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Factors affecting practical training in health training institutions in Tanzania

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Abstract

Background: In Tanzania has 192 registered middle level health and allied sciences training institutions offering certificate and diploma level programme. One of roles the Ministry of health is to produce a competent and qualified health personnel to offer quality health services to the citizen. Despite all the effort put in place by the Ministry of health, clinical practical training faces many challenges. This study aimed to identify the factors affecting practical trainings (skill laboratory and clinical rotations) in health training institutions.

Methods: Cross-sectional study design was used to find out factors affecting practical training. A self-administered questionnaire was used to collect data from 213 participants selected using a simple random sampling method.

Results: 185 (87%) of students had inadequate knowledge on skills laboratory training and 181(85%) of had inadequate knowledge on clinical rotation. Most of the resources for skill laboratory and clinical rotation were available. An average time spent by students during skill laboratory training and clinical rotation training was 2 week and 13 weeks respectively. A mean of frequency of students' supervision during skill laboratory practical training and clinical rotation practical training was 2.

Conclusion There is inadequate knowledge and supervision on skill laboratory and clinical rotation among students. Most of the resources for practical training are available.

Keywords: Skill laboratory training; Clinical rotation training; Practical training; Health training institutions; HTIs student

1. Introduction

World Health Organization (WHO) advocates for skilled and motivated health workers in providing quality health care services and increase performance of health systems [1]. Moreover, there has been a need for the Nation to strengthen and expand health services at all levels [2].

In Tanzania, certificate and diploma (middle learning level courses) programs are offered under technical training institutions which include health training institutions and non- health training institutions. Health technical training institutions aim at training and teaching students in a specific field of study and are controlled by both Ministry of Health and national council for technical and vocational education and training (NACTVET). The NACTVET is now responsible for coordinating and overseeing the entire technical and vocational education and training system in Tanzania. Therefore, the new roles of NACTVET relating to regulation of vocational education and training among others include

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registration of vocational training centers, accreditation of vocational education programmes and short courses, validation of curriculum, quality assurance role and other regulatory functions. [3].

There are one hundred and ninety-two (192) registered health and allied sciences training institutions in Tanzania offering certificate and diploma level programme. One of the roles of Ministry of health is to produce a competent and qualified health personnel to offer a quality health services to the citizen [3].

Clinical practical training has become a major issue in technical heath training institutions in Tanzania. Clinical practice in the clinical placement sites should allow students to apply their theoretical knowledge in a real environment, develop skills and clinical reasoning, and observe and adapt the professional role.

Studies have revealed that physical examination skills have been greatly deteriorating during the past twenty years. There is an increasing focus on the decline of effective approaches to the physical examination. Moreover, few medical educators are teaching comprehensive clinical skills, including history taking skills, which is a critical aspect of good medical practice [4,5].The study done in Tanzania reported scarcity of resources like gloves hindered student from practicing procedures directly [6]

Students need to be oriented on practical training so as to facilitate learning; they need to be oriented on the practicum site, learning tasks and the practical tools. A study revealed that nursing students are faced with many challenges in the clinical learning environment, as most of them started clinical practices while they have inadequate knowledge, insufficiently developed communication skills and deficient practical skills. [7]

Skill acquisition normally occur gradually over time and requires time for repetition, so student need much time for practice and they must be supervised [6] It is-reported that inadequate time for clinical practice hinder many students to do many procedures as much as required to meet the target. Inadequate student supervision also hinders open feedback on the on the strength and weakness evaluated on a specific student upon a given clinical situation [5,8]

Objectives

The study intended to determine the factors affecting practical training in health training institutions, by specifically;

- Assessing students' knowledge on practical training,
- Assessing availability of resources for practical training
- Finding out time spent during practical training
- Finding out frequency of supervision during practical training

2. Methods

2.1. Study design

This cross-sectional study used quantitative methods to collect and analyze data. Quantitative methods design was used as we intended to get quantifiable information related to determinants of good practical training

2.2. Study setting

This study was conducted at two faith based health training institutions; Dareda school of nursing and Haydom Institute of Health Sciences in Manyara region, Northern part of Tanzania in March 2024

2.3. Study population

The study population of this study included all students studying certificate and ordinary diploma in medical laboratory science, nursing and midwifery, and clinical medicine students, inventories of practical resources, student's practical attendance registers and students training supervision reports

2.4. Data collection methods and tools

2.4.1. Student Knowledge on clinical practical training

Questionnaire were administered to research participants who were eligible for the study and had filled informed consent forms to collect data on students' knowledge on clinical practical training in skill laboratory and clinical rotation. Research participants were administered the questionnaires for collecting information on socio-demographic characteristics students' knowledge on clinical practical training in skill laboratory and clinical rotation. Questionnaires were in English language for easy understanding for all participants and included questions addressing demographic

data, student's experiences and views on clinical practical training. Data collection was completed over a period of three weeks. To ensure validity, the questionnaires were developed based on literature review and objectives alignment to the objectives of the study. Furthermore, specific objectives were checked against all the items in the questionnaires. Pretesting of the questionnaire happened before actual data collection. The pretest aimed at identifying any ambiguities in the questionnaires and to correct them before administering to the research participants. To ensure reliability of the questionnaire, pretesting was done by administering the same questionnaire to participants who were not included in the study twice at an interval of one week.

2.4.2. Availability of resources for practical training

Observation method was used to collect data by using checklist to assess availability of resources for clinical practical training.

2.4.3. Time spent by students for practical training

Document review method was used to collect data by using data compilation sheet to find out both time spent by students in clinical practical training and review student's supervision reports

2.4.4. Frequency of supervision during practical Training

Document review method was used to collect data by using data compilation sheet to find out frequency of supervision during students clinical practical training.

2.5. Data analysis methods and presentation

Quantitative data analysis method specifically descriptive statistical methods were used to analyze the data collected from the study. Descriptive statistical method is best suitable for analyzing quantitative non-analytical data. The questionnaires were coded and numbered for easy follow-up, distributing, and collecting later, once they were filled by the participants. Descriptive analysis was done to summarize information of the participants. Categorical variables were summarized using frequency and percentages, while continuous variables were summarized by using tables. Data were checked, cleaned for accuracy and completeness and entered into the computer.

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23. The results were presented in descriptive form by percentages, tables and figures for descriptive data.

2.6. Ethical considerations

Ethical clearance was obtained from the CEDHA research ethical committee. The permission to conduct the study was obtained from Dareda school of nursing and Haydom Institute of Health sciences authorities and informed consent was sought from research participants., The students were voluntary participating in the study and all information which were obtained from the student's participants in the study, and data collected from questionnaire were managed ethically by observing confidentiality.The names of participants were not recorded in order to ensure the confidentiality of information; instead numbers were used to represent each participant.

3. Results

3.1. Demographic characteristics of sample

A total of 213(100%)students (from clinical medicine, nursing and midwifery and medical laboratory science programme studying NTA level five and NTA level six) from two health training institutions (Haydom institute of health sciences and Dareda school of nursing) filled and returned the questionnaire.

A total174 (82%) students were from Haydom institute of health sciences while39 (18%) students were from Dareda school of nursing.

Above half 118 (55%) were female students and nearly three quarter 152(71%) were between 21-26 years. The ratio of respondents per program was 7:7:1 for clinical medicine, nursing and midwifery and medical laboratory science programs respectively. More than half 116 (55%) were from NTA level five.

Table 1 Demographic characteristics of students (N = 213)

Characteristics of respondents	Frequency (%)
Name of college	
Haydom institute of health sciences	174 (82%)
Dareda school of nursing	39 (18%)
Sex	
Male	95 (45%)
Female	118 (55%)
Age	
15-20	30 (14%)
21-26	152 (71%)
27-32	25 (12%)
33+	6 (3%)
Programme	
Clinical medicine	101 (47%)
Nursing and midwifery	98 (46%)
Medical laboratory science	14 (7%)
NTA level	
NTA level five	116 (55%)
NTA level six	97 (45%)

3.2. Students' knowledge on practical training in skill laboratory and clinical rotation

3.2.1. Students' knowledge on skill laboratory training

Knowledge on skill laboratory training was assessed using seven questions with twenty responses which ranged from definition, purposes, principles, requirements, advantage, disadvantages and phases of skill laboratory training. The scores for these questions were categorized into; inadequate knowledge for 1-10 correct responses and adequate knowledge for 11-20 correct responses.

Majority of students 185(87%) had inadequate knowledge on skills laboratory per institutions and also per program.

3.2.2. Students' knowledge on practical training in skill laboratory and clinical rotation

Knowledge on clinical rotation training was assessed using seven questions with twenty responses which ranged from definition, purposes, principles, requirements, advantage, disadvantages and phases of clinical rotation training. The scores for these questions were categorized into; inadequate knowledge for 1-10 correct responses and adequate knowledge for 11-20 correct responses

Majority 182 (85%)of students had inadequate knowledge on clinical rotation per institutions and also per program Findings of students' knowledge on skill laboratory and clinical rotation by college are shown in the Table 02 below.

Table 2 Students' knowledge on skill laboratory and clinical rotation by college and program

		Knowledge on skills laboratory			**Knowledge on clinical rotation**		
		Inadequate	Adequate	Total	Inadequate	Adequate	Total
College	Haydom institute of health sciences	151(87%)	23(13%)	174(100%)	145(83%)	29 (17%)	174(100%)
	Dareda school of nursing	34 (87%)	5 (13%)	39 (100%)	37 (95%)	2 (05%)	39 (100%)
	Total	185(87%)	28(13%)	213(100%)	182(85%)	31(15%)	213(100%)
Programme	*Clinical medicine*	90(89%)	11(11%)	101(100%)	88(87%)	13 (13%)	101(100%)
	Nursing and midwifery	85 (87%)	13 (13%)	98 (100%)	82 (84%)	16 (16%)	98 (100%)
	Medical laboratory science	10 (71%)	4 (29%)	14 (100%)	12 (86%)	2 (14%)	14(100%)
	Total	185(87%)	28 (13%)	213(100%)	182 (85%)	31(15%)	213(100%)
NTA level	*NTA level five*	95(82%)	21(18%)	116(100%)	91 (78%)	25 (22%)	116(100%)
	NTA level six	90 (93%)	7 (7%)	97 (100%)	91(94%)	6 (06%)	97 (100%)
	Total	185 (87%)	28 (13%)	213(100%)	182 (85%)	31 (15%)	213(100%)

3.3. Availability of resources for practical training

3.3.1. Skill laboratory resources

Observation for availability of resources for skill laboratory training was done using a checklist with eighteen key items ranging from PPE to models/manikins.

Most of resources for skill laboratory training were available in both training institutions however, caps and gowns were insufficient at Dareda School of Nursing and there were few pelvic, single skeleton models at Haydom institute of health sciences. The availability of resources for Skill laboratory training at Haydom institute of health sciences and Dareda school of nursing is shown in Table 03 below.

Table 3 Availability of resources for Skill laboratory training at Haydom institute of health sciences and Dareda school of nursing

Area	**Item**	**Name of college**			
		Haydom institute of health sciences		**Dareda school of nursing**	
		Available		**Available**	
		Yes	**No**	**Yes**	**No**
Skill laboratory	PPE	v		v	
	Models/mankins	v		v	
	Teaching materials	v		v	
	Storage room	v		v	
	Shelves/cupboard	v		v	
	Handwashing facility	v		v	

Area	Item	Name of college			
		Haydom institute of health sciences		Dareda school of nursing	
		Available		Available	
		Yes	No	Yes	No
	Electricity	v		v	
	Clean Water source	v		v	
	Dust bins and bin liner	v		v	
	Learning guides	v		v	
	Linen	v		v	
	Procedure manuals	v		v	
	Checklists	v		v	
	Other consumables		v	v	
	Thermometer	v		v	
	Syringes	v		v	
	Stethoscopes	v		v	
	Venepuncture and cannulation	v		v	

3.3.2. Clinical rotation resources

Observation for availability of resources for clinical rotation training was done using a checklist with twenty key items ranging from PPE to patient samples collection tools

Most of resources for clinical rotation training were available at two training institutions however, there were shortage of goggles and stethoscope at Haydom institute of health sciences. Findings for the aavailability of clinical rotation resources at Haydom institute of health sciences and Dareda School of nursing are summarized in Table 4.3.2 below

Table 4 Availability of resources for clinical rotation training at Haydom college and Dareda school of nursing

Area	Item	Name of college			
		Haydom institute of health sciences		Dareda school of nursing	
		Available		Available	
		Yes	No	Yes	No
Clinical rotation	PPE	v		v	
	Teaching materials	v		v	
	Stethoscope	v		v	
	Shelves/cupboard	v		v	
	Hand washing facility	v		v	
	Electricity /source of power	v		v	
	Water	v		v	
	Weighing scale	v		v	

	Tape measure		v	v	
	Fundal scope	v		v	
	Vital sign charts	v		v	
	Kidney dish	v		v	
	Gallpot	v		v	
	Swab	v		v	
	Spirit	v		v	
	MUAC	v		v	
	Enough space (For clinical practicing)	v		v	
	Clinical instructors	v		v	
	Reagents, materials, supplies and diagnostic equipment for clinical training or procedures	v		v	
	Patients or samples during clinical rotation	v		v	

3.4. Time spent by students for practical training

3.4.1. Time spent by students in skill laboratory training

Document review using data compilation sheet was used to find out time spent by students on skill laboratory training. The average time spent by students in skill laboratory training was 1.8 week (with a range of 1 week)

3.5. Time spent by students in clinical rotation training

Document review using data compilation sheet was used to find out time spent by students on clinical rotation training. The average time spent by students in clinical rotation training was 12.9 weeks (with a range of 16 weeks)

3.6. Frequency of supervision during practical training

Document review using data compilation sheet was used to find out frequency of supervision during practical training.

Mean of frequency of students' supervision during skill laboratory practical training and clinical rotation practical training at Haydom institute of health sciences and Dareda school of Nursing was 2 (with range of 2).

4. Discussion

The study aimed at determining the factors affecting students' practical training (skill laboratory and clinical training) in selected Health training institutions in Manyara Region. In this study, most (87%) of students had inadequate knowledge on skills laboratory training and the majority (85%) of students had inadequate knowledge on clinical rotation. Furthermore, most of the resources were available in skill laboratory and clinical rotation training at Haydom institute of health sciences and Dareda school of Nursing. The average time spent by students at Haydom institute of health sciences and Dareda school of Nursing were 1.8 week (with a range of 1 week) and 12.9 weeks (with a range of 16 weeks)during skill laboratory training and clinical rotation training respectively. Also, mean of frequency of students' supervision during skill laboratory practical training and clinical rotation practical training at Haydom institute of health sciences and Dareda school of Nursing was 2 (with range of 2) and, Nursing and midwifery students in both colleges were supervised by their tutors four times.

Students' knowledge on practical training in skill laboratory and clinical rotation.

Majority (87%) of students in this study had inadequate knowledge on skills laboratory training and clinical rotation. Inadequate students' knowledge on clinical practices was also reported in other study [7]. The findings of this study suggest that students at Haydom institute of health sciences and Dareda school of nursing are not adequately given information on or not oriented to practical training on skills laboratory and clinical rotation.

4.1. Availability of resources for practical training

Most of the resources were available for skill laboratory and clinical rotation training at Haydom institute of health sciences and Dareda school of Nursing. These findings reported that, clinical practicum (clinical rotation) sites of health training institutions in Tanzania had inadequate essential supplies (e.g, gloves) and Skills laboratories were ill-equipped. [6] This implies that, studied health training had most of the required practical resources for skill laboratory and clinical rotation training in line with educational standards This may be due to fact that, the HTIs involved in this study started many years ago and are faith based health training institutions, that they might have accumulated resources either through purchasing or received donations compared to new and public HTIs studied [6]

4.2. Time spent by students for practical training

An average time spent in skill laboratory and clinical rotation were about two weeks and about thirteen weeks respectively. This finding is contrary to the findings reported that there was a brief time, in time spent by students in clinical practice sites [6]. This implies that, studied health trainings are located in the same areas with their faith based hospitals which are used as practicum sites by allowing enough time for students to practice.

4.3. Frequency of supervision during practical training

The mean frequency of supervision during skill laboratory practical training and clinical rotation practical training was two times for all programs with three times supervision for clinical medicine and once for medical laboratory program This finding is contrary to finding in other studies that showed poor, loose and inadequate supervision within the clinical site [4] the observed difference could be due to fact that, the studied HTIs are faith based institutions with enough and committed human resource compounded with the vicinity of the practicum site making it easy for supervision exercise.

5. Conclusion

The study revealed inadequate knowledge and supervision are among the factors that affect practical training in Health training institutions. They also suggest need for regulatory bodies to strengthen monitoring and evaluation of HTIs to ensure compliance with the standards.

Based on findings from study, effort should be made to strengthen students' supervision during practical training also student should be oriented on practical training

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare they have no conflicts of interest

Statement of informed consent

Informed consent was obtained from all individual participants involved in the study sample participation was voluntary and participant could withdraw from the study at any time without any implication

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