

# Perceived Clinical Practice Competency and Associated Factors Among Undergraduate Students of Medicine and Health Science Collage in Dilla University, SNNPR, Ethiopia

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Tinsae Shemelise Tesfaye <sup>1</sup>  
Wagaye Alemu <sup>1</sup>  
Tadesse Mekonen <sup>2</sup>

<sup>1</sup>Public Health Department, College of Medicine and Health Science, Dilla University, Dilla, Ethiopia; <sup>2</sup>Food Science and Nutrition Directorate, Ethiopian Public Health Institute, Addis Ababa, Ethiopia

**Background:** The dynamic and uncertain nature of the healthcare environment requires competent health professionals to manage the changing environment. However, globally and regionally there is a shortage of competent health professionals. Understanding the causes of poor performance of healthcare is crucial to provide high-quality healthcare service. So this study aims to assess perceived clinical competence and associated factors among undergraduate medicine and health science students at Dilla University, medical and health Science College.

**Methods:** Institutional-based cross-sectional study was conducted among 267 students. Initially, departments were stratified, then simple random sample was used to select students. A 2 days of training was given for data collectors and supervisors. Data were entered into Epi-info version 7 and analyzed using Stata version 12. Logistic regression analysis was used to assess associated factors of clinical competency.

**Results:** A total of 267 students participated in this study. The majority of students were males 197 (73.8%) and more than half of the participants 186 (69.7%) were in the age group of 20 to 24 years. The study found only 39.3%, 95% CI (33.3, 44.9) of the participants perceived themselves as clinically competent. This study also identified instructor provided constructive feedback (AOR= 2.12, 95% CI =1.164–3.861), instructor orientation about assessment method (AOR=1.855 95% CI =1.03–3.408) and staff encouragement during clinical practice (AOR= 2.608, 95% CI= 1.425–4.77) were statistically significant factors.

**Conclusion and Recommendation:** In this study, perceived clinical competency was 39%. Teachers should give constructive feedback to their students to boost their confidence and ability. Furthermore, nationally there should be standard and clear assessment methods in which teachers, school administrators and responsible stakeholders should briefly explain assessment methods to their students and it also needs an action to improve the interaction between staff and students.

**Keywords:** clinical practice, competency, undergraduate health students, Dilla University

## Introduction

### Background

Competence can be defined as the ability to perform a specific task in a manner that yields desirable outcomes. This definition implies the ability to apply knowledge and skill towards new situations as well as for familiar tasks.<sup>1</sup> It has been cited as the ultimate goal of health professionals' education. It encompasses skills of utilizing

Correspondence: Tinsae Shemelise Tesfaye  
Public Health Department, College of Medicine and Health Science, Dilla University, Dilla, Ethiopia  
Tel +251910644517  
Email justtinsae@gmail.com

knowledge and information, communication, problem-solving and technical skills. Clinical skill is the heart of each and every health-care system and is crucial for the advancement of the health-care system.<sup>2</sup>

Students' competency is a global concern for all skill-based professions from accounting to medical practice irrespective of the profession. There is an agreement that those who assess practice are the gatekeepers of their profession; They and they alone determine whether the practice they have observed is or is not of the required standard.<sup>3</sup>

The demographic changes of the population increased technological advancements and increased prevalence of chronic illnesses and disabilities have resulted in the need for changing the healthcare delivery systems.<sup>4</sup> This dynamic and uncertain nature of healthcare environment requires competent health professionals to manage the rapidly changing environment.<sup>5</sup> But practically there is a shortage of competent, experienced health professionals globally;<sup>6</sup> as a result, healthcare administrators face challenges to get competent and experienced professionals and are forced to find an option such as hiring newly graduated health professionals to function independently and fill the shortage of competent and experienced professionals. Yet the challenge is a lack of clinical competent graduates.<sup>6</sup>

At the end of the undergraduate period, health students are expected to achieve the maximum level of clinical competence after receiving necessary and adequate theoretical and practical instructions. Matrons in hospitals and health-care centers, however, encounter graduates who have problems in doing some easy duties. The results of the research suggest that most new baccalaureate health graduates have adequate theoretical knowledge but lack competence in the clinical environment.<sup>7,8</sup>

Currently, there is a great concern from the Ethiopian government and the public sector over the poor quality of health professionals". Besides, this low client satisfaction was reported in many health facilities and inadequate skill among health professionals was considered as a major factor.<sup>7</sup> According to 2005, E.C. Amhara Regional Competency assessment Center reports 778 governmental and 2176 private health professionals were assessed and 437 (56.2%), 599 (27.5%) were only competent, respectively.<sup>8</sup>

As a result of the rapid scale-up of pre-service education, the number of health workers in Ethiopia has increased markedly in recent years.<sup>9</sup> But availability of health professionals may not translate into improved health outcomes unless we ensure they master the essential knowledge, skills, and attitudes during their pre-service

education.<sup>10</sup> This is potentially a challenge in Ethiopia, given high student enrollment, a shortage of qualified faculty, resource constraints, and low caseloads and questionable quality of care at clinical training sites.<sup>11</sup>

Competencies are a combination of several factors like motives, traits, self-concepts, attitudes or values, skills, and abilities. All of them can differentiate superior performers from average performers. Since competencies take a composite view of an employee's ability to perform, they go beyond mere job knowledge. This becomes particularly useful when the definition of jobs itself changes under external competitive pressures.<sup>12</sup> Skill of the educator, staff-student interaction, a clear assessment guideline, Effective mentoring and constructive feedback will also influence learning. Nonetheless, poor relationships with clinical staff, lack of support from educators and a lack of challenging learning opportunities are some negative experiences that may affect students' learning.<sup>13</sup>

Understanding the causes of poor performance of healthcare providers in both developed and developing countries is crucial to high-quality healthcare. To the extent, poor performance is caused by low competence and improving competency would improve performance. Most new bachelor graduates have adequate theoretical knowledge but lack competence in the clinical environment. These problems are manageable if the health-care system can properly implement and apply the quality of education both on theory and practice. So the objective of this study is to assess perceived clinical practice competency and associated factors among undergraduate students of medicine and health science Collage in Dilla University, SNNPR, Ethiopia.

## Method

### Study Area and Period

The study was conducted at Dilla University, College of Health Science and Medicine. Currently, more than 31,000 students take part in regular, summer, weekend and distance programs. College of health science and medicine is one of the colleges in Dilla University which has a school of medicine, health science, and postgraduate programs. This study was conducted from November to December 2016, G.C.

### Study Design

Institutional-based cross-sectional study design was used.

## Source Population

All students studying in Health Science and Medicine College of Dilla University.

## Study Population

All randomly selected students enrolled in nursing (psychiatry and midwives), anesthesia, health officers and medicine departments of Dilla University.

## Inclusion Criteria

Regular program students who have started clinical practice.

## Exclusion Criteria

Students who are on break and critically ill.

## Sample Size Determination

Sample size was computed using a single-population proportion calculation formula: with the following assumptions:

- ❖  $Z_{\alpha/2} = 1.96$ , standardized normal distribution curve value for the 95% confidence interval
- ❖  $P = 0.48$  (Perceived clinical practice competency in Bahir Dar and Gondar Universities)<sup>16</sup>
- ❖  $d = 0.05$

Final sample size =  $383 + 10\%$  non-response rate = 421. Only 300 students were in clinical attachment and all of them included in this study.

## Sampling Procedure

Under the college of health science and medicine, all departments were included in the actual study by using a stratified random sampling method. Then, probability proportional to size was used to allocate to each department. Finally, from each respective department, participant students were selected by a simple random sampling method.

## Data Collection

After getting ethical approval from the research review board of Dilla University and participants' consent, data collection was carried out using a self-administered structured questionnaire prepared in English. The tool was adapted from previous studies and guidelines.<sup>13,14,20</sup> The tool contains 42 items that contain three parts including socio-demographic factors (8 items), level of clinical competency checklist (5 items) and factors affecting clinical practice competency (29 items).

Factors affecting clinical competency have five components including clinical instructor factor (14 items), clinical environment factors (6 items), assessment methods factors (6 items), and staff-student interaction factors (3 items). In the current study, Cronbach's alpha for the tool was 0.8.

The data collection was carried out with field staffs including supervisors and enumerators. Before the actual data collection, supervisors and enumerators obtained 2 days of training about the aim of the study, tool, research ethics and so on.

## Data Quality Assurance

The tool was pre-tested among 42 students, and necessary corrections were made accordingly. All the data were checked by the supervisors on a daily basis. The data coded, entered, and edited by Epi-info 7. Then, the data exported and analyzed using Stata version 12.

## Data Analysis

Descriptive analysis was employed to describe percentages, number and mean distributions of the students. Bivariate and multivariate logistic regression analysis was used to see the association of independent and dependent variables. In bivariate logistic regression, those variables with p-value  $< 0.25$  were candidates to multivariable logistic regression and in multiple logistic regression, those variables with p-value  $< 0.05$  were considered as statically significant predictors.

## Operational Definition

**Clinical practice:** is the means by which students learn to apply theoretical knowledge and practical skills in the clinical setting.

**Clinical practice competent:** those students who scored above the mean score of all competency domain assessment questions.

**Clinical practice incompetent:** those students who are scored below the mean score of all competency domain assessment questions.

**Good clinical instructor:** those instructors who fulfill at least 50% good clinical instructor activities.

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

**A measurable assessment method** is an assessment method that includes at least 50% of a good assessment method.

**Good staff and student interaction:** is a harmonious relation between clinical staffs and students which incorporate 50% and above of good staff and student interaction characters.

## Results

### Socio-Demographic Characteristics of the Participants

A total of 267 students participated in the current study. The majority of students were males 197 (73.8%) and more than half of the participants 186 (69.7%) were in the age group of 20 to 24 years. Most of the students were single 238 (89.1%). Ninety-three (34.8%) of the students were from the health officer department and almost all of them, 254 (95.1%) have been in the field for three and above years. Near to half of the parents, 122 (45.7%) where attained higher education and only 37 (13.9%) of the students use substances in which 18 (48.6%) chew chat (Table 1).

### Proportion of Perceived Clinical Practice Competency

The study found that 39.3%, 95% CI (33.3, 44.9) of the students perceived themselves as clinically competent. Whereas 162 (60.7%), 95% CI (54.7, 67.0) of the students perceived themselves as incompetent. There were also noticed a difference in perceived clinical practice competency among the different fields of study and years of stay. Among different years' students, competent students over clinical practice were 2 (15.4%), 26 (38.8%), 47 (36.7%), and 30 (50.8%) for second-, third-, fourth- and fifth-year students, respectively. Whereas regarding their field of study, 15 (44.1%), 20 (45.5%), 28 (30.1%), 12 (34.3%) and 30 (49.2%) were competent over clinical practice from Anesthesia, Midwifery, Health officer, Psychiatry and Medicine fields of study, respectively (Table 2).

In the Bivariate analysis, instructor orients about objectives of clinical practice, instructor provides constructive feedback, instructor orients about assessment method, staff encourage during clinical practice, instructor uses checklist, staff allow to perform tasks, instructor gives logbook, years the students stayed on clinical attachment showed association with perceived clinical practice competency at 5% level of significance.

In the multivariate analysis, the instructor provides constructive feedback, the instructor orientation about assessment methods and staff encourage during clinical

**Table 1** Demographic Characteristics of Students at Dilla University, Dilla, 2016

Variables		Frequency (n)	Percent (%)
Sex	Male	197	73.8
	Female	70	26.2
Age	Less than 20	9	3.4
	20 to 24	186	69.7
	25 and above	68	25.5
Department	Anesthesia	34	12.7
	Midwifery	44	16.5
	Health officer	93	34.8
	Psychiatry	35	13.1
	Medicine	61	22.8
Substance use	Yes	37	13.9
	No	230	86.1
Type of substance	Chat	18	48.6
	Cigarette	5	13.5
	Alcohol	8	21.6
	Others <sup>a</sup>	6	16.2
Stay in the field of study	2 years	13	4.9
	3 years	67	25.1
	4 years	128	47.9
	5 years	59	22.1
Marital Status	Single	238	89.1
	Married	22	8.2
	Widow	3	1.1
	Divorced	4	1.5
Residence	Dormitory	189	70.8
	Rental home	40	15
	Others <sup>b</sup>	38	14.2

**Notes:** <sup>a</sup>Other type of substance – shisha, and weed. <sup>b</sup>Other type of residence – family home.

practice were statistically significantly associated factors. Those students who get constructive feedback from their instructors were two times more likely to perceive themselves as more competent than those who did not get feedback (AOR= 2.12, 95% CI =1.164–3.861). Likewise, those students who get orientations about assessment methods in the clinical practice were almost 2 times more likely to perceive themselves as competent than those who did not get the orientation (AOR=1.855, 95% CI =1.03–3.408). Similarly, students who have staff encouragement during practice were 2.6 times more likely

**Table 2** Demographic Characteristics with Perceived Clinical Competence of Students at Dilla University, Dilla, 2016

Variables		Perceived Clinical Competency	
		Competent	Incompetent
Sex	Male	74(37.8)	122(62.2)
	Female	31(44.3)	39(55.7)
Age	Less than 20	3(33.3)	6(66.7)
	20 to 24	69(37.3)	116(62.7)
	25 and above	33(48.5)	35(51.5)
Department	Anesthesia	15(44.1)	19(55.9)
	Midwifery	20(45.5)	24(54.5)
	Health officer	28(30.4)	64(69.6)
	Psychiatry	12(34.3)	23(65.7)
	Medicine	30(49.2)	31(50.8)
Substance use	Yes	14(37.8)	23(62.2)
	No	91(39.7)	138(60.3)
Stay in the field of study	2 years	2(15.4)	11(84.6)
	3 years	26(39.4)	40(60.6)
	4 years	47 (36.7)	81(63.3)
	5 years	30(50.8)	29(49.2)
Residence	Dormitory	76(40.2)	113(59.8)
	Rental home	11(28.2)	28(71.8)
	Others <sup>a</sup>	18(47.4)	20(52.6)

**Note:** <sup>a</sup>Other type of residence – family home.

to perceive themselves as more competent than their counterparts (AOR= 2.608, 95% CI= 1.425–4.77) (Table 3).

## Discussion

Improving the quality of health-care services that should be given to patients is critical and mandatory. Therefore, it is crucial to assess clinical practice competency and associated factors among health and medical science students. The current study indicated important findings regarding perceived clinical competency and possible improvement measures that could be implemented in an effort to enhance the clinical practice competency of students.

The present study revealed that about 39.2% of the study participants perceived themselves as competent and this finding is far from what the Ethiopian government wants to achieve. This might be due to the quality of clinical practice being provided and other socio-economic-related factors of study participants. This prevalence is higher as compared with the finding of 25.5% by a cross-sectional study done among undergraduate health science students in Hawassa University<sup>15</sup> and a study done on midwifery students at the point of graduation in

**Table 3** Results of Bivariate and Multivariate Analysis for Assessment of Factors Affecting Perceived Clinical Practice Competency Among Undergraduate Students at Dilla University, Dilla 2016

Variable	Perceived Clinical Competency		COR (95% CI)	(AOR) 95% CI
	Yes	No		
Orientation About the Objective of Clinical Practice				
Yes	82	98	1.414 (0.851, 2.348)	1.66 (0.810, 0.425)
No	23	64	1	1
Give Feedback				
Yes	77	74	3.233(1.899, 5.504)	2.12(1.164–3.861) *
No	28	87	1	1
Orient About Assessment Method				
Yes	78	82	2.818 (1.65, 4.813)	1.855(1.03, 3.408)*
No	27	80	1	1
Staff Encourage				
Yes	80	76	3.57(2.049, 6.105)	2.608 (1.425, 4.77)*
No	25	84	1	1
Instructor Uses Checklist				
Yes	65	57	0.704(0.573, 0.865)	0.985(0.670, 1.450)
No	40	103	1	1
Staff Allow to Perform Tasks				
Yes	78	78	0.643(0.510, 0.809)	1.241(0.799, 1.928)
No	27	83	1	1
Instructor Gives Logbook				
Yes	69	76	0.695(0.557, 0.869)	0.911(0.638.1.301)
No	36	86	1	1

**Note:** \*Significantly associated variables at p-value < 0.05, 1 – Reference group.

**Abbreviations:** COR-Crude odds ratio, AOR – Adjusted odds ratio.

Ethiopia with the prevalence of 31.6%.<sup>16</sup> In contrast, it is lower as compared with the perceived prevalence of 48.7% in a cross-sectional study done at the University of Gondar.<sup>14</sup> These differences might be due to the involvement of a varied number of departments, medical students and higher year of students.

In the current study, the instructor provides constructive feedback, the instructor orientation about assessment method and staff encouragement during clinical practice are statistically significant factors. Those students who get constructive feedback from their instructors were two times more likely to perceive they are clinically competent compared with those who do not get feedback (AOR= 2.12, 95% CI=1.164–3.861).



This might be due to students' motivation and improvement of performance after getting constructive feedback.

Students who get orientations about assessment methods in the clinical practice were almost 2 times more clinically confident compared with those who did not get the orientation (AOR=1.855, 95% CI =1.03–3.408). A study conducted in the United Kingdom indicated that lack of assessors "preparation for continuous assessment has its impact on students" assessment.<sup>17</sup> Another study done in Norway offers a range of descriptions and interpretations of mentors' experiences and understanding of factors that may influence the assessment of the student in practice placements. Observation and feedback were the most commonly reported approaches for assessing students' performance. However, they are noted in this study to be subjective. The findings, therefore, suggest that assessment using these approaches needs to be continuous. This is to ensure that students attaining an acceptable level of competence, which is usually inferred from the performance.<sup>19</sup>

The students who have staff encouragement during practice were 2.6 times more likely to perceive themselves as more competent (AOR= 2.608, 95% CI= 1.425–4.77). This finding is similar to a cross-sectional study done in South Africa.<sup>18</sup> This could be due to students learned best with staffs who demonstrated a caring attitude and a willingness to teach, and who treated them as if they were part of the team.

Integration of learning domain by a clinical instructor, clinical practice assessment checklist by the clinical instructor, conducive clinical practice placement and poor theory-practice integration are not significant determinant factors, yet these factors were determinant factors in a cross-sectional study done among students of college health science in Hawassa University<sup>15</sup> and also a year of study, social support and clinical environment are associated factors of clinical practice competency in a study done in university of Gondar and Bahir Dar University,<sup>14</sup> however, in our study, they were not significant factors.

## Conclusion

This study has determined the magnitude of perceived clinical practice competency as 39.2% which indicates that more than half of the study participants perceived themselves as incompetent. Constructive feedback, instructor orientation about assessment method and staff encouragement during clinical practice were factors significantly associated with perceived clinical competence. Therefore, the authors suggested that instructors rather

than frightening and giving harsh comments they should give constructive feedback to their students to boost their confidence and ability. Furthermore, nationally there should be standard and clear assessment methods in which teachers, school administrators and responsible stakeholders should briefly explain assessment methods to their students. Moreover, the environment is one of the basic factors for the improvement of clinical competency. Therefore, it needs an action to improve the interaction between staff and students.

## Abbreviations

AOR, Adjusted Odd Ratio; CI, Confidence Interval; COR, Crude Odd Ratio; EC, Ethiopian Calendar; OR, Odds Ratio; OSCE, Objective Structured Clinical Examination; SNNPR, South Nations nationalities Peoples Regional state; UK, United Kingdom.

## Ethics Approval and Consent to Participate

The paper of approval and letter of permission was obtained before the beginning of data collection from the research review board of Dilla University. After that, participants oriented about the purpose and procedure of data collection, and that confidentiality and privacy ensured. It is also cleared that participation is fully based on the willingness of participants using verbal consent.

## Availability of Data and Material

The data that support the findings of this study are available from Dilla University but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are available from the authors upon reasonable request and with permission from Dilla University.

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## Author Contributions

All authors contributed to data analysis, drafting or revising the article, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

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## Disclosure

The authors declare no competing interests in this work.

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