Research Article

iMedPub Journals
http://www.imedpub.com

Annals of Clinical and Laboratory Research
ISSN 2386-5180

2016
Vol. 4 No. 1:57

Assessment of Factors Affecting Clinical Practice Competency of Undergraduate Health Science Students in Hawassa University, South, Ethiopia

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Citation: Fikre R, Assessment of Factors Affecting Clinical Practice Competency of Undergraduate Health Science Students in Hawassa University, South, Ethiopia. Ann Clin Lab Res. 2016, 4:1.

Abstract

Background: Clinical practice experiences are critically important to determine that graduate students are expected to achieve the maximum level of clinical competence after receiving necessary and adequate theoretical and practical instructions. However graduates have problems in doing some easy duties. Thus, this study is designed to assess factors affecting clinical practice competence of undergraduate health science student, Hawassa University, South, Ethiopia, 2015.

Methods: Institutional based Cross-sectional study was conducted in health science students of Hawassa university referral hospital from April to May 2015 by using structured questionnaire and Focus Group Discussion. Simple random sampling was applied to select study subject among 345 students. Data were entered using Epi Info version 3.5.1 was exported and analyzed by SPSS version 20. Bivariate and multivariate logistic regressions were used to identify independent predictors and for qualitative data, ideas were summarized and analyzed in the form of themes.

Result: The prevalence of clinical practice competency from the study participant was 87 (25.2%). Students with adequate clinical case in practical placement were 4 times clinically competent than those students with inadequate clinical case in practical placement with (AOR=3.958, 95% CI 1.238, 12.65). Students with clinical instructor support were clinically competent by 2 times with (AOR=2.064, 95% CI 1.042, 3.694) than students with no clinical instructor support.

Conclusion and Recommendation: Clinical instructor support, adequate clinical case in practical placement, use continuous assessment checklist and integration of three learning domain were factors affect clinical practice competency of the students.

So improving supervision of clinical instructors, appropriate selection of clinical site and design appropriate clinical practice protocol has important to enhance clinical practice competency of students.

Keywords: Competency, Clinical practice, Clinical practice competency

Received: January 19, 2016, **Accepted:** January 28, 2016, **Published:** February 01, 2016

Introduction

Clinical practice is the means by which student learn to apply the theory facilitating integration of theoretical knowledge and practical skills in the clinical setting which becomes the art and science of the profession. This correlation of theory and practice, and the building of meaningful experience, take place during clinical practice in the health care services [1]. Furthermore, clinical practice is the most important component of health professional education. One of the criteria for effective learning

in clinical practice is clinical competence. Competencies are the skills, knowledge and attitudes that are instrumental in the delivery of desired results [2].

It is through experience in the clinical setting that students acquires the knowledge, skills, and values essential to professional practice and become socialized into the profession. Clinical experiences are critically important to determine that graduates can become competent professional practitioners after completing their education [3].

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 challenges confronting in today's rapidly changing health care environments have highlighted the necessity for graduating students to be both competent and prepared for practice. This necessity has in turn highlighted the increasing significance of the nature and quality of student's clinical learning experience [4,5].

Currently there is great concern from Ethiopian government and the public sector over poor quality of skills 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 [6]. Health systems cannot function effectively without sufficient numbers of skilled, motivated and supported health workers who display a good work ethics at all times. However the results of previous study suggested that most new bachelor graduates have adequate theoretical knowledge but lack competence in the clinical environment [7,8].

A lot of questions occur about why this situation exists. Therefore, the purpose of this study is to asses' factors affecting clinical practice competency of undergraduate health science students of Hawassa University referral hospital, south, Ethiopia.

Methods and Materials

Study area and period

Hawassa University, previously known as Debub University, was established in April 2000 by merging three colleges, namely Hawassa College of Agriculture, Wondo Genet College of Forestry and Natural Resources, and Dilla College of Teachers Education and Health Sciences. Hawassa city lies 275 Km South of Addis Ababa the capital city of Ethiopia. The altitude of Hawassa is 1665 m above sea level; now it is the capital city of the South Nation and Nationalities Peoples Region (SNNPR). It has a population of more than 150,000, from more than 50 different ethnic groups. The University has 64 first degree programs, 43 second degree programs, and 4 PhD programs and has more than 38,000 alumni.

In the medical and health Science College there are 1712 regular and extension students and around 400 academic and administrative staff at different academic levels, ranging from professors, assistant professors and lecturers to graduate assistants. This study was conducted from April to May 2015.

Study population

All Bsc nurses, Bsc midwifes and Public Health officers studying in nursing, midwifery and public health officer department of Hawassa university health science collage who fulfill the inclusion and exclusion criteria during the study period.

Inclusive criteria

Bsc nurses, Bsc midwifes and Public Health officers who are involved in more than one clinical practice experience, regular as well and willing to participate in the study.

Exclusive criteria

- Weekend and extension program Bsc nurses, Bsc midwifes and Public Health officers
- Students with only one clinical experience

Operational definition

Competency: are once ability of the student to integrate the skills, knowledge and attitudes during in clinical practice.

Learning domain: This is the combination of knowledge, skill and attitude.

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

Clinical practice competency: Are those students who are agreed to the entire six clinical practice assessment questioners.

Study Design and Sample Size Determination

Institution based cross sectional quantitative study was employed. Sample size was determined using single population proportion formula by considering assumptions of proportion using 5% as prevalence.10% for non-response rate, a total of 345 students were required for the study.

Proportion calculation formula

$$n = \frac{z^2\alpha/2p(1-p)}{d^2}$$

Where,

n= minimum sample size required for the study

Zα/2 = 1.96, standardized normal distribution curve value for the 95% confidence Interval

p=0.5 (in the absence of a similar previous study and to achieve the maximum possible sample size, the following assumption.

d= 0.05 degree of margin of error

Sampling procedure

Simple random sampling was used for the selection of sampling units. Out of 5 campuses of Hawassa University, medical and health Science College were selected purposively. In the next step out of five schools from the selected college two schools was selected randomly which is school of nursing and midwifery and school of public health. Three departments were selected from two schools. Then, the total sample size was allocated to each

department by stratified proportionate to the number of male and female students per department.

Data collection

The quantitative data was collected by self-administered questionnaire prepared in English and The questioner contains three parts and 29 closed ended items in four sub-scale which is clinical instructor factor 14 items, clinical environment 6 items, assessment methods 6 items and staff-student interaction 3 items. Qualitative data was collected through Focus Group Discussion by forming four groups and each group contains eight members. The questionnaire was developed based on reviewing different literatures.

Data quality control

The questionnaires were pre tested and Data collectors were trained for two day on the objectives of the study, sampling procedure, checking the completeness of questionnaires. Furthermore data were checked during entry into the computer before analysis.

Data analysis

Data were entered using Epi Info version 3.5.1 and entered into computer using SPSS 20 version for analysis. The univariate analysis such as percentage and frequency distribution of different characteristics of the questionnaire was analyzed. Bivariate analysis was used to see the association of independent with the dependent variable. Logistic regression model were employed to control confounding variables; variables included in the model were restricted to those significant (p=0.05) related to clinical practice at the bivariate level and some of the statistical test like, odds 'ratio (crude and adjusted) were used to measure their association and some of the results were compared with results of other studies available. For qualitative data Focus Group Discussion were used and ideas that affect repeatedly were summarized and analyzed in the form of themes.

Ethical consideration

Paper of approval and letter of 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 were provided to selected collages for proceeding data collection. It is also cleared that participation fully based on the willingness of participants using written consent.

Results

Socio-demographic characteristics of the study participant

A total of 345 students were participated in this study with a response rate of 100%. Out of 345 respondents, the sex distribution was 144(41.7%) were females and 201(58.3%) were males. Ten (2.9%) of the respondents were in the age range of between 15-19 years, 320(92.8%) were in 20-24 years and 15(4.3%) were in 25-29 years. About marital status three hundred twelve (90.4%) of the respondents were single, 33(9.6%) were married. Most of the participants 234(67.8%) were orthodox Christian while 22% and 3.7% of the respondents were protestant Christian and Muslim respectively and the remaining were others **(Table 1)**. Among the respondent 149(43.2%) of the study population were Amhara, 111(32.2%) were Oromo, 35(10.1%) were Tigray, 21 (6.1%) were Sidama by ethnicity and 29(8.4%) were other. Regarding educational status of study participant family, 93(27%) of respondents were illiterates, 167 (39.7) were certificate, 115 (33.3%) were diploma and above. About 339(98.3%) were not use any substance, whereas 6(1.7%) of the respondent use substance **(Table 1)**.

Prevalence of clinical practice competency of study participants

The prevalence of clinical practice competency from study participant 87 (25.2%) were competent over clinical practice

Table 1 Socio demographic characteristics of the study participant in medical and health science college of Hawassa University, Hawassa, Ethiopia (N=345).

Variables Characteristics		Frequency	Percentage (%)
Sex	Female	144	41.7
	Male	201	58.3
	Total	**345**	**100**
Age	15-19	10	2.9
	20-24	320	92.8
	25-29	15	4.3
	Total	**345**	**100**
Marital status	Single	312	90.4
	Married	33	9.6
	Total	**345**	**100**
Religion	Orthodox	234	67.8
	Protestant	76	22
	Muslim	13	3.7
	Other	35	10.1
	Total	**345**	**100**
Year of study	2nd year	63	18.3
	3rd year	169	40.3
	4th year	143	41.4
	Total	**345**	**100**
Educational status of family	Illiterate	93	27
	Certificate	137	39.7
	Higher education	115	33.3
	Total		**100**
Residence	Dormitory	304	88.1
	Rental	23	6.7
	Other	18	5.2
	Total	**345**	**100**
Substance use	Yes	6	1.7
	No	339	98.3
	Total	**345**	**100**
Department	Nursing	121	35.1
	Midwifery	98	28.4
	Health officer	126	36.5
	Total	**345**	**100**

whereas 258 (74.8%) were not competent over clinical practice. There was 114 midwifery student who participate in the study and 26 (22.8%) were competent and 88 (77.1%) were not competent over clinical practice.

115 health officer were involved and 34 (29.5%) were competent and 81 (70.4%) were not competent over clinical practice. From study participant 116 (33.6%) were nurse student, 27 (23.2%) were competent clinically and 89 (76.7%) were not competent over clinical practice **(Table 2)**.

Table 2 The Prevalence of clinical practice competency of study participant by department in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

Department	Number of student	Not clinically competent [%]	Clinically Competent [%]
Midwifery	114	77.1	22.9
Nursing	116	74.7	25.3
Public health officer	115	70.4	29.6

Clinical instructor factors response of study participants

The range of the rating scales were strongly agree=5, Agree =4, Neutral =3, Disagree =2 and strongly disagree=1. For the purpose of analysis, the above 5 rank responses of closed ended questionnaires were grouped and labeled in to three categories i.e. agree, Neutral and disagree. In categorizing the rating scales, the frequency and percentage results of _Strongly agree 'and _agree 'were combined in to _Agree 'and the results of _strongly disagree 'and _Disagree 'merged to _Disagree'. Among the respondent the majority 153(44.3%) were disagree, 95(27.7%) were strongly disagree, 52(15.1%) were neutral, 42(12.2%) were agree and 3(0.9%) were strongly agree about clinical instructor provides clinical logbook for topics related about clinical practice. About 153(44.3%) of the respondent were disagree about instructor orientation towards clinical practice, 65(18.8%) were strongly disagree, 57(16.5%), were neutral, 46(13.3%) were agree and 24(7%) were strongly agree. Most of the respondent 149(43.2%) were disagree about instructor spent enough time for mentoring during clinical practice, 83(24.1%) were strongly disagree, 66(19.1%) were neutral, 40(11.6%) were agree and 7(2%) were strongly agree **(Table 3)**.

Clinical practice environment factors response of study participants

Majority of the respondent 98(28.4%) were disagree, 57(16.5%) were strongly disagree, 91(26.4%) were neutral, 85(24.6%) were agree and 14(4.1%) were strongly agree on clinical placement has conducive for clinical practice. About 111(32.2%) were disagree, 69(20%) were strongly disagree, 69(20%) were neutral, 76(22%) were agree and 20(5.8%) were strongly agree on clinical placement has sufficient cases for clinical practice **(Table 4)**.

Assessment method factors response of study participants

About 152(44.1%) were disagree, 32(9.3%) were strongly disagree, 75(21.7%) were neutral, 63(18.3%) were agree and 23(6.7%) were strongly agree on instructor orients about assessment methods during clinical practice. Among the respondent 70(20.3%) were disagree, 10(2.9%) were strongly disagree, 75(21.7%) were neutral, 159(46.1%) were agree and 31(9%) were strongly agree on assessment methods during clinical practice influence on clinical practice competency. Regarding instructor uses continuous assessment during clinical practice, 155(44.9%) were disagree, 73(21.2%) were strongly disagree, 55(15.9%) were neutral, 45(13%) were agree and 17(4.9%) were strongly agree on **(Table 5)**.

Staff-student interaction factors response of study participants

About majority of the respondent, 109(31.6%) were strongly disagree, 88(25.5%) were disagree, 48(13.9%) were neutral, 92(26.7%) were agree and 8(2.3%) were strongly agree on staff allow student to perform some task during clinical practice. Among the respondent, 87(25.2%) were disagree, 91(26.4%) were strongly disagree, 43(12.5%) were neutral, 108(31.3%) were agree and 16(4.6%) were strongly agree on staff encourage student during clinical practice.

Regarding staff monitor student during clinical practice, 113(32.8%) were disagree, 89(25.8%) were strongly disagree, 51(14.8%) were neutral, 76(22%) were agree and 16(4.6%) were strongly agree on it **(Tables 6 and 7).**

Multiple logistic regression analysis of independent variable showed that, Students with clinical instructor support has 2 times with (AOR=2.062, 95%CI 1.042, 3.694) clinically competent than those students with no clinical instructor support, student with adequate clinical case in clinical placement has 4 times (AOR=3.958, 95% CI 1.238, 12.65) clinically competent than those students with few clinical case in clinical placement **(Tables 8 and 9)**.

Focus group discussion

A total of 32 participants were involved in four groups of Bsc Nursing, Bsc Midwifery, and Public health officer student. Ten specific research questions were prepared under five major headings. Most of the participant agrees that majority clinical supervision were not enough to support their clinical practice competency so that their competency was highly influenced. One of the discussants said," Majority of the student believed that availability of clinical supervisor is useless, supervisor doesn't add any value for our clinical rather than checking our presence in practice site." Similarly, another student expressed that, "clinical supervisor in general have less ability to interact with staffs and they lack confidence to do certain procedure in front of the staff and student".

The group discussants were asked about assessment method fairness. The majority of the discussants reflected mixing of feeling with no clear choice about its fairness.

Some of the discussants agreed that the assessment methods were fair. However, one of the discussant stated that, "if you have good theoretical knowledge you will score better score instead of your clinical skill and continuous mentoring which is totally unfair."

Similarly, another student mentions that," if you have good communication with your instructor you will score high, so which is not fair."

Table 3 Clinical instructor factors response of study participant in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

	Clinical instructor Factors	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Provide logbook	3	0.9	42	12.2	52	15.1	153	44.3	95	27.5
2	Orient objective of clinical practice	24	7	46	13.3	57	16.5	153	44.3	65	18.8
3	Spent enough time on clinical site	7	2	40	11.6	66	19.1	149	43.2	83	24.1
4	continuously follow students during practice	9	2.6	44	12.8	75	21.7	138	40	79	22.9
5	Use d/t learning methods	6	1.7	64	18.6	71	20.6	125	36.2	79	22.9
6	Integrate theory in treatment plan	14	4.1	43	12.5	65	18.5	151	43.8	72	20.9
7	Demonstrate skill during practice	11	3.2	45	13	61	17.7	149	43.2	79	22.9
8	Facilitate inter-professional relationship	9	2.6	48	13.9	74	21.4	132	38.3	82	23.8
9	Maintain professional relationship with student	12	3.5	42	12.2	73	21.2	156	45.2	62	18
10	Follow while student conduct procedure	10	2.9	48	13.9	57	16.5	156	45.2	74	21.4
11	Show clinical procedure	10	2.9	46	13.3	45	13	170	49.3	74	21.4
12	Provides constructive feedback	6	1.7	47	13.6	90	26.1	118	34.2	84	24.3
13	Feedback influence clinical practice Competency	20	5.8	209	60.6	38	11	43	12.5	35	10.1
14	Support influence clinical practice	37	10.7	153	44.3	52	15.1	70	20.3	33	9.6

Table 4 Clinical practice environmental factors response of study participant in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

	Clinical practice environmental factors	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Clinical practice environment are conducive	14	4.1	85	24.6	91	26.4	98	28.4	57	16.5
2	Clinical practice environment has sufficient cases	20	5.8	76	22	69	20	111	32.2	69	20
3	Clinical practice environment has sufficient material	16	4.6	87	25.2	77	22.3	108	31.3	57	16.5
4	Clinical practice environment has meet objectives of clinical .practice	13	3.8	41	11.9	84	24.3	159	46.1	48	13.9
5	Clinical practice environment has sufficient ward	23	6.7	95	27.5	78	22.6	99	28.7	50	14.5
6	influenced by clinical environment	111	32.2	164	47.5	29	8.4	34	9.9	7	2

Table 5 Assessment method factors response of study participant in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

	Assessment factors	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
		No.	%	No.	%	No.	%	N o	%	No.	%
1	Instructor orient about assessment methods	23	6.7	63	18.3	75	21.7	152	44.1	32	9.3
2	Influence of assessment methods on clinical Practice	31	9	159	46.1	75	21.7	70	20.3	10	2.9
3	Instructor use continuous assessment methods	17	4.9	45	13	55	15.9	155	44.9	73	21.2
4	Instructor made difference in assessment	9	2.6	98	28.4	83	24.1	106	30.7	93	14.2
5	Assessment methods address three learning methods	5	1.4	29	8.4	46	13.3	151	43.8	141	33
6	Instructor use checklist	4	1.2	22	6.4	34	9.9	112	32.5	173	58.1

Table 6 Staff-student interaction factor response of study participant in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

	Staff-student factors	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Staff allow student to perform task during clinical practice	8	2.3	92	26.7	48	13.9	88	25.5	109	31.6
2	Staff encourage students during clinical practice	16	4.6	108	31.3	43	12.5	87	25.2	91	26.4
3	Staff monitor students	16	4.6	76	22	51	14.8	113	32.8	89	25.8

All discussants agreed that the main reasons for poor clinical practice competency of student were, due to weak supervision of clinical instructor, some of clinical instructors were inadequate clinical experience and work overload of clinical instructor.

Table 7 The Response of study participant towards the assessment of clinical practice competency in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

Variable of clinical practice competency assessment	Not done[%]	Done [%]
Apply theory to clinical practice	65.5	34.5
Apply patient dignity, privacy and confidentiality	36.5	63.5
Apply health safety	71.3	28.7
Ability to administer medication safely	32.5	67.5
Ability to emotional, physical and personal care	91.9	8.1
Ability to apply need of patient by planning	78	22

Table 8 Bivariate logistic regression analysis of clinical practice competency factors of study participant in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

Variables	COR(95% CI)	P-value
Integrate theory to clinical practice	1.683(0.367, 1.270)	0.003
Influence of clinical instructor	2.257(0.160, 0.413)	0.000
Support of clinical instructor	1.598(0.362, 1.988)	0.045
Conducive clinical Placement	1.694(0.412, 1.168)	0.016
Influence of clinical placement competency	4.170(2.408, 7.221)	0.000
Assessment Checklist	1.509(0.222, 1.168)	0.001
Integration of learning domain	2.713 (0.934, 7.98)	0.002
Orientation about objective of clinical practice	2.646(1.381, 4.096)	0.004
Feedback provided by instructor	1.782(0.484, 1.98)	0.013

Table 9 Multiple logistic regression analysis of clinical practice competency factors of study participant in medical and health science collage of Hawassa University, Hawassa, Ethiopia.

Variable	AOR (95% CI)	P-value
Clinical instructor support	2.062(1.060, 3.996)	0.013
Integration of learning domain	3.09(1.047, 1.803)	0.001
Use of assessment checklist	3.95(1.242, 12.694)	0.002
Clinical placement	1.63(1.18, 3.073)	0.004

Discussion

Institutional based cross-sectional study were carried to assess factors affecting clinical practice competency of undergraduate health science student in medical and health science collage of Hawassa University, Hawassa, south region. The prevalence of clinical practice competency in this study was (25.2%). These findings is lower than study done in Iran [9] indicate overall competency with clinical practice of students was (38.8%).

Students with clinical instructor support has increase clinical practice competency by 2 times with (AOR=2.064, 95%CI 1.042, 3.694) than students with no clinical instructor support.

This is in line with the study done in England [10]. In this study students with integration of three learning domain by clinical instructor has enhanced clinical practice competency by 3 times (AOR=3.09, 95% CI 1.048, 1.742) than students with no integration of three learning domain by clinical instructor. This is in line with the study done in Saudi-Arabia [11]. In this study students with adequate clinical case in practice placement has increase clinical practice competency (AOR=1.685, 95% CI 1.908, 3.126) than students with few clinical case in practice placements. This is in line with the study done in Australia [12]. But which is lower than study done in Norwegian [13]. In this study students with continuous assessment checklist by clinical instructor has increase clinical practice competency by 4 times (AOR=3.958, 95% CI 1.238, 12.65) than students which no continuous assessment by their clinical instructor. This is in line with the study done in united-kingdom [14].

Strengths and Limitations of the Study

In this study, at the design stage and before the implementation of the study well defined inclusion and exclusion criteria were made, data collectors were trained, questionnaires were tested and necessary corrections made, and all of the questions of the quantitative study were closed ended. The study subjects were selected using random sampling techniques, which helps to avoid selection bias.

Qualitative data, the focus group discussions, gave important supplements to elaborate some findings from the quantitative data. Too little literature were available And Shortage of recently conducted studies are some of the limitation.

Conclusion

Clinical instructor support, clinical site placement, assessment checklist and integration of three learning domain influence clinical practice competency of study participant.

Recommendations

Improving clinical instructor supervision and designing appropriate clinical practice protocol has to be considered.

Acknowledgment

Above all I would like to express my gratitude to my Lord- Jesus Christ who carries all my burdens and shepherded me healthy.

My sincere gratitude goes to my advisor assistance Professor Berhane G/kidan for his relentless support and valuable advice in this proposal development from the inception to the final.

I also extend my gratitude to Addis Ababa University, Allied school of health science, and Department of nursing and midwifery for its financial support in the accomplishment of this study. And next, I would like to thank goes to all data collectors, supervisors and study participants whose contribution was vital to go through the data collection work.

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