

Clinical Practice Competence of Mettu University Nursing Students: A Cross-Sectional Study

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Introduction: Clinical practice competence is the ability to effectively integrate cognitive, affective and psychomotor skills during the delivery of health care. It is the concern and the center of attention for the managers, professional associations, government, and society as a whole. Therefore, identifying the level of clinical practice competence of students and taking appropriate action is crucial. The aim of the present study was to investigate clinical practice competence of nursing students in Mettu University.

Methods: A cross-sectional study was employed on 105 nursing students at Mettu University from February to April, 2019. Systematic random sampling technique was used to select study participants. Data were entered into EpiData manager version 4.2.2 and exported to statistical package for the social science (SPSS) version 20.0 and analyzed using descriptive statistics, bivariate and multivariate logistic regressions. The statistical significance was set at $p < 0.05$.

Results: Out of the total participants involved, 102 participants returned the questionnaire making response rate of 97.1%. Majority 78 (76.5%) of participants were males with the mean age of 23.05 (SD = 1.11) years. The overall clinical practice competence of participants was 2.03 (SD = 0.54) which indicates clinical practice incompetence. Year of study [AOR 4.9; 95% CI: 0.04, 16.53] and clinical practice placement [AOR: 2.7; 95% CI: 0.1, 14.86] were the identified associated factors of clinical practice competence at $p < 0.05$.

Conclusion: Clinical practice competence of nursing students was inadequate to provide quality, safe and satisfying nursing care. This could not meet patients holistic needs and may even bring fear, stress, anxiety and unnecessary errors by students at clinical sites. Nursing schools and teaching hospitals should collaborate to enhance the nursing students clinical practice competence.

Keywords: clinical practice competence, competence, Mettu University, nursing student

Introduction

Historically nursing has been grounded in traditions, and nursing education has been based on an apprenticeship model.¹ Currently, nursing is recognized as an international profession and nursing education has shifted from a hospital based training model to university based education.² This transformation is aimed to equip nursing students with scientific knowledge of nursing care and apply it in health care settings through clinical practice. Clinical practice is a complex and dynamic process in which students gain experience and transform theoretical knowledge into practice in the clinical setting.^{3,4} In contemporary nursing education, duration of practice in a clinical setting is half of the total duration of the undergraduate nursing education.⁵ This is because clinical practice is vital and the backbone of nursing

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education as it transforms theoretical knowledge into practice.⁶ According to the American Association of Colleges of Nursing (AACN), clinical practice provides opportunities for nursing students to learn in various care settings and receive appropriate guidance that promotes the development of clinical practice competence.⁷

Developing clinical practice competence among student nurses is an important component of the nursing practice.⁸ Competence in general has been defined as the ability to perform the task with desirable outcomes under the varied circumstances of the real world.⁹ Clinical practice competence is the ability to effectively integrate cognitive, affective and psychomotor skills while providing health care.¹⁰ It plays an important role in the quality of health services provided by nurses and is a basic requirement that nurses should have in clinical settings.⁸ Nursing students acquire this competence during their clinical practice in clinical learning environments. The clinical learning environment is a complex and dynamic place where the theoretical components of the curriculum can be integrated with the practical and transformed into professional skills.⁴ It includes everything that surrounds students and affects their professional development in the clinical setting. Therefore, clinical practice occurs through interaction among students, educators, staff, patients and environments.¹¹

Globally, the shortage of competent and experienced nurses has been forcing healthcare administrators to hire newly graduated nurses.^{3,4} A shortage of nursing workforce is a challenging and serious issue particularly in sub-Saharan Africa including Ethiopia.¹² In response to this, the government of Ethiopia has developed an ambitious plan to significantly increase the number of nurses in the country through the expansion of nursing schools.^{12,13} Currently, the baccalaureate nursing program is one of the most common academic programs offered by more than 40 governmental and private universities in Ethiopia. However, there are limited career pathways for professional nurses to pursue after completing their professional nursing education. A recent study in the country recommended that the Ethiopian nursing education system needs to be reformed and governmental institutions and nongovernmental organizations need to make strides towards doctoral education for nurses.¹³

Evidence suggests that clinical practice competence of nurses has been considered as a topic of interest because of its significance on quality healthcare and is closely associated with job performance and satisfaction.^{14–16} A study indicated that a nurse with a higher level of clinical

competence has a significant and positive relationship with clinical self-efficacy, sympathizing with colleagues and patients, job satisfaction and professional commitment.¹⁷ In contrast, low clinical practice competence leads to higher rates of psychological problems such as stress, anxiety and inferiority complex among students.^{18,19} However, there are a multiple factors that might prevent students from acquiring clinical practice competence at clinical practice sites. A study conducted in Botswana revealed that nursing students failed to apply theory into practice because they lack adequate supervision at the clinical practice site.²⁰ Staff shortages, limited training costs, patient availability (eg, shorter hospital stays; sicker patients), budget cuts, and increasing competition for placements due to the expansion in the number of education programs, and increased class sizes have contributed to a marked shortage of practice opportunities which could in turn contribute in lower clinical practice competence.²¹ The literature also revealed that pedagogical atmosphere of the environment, leadership style of the ward manager, premises of nursing on the ward, relationship role of the nurse instructors with students were factors associated with clinical practice competence.²²

In general, clinical practice competence of nursing students at practice site is the concern and the center of attention for the managers, professional associations, government, and society as a whole. Nursing schools are responsible to educate and produce nurses who have high level of clinical competence to satisfy the needs of all concerned bodies. In addition identifying level of clinical practice competence of students and developing strategies for their measurement is another responsibility of nursing education. Thus, the present study was aimed to investigate clinical practice competence of nursing students in Mettu University.

Methods

Study Area and Period

The study was conducted at Mettu University. Mettu University is one of the recently established public Universities in Ethiopia. It is located 603 kilometers away from the capital city of Ethiopia, Addis Ababa. The university launched Public Health and Medical Science Faculty in 2013 with 150 students in department of nursing, midwifery and public health officer. Nowadays, it has 6 departments namely: nursing, midwifery, public health officer, health informatics, psychiatry and pharmacy. The university has been used five

governmental hospitals for clinical practice site including Mettu Karl Specialized Hospital, Shenen Gibe Hospital, Beddele Hospital, Limmu Hospital and Agaro Hospital. The study period spanned from February to April 2019.

Study Design and Population

Institutional based cross-sectional study design was conducted on nursing students.

Inclusion Criteria

All regular program nursing students were included to the study.

Exclusion Criteria

Students who had not started clinical practice (1st year and 2nd year students) were excluded from the study.

Sample Size Determination and Sampling Procedure

The sample size was determined using a single population proportion formula by considering the following assumptions:

- 95% level of confidence interval
- 5% margin of error (d)
- 0.25 as a proportion of nursing students' clinical practice competence from previous study.

$$\frac{(Z_{\alpha/2})^2 * P * (1 - P)}{d^2}$$

Therefore, the initial sample size was 288. However, the total number of students was 140 (< 10,000), then we could use sample correction, and the estimated sample size was 95. Lastly, a 10% non-response rate was considered, and the final sample size was 105. Then first, the total sample size was allocated proportionally to 3rd and 4th year 42 and 63, respectively. Then, an individual student in each batch was selected by systematic random sampling technique every other interval by identifying an initial starting student using a lottery method.

Variables

The dependent variable of this study was clinical practice competence where independent variables were socio-demographics, clinical instructors, assessment methods, clinical practice environment and staff–student interaction related factors.

Data Collection Tool

Self-administered questionnaires were used. The questionnaires were adapted from previous studies,^{23,24} and it consisted of factors affecting clinical practice competence related questions and clinical practice competence related questions. The factors affecting clinical practice competence contain six subthemes in which socio-demographic related factors consisted of five questions (sex, age, marital status, residence and year of study) and others factors totally consisted of 29 items, clinical instructor factors (14 items), clinical environment factors (6 items), assessment methods factors (6 items), and staff–student interaction factors (3 items). Clinical practice competence contains five domains with totally 42 items: Ethical practice (8 items), holistic approaches to care and integration of knowledge (21 items), interpersonal relationships (8 items), organization and management of care (3 items) and personal and professional development (2 items). Each has a five-point response format from 1 (cannot perform activities satisfactorily) to 5 (can perform activities without assistance). Hence, the mean scores can range from 1 to 5 with a higher mean score correlating with a higher level of competence at clinical practice.

Measurement

Good clinical instructor: if students agreed to at least 50% of good clinical instructor activities. Conducive clinical practice environment: if students agreed to at least 50% of conducive clinical practice environmental factors.

Measurable assessment method: if students agreed to at least 50% of a measurable assessment methods.

Good staff–student interaction: if students agreed to at least 50% of good staff and student interaction characters.

Competent at clinical practice: if students scored mean and above to all clinical practice competence questions.

Incompetent at clinical practice: if students scored below meanscore to all clinical practice competence questions.

Data Analysis

Data were entered after checked for completeness and accuracy into EpiData version 4.2.2 and exported to statistical package for the social science (SPSS) version 20.0. Frequencies, means and standard deviations of independent variables and level of clinical practice competence were analyzed using descriptive statistics. Associations between independent and dependent variables were performed by means of bivariate and multivariate logistic regressions. An adjusted odds ratio with

95% confidence interval was used to identify the strength of the associated factors with clinical practice competence. All factors with p -value <0.025 in the bivariate logistic regression were entered into the multivariate model to control the possible effect of confounders. The statistical significance was set at $p < 0.05$. The results of study were described in the form of text and tables.

Results

Participants' Characteristics

Out of the total participants involved, 102 participants returned the questionnaire making a response rate of 97.1%. Majority 78 (76.5%) of participants were males. The mean age of the participants was 23.05 (SD = 1.11) years in which most 94 (92.2%) of them were in the range of 18–24 years (Table 1).

The Four Components of Factors Affecting Clinical Practice Competence of Students

The finding of this study revealed that clinical instructor related factors was categorized as poor by 85 (83.3%) of participants whereas 46 (45.1%) of participants perceived staff student interaction as good (Table 2).

Clinical Practice Competence of Participants

The present study revealed that only 24.5% of participants were competent at clinical practice which indicated almost three-fourths of participants were incompetent. The overall clinical practice competence of participants was 2.03 (SD = 0.54) out of a total possible score range from 1 to 5 which indicates clinical practice incompetence. Similarly, level of clinical practice competence of participants for all domains of clinical practice competence was incompetent. The lowest mean score was observed for holistic approaches to care and integration of knowledge domain ($M=1.81$, $SD=0.55$) and highest score observed for ethical practice domain ($M=2.37$, $SD= 0.57$) (Table 3).

Factors Associated with Clinical Practice Competence of Participants

Logistic regression analysis was conducted to identify predictors of nursing students' clinical practice competence. In the bivariate analysis age, year of study, clinical

Table 1 Characteristics of Nursing Students at Mettu University, Ethiopia, 2019 (n=102)

Variables	Categories	Frequency	Percent
Sex	Male	78	76.5
	Female	24	23.5
Age	18–24	94	92.2
	≥25	8	7.8
Marital status	Single	94	92.2
	Married	8	7.8
Year of study	3rd year	40	39.2
	4th year	62	60.8
Residence	Dormitory	88	86.3
	Family home	8	7.8
	Rental home	6	5.9
Substance use	Yes	32	31.4
	No	70	68.6
Chat	Yes	25	24.5
	No	7	6.9
Cigarette	Yes	9	8.8
	No	23	22.5
Alcohol	Yes	27	26.5
	No	5	4.9

Table 2 The Four Components of Factors Affecting Clinical Practice Competence of Students at Mettu University, Ethiopia, 2019 (n=102)

Factors	Classification	Frequency	Percent
Clinical instructor related factors	Good clinical instructor	17	16.7
	Poor clinical instructor	85	83.3
Clinical practice Environment related factors	Conducive environment	41	40.2
	Not conducive environment	61	59.8
Assessment methods related factors	Measurable assessment method	14	13.7
	Unmeasurable assessment method	88	86.3
Staff–student interaction related factors	Good interaction	46	45.1
	Poor interaction	56	54.9

practice placement and staff–student interaction were significantly associated with students' clinical practice competence at $p < 0.025$. However, multivariate analysis found only year of study and clinical practice placements were

Table 3 Descriptive Statistics of Clinical Practice Competence and Its Domains (n =102)

Variables	Mean(SD)	Level of Competence
Ethical practice	2.37(0.57)	Incompetent
Holistic approaches to care	1.81(0.55)	Incompetent
Interpersonal relationships	1.97(0.69)	Incompetent
Organization and management of care	1.99(0.66)	Incompetent
Personal and professional development	2.00(0.71)	Incompetent
Overall clinical practice competence	2.03(0.54)	Incompetent

significantly associated with students clinical practice competence. Fourth year nursing students were almost 5% more likely competent than third year students [AOR 4.9; 95% CI: 0.04, 16.53]. Students who had conducive clinical practice environment were 2.7 times more likely clinically competent than their counterparts [AOR: 2.7; 95% CI: 0.1, 14.86] (Table 4).

Discussion

In the present study only 24.5% of participants were competent at clinical practice. This finding was consistent with a previous study done in the same country at Hawassa University in which only one in four students were competent.²⁵ The possible explanation for this could be students under-estimated their competence and/or low

quality of clinical practice being given for students. This has an implication for improving competence of nursing students at clinical practice to produce competent nursing students, which in turn strengthens quality of healthcare in the country. However, competence level of nursing students at clinical practice in Gondar and Bahir Dar Universities, Dilla university and Amhara region Universities were better than the present finding in which 48.7%, 39.3% and 33.6% of students were competent, respectively.^{3,23,24} This inconsistency could be attributed to difference in number of participants involved in the studies, study setting and study participants. The present study was conducted in single institution and assessed competence of third and fourth year nursing students. However, study done in Gondar and Bahir Dar Universities and Amhara region Universities assessed competence of nursing students in different institutions whereas study done in Dilla University assessed competence of health sciences students at clinical practice. In addition sample sizes of these previous studies were large when compared with present study.

Researchers concluded that, although there were better findings than the current in the Ethiopia, more than half of participants were incompetent in almost all studies. Therefore, it is possible to conclude that clinical practice competence of students is inadequate and need all stakeholders (ie, instructors, preceptors, staff nurse, the students and higher officials) to prepare competent newly-graduated generation through designing strategies and policies that

Table 4 Bivariate and Multivariate Analysis of Factors Affecting Clinical Practice Competence of Nursing Students, Mettu University, 2019 (n=102)

Variables	Clinical Practice Competence		OR with 95% CI		p-value
	Competent	Incompetent	Crude	Adjusted	
Age (years)					0.16
18–24	20(21.3)	74(78.7)	1	1	
≥25	5(62.5)	3(37.5)	6.16(1.35, 28.03)	0.20(0.021,1.91)	
Year of study					0.02
3rd year	1(2.5)	39(97.5)	1	1	
4th year	24(38.7)	38(61.3)	24.6(0.172, 191.2)	4.9(0.04,16.53)	
Clinical practice placement					0.01
Conducive	21(51.2)	20(48.8)	0.067(0.02, 0.218)	2.7(0.1, 0.14.86)	
Not conducive	4(6.6)	57(93.4)	1	1	
Staff–student interaction					0.57
Good	21(45.7)	25(54.3)	0.09(0.028,0.295)	2.37(0.121, 46.6)	
Poor	4(7.1)	53(92.9)	1	1	

enhance clinical practice competence of students. Compared to previous studies, competence of students was lower in the present study. The findings of studies conducted in Finland at University of Turku and Finnish University hospitals revealed that competence of newly graduated nursing students were good.^{26,27} In addition half of the participants in Finnish University hospitals assessed their level of nursing skills as very good.²⁴ These findings were much better than the present finding. The difference could be due to the variations of the economic status of the countries. In the present finding, similar to overall clinical practice competence, students' level of competence was incompetent for all domains. However, there are no previous studies that determined students' level of competence for each domain. Thus, further research that investigate level of competence for each domain of clinical practice competence are needed to confirm the present result.

In the present study, year of study of participants was significantly associated with students' competence. This is also true for previous studies conducted in University of Gondar and Bahir Dar University in which fourth year nursing students were almost two times more likely competent when compared to third year nursing students.³ This may be due to the fact that the longer duration of the study time gives them more opportunities to practice different procedure that may contribute to their competence. In agreement with previous studies,^{3,28} there were associations between clinical practice placement and clinical practice competence. This is may be due to the fact that clinical learning environments that welcome and actively encourage students participation in patient care are important contributors to transform theory into practice. A descriptive cross-sectional study done in Jamaica showed that students and clinical staff relationship affected clinical learning experience of students.²⁹ A study done in Nigeria also revealed that good relationship between students and clinical preceptors was a facilitating factor of students clinical performances.³⁰ A study done in Ethiopia at universities in Amhara region²³ and Dilla University²⁴ indicated that students who had good interactions with clinical staff were more clinically competent than their counterparts. In contrast to these previous studies there was no association between staff–student interaction and clinical practice competence in the present study. This might be due to poor relationship between students and staff and lack of support from nursing staff at the clinical area that can be a source of motivation to students.

Although the present study did not reveal any significant association between clinical instructor factors and student competence, a number of studies indicated that clinical instructor had a significant effect on clinical practice competence of the students.^{23,25} This inconsistency result with other findings may be due to the poor instructor related factors. In the present study clinical instructor related factors was categorized as poor by 85 (83.3%) of participants. However, students assigned in a clinical area with good instructors might have opportunities to practice more complex tasks instead of repeating routine tasks in which they are already competent. This is because the students themselves may not be motivated to participate in self-directed learning. The present finding did not find significant association between age and clinical practice competence of participants. This finding was consistent with a previous study done in Northern Tanzania.²⁸ The possible explanation for this may be there is not much difference in age of students.

Limitations

The potential limitation of this study to be considered was that the participants represented only Mettu University nursing students. This limitation did not allow for generalizability of the findings to nursing students in all universities in the country. Another possible limitation of this study was the cross-sectional nature of the study design which does not confirm definitive cause and effect relationship. The study was also based on self-report by students which may potentially lead to bias because of the respondents misinterpretation of the questions.

Conclusion

Clinical practice competence of nursing students was inadequate to provide quality, safe and satisfying nursing care. This could not meet patients holistic needs and may even bring fear, stress, anxiety and unnecessary errors by students at clinical sites. The identified influencing factors of clinical practice competence of students were, year of study and clinical practice placement. Clinical practice competence of nurses is a basic requirement and nurses are frontline healthcare providers in healthcare settings. Therefore, nursing students are required to be competent at clinical settings to provide quality and safe healthcare. Nursing schools and teaching hospitals should collaborate together to enhance the nursing student clinical practice competence. Nurse educators and nurse managers

should strive to create conducive environment that will maximize the learning experiences of the student nurses.

Abbreviations

AACN, American Association of Colleges of Nursing; AOR, adjusted odd ratio; CI, confidence interval; SPSS, Statistical Package for Social Science.

Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethical Approval

Ethical approval was obtained from Mettu University, faculty of public health and medical science, department of Nursing. Informed consent was obtained from participants after they were informed about the objectives of the study, and their right to refuse and respond fully or partially to the questionnaire was respected. Confidentiality and privacy of participants was also ensured.

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Author Contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed on the journal to which the article will be submitted; gave final approval of the version to be published; and agree to be accountable for all aspects of the work. All authors approved the final version for submission.

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Disclosure

The authors declare that they have no competing interests.

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