practice and the greater opportunity to perform clinical skills and procedures. This model is also an innovative approach to clinical education in an ever increasing climate where there is an increasing strain on human, fiscal and clinical resources(28).

2.4. Factors Related to Assessment Methods

Clinical assessment is a measure of student learning and achievement within certain period including clinical examination, clinical performance evaluation, nursing care report, and case presentation. One major finding was the lack of assessor's preparation for continuous assessment and its impact on student's assessment. Personal characteristics may still influence the assessment process. Consequently, it might involve personal or individual judgments during the process. Observation and feedback were the most commonly reported approaches for assessing students' performance. however, they are subjective(4).

According to the study conducted in Ireland, for clinical placements of more than 3-weeks duration, preceptors are required to conduct three separate interviews with each student (first, middle and final interview). The purpose of the first interview is to identify/agree learning opportunities/ competencies and clinical skills from the workbook. At the middle interview students self-assess and discuss their own progress with their preceptor. Concurrently, preceptors provide feedback on clinical progress and student's current status in achieving agreed competencies/ skills. The purpose of the interview at the end of each placement is for the preceptor to make a final overall assessment of whether a student has achieved the agreed competencies/skills(29). The study conducted in Walden university, 2015 states that, the evaluation tools used in the clinical setting serve as clearly defined expectations that are aligned with the nursing program conceptual framework and program outcomes(28).

Based on the guide for mentor's assessment process 2011/2012, the student must identify which progression point criteria and competencies they wish to be assessed on during each placement. There are a minimum and maximum number of criteria to be achieved in the first placement of each year. All criteria must be achieved by the end of the year. the e-portfolio is a forum for students to store their evidence for assessment and other material(30). A qualitative study done in Iran on problems and challenges of nursing students' clinical evaluation states that: in order to perform an objective evaluation of the students, instructors strived to give cognitive written tests at the end of the semester, but the students objected to irrelevant content of these tests compared with those they had experienced during the clinical training. Instructors did not have enough information to score the students' clinical evaluation forms, and the students were not assessed based on their competencies(23).

Study made in Hawasa University indicates that instructors did not use continuous assessment during clinical practice as 82.1% of the participants agreed and related with uses of clinical practice cheek list to assess student performance during clinical practice 32.5% of participant were disagreed in which students with clinical practice assessment checklist had 4 times higher clinical practice competency with adjusted odd ratio (1.238, 12.65) and 95% CI than student which had no clinical assessment checklist during clinical practice.. Instructors do not orient about assessment methods as indicated by 66.1% of participants. 76.8% of the participant agrees that assessment methods did not address three learning domains (knowledge, attitude and practice) in which student with integrations of learning domain had 3 times most likely clinical practice competency with adjusted odd ratio (1.048, 1.742) and 95% CI than student who have not integrate learning domain.(4). A study conducted in Annals' University of Finland among graduating nursing students department of Nursing Science showed that students assessed themselves to have higher nurse competence than was assessed by their mentors (p=0.013)(9).

2.5. Factors Related to Student-Staff Interaction

The staff nurse plays an integral role in clinical nursing education, helping to prepare undergraduate nursing students for professional practice. While many staff nurses find the teaching role satisfying, others do not see it as their responsibility. Greater patient acuity, high nurse-to-patient ratios, and increased workloads stop some nurses from participating in students' education. The student-staff nurse relationship profoundly affects learning. Staff nurses are meant to be resources for students when faculty members are unavailable. They also serve as nursing role models and educational facilitators of practical nursing skills. This socialization into the profession is a crucial component of the student's education(31). Nurses have ambivalent feelings about students in clinical settings. Nurses do not always perceive their relationship with students in a positive manner. Because the relationship between clinical staff nurses and students directly affects the quality of the learning experience for the students, the nurse's perceptions about students are important to assess. Students remarked that they learned best with nurses who demonstrated a caring attitude and a willingness to teach, and who treated them as if they were part of the team(18, 31).

According to the study made at school of nursing of Fasa University, Iran, discrimination is a subcategory that most students had experienced. They were complaining about a series of discriminatory behaviors they were seeing at the bedside that irritated them. According to what the students claimed, the greatest discrimination in the clinical setting was apparent in behaviors of nurses towards students. In addition to behavioral discrimination, some students were also upset and complained about discrimination in the use of educational facilities. One of the student stated that "the first time i took the blood pressure machine and intended to take a patient's blood pressure, i had the blood pressure cuff upside down around his elbow, and it was really my fault. I got embarrassed in front of the patient"(32). Deficiency in practical skills in caring for patients was a concern of many students in the clinical setting. According to the study conducted in Hawasa, most staffs did not allow students to perform tasks during clinical practice as indicated by 71.1% of respondents. among the respondents 64.1% disagreed and 35.9% were agreed on staff encouragement of students during clinical practice(4).

2.6. Summary of the Literatures

Competency has a key role in the assurance of quality professionals in health care system and it has importance to the input of qualified, productive and skilled professionals. Several nurse competence areas for nursing students were found in previous studies and other documents. The nurse competence areas referred to ethical values and attitudes, interpersonal skills, assessing the quality of nursing, nursing skills and patient care, teaching and supervising patients, their families, colleagues and nursing students, management of care and leadership in nursing, and utilization of research.

Examiner problem, problem of the assessor, assessment questions, candidate's lack of preparation and low preparation for competency assessment by concerned bodies and clinical environment were the major factor affecting clinical competency. To meet the growing requirements of social and health care, it is fundamental to ensure that the staff involved in these demanding professional circumstances is qualified and competent. Higher education aims to ensure that graduates have extensive knowledge, skills and attitudes needed in working in specialist circumstances in their field.

2.7. Justification of the study

Clinical practice competency achievement is highly influenced by different factors that can lead to poor quality of health care system. The health care system of Ethiopia is facing a serious shortage of skillful health workforce. Most new bachelor graduates have adequate theoretical knowledge but lack competence in the clinical environment in their work place after graduation which hinders the quality of health. These problems are easily manageable if health care system can properly implement and apply quality of education by integrating theory with practice and working together both instructors and clinical staffs.

Worldwide, there are a number of studies conducted in the assessment of factors that affect clinical practice competency of staff nurses, graduating nursing students, undergraduate nursing students and even undergraduate health science students. Except some of the study, most of them were use convenient sampling technique and the sample size of most studies were also small. There are also two studies conducted in Ethiopia on health professionals and under graduate health science students. But both of the studies assess competency through the use self-assessment technique which is more subjective.

In this study, adequate sample size will be incorporated with a probability sampling technique to increase the reliability of the outcome. To assess the level of competency, observation technique with adapted checklist will be used instead of self-assessment. This helps to get more objective finding. Therefore, the purpose of this study is to assess clinical practice competency and associated factors among graduating nursing students of Universities in Amara Region, northern Ethiopia, 2018.

2.8. Significance of the Study

When students start clinical practice, during which they gain experience and skills by taking part in the provision of patient care and management, they encounter different factors which can hinder their clinical competency.

As a result, this study will identify factors affecting clinical practice competency of graduating nursing students of Amara region universities. The results of the study will be useful for designing appropriate clinical practice implementation guideline for nursing students and it will give direction for nursing instructors and clinical staffs to work together. By exploring the challenges encountered by graduating nurses in term of clinical competency, it helps to provide an insight to the nursing leaders or related organization on the barriers to attain competency at the initial period of clinical practice. Thus, more supportive and relevant intervention can be implemented to help them to achieve a higher level of clinical competency.

2.9. Conceptual Framework

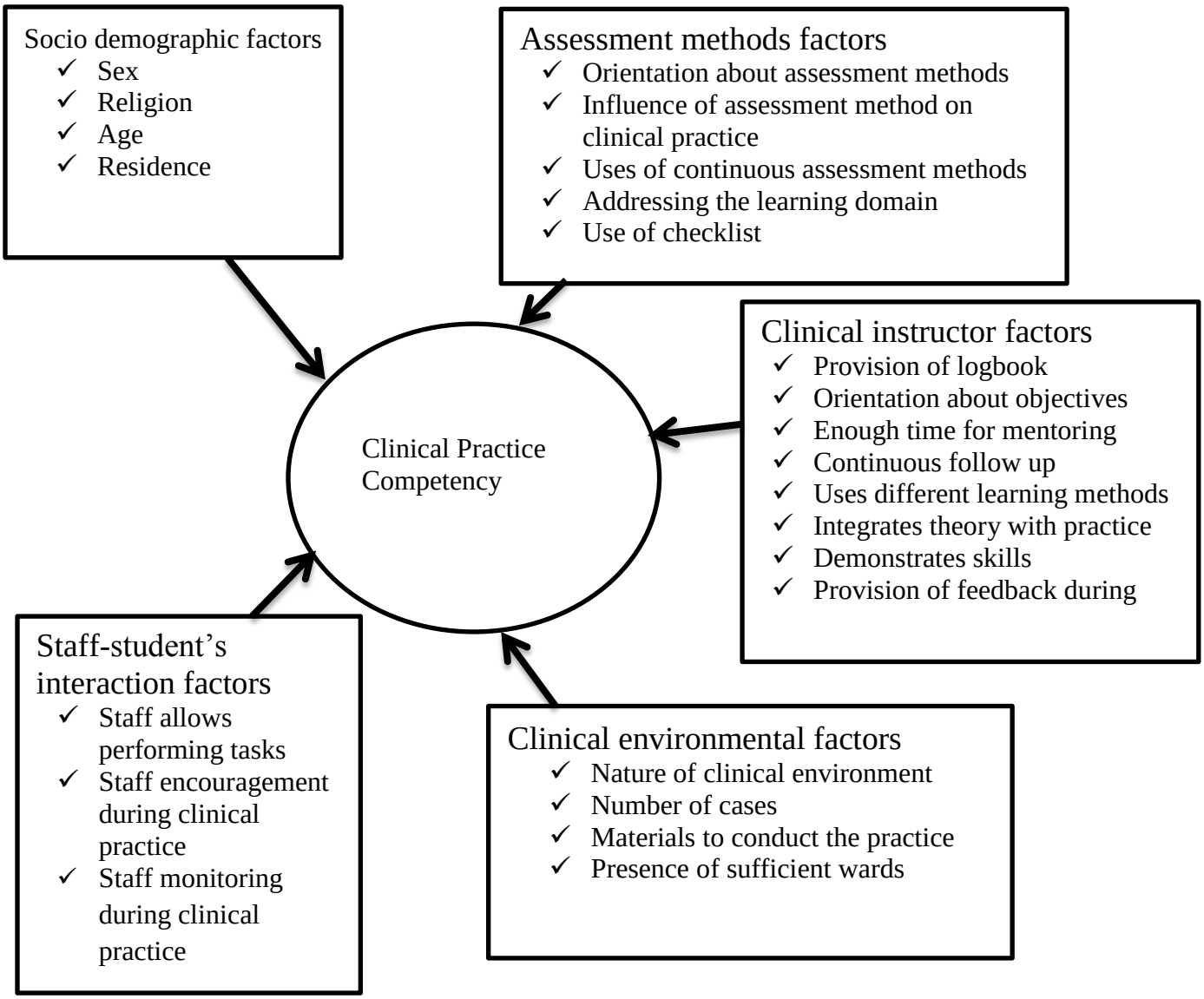


Figure 1: Conceptual framework of a study on clinical practice competency and associated factors among graduating nursing students of universities in Amara region, 2018. (Adapted from previous study) (4).

3. OBJECTIVES OF THE STUDY

3.1. General Objective

To assess clinical practice competency and associated factors among graduating nursing students of Universities in Amara Region, northern Ethiopia, 2018

3.2. Specific Objectives

1. To determine clinical practice competency among graduating nursing students of Universities in Amara Region, northern Ethiopia, 2018
2. To identify factors affecting clinical practice competency among graduating nursing students of Universities in Amara Region, northern Ethiopia, 2018

4. MATERIAL AND METHODS

4.1. Study Area and period

The study was conducted in multiple universities located in Amara region from February 25/2018 – April 25 /2018 G.C. There are seven universities in Amara region. Among these, six of them have graduating nursing students. The universities are categorized into three by generation (first, second and third generation). University of Gonder (UOG) is one of the oldest and most well established higher education institutions in the country and located in North Gondar Zone of Amara Region, 748km from Addis Ababa. Currently, through nine academic units; it offers 64 postgraduates and 56 undergraduate programs in regular, extension, summer, and distance programs. Bahir Dar University (BDU) is also one of the first generation public universities in Ethiopia located 560 kilometers away from the capital city of Ethiopia, Addis Ababa. The university has currently more than 39, 227 students and about 1540 academic staff and Composed of four colleges, three faculties, one school and three institutes.

Wollo University (WU) is one of government universities in Ethiopia among the second generation universities located 401 km from Addis Ababa to the north at Dessie town. Currently, the University runs 50 undergraduate and 8 post graduate programs. The University has five colleges, two schools and one institute. Debre Birhan University (DBU) is also second generation located 130 km northeast from Addis Ababa. Currently, more than 14,000 regular, weekend, and summer program students were enrolled in 35 departments. Debre Marcos University (DMU) is also one of the second generation universities located 300 km away from Addis Ababa and 265 km from Bahir Dar running different programs.

Woldia University (WDU) is one of the third generation higher education institutions in Ethiopia; and it has been established in 2011. The university is located in Woldia town of Amara Regional State at about 521 km north east of Addis Ababa. Woldia University has two campuses: Mersa and Woldia. The University consists of 8 faculties with more than 8695 regular under graduate students. All the universities have health science college/ faculty/ and except Debretabour university (DTU) all have graduating nursing students.

4.2. Study Design

Institutional based cross-sectional study design was used to collect the quantitative data to assess factors affecting the clinical practice competency of graduating nursing students of Amara Region Universities.

4.3. Source Population

All graduating BSc nursing students attending in Amara Region Universities during the study period.

4.4. Study Population

All graduating BSc nursing students attending in Amara Region Universities during the study period.

4.5. Inclusion and Exclusion Criteria

4.5.1. Inclusion criteria

All graduating/final year BSc nursing students who were attending their study under regular degree program and generic extension program were included in the study

4.5.2. Exclusive criteria

Graduating BSc nursing students who were critically ill during data collection period and those who discontinued their study due to withdrawal were excluded from the study

4.6. Sample Size Determination

Sample size calculation was based on single population proportion formula:

$$n = \frac{(z\alpha/2)^2\, p\,(1-p)}{d^2} = \frac{(1.96)^2\, 0.252(1-0.252)}{0.05^2} = 290$$

- Since the total population were less than 10,000, correction formula is used as follows:

$$n = \frac{no}{1+\frac{no/N}{}} = \frac{290}{1+\frac{290/467}{}} = 279$$

Then, considering 10% non-response rate: n = 279 x 10%+279 = **307**

- n = Sample size required for the study
- Zα/2 = 1.96, standardized normal distribution curve value for the 95% CI
- p = 0.252 from previous study (4)
- d= 0.05 degree of margin of error
- N = Total population for the study

4.7. Sampling and Sampling Procedure

Simple random sampling technique was used. First the total sample size was allocated to each university by proportion to the number of graduating BSc nursing students. Finally, from each university, study subjects were selected by simple random sampling method.

Proportional allocation, $n_j = \frac{n \times N_j}{N}$

Where: n_j =is the sample size of the j_{th} university

N_j =is population size of the j_{th} university

$n = n_1 + n_2 + n_3 + n_4 \ldots$ is the total sample size (307)

$N = N_1 + N_2 + N_3 + N_4 \ldots$ is total population size (467)

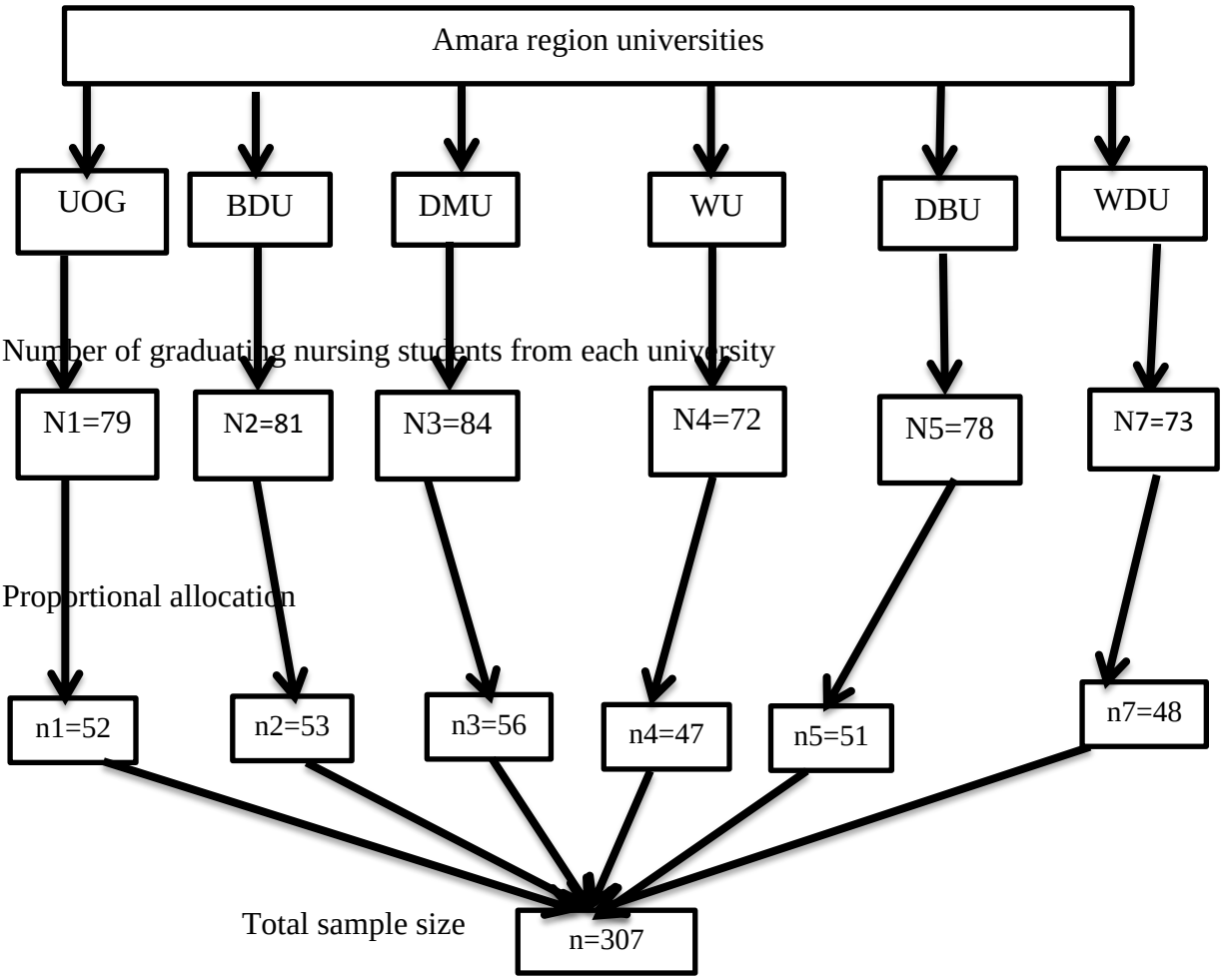


Figure 2: Conceptual framework of a study on clinical practice competency and associated factors among graduating nursing students of universities in Amara region, 2018. (Adapted from previous study) (4).

4.8. Data Collection Method

4.8.1. Data collection instrument

The data collection was carried out using self-administered structured questionnaires and observation technique. The questionnaires were adapted from previous studies and guidelines (4, 6, 33, 34)The questionnaire contains 77 items including the observation checklist in three parts which are socio demographic factors (6 items), level of clinical competency checklist (42 items) and factors affecting clinical practice competency (29 items). Factors affecting clinical competency have five components including sociodemographic variables: clinical instructor factor (14 items), clinical environment factors (6 items), assessment methods factors (6 items), and staff-student interaction factors (3 items).

4.8.2. Data collection procedures

The data was collected by six data collectors through self-administered questionnaire and observation technique which were prepared in English. The data collectors were BSc nurses who had Certificate of competence. The data collectors were selected from each site and were collect the data by using both observation technique which was used to assess the students level of competency while they conduct a procedure and self-administered questionaries' to assess contributing factors.

4.8.3. Variables

- Dependent variable: clinical practice competency
- Independent variables:
  - Socio demographic data
    - ✓ Age
    - ✓ sex
    - ✓ Religion
    - ✓ Ethnicity
  - Clinical instructor factors
  - Assessment methods factors
  - Clinical practice placement factors
  - Clinical staff-student interaction factors

4.8.4. Operational Definitions

Clinical practice competent: Are those students who scored 50% and above of all competency domain assessment questions.

Clinical practice incompetent: Are those students who are scored below 50% of all the competency domain assessment questions(4).

Good clinical instructor: are those instructors who fulfill at least 50% good clinical instructor activities(35).

Conducive clinical practice environment: is a hospital or health center which the wards, the staff and the cases are incorporate at least 50% of conducive environmental factors

Measurable assessment method: is an assessment method which includes at least 50% of good assessment method.

Good staff and student interaction: is a harmonious relation between clinical staffs and students which incorporate 2/3 and above of good staff and student interaction characters(4).

4.9. Data Quality Assurance

The questionnaires were pre-tested on 5% of the sample size at Ambo University to avoid any confusion during actual data collection period. The data collectors were trained before actual data collection and the principal investigator was supervising the data collector closely. During data collection, both principal investigator and data collectors were check the data for its completeness and missing information at each point. Furthermore, the data was checked during entry into the computer before analysis.

4.10. Data Analysis

After the data collection, the completed questionnaire was checked for completeness and consistency. Then, the data template format was prepared, codded and entered in to Epi Data version 4.2. Then data was exported to SPSS version 21 for analysis. Descriptive analysis was employed to describe the percentages and distributions of the respondents for socio-demographic characteristics and the factors that influence clinical competency. Bivariate and multivariate analysis was used for association of independent variable with dependent variable. Crude and adjusted odds ratios with the corresponding 95% confidence intervals were computed. P-value <0.05 was considered statistically significant in this study. The, the results were presented in the form of tables, graphs and charts.

4.11. Ethical Consideration

Paper of approval and letter for permission was obtained before the beginning of data collection from departmental review board of Nursing and Midwifery, College of Health Science, Addis Ababa University. Permission letter was provided for Amara region universities. After that participants were explained clearly about the purpose and procedure of data collection, and then confidentiality and privacy were ensured. It is also cleared that participation was fully based on the willingness of participants using verbal consent.

4.12. Dissemination of Result

The result of this study will be disseminated to Addis Ababa University College of health science library and universities those included in the study. Possible publication on international reputable peer reviewed journals will be sought.

5. RESULTS

5.1. Socio-Demographic Characteristics

A total of 307 graduating nursing students were participated in the study giving a response rate of 100%. As shown in Table 1, out of 307 respondents 173(56.4%) were male and 134(43.4%) were female. Ten (3.3%) of the respondents were in the age range between 15-19 years, 253 (82.4%) were between 20-24 years and 44(14.3%) were between 25-29 years with the mean age of 22.68 year with SD±1.841. Regarding to religion, majority 161 (52.4) of the participants were orthodox Christian. With regard to their ethnicity, majority 145 (47.2%) of the participants were Amhara followed by Oromo 84(27.4).

Table1: Socio-demographic characteristics of graduating nursing students, Amara region Universities, 2018.

Sociodemographic variables		**Frequency(No)**	**Percentage (%)**
Sex	Male	173	56.4
	Female	134	43.6
Age	15-19	10	3.3
	20-24	253	82.4
	25-29	44	14.3
Marital	Single	254	82.7
status	Married	53	17.3
Religion	Orthodox	161	52.4
	Protestant	76	24.8
	Muslim	59	19.2
	Other	11	3.6
Ethnicity	Oromo	84	27.4
	Amhara	145	47.2
	Tigre	44	14.3
	Guragie	17	5.5
	Other	17	5.5
Residence	Urban	161	52.4
	Rural	146	47.6

Other (catholic, wakifeta), other (Sidama, Kembata, Hadya…)

5.2. Clinical Practice Competency of Study Participants

As depicted in Figure 3, 103(33.6%) of the participants were clinically competent.

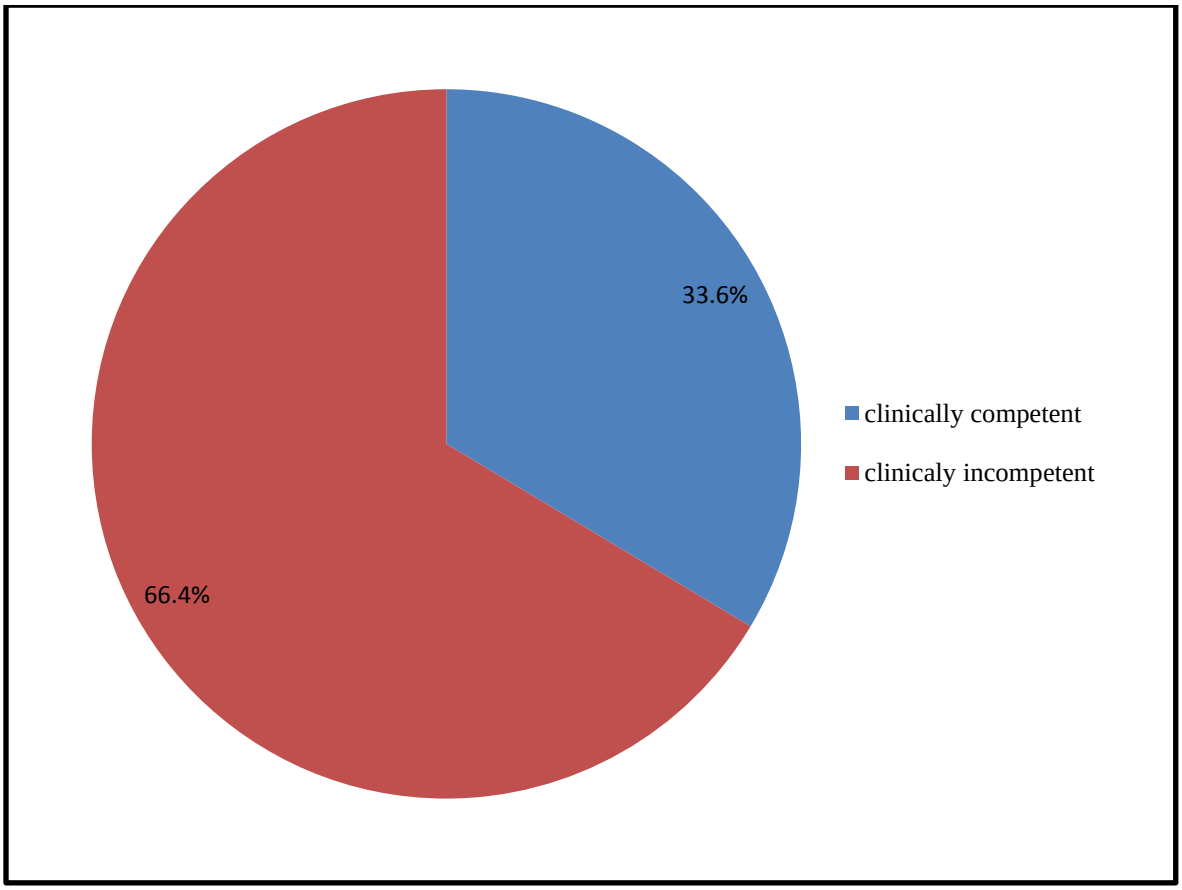


Figure 3. Level of clinical practice competency among graduating nursing students in different Universities that found in Amhara region, 2018

As illustrated in Figure 4, there is slight variation in the clinical competency of participants at different universities found in Amhara region.

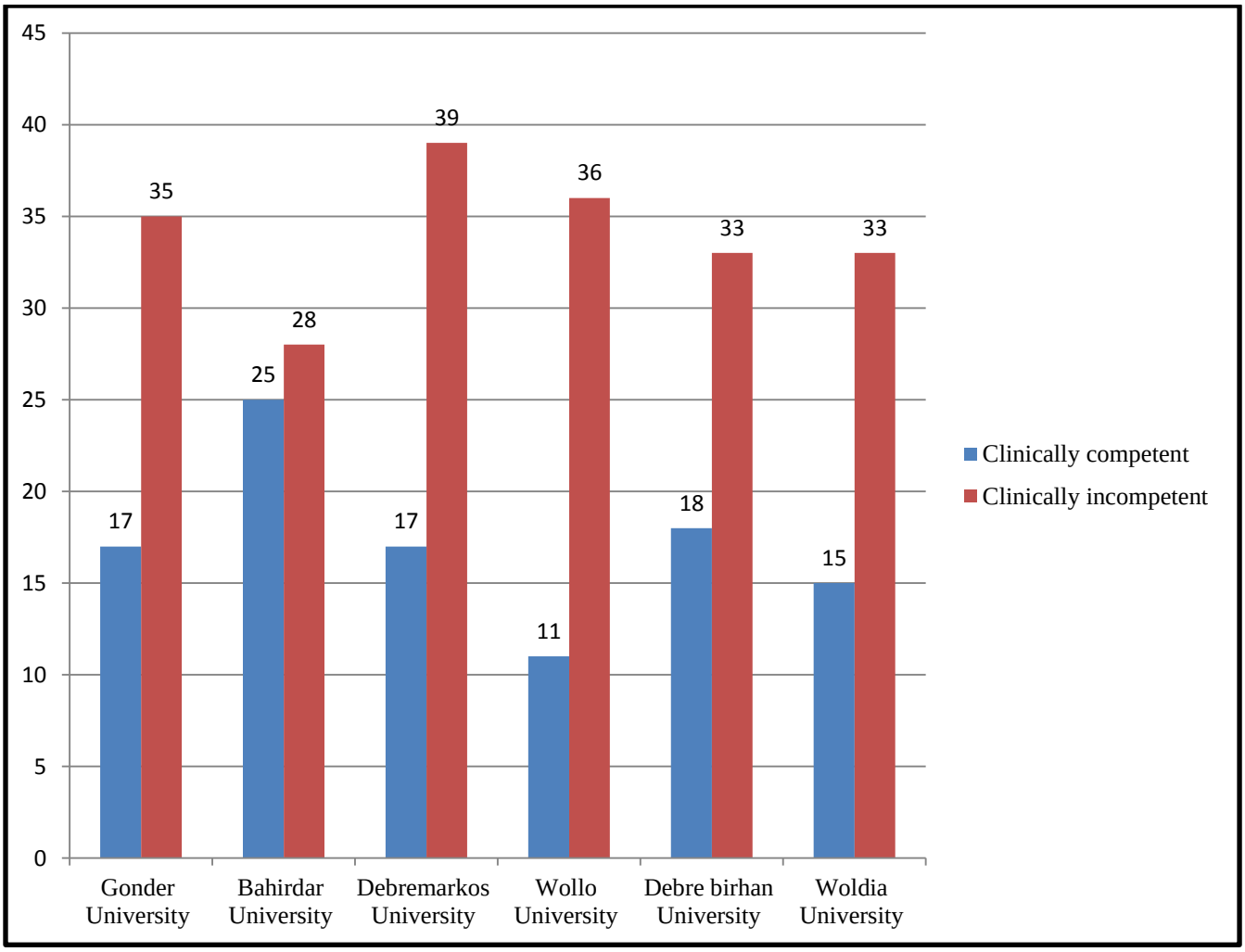


Figure 4. Level of clinical practice competence among graduating nursing students in different universities that found in Amhara region, 2018 GC.

5.3. Clinical Instructor Characteristics

As portrayed in Table 2, among 307 participant's majority 193 (62.9%) of the respondents were agreed and 114(37.1%) were disagreed that clinical instructors integrate theory in to practice, 126(41%) were agreed and 181(59%) were disagreed that instructors provide clinical practice logbook. Regarding to orientation about the objective of clinical practice, 167(54.4%) of participants were agreed and 140(45.6%) were disagreed. One hundred twenty-two (39.7%) were agreed and 185(60.3%) were disagreed that instructors spent enough time for mentoring during clinical practice, whereas majority 204 (66.4%) of respondents disagreed and 103(33.6%) agreed that instructors follow students while they conduct a procedure.

Table 2. Proportion of clinical instructor factors among graduating nursing students, Amhara region Universities, 2018.

No	Clinical instructor factor	yes		No	
		Frequency (No)	Percentage (%)	Frequency (No)	Percentage (%)
1	Instructors provide clinical practice logbook	126	41.0	181	59.0
2	Instructors orient the objective of practice	167	54.4	140	45.6
3	Instructors spent enough time for mentoring	122	39.7	185	60.3
4	Instructors have continuous follow up	153	49.8	154	50.2
5	Instructor use different learning methods	138	45.0	169	55.0
6	Instructor integrate theory in to practice	193	62.9	114	37.1
7	Instructors demonstrate skills in cases	138	45.5	169	55.0
8	Facilitate inter-professional relationships	152	49.5	155	50.5
9	Maintain professional relation with students	155	50.5	152	49.5
10	Follow you while you conduct a procedure	103	33.6	204	66.4
11	Instructors show clinical procedure	110	35.8	197	64.2
12	Instructors provide constructive feedback	146	47.6	161	52.4
13	The feedback given by instructor influence clinical practice	108	35.2	199	64.8
14	Support from instructors has influence on clinical practice	128	41.7	179	52.3

5.4. Clinical Practice Environment Characteristics

As shown in Table 3, majority 204 (66.4%) of the respondents disagreed and 103(33.6%) were agreed that clinical environment has sufficient materials to conduct the practice. Regarding to conduciveness of clinical placement, 173(56.4%) were agreed and 134(43.6%) were disagreed that the clinical placement is conducive for clinical practice. One hundred seventeen participants (38.1%) were agreed and 190(61.9%) were disagreed that clinical placement meet the objectives of clinical practice.

Table 3. Proportion clinical placement factors among graduating nursing students, Amhara region Universities, 2018.

No	Clinical placement factors	Yes		No	
		Frequency (No)	Percentage (%)	Frequency (No)	Percentage (%)
1	Clinical placement is conducive for clinical practice	173	56.4	134	43.6
2	Place of attachment during clinical practice has sufficient cases	135	44.0	172	56.0
3	Clinical environment has sufficient materials to conduct the practice	103	33.6	204	66.4
4	Clinical placement meet the objectives of clinical practice	117	38.1	190	61.9
5	Clinical placement has sufficient wards for clinical practice	141	45.9	166	54.1
6	Clinical practice competency influenced by clinical placement	156	50.8	151	49.2

5.5. Assessment Methods Characteristics

As revealed in Table 4, 168(54.7%) participants were agreed and 139(45.3%) were disagreed that instructors orient students about assessment methods during clinical practice, 188(61.2%) of participants were agreed and 119(38.8%) were disagreed that assessment method has positive influence on clinical practice. Regarding presence of assessment checklist, 127(41.4%) agreed and 180(58.6%) were disagreed that there is an assessment checklist for assessment of student performance.

Table 4. Proportion of assessment method factors among graduating nursing students, Amhara region Universities, 2018.

No	**Assessment method factors**	**Yes**		**No**	
		Frequency (No)	Percentage (%)	Frequency (No)	Percentage (%)
1	Orientation about assessment methods	168	54.7	139	45.3
2	Assessment method has positive influence	188	61.2	119	38.8
3	Presence of continuous assessment methods	166	54.1	141	45.9
4	Instructor makes different in assessment	156	50.8	151	49.2
5	Assessment address three learning domain	123	40.1	184	59.9
6	Presence of checklist to assess performance	127	41.4	180	58.6

5.6. Staff-Student Interaction Characteristics

As depicted in Table 5, majority 194 (63.2%) of respondents were agreed and 113 (36.8) disagreed that staffs encourage students during clinical practice, 190(61.9%) were agreed and 117(38.1%) were disagreed that staffs allow students to perform tasks during clinical practice, 174(56.7%) were agreed and 133(43.3%) were disagreed that staffs monitor students during clinical practice.

Table 5. Proportion of staff student interaction factors among graduating nursing students, Amhara region Universities, 2018.

No	Staff student interaction factors	Yes		No	
		Frequency (No)	Percentage (%)	Frequency (No)	Percentage (%)
1	Staff allows students to perform tasks	190	61.9	117	38.1
2	Staff encourages students	194	63.2	113	36.8
3	Staff monitors students	174	56.7	133	43.3

5.7. Factors Associated with Clinical Practice Competency

Bivariate analyses revealed that twenty-one out of thirty-six items showed a significant association with clinical practice competency at a 5% level of significance. For further analysis, all independent variable which fulfilled the minimum requirement for multivariable logistic regression (had significant association at a $p < 0.25$) were entered. Then sixteen independent items that were not fulfilled the minimum requirement excluded from further analysis of multivariable logistic regression.

As illustrated in Table 6, this study revealed that clinical practice competency of students was affected by clinical instructor factors. Students who had got orientation about objective of clinical practice were 2.387 times more likely to be clinically competent than student who did not get orientation about the objective of clinical practice [AOR: 2.387; 95% CI (1.011-5.635)]. Clinical instructor who spent enough time for mentoring during clinical practice had 2.247 times more likely to be clinical competent student than instructors who did not spent enough time for mentoring [AOR: 2.247; 95% CI (1.100-4.593)]. Students who had instructors that follow them while they conduct a procedure were 2.655 times more likely clinically competent than students who were not followed by instructors during conducting a procedure [AOR: 2.655; 95% CI (1.294-5.449)].

Table 6, Bivariate and multivariate analysis of clinical instructor factors affecting clinical practice competency among graduating nursing students, Amhara region Universities, 2018

Variables		Clinical practice competency		COR(95%CI)	AOR(95%CI)
		Competent	Incompetent		
Clinical practice logbook	Yes	55(43.65%)	71(56.35%)	2.146(1.325-3.478)**	0.718(0.330-1.563)
	No	48(26.52%)	133(73.48%)	1.00	1.00
Orientation of objective	Yes	80(47.9%)	87(52.1%)	4.678(2.725-8.030)***	**2.387(1.011-5.635)***
	No	23(16.43%)	117(83.57%)	1.00	1.00
Enough mentoring time	Yes	62(50.8%)	60(49.2%)	3.629(2.209-5.962)***	**2.247(1.100-4.593)***
	No	41(22.2%)	144(77.8%)	1.00	1.00
Continuous follow up	Yes	70(45.75%)	83(54.25%)	3.092(1.877-5.095)***	0.704(0.312-1.589)
	No	33(21.43%)	121(78.57%)	1.00	1.00
Integrate theory in to practice	Yes	77(39.9%)	116(60.1%)	2.247(1.331-3.794)**	1.012(0.494-2.074)
	No	26(22.8%)	88(77.2%)	1.00	1.00
Demonstrate skills in cases	Yes	66(47.8%)	72(52.2%)	3.270(1.995-5.362)***	1.559(0.723-3.361)
	No	37(21.9%)	132(78.1%)	1.00	1.00
Facilitate inter-professional relationships	Yes	69(45.4%)	83(54.6%)	2.959(1.800-4.862)***	1.082(0.496-2.359)
	No	34(21.9%)	121(78.1%)	1.00	1.00
Maintain relationship with students	Yes	66(42.6%)	89(57.4%)	2.305(1.414-3.757)**	0.902(0.436-1.864)
	No	37(24.3%)	115(75.7%)	1.00	1.00
Follow you while conduct a procedure	Yes	56(54.4%)	47(45.6%)	3.980(2.398-6.605)***	**2.655(1.294-5.449)****
	No	47(23.0%)	157(77.0%)	1.00	1.00
Support from instructors has influence on practice	Yes	58(45.3%)	70(54.7%)	2.467(1.519-4.007)***	1.571(0.796-3.102)
	No	45(25.1%)	134(74.9%)	1.00	1.00

P<0.05*, P<0.01**, P<0.001***, COR= Crude Odd Ratio, AOD=Adjusted Odd Ratio, CI=confidence Interval

As shown in Table 7, this study showed that clinical practice competency of students was not significantly affected by clinical placement factors.

Table 7, Bivariate and multivariate analysis of clinical placement factors affecting clinical practice competency among graduating nursing students, Amhara region Universities, 2018

Variables		Clinical practice competency		COR(95%CI)	AOR(95%CI)
		Competent	Incompetent		
Clinical placement is conducive	Yes	76(43.9%)	97(56.1%)	3.105(1.850-5.212)***	1.635(0.839-3.186)
	No	27(20.1%)	107(79.9%)	1.00	1.00
Clinical placement meet objectives	Yes	50(42.7%)	67(57.3%)	1.929(1.188-3.131)**	1.282(0.666-2.467)
	No	53(27.9%)	137(72.1%)	1.00	1.00

As indicated in Table 8, this study also revealed that clinical practice competency of students was affected by assessment methods factors. Students with clinical practice assessment checklist had 2.663 times higher clinical practice competency than student who had no clinical assessment checklist during clinical practice [AOR: 2.663; 95% CI (1.324-5.358)].

Table 8, Bivariate and multivariate analysis of assessment method factors affecting clinical practice competency among graduating nursing students, Amhara region Universities, 2018

Variables		Clinical practice competency		COR(95%CI)	AOR(95%CI)
		Competent	Incompetent		
Orientation of assessment methods	Yes	72(42.9%)	96(57.1%)	2.613(1.580-4.320)***	0.764(0.355-1.647)
	No	31(22.3%)	108(77.7%)	1.00	1.00
Assessment has positive influence	Yes	76(38.3%)	112(61.7%)	2.312(1.377-3.883)**	1.013(0.455-2.255)
	No	27(22.7%)	92(77.3%)	1.00	1.00
Continuous assessment methods	Yes	70(42.2%)	96(57.8%)	2.386(1.452-3.922)**	1.257(0.605-2.611)
	No	33(23.4%)	108(76.6%)	1.00	1.00
Different assessment	Yes	69(44.2%)	87(55.8%)	2.729(1.663-4.480)***	1.197(0.581-2.464)
	No	34(22.52%)	117(77.48%)	1.00	1.00
Address three learning domain	Yes	50(40.65%)	73(59.35%)	1.693(1.047-2.738)*	0.521(0.247-1.102)
	No	53(28.8%)	131(71.2%)	1.00	1.00
Presence of checklist	Yes	67(52.76%)	60(47.24%)	4.467(2.696-7.399)***	**2.663(1.324-5.358)****
	No	36(20.0%)	144(80.0%)	1.00	1.00

As depicted in Table 9, regarding to staff- student interaction, students who were allowed to perform tasks by clinical staffs had 5.858 times clinical competency than students who were not allowed by clinical staffs to perform a task [AOR: 5.858; 95% CI (2.657-12.916)].

Table 9, Bivariate and multivariate analysis of staff-student interaction factors affecting clinical practice competency among graduating nursing students, Amhara region Universities, 2018

Variables		**Clinical practice competency**		**COR(95%CI)**	**AOR(95%CI)**
		Competent	Incompetent		
Staff allows to perform tasks	Yes	89(46.84%)	101(53.16%)	6.483(3.464-12.134)***	**5.858(2.657-12.916)*** **
	No	14(12.0%)	103(88.0%)	1.00	1.00
Staff encourages during clinical practice	Yes	82(42.27%)	112(57.73%)	3.207(1.845-5.576)***	1.301(0.574-2.951)
	No	21(18.58%)	92(81.42%)	1.00	1.00
Staff monitors during clinical practice	Yes	73(41.95%)	101(58.05%)	2.482(1.496-4.116)***	0.656(0.295-1.443)
	No	30(22.56%)	103(77.44%)	1.00	1.00

P<0.05*, P<0.01**, P<0.001***, COR= Crude Odd Ratio, AOD=Adjusted Odd Ratio, CI=confidence Interval

After computing the four major variables; i.e., clinical instructor factors, clinical placement factors, assessment method factors and staff-student interaction factors, bivariate and multivariate analyses were made. Accordingly, the result of this study showed that clinical instructor factors had a significant effect on clinical practice competency of students. Students who had good clinical instructor were 3.1 times more likely to be clinically competent than students who had no good clinical instructors [AOR: 3.051; 95% CI (1.717-5.421)]. This result also showed that, students who had good interaction with clinical staffs were 2.348 times more likely clinically competent than students who had not good interaction with clinical staffs [AOR: 2.348; 95% CI (1.337-4.124)]. (Table 10)

Table 10, Bivariate and multivariate analysis for computed variables affecting clinical practice competency among graduating nursing students, Amhara region Universities, 2018

Variables		**Clinical practice competency**		**COR(95% CI)**	**AOR(95% CI)**
		Competent	Incompetent		
Clinical instructor	Good	72(49.3%)	74(50.7%)	4.080(2.453-6.786) ***	**3.051(1.717-5.421) *** **
	Not good	31(19.25%)	130(80.75%)	1.00	1.00
Clinical placement	Conducive	65(39.39%)	100(60.61%)	1.779(1.095-2.890) *	1.160(0.679-1.992)
	Not conducive	38(26.76%)	104(73.24%)	1.00	1.00
Assessment method	Measurable	74(40.88%)	107(59.12%)	2.313(1.389-3.851)**	1.143(0.629-2.078)
	Not measurable	29(23.02%)	97(76.98%)	1.00	1.00
Staff-student interaction	Good	78(43.82%)	100(56.18%)	3.245(1.915-5.499)***	**2.348(1.337-4.124)****
	Not good	25(19.38%)	104(80.62%)	1.00	1.00

P<0.05*, P<0.01**, P<0.001***, COR= Crude Odd Ratio, AOD=Adjusted Odd Ratio, CI=confidence Interval

6. DISCUSSION

For a country with national policy aimed at strengthen quality of health care like Ethiopia, it is fundamental to investigate potential factors influencing clinical practice competency. Institutional based cross-sectional study was made to assess factors affecting clinical practice competency among graduating nursing students in Amhara region Universities. This study gives important findings regarding factors about clinical practice competency of students and possible improvement measures that could be implemented in an effort to enhance clinical practice competency of student.

Clinical practice competency of students in this study was 33.6%. This finding is high when compared with finding from study done in Hawasa University which revealed that 25.2% of participants were clinically competent. This discrepancy might be due to the difference of study setting and characteristics of study participants as well as technique of data collection in which the previous study was conducted in a single institution, including all undergraduate students and use self-assessment technique but, this study covers six institutions, only graduating nursing students were included and observation technique also used(4). It is low when compared with study conducted in Health Professionals at Debre Birhan Health Science College which was 78.6%. This may be due to the characteristics of the study participant which were health professionals rather than graduating nursing students(18). The result of this study is also inconsistent with a study conducted in Annals' University of Finland among graduating nursing students, department of Nursing which was 66.7%(9). This discrepancy may be due to the difference in sample size in which the previous study use small sample size compared to this study, socio- economic status of study participant and difference in curriculum of the nation as well as data collection method in which the previous study used systematic search from database but this study used both self-administered questionnaires and observation technique.

This study identified several associated factors such as clinical instructor factor (orientation about the objective of clinical practice, spent enough time for mentoring, instructors supervise students while they conduct a procedure), assessment method factor (assessment checklist) and staff-student interaction factors (staff allow students to perform a task) were associated with clinical practice competency. In this study, the above mentioned factors had shown significant association with clinical competency as follow: students who had got orientation about objective of clinical practice, the likelihood of 2.387 times higher clinical competent than student who did not got orientation about the objective of clinical practice [AOR; 2.387; 95% CI (1.011-5.635)]; those students, who spend adequate time with their instructor/mentor during clinical practice were 2.247 times more competent in clinical skill than those who did not get chance to spend enough time with their clinical instructors [AOR: 2.247; 95% CI (1.100-4.593)]. Students who had instructors who supervise them while they conduct a procedure were 2.655 times more competent in clinical performance than students who were not followed by instructors during conducting a procedure [AOR: 2.655; 95% CI (1.294-5.449)]. However, this result is inconsistence with the study conducted in Hawasa university among health science students which were had no significant association with clinical practice competency. This difference might be due to the difference characteristics of study participants and technique of data collection which this study uses observation technique in addition to self-administered questionnaire but the previous study used only self-assessment questionnaires as well as the previous study didn't include generic extension students, but this study includes generic nursing students (4).

This study also revealed that Clinical practice competency of students was affected by assessment methods factors. Students who were assessed in clinical practice with assessment checklist had 2.663 times higher clinical practice competency than student who were not assessed with assessment checklist during clinical practice [AOR: 2.663; 95% CI (1.324-5.358)]. This result is not similar with the study conducted in Hawasa University among health science students [AOR: 4.05; 95% CI (1.238, 12.65)]. This might be due to the difference in assessment technique and study period in which the current study's data collection period was two month duration, but the previous one was for one month duration(4).

A study conducted in Annals' University of Finland among graduating nursing students department of Nursing Science showed that, students assessed by peers (student to student) had higher nurse competence than was assessed by their mentors (p=0.013)(9). In contrary, in the current study, staff-student interaction had a positive association in clinical competency. This is evidenced by students who were allowed to perform tasks by staff nurses had higher OR (5.858) of clinical competency than the students who were not allowed by staffs nurses to perform tasks. This variation might be due to the difference of the student's attitude towards clinical practice in the two study areas. This is also not consistent with a study conducted in Hawasa University among health science students which had shown no significant association in between. This variation might be also due to the difference in assessment technique and study period (4).

Among the four factors (clinical instructor, clinical placement, assessment method and staff-student interaction), clinical instructor factors and staff-student interaction factors were significantly associated with clinical practice competency. In this regard supervision by clinical instructor during the clinical attachment supports the development of student's competency (9). In support of this, a qualitative study conducted in Iran Tarbiat Modares university nursing department on 12 nursing students and 10 clinical instructors stated that, a competent instructor is a role model. He/she has an understanding behavior with the patients, students and even the environment. He did not focus on only practical or theoretical tasks. Participants of this study believed that instructors are the communicative bridge between the students, staff and hospital departments. Overall, the characteristics of a competent instructor in stressful situations were as follows: respecting students in front of others, providing a peaceful learning environment and using encouragement instead of punishment(19).

The result of this study showed that, clinical instructor had a significant effect on clinical practice competency of the students with 3.1 odds than students who had no good clinical instructors [AOR: 3.051; 95% CI (1.717-5.421)]. This is slightly higher than a study conducted in Hawasa University that evidences students' clinical practice competency increment by 2 among the supported groups by clinical instructor. This might be due to the difference in the characteristics of study participant, period of data collection and method of data collection(4).

It also inconsistent with a cross-sectional study among 120 conveniently sampled nursing students on undergraduate nursing students' perception of effective clinical instructor at Oman in which characteristic of clinical instructor were not significantly associated with clinical practice competency of undergraduate nursing students (24). This variation might be due to the difference in sampling technique, sample size, study setting and socio-economic status of study participants in which the previous study's sample size was relatively smaller than the current study and also it was used non-probable sampling technique, but this study used probable sampling method. In the current study clinical instructor factor had effect on clinical practice competency which is similar with the study conducted in Annals' University of Finland among graduating nursing students department of Nursing Science (9).

The result of this study also showed that, staff-student interaction had significant effect on clinical practice competency with 2.348 odds for those who had good interaction with staff's nurses than students who had not good interaction [AOR: 2.348; 95% CI (1.337-4.124)], which is inconsistent with the study made at Hawasa university that were not had significant association. It may be due to difference in data collection technique in which the current study uses both self-administered questionnaire and observation technique, but the previous used only self- assessment technique(4).

7. STRENGTH AND LIMITATIONS OF THE STUDY

7.1. Strength

- This study may be considered the first to assess clinical practice competency of graduating nursing students in Amhara region.
- Adequate sample size was applied according to single population proportion formula.
- Multiple logistic regression was used to control the possible confounding factors in order to assess the relative effect of independent variables
- For assessment of clinical practice competency level, observation technique was used

7.2. Limitations

- There was no national standardized questionnaire to assess clinical practice competency for BSc nursing student, as a result questionnaire was partially adapted from level four assessment tool.
- Comparison and discussion was difficult due to shortage of similar studies carried out in Ethiopia
- The study was not supported by qualitative methods.
- Vulnerable for the all drawbacks of cross sectional study design.

8. CONCLUSION AND RECOMMENDATION

8.1. Conclusions

Generally, the results of this study revealed that about more than half of graduating nursing students were clinically incompetent. Only around one third of students were competent clinically. Clinical instructor variables like presence of orientation about the objective of clinical practice, spending enough time for mentoring, and following of students while they conduct a procedure; assessment method factors like presence of assessment checklist; and staff-student interaction factors like allowing them for doing task were significantly associated with clinical practice competency of graduating nursing students, but clinical placement variables were not significantly associated with clinical practice competency.

8.2.Recommendations

- To Medical and Health Science College of Amhara region universities
  - The department should strengthen clinical coordination office to overcome staff-student interaction problem.
  - The department must engage in control of their clinical instructor and assign those clinical instructors who have clinical experience to avoid clinical instructor problems.
  - The department should also develop assessment checklist during clinical practice.
- To Amhara region Hospitals in which nursing students are assigned
  - There should be integration of clinical instructors and clinical staffs to work together
  - Clinical staffs and students should be well informed while students assign in practical area

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10. APPENDIX

10.1. Information sheet and Consent Form

This questionnaire is prepared to assess the factors affecting clinical practice competency of graduating nursing students in Amara region universities. The assessment is made for the partial fulfillment of Master's Degree in adult health Nursing. The results of the study will be used as for designing appropriate clinical practice implementation guideline for nursing. The questionnaire contains closed ended questions and will be provided in self-Administered form and observation form.

You are therefore kindly requested to provide genuine answers to the questions. The information you provide is confidential and is used only for the purpose of this study. If you have any question, don't hesitate to ask the data collector. Your cooperation and participation until the completion of the questionnaire is very necessary for the successful completion of the assessment. I am therefore asking your genuine willingness. However, you have the right to turn down if you are not voluntary. Then fill yes if you are voluntary and No if you are involuntary below.

YES ☐ NO ☐

If your answer is yes, please put your signature on the space provided

Signature _____

Thank you for your cooperation

Data collectors sign: _____

Investigator name: _____

Investigator tell no _____

Anonymous Identity code of the participant_____

10.2. Study Tools

10.2.1. Part I - Socio-demographic data

University_____

1. Sex:

A. male B. female

2. What is your age in years? _____

3. Religion:

A. Orthodox D. Catholic

B. Protestant E. Others (specify) _____

C. Muslim

4. Marital status:

A. Single C. Widowed

B. Married D. Divorced

5. Ethnicity:

A. Oromo D. Guragie

B. Amara E. Other specify_____

C. Tigray

6. Residence

A. Urban B. Rural

10.2.2. Part II – Level of clinical practice competency

Score the following activities according to the students' performance listed below.

1. Cannot perform activities satisfactorily to the level required in clinical environment
2. Can perform activities, but require supervision and assistance
3. Can perform activities without assistance
4. Can perform activities without assistance and adhering to evidence based practice
5. Can perform activities without assistance and adhering to evidence based practice plus demonstrate initiative and adaptability to special problem situations, and can lead others

No	Activities	1	2	3	4	5
1	**Domain 1, Ethical Practice**					
1.1	Know and perform according to the scope of practice	1	2	3	4	5
1.2	Utilizes Ethical principles (maintain patient dignity, privacy and confidentiality)	1	2	3	4	5
1.3	Integrates knowledge of the rights of clients and groups in the health care setting.	1	2	3	4	5
1.4	Displays sensitivity and responsiveness to patients culture, age, gender, disabilities	1	2	3	4	5
1.5	Shows respect for the differences in beliefs and cultural practices of patients	1	2	3	4	5
1.6	Ability to consider emotional, physical, and personal care, including meeting the need for comfort, nutrition, personal hygiene.	1	2	3	4	5
1.7	Respond to patient needs by planning, delivering and evaluating appropriate and individualized programs	1	2	3	4	5
1.8	Identifies, creates & maintains a physical, psychosocial and spiritual environment	1	2	3	4	5
2	**Domain 2. Holistic Approaches to Care and the Integration of Knowledge**					
2.1	Accurate and complete history taking & utilizes appropriate assessment framework	1	2	3	4	5
2.2	Supports and defends priorities in resolution of identified health needs of patient	1	2	3	4	5
2.3	Identifies expected outcomes including a time frame for achievement.	1	2	3	4	5
2.4	Identifies criteria for the evaluation of the expected outcomes.	1	2	3	4	5
2.5	Develops a discharge plan and follow-up care in consultation with other members	1	2	3	4	5

2.6	Prepare and maintain beds	1	2	3	4	5
2.7	Check ABC and check vital signs	1	2	3	4	5
2.8	Perform proper IV line securing	1	2	3	4	5
2.9	Calculate drop rate for administered iv fluid after determining the total amount	1	2	3	4	5
2.10	O_2 administration as indicated	1	2	3	4	5
2.11	Perform proper urethral cauterization	1	2	3	4	5
2.12	Perform proper procedure of NG tube insertion	1	2	3	4	5
2.13	Perform proper procedure for cleansing enema	1	2	3	4	5
2.14	Demonstrates appropriate patient positioning	1	2	3	4	5
2.15	Handle waste in a health care environment	1	2	3	4	5
2.16	Comply with infection control policies & procedures & maintains sterile technique	1	2	3	4	5
2.17	Perform proper wound care/sterile wound dressing	1	2	3	4	5
2.18	Transport clients/ patients and assist with client/ patient movement	1	2	3	4	5
2.19	Ability to practice principles of safety(handling and processing of instrument)	1	2	3	4	5
2.20	Ability to safely administer medications on the right site/land marks	1	2	3	4	5
2.21	Recording the procedure	1	2	3	4	5
3	**Domain 3. Interpersonal Relationships**					
3.1	Participate in workplace communication	1	2	3	4	5
3.2	Work in team	1	2	3	4	5
3.3	Critically evaluates the usefulness of personal communication techniques.	1	2	3	4	5
3.4	Receive relevant and current information concerning health care.	1	2	3	4	5
3.5	Understand relevant and current information concerning health care.	1	2	3	4	5
3.6	Identify strategies that enable clients/communities to communicate needs and make informed decisions.	1	2	3	4	5
3.7	Effective and appropriate Communications and behaviors with patients.	1	2	3	4	5
3.8	Uses effective listening, nonverbal, explanatory and writing skills	1	2	3	4	5
4	**Organization and Management of Care**					
4.1	Follow the organization's policies	1	2	3	4	5
4.2	Applies and contributes to the overall goal/mission of the institution.	1	2	3	4	5
4.3	Selects and utilizes resources effectively and efficiently.	1	2	3	4	5
5	**Domain 5. Personal and Professional Development**					
5.1	Participates in the support, supervision and teaching of colleagues	1	2	3	4	5
5.2	Participates in the education of clients/groups/communities.	1	2	3	4	5

10.2.3. Part III – Factors affecting clinical practice competency

Score the following clinical practice competency factor activities based on the given grading levels listed below.

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

S. No	Activities	1	2	3	4	5
1	Instructors provide me clinical practice logbook for topics related with practice	1	2	3	4	5
2	Instructors orient the objective of the clinical practice before the clinical attachment	1	2	3	4	5
3	Instructors spent enough time for mentoring during clinical practice	1	2	3	4	5
4	Instructors have continuous follow up during clinical practice	1	2	3	4	5
5	Instructor use different learning methods in clinical practice	1	2	3	4	5
6	Instructor integrate theory in the treatment planning process based on the needs of the client	1	2	3	4	5
7	Instructors demonstrate skills in cases and problem solving	1	2	3	4	5
8	Instructors facilitate inter-professional relationships	1	2	3	4	5
9	Instructors maintain a professional relationship with students	1	2	3	4	5
10	Instructors follow you while you conduct a procedure	1	2	3	4	5
11	Instructors show clinical procedure during clinical practice	1	2	3	4	5
12	Instructors provide constructive feedback during practice	1	2	3	4	5
13	The feedback given by instructor influence clinical practice	1	2	3	4	5
14	Support from instructors has influence on clinical practice	1	2	3	4	5
15	Clinical placement is conducive for clinical practice	1	2	3	4	5
16	Place of attachment during clinical practice has sufficient cases	1	2	3	4	5
17	Clinical environment has sufficient materials to conduct the practice	1	2	3	4	5
18	Clinical placement meet the objectives of clinical practice	1	2	3	4	5
19	Clinical placement has sufficient wards for clinical practice	1	2	3	4	5
20	Clinical practice competency influenced by clinical placement	1	2	3	4	5
21	Instructors orient about assessment methods during clinical practice	1	2	3	4	5

22	Assessment method has positive influence on clinical practice	1	2	3	4	5
23	Instructor uses continuous assessment methods in clinical practice	1	2	3	4	5
24	Instructor makes different in assessment during clinical practice	1	2	3	4	5
25	Assessment methods during practice address the three learning domain	1	2	3	4	5
26	Presence of checklist to assess performance during clinical practice.	1	2	3	4	5
27	Staff allows you to perform tasks during clinical practice	1	2	3	4	5
28	Staff encourages you during clinical practice	1	2	3	4	5
29	Staff monitors you during clinical practice.	1	2	3	4	5