

Medical Education Article

The Nature of Educational Environment for Medical Students in Tikur Anbessa Medical School

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Learning environment faced by students has repercussion on students' engagement with the course of study, aspirations, and academic achievement. Besides being measurable, the educational environment can also be modified. Therefore, the aim of this study was to explore the nature of Tikur Anbessa educational environment for medical students, in Addis Ababa. Aspects of the educational environment compared between sex, level, and phase of study and students' perceptions. A cross-sectional descriptive survey was conducted to investigate the perceptions of the students on the educational environment of TA medical school, using the DREEM questionnaire. The study population was medical students of TA from Years I–V. 291 students randomly selected and the response rate 88% (n=256). The data were analyzed using the SPSS 20 software. DREEM subscales mean scores were calculated, and ANOVA and independent sampling test applied to determine significances differences. This study obtained ethical clearance from Health Sciences College of Addis Ababa University. The majority respondents were male 143(56%). The majority students' (82%) GPA was above 3.25. Analysis of each DREEM 50 items inventory showed 9 items scored less than 2, in which the students' identified problem areas. 4 negative items scored less than 2 in which the student agreement with the statement. The rest 37 items mean score were between 2 and 3. The overall DREEM score of medical students' perception was positive. This study signified medical students of Tikur Anbessa exhibited a positive perception of educational environment. Female and clinical year students had higher educational environment satisfactions. It also identified many problem areas denoted by mean scores between 2.0 and 3.0 for most items where rectifying measures needed. Areas with scores of less than 2.0 need further investigation to correct the underlying problems.

Keywords: Students' perception, DREEM, Tikur Anbessa, Educational Environment

INTRODUCTION

Backgrounds of the study

Medical education (ME) is important in all societies and countries. ME and professional conduct are very complex and stressful as part of university life. Students require achieving wide-ranging skills and aptitudes to meet demands of patients and communities that they serve. Environment is the sum total of what is around something or someone. It includes living things and natural forces. The environment of living things provides conditions for development and growth. The ME

environment should promote intellectual activities and progression, while at the same time inspiring friendliness, co-operation and support. A number of researchers gave of an account of encouraging and enlightening settings are very important determinants for medical students for their development as more holistic and rational action. Some educational scientists say educational environment is a broad concept where education encompasses both teaching and learning

while environment encompasses everything that surrounds us. Educational environment can be described as anything surrounds an educational institution (Avalos G, Freeman C, and Dunne F 2007).

The learning environment influences students' rating of control and value therefore the name "control-value theory" (Pekrun, R. 2006). High-quality classroom instruction assuredly influences students' valuing of learning. Students' assessment of control and value maximally determine their achievement emotions. Control rating relate to perceived control over achievement, as indicated by competence perceptions and achievement expectations. Value judgment relate to the intuitive importance of achievement. High levels of perceived competence integrated with interest in the learning material promote students' entertainment of learning. Perceived lack of control over exam performance, merged with high importance of performance, can generate test anxiety in students. Achievement emotions influence students' learning and achievement outcomes, including their attention, motivation to learn, use of learning strategies, and task performance (McConnell MM, Eva KW 2012). Entertainment of learning can boost attention, intrinsic motivation to learn, flexible elaboration of learning material, help-seeking behaviors, and self-regulation of learning. Learning and performance outcomes are linked to emotions and their antecedents by reciprocal causation. Evaluations of control and value influence success and failure on exams, but success and failure on exams also influence later assessment of control and value.

Educational environment experienced by students has an effect on satisfaction with the course of study, perceived well-being, desiring and academic achievement. Educational environment can be changed to boost the quality of the environment and the medical education process itself. The reorganizing of medical curricula and increasing diversity of the student population on medical courses have lead to increasing identification of both a desire and a need to evaluate the educational environment of medical schools. The Dundee Ready Education Environment Measure (DREEM) plotted to measure the educational environment explicitly for medical schools and other health professions. The DREEM is a 50-statement not open question questionnaire. These 50 items fall into one of the following five sub-scales: Students' perception of learning (12 items); Students' perceptions of teachers (11 items); Students' academic self-perceptions (8 items); Students' perceptions of atmosphere (12 items) and Students' social self-perceptions (7 items). Each of the 50 statements is scored on a five-point scale, with the following labels: "strongly agree" (4), "Agree" (3), "Unsure" (2) (some publications use the midpoint "Uncertain"), "Disagree" (1) and "strongly disagree" (0). Reverse coding is required for items 4, 8, 9, 17, 25, 35, 39, 48 and 50. Thus, higher scores indicate a more

positive evaluation. The results of the DREEM can be considered at three levels: (i) individual items, (ii) sub-scales and (iii) overall DREEM (Susan Miles, Louise Swift and Sam J. Leinster University of East Anglia, UK, 2012).

The educational environment Tikur Anbessa medical school like any other makes an impact on students' learning experiences and outcomes. Its educational environment influences how, why and what students learn. It has a personality. Studying this unique personality enables faculty, administrators and students to answer the question, "what is medical education here really like?" Positive environment and positive learning outcomes appear to go together.

The participants in this study will be TASH medical students of year I up to year IV. Students participation determined based random sampling and on voluntary basis. The purpose of this study is to assess educational environment influence on medical students' learning using DREEM tool.

Importance of the study

The results of learning environments connected with equivalent patterns of integration in psychological antecedents of achievement. To answer this question, the relations between educational outcomes (learning behavior, study effort, and achievement), emotions (positive study-related affect), appraisals (general self efficacy and student evaluation of the learning environment) and aspects of the environment (social support) explored. This helped to find out the nature educational environment at Tikur Anbessa Medical School. The organization the concept was based on Pekrun (2006) and furnishes the framework for hypothesize association between LE and medical student learning outcomes. The previous study done in TA medical school did not include all level of medical students and there was no follow up study. Hence, it's due to this gap that the researcher had to carry on such kind of research through examining and analyzing TA medical school LE nature and contribution to student engagement in education which ultimately influence education outcome, so that the researcher can avail conclusions and recommendations to ensure a favorable LE for medical students. The research result might be an insight for a wider scope of study.

Objectives

General Objective

The aim of this study was to assess educational and training environment influence on medical students' learning.

Specific Objective

- 1.To explore the nature learning environment provided by Tikur Anbessa Medical institution
- 2.To identify the weakness of the learning environment
- 3.To compare the gender difference in the perceptions of the education in the clinical teaching stage.
- 4.To explore the relation between educational outcomes and student engagement.

Research questions

The research was guided by the following questions;

- 1.What is the nature of the educational environment for medical students in TA (using DREEM tool)?
- 2.What is the class room environment?
- 3.What can be recommended to rectify educational problems in TA medical school?
- 4.What is the student emotion on their performance?

Scope of the study and Limitation

This study focused on students enrolled in Tikur Anbessa Medical School. The sample was determined based on the percentage 50% chances of Positive environment. All year I, II, III and IV medical students had equal chance to be included in the study. DREEM questionnaire was introduced. The study limited in coverage. The study located only in Tikur Anbessa medical school for financial reason.

Organization of the study

It has five chapters. The first chapter comprises introduction (Background, importance of study, objective of the study, main research questions and scope of the study). Chapter two is for review of literature. Chapter three provides research design and methodology. Chapter four outlines data presentation, analysis and interpretation. Chapter five concludes and suggests some recommendation.

REVIEW OF RELATED LITERATURE

Theoretical grounds

Medical education (ME) is considered as highly demanding in almost all societies and countries. ME and professional conduct as aspects of university life are considered as very complex and stressful (Noriza A rahman et al, 2015). Educational environment, both academic and clinical are detriments of medical

student's attitudes, knowledge, skills, progression and behaviors.

Students and medical doctors need to achieve the development of exclusive and wide-ranging skills and aptitudes to meet demands of patients and communities that they serve. The ME environment ideally should foster intellectual activities and progression, while at the same time encouraging friendliness, co-operation and support (Nor iza A rahman et al, 2015).

An optimal educational climate is an important factor for effective learning to occur (Dent and Harden, 2009). Contribution of the educational environment to learning gets consideration. A suitable environment has a significant impact on students' learning, academic performance, and well-being. Learning itself depends on many factors, but important factor is the engagement of the learner. The professional development of medical students depends, to a large extent, on the attributes of the environment whereby they study. Educational environment includes social, cultural, and psychological elements, as well as the physical surroundings (Arzuman, H., Yusoff, M. S. B., and Chit, S. P., 2010). The new student orientation also influences students' perception of their learning environment. There is a positive association between good program orientations and attitude toward learning. A warm, supportive, and challenging educational environment is generally considered an essential prerequisite for optimal learning.

Control-value theory

Using achievement emotions to improve understanding of motivation, learning, and performance in medical education: AMEE Guide No. 64. Emotion can be defined as an acute, intense, and typically brief psycho-physiological change that results from a response to a meaningful situation. Achievement emotions are those emotions tied directly to achievement activities or outcomes. Achievement emotions are ever-present in academic and clinical settings; however, these types of emotions have received little attention from medical education researchers. Achievement emotions influence cognitive resources, motivation, use of cognitive and meta-cognitive learning strategies, and overall learning and performance. In general, positive or pleasant emotions are thought to exert adaptive effects on learning and performance; whereas negative or unpleasant emotions tend to exert non-adaptive effects.

The links between emotion and subsequent learning and performance are complex. However, psychologists generally agree that there are likely four primary routes through which affect (emotions and mood) might influence various performance outcomes (Pekrun, Stephens 2010).

Recent work in higher education settings suggests that students who experience negative affect are less likely to use deeper processing strategies, as these require much more engagement and a positive approach to the academic task (Schunk et al. 2008, p. 226). In contrast, positive emotions are generally thought to result in greater engagement and the use of deeper processing strategies (Pekrun et al. 2002).

Control-value theory is a comprehensive, integrative approach to understanding emotions in education. The theory posits that achievement emotions are determined, in part, by an individual's cognitive appraisal of control and value. Instructors can influence students' achievement emotions—and subsequent motivation, learning, and performance—by creating learning environments that are sensitive to (and, in some cases, explicitly address) students' control and value appraisals (Anthony R. Artino JR, 2012).

Concept definition

LE-Learning environment

Definition of Learning Environment (LE): refers to the diverse physical locations contexts, and cultures in which students learn. Since students may learn in wide variety of setting, such as outside of school locations and outdoors environments, the term is often used as a more accurate or preferred alternative to class room, which has more limited and traditional connotations a room with rows desks a chalkboard, for example. The term also encompasses the culture of a school or class, its presiding ethos and characteristics including how individuals interact with and treat one another as well as the ways in which teachers may organize and educational setting to facilitate learning.

DREEM- The Dundee Ready Educational Environment Measure

Over the last 4 decades educators and researchers have attempted to define and measure the medical education environment (Rohman Al and Ayode F, 1970) and most widely used contemporary development is almost certainly the Dundee Ready Educational Environment measure. DREEM is a 50 item measure of students' perceptions of their learning environment resulting in scores on five scales (London General medical council, 1993).

Review of Empirical Studies

Interestingly, the LE tools with the highest degree of validity evidence for undergraduate medical education Pololi's tool and graduate medical education (ACGME). Although it is inferior in terms of validity evidence, the DREEM was used in more than 40 studies to assess the LE at academic medical centers around

the world. It was developed by a group of international students enrolled in Dundee University Medical School's medical education master's degree program (Jorie M. Colbert-Getz et al 2014).

Educational environment survey has been conducted by researchers in medicine, nursing, and other disciplines in various countries using the Dundee Ready Educational Environment Measure (DREEM) instrument (Muhamad Saiful Bahri Yusoff, 2012). DREEM has been validated and exhibits consistently high reliability in variety of settings. Over the past 15 years, medical and allied health educators across places and educational settings have widely used the Dundee Ready Educational Environment Measure (DREEM) to appraise their institutions' educational climate (Arzuman, Yusoff, and Chit, 2010). DREEM is internationally accepted as a useful tool to provide feedback on strengths and weaknesses of the educational climate at particular educational institutions. One of important implications of DREEM is that it provides a standardized way for international comparisons between medical schools as well as allowing them to benchmark their educational climate (Hammond, O'Rourke, Kelly, Bennett, and O'Flynn, 2012).

Medical Education in Ethiopia

The education system in Ethiopia is both secular and spiritual. The renowned Ethiopian novelist, Addis Alemayehu, the traditional education had served as "a powerful means to unite the spiritual existence with the secular mode of life" (Balsvik RR, 2005). The attempt of instituting modern education in Ethiopia traced back to the 19th century (Bahru, 2001). Emperor Haile Sellassie is also recognized as the dedicated promoter of modern education in Ethiopia (Wuhibegezer Ferede, 2013). Secular higher education was started in 1950s with the founding of the University College of Addis Ababa. Addis Ababa University was founded in 1950 at the request of Haile Sellassie by a *Candian Jesuit, Dr Lucien Matte*. This university was originally called University College of Addis Ababa at its founding and later renamed as Hailesellassie I in 1962. It received its current name in 1975. Today, the university has six of its seven campuses within Addis Ababa and the seventh in DebreZeit. Tikur Anbessa campus is one of them.

New students joining the School of medicine of Tikur Anbessa at AAU initially attend general courses for six months in the pre-medical training program before joining pre-clinical education during the following Year I and Year II. All medical students completing pre-clinical and clinical (Year III and Year IV) trainings are required to do a one year internship program. In general, the duration for undergraduate medical training has a curriculum lasting for 6 years (Berhan Y, 2008). Medical curriculum in this school was traditional and discipline

based until 2012. As of 2013 the integrated curriculum is introduced. The intake students on average are 300 per year.

Conceptual frame work

Control value theory (pekrun 2006) a frame work focusing on using emotional engagement to improve motivation. It relates students’ educational outcomes and students’ engagement in learning. Instructors can influence students’ achievement emotions—and subsequent motivation, learning, and performance—by creating learning environments that are sensitive to (and, in some cases, explicitly address) students’ control and value appraisals (Anthony R. Artino JR, 2012).

A frame work for understanding of students’ learning environment on improving of students’ engagement in learning and educational outcome depicted in Figure 1 (pekrun 2006).

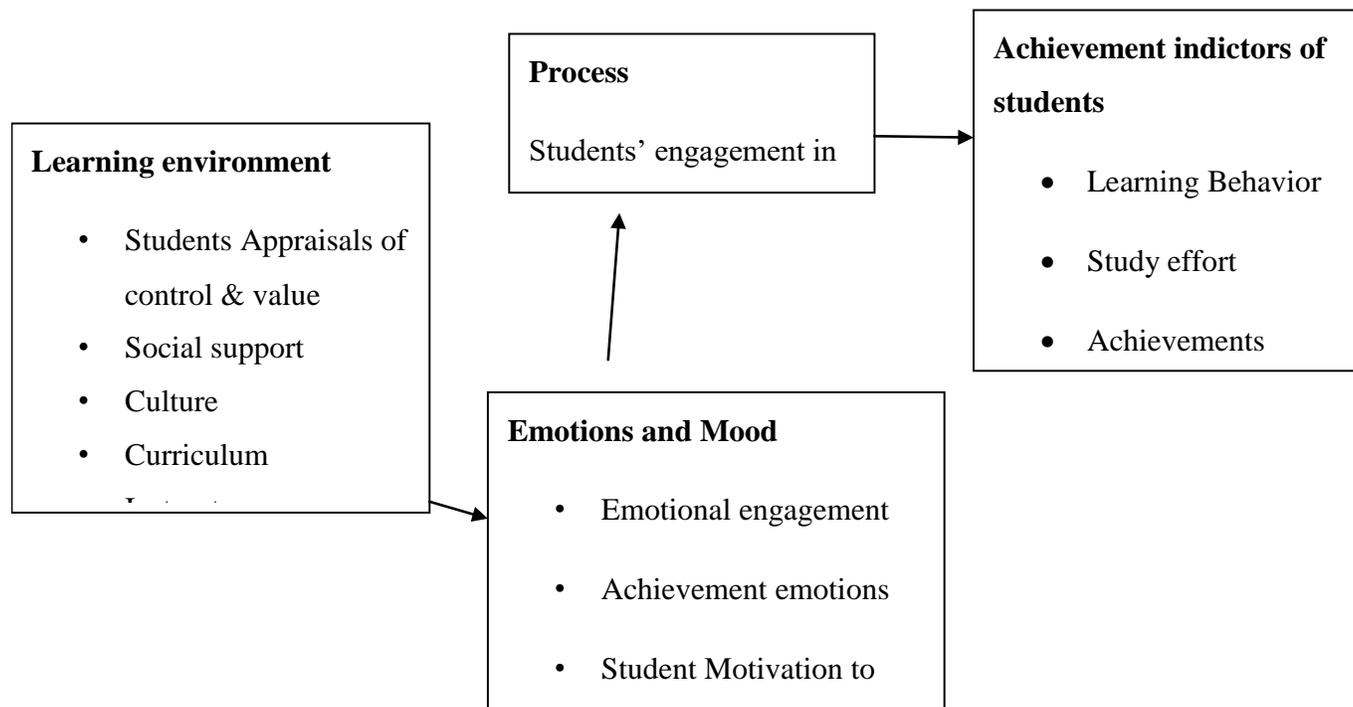


Figure 1: Understanding of students’ learning environment on improving of students’ engagement in learning and educational outcome.

RESEARCH METHODOLOGY

Research design

This Cross sectional study conducted at TA medical school, Addis Ababa University, 2016 using international validated English Version of DREEM questionnaire to investigate the perception of students on educational environment.

Sample selection

The study population was medical students of AAU from Years I–V enrolled in Degree of Doctor of Medicine. Student participation in the study was based

on random sampling. Studies with DREEM have shown a variable response rate (36% to 82%) (Veerapen K, Macleers, 2010). If the student response rate is 50%, the sample size will be as follow.

The number of participants was calculated following a single population proportion formula as indicated below.

$$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2} ; \quad n = \frac{1.96^2 * 0.5}{0.05^2} = 384$$

Where

- n is the required sample size
- $(Z_{\alpha/2})^2$ critical value at 95% certainty (1.96)
- Proportion (P) = anticipated proportion of students who have negative perception and 50 % is taken due to absence of reliable previous study.
- d = margin of error (0.05) –Confidence interval

• Level of significance = 0.05
 Finite Population correction
 $\text{True sample} = (\text{sample size} \times \text{Population}) / (\text{Sample size} + \text{Population} - 1)$
 $= (384.16 \times 1200) / (384.16 + 1200 - 1)$
 True Sample = 291

Students were selected randomly from student roster (registration list). Questionnaires were distributed among randomly selected medical students through dean office secretary.

The variables

Independent variables:

1. Age (21 or young, 22-25, 26 or above)
2. Year of study (I, II, III, IV)
3. Gender (F, M)
4. Accommodation (With parent, alone, in campus),
5. courses/ attachment

Dependent variable:

1. Student performance score
2. Outcome Perception of learning environment

Data collection instruments

Primary data collected from each participant using pretested DREEM questionnaire. All medical students of TA from Years I–V of the MD program were the source of study population. 291 students randomly selected and participated. The DREEM questionnaires were distributed among the study subjects, who were given 30 minutes to complete them. The data were collected in October 2016. Explanation about the purpose of the study, anonymity and confidentiality were given. Consent was obtained from every student. Completed questionnaires were then collected.

Data analysis Techniques

The data were entered and analyzed using SPSS version 20. Descriptive statistics; the numerical variables were described using means and standard deviations (SD), and categorical variables were presented in frequencies and percentages. The Independent *t*-test was applied for comparison between two means variables, which included sex, student perceptions and phases of study. Analysis of variance (ANOVA) was used for comparison of more than two means, which included cumulative grade point average, Student perceptions and year of study. For this study, $P < 0.05$ was considered statistically significant.

The DREEM instrument was first developed at the University of Dundee, and it now provides and achieves validation as a global, generic “diagnostic inventory for measuring the quality of educational environment”.

DREEM is a 50-item inventory, consisting of five subscales. 1) students’ perceptions of learning (SPL) – 12 items, maximum score of 48; 2) students’ perceptions of teachers (SPT) – eleven items, maximum score of 44; 3) students’ academic self-perceptions (SASP) – eight items, maximum score of 32; 4) students’ perceptions of atmosphere (SPA) – 12 items, maximum score of 48; and 5) students’ social self-perceptions (SSSP) – seven items, maximum score of 28. The total score for all subscales is 200 (Table 1). However, negative items were scored in reverse for analysis so that the higher the score, the more negative the feedback, or the more incorrect perception.

The guidelines for interpreting the overall DREEM score are 0-50, very poor; 51-100 many problems; 100-150 more positive than negative; and 151-200 excellent. Items with a mean score of 3.5 or more are true positive points. Items with a mean score of 2 or less should be examined more closely, as they indicate problem areas. Items with a mean between 2 and 3 are aspects of educational environment.

Ethical consideration

This research received ethical clearance from Addis Ababa University, health sciences college ethical review boards. The aim of the study explained to students and then the questionnaire were distributed randomly to students after getting consent.

Dissemination of the study result

The researchers will send the manuscript for journal review and publication. The result will be communicated to faculty of CHS staffs and students.

Table 1: Guide of DREEM score categories and interpretation according to domain

Domain	Score	Interpretation
SPL	0-12	Very poor
	13-24	Teaching is viewed negatively
	25-36	A more positive approach
	37-48	Teaching highly thought of
SPT	0-11	Awful
	12-22	In need of some retraining
	23-33	Moving in the right direction
	34-44	Model teachers
SASP	0-8	Feeling of total failure
	9-16	Many negative aspects
	17-24	Feeling more on positive sides
	25-32	Confident
SPA	0-12	A terrible environment
	13-24	There are many issues that need changing
	25-36	A more positive atmosphere
	37-48	A good feeling over all
SSSP	0-7	Miserable
	8-14	Not a nice place
	15-21	Not too bad
	22-28	Very good socially

Abbreviations: SPL, students' perceptions of learning; SPT, students' perceptions of teaching; SASP, students' academic self-perceptions; SPA, students' perceptions of atmosphere; SSSP, students' social self-perceptions; DREEM, the Dundee Ready Education Environment Measure

DATA ITERPERTATION AND ANALYSIS

Introduction

This chapter deals with the results of study which include analysis of competition, descriptive statistics of variables, independent sampling significance test, Analysis of variance (ANOVA), and discussion of results. The data collected through questionnaire and tools are discussed and analyzed carefully in order to show and assess the nature educational environment for medical students in Tikur Anbessa medical school. The statistical package for social sciences (SPSS) version 20 is used for processing and analyzing the data obtained from questionnaires. The questionnaires consist of 57 identical questions for medical students. As the researcher indicated in the methodology in the preceding chapters, primarily the questionnaires were prepared for 291 respondents who have been involved in learning.

This amounts to a response rate of 256(88%). The data presentation is done in such a way that the response questions and data are grouped according to the respective research questions. In view of that, the responses are presented as follows.

General Information about the Respondents

In this part, the study provides the details of age, sex, Phase of study, level of study, home address, performance score and response to 50 DREEM items.

Demographic profiles of respondents

Demographic data of the current study are described in Table 2. Out of 291 students, 256 responded to the questionnaire, resulting in a response rate of 88%. Specifically, the response rate according to year consisted of Year I 68 students of 73, 27%; Year II 65 students of 73, 25%; Year III 61 students of 73, 24%; and Year IV 62 students of 72, 24% responses (Table 3). There were male 143, 56% and female 113, 44% study respondents. Regarding age of respondents 146(57%) 21years or young, 107(41.8%) between the age of 22 and 25 years and rest 26 years old. The majority of respondents were less than 25 years old.

Table 2: Demographic profiles of respondents (n=256)

Variable		N	%
Sex	Female	113	44.1
	Male	143	55.9
Age	21 or young	146	57
	22-25	107	41.8
	26 or above	3	1.2
Home Address	Addis Ababa	125	48.8
	Out of Addis	131	51.8
Accommodation	With parent	111	43.4
	Alone	9	3.5
	In campus	136	53.1

Source: Survey data, 2016

Table 3: Educational characteristics of respondents (n=256)

Variable		N	%
Phase of study	Preclinical	133	52
	Clinical	123	48
Year of study	Participant	Number of respondents	%
Year I	73	68	26.6
Year II	73	65	25.4
Year III	73	61	23.8
Year IV	72	62	24.2
Cumulative grade point average	2	5	2
	2-3.25	41	16
	3.25-3.75	118	46.1
	3.75-4	92	35.9

Source: Survey data, 2016

Educational characteristics of respondents

Table 3 shows Educational characteristics of students. There were 133(52%) preclinical and 123(48%) clinical students. The majority students' GPA was above 3.25.

Students' Perceptions of learning

In the SPOL subscale, the 12 items scored between 2 and 3. These indicated the aspects of educational environment that could be improved (Table 4).

Students' perceptions of teachers

Item 8, which asked whether "the teachers ridicule the students", item 39, which asked whether "the teachers get angry in teaching sessions", and item 50, which asked whether "The students irritate the teachers", three of them scored 1.9(SD 1.13), 1.8(SD 1.04) and 1.7(SD 1.13), respectively, indicating student agreement

with negative items. The other items scored between 2 and 3 except item two scored 3.2 indicating the aspects of this domain that could be improved (table 5).

Students' academic self perceptions

Item 5, which asked whether "learning strategies which worked for me before continue to work for me now" and item 27 which asked whether "I am able to memorize all I need", scored 1.9(SD 1.08) and 1.7(SD 1.07), respectively. This could mean that these items indicate problem areas and should be investigated closely. The other items scored between 2 and 3 indicating the aspects of this domain that could be improved (table 6).

Students' perceptions of Atmosphere

The SPOA subscale included 12 items. The lowest score were for the statement "The atmosphere is relaxed during practical teaching", "The atmosphere is relaxed during lectures", "the atmosphere is relaxed during

Table 4: students' perceptions of learning among medical students (n=256)

Items	Mean	SD
1. I am encouraged to participate during teaching sessions	2.6	1.03
7. Teaching often stimulating	2.1	0.92
13. The teaching is student centered	2	1.02
16. Teaching helps to develop my competency	2.4	0.98
20. Teaching is well focused	2.5	0.89
22. The teaching helps to develop my confidence	2.2	1.09
24. The teaching time is put to good use	2.36	1
25. The teaching over emphasizes factual learning	2.27	0.89
38. I am clear about the learning objectives of the course	2.7	0.86
44. The teaching encourages me to be an active learner	2.1	1.09
47. Long Term learning is emphasized over short term learning	2.1	1.01
48. The teaching is too teacher centered	2.1	1.07
Total mean score and SD	27.43	6.33
Maximum score	48	

Source: Survey data, 2016

Table 5: Students' perception of teachers, among medical students (n=256)

Items	Mean	SD
2. The teachers are knowledgeable	3.2	0.63
6. The teachers adopt a patient centered approach	2.1	0.91
8. The teachers ridicule the students	1.9	1.13
9. The teachers are authoritarian	2.2	1.16
18. The teachers have good communication skills with patients	2.5	0.81
29. The teachers are good at providing feedback to students	2	1.06
32. The teachers provide constructive criticism	2.2	1.03
37. The teachers give clear examples	2.6	0.84
39. The teachers get angry in teaching sessions	1.8	1.04
40. The teachers are well prepared for their teaching sessions	2.7	0.87
50. The students irritate the teachers	1.7	1.13
Total mean score and SD	24.8	5.31
Maximum score	44	

Source: Survey data, 2016

Table 6: students' academic self perception, among medical students (n=256)

Items	Mean	SD
5. learning strategies which worked for me before continue to work for me now	1.9	1.03
10. I am confident about my passing this year	2.9	0.94
21. I feel I am being well prepared for my profession	2.2	1.04
26. Last year's work has been a good preparation for this year's work	2.4	1.03
27. I am able to memorize all I need	1.7	1.07
31. I have learnt a lot about empathy in my profession	2.4	0.95
41. My problem solving skills are being well developed	2.3	0.98
45. Much of what I have to learn seems relevant to a career in the healthcare	2.4	1.05
Total mean score and SD	18.37	4.89
Maximum score	32	

Source: Survey data, 2016

seminars/tutorials”, “I find the experience disappointing”, “the enjoyment outweighs the stress of the course” and “the atmosphere motivates me as a learner”, scored 1.9(SD 0.92), 1.9(SD 1.08), 1.9(SD 1.15), 1.9(SD 1.09), 1.6(SD 1.17) and 1.9(SD 1.11) respectively. This could mean the teaching atmosphere had many problem areas which needs investigation. The other items scored between 2 and 3 indicating aspects needs improvement (Table 7).

Table 7: Students' perceptions of atmosphere among medical students (n=256)

Items	Mean	SD
10. The atmosphere is relaxed during practical teaching	1.9	0.92
11. The course well time tabled	2.3	1.14
17. Cheating is a problem on this course	2.1	1.09
23. The atmosphere is relaxed during lectures	1.9	1.08
30. There are opportunities for me to develop interpersonal skills	2.1	1.08
33. I feel comfortable in teaching sessions socially	2.3	1.07
34. The atmosphere is relaxed during seminars/ tutorials	1.9	1.15
35. I find the experience disappointing	1.9	1.09
36. I am able to concentrate well	2.1	1.04
41. The enjoyment outweighs the stress of the course	1.6	1.17
42. The atmosphere motivates me as a learner	1.9	1.11
49. I feel able to ask the question I want	2.1	1.15
Total mean score and SD	24.1	6.41
Maximum score	48	

Source: Survey data, 2016

Students' social self perceptions (SSSP)

The SSSP subscale included seven items. Two items indicating a problem area were items “There is a good support system for students who get stressed” and “I am rarely bored” which had mean score of 1.2 and 1.9 respectively. The other items scored between 2 and 3, indicating a need for further enhancement (Table 8).

Table 8: Students' social self perceptions, among medical students (n=256)

Items	Mean	SD
3. There is a good support system for students who get stressed	1.2	1.01
4. I am too tired to enjoy the course	2.2	1.14
14. I am rarely bored on this course	1.9	1.09
15. I have good friends on this course	2.9	0.94
19. My social life is good	2.7	0.97
26. I seldom feel lonely	2.1	1.12
45. My accommodation is pleasant	2.23	1.06
Total mean score and SD	15.34	3.16
Maximum score	28	

Source: Survey data, 2016

DREEM overall scores among medical students

Table 9 shows the DREEM overall and subscale mean scores among the medical students. The overall score was 110/200(SD 21.25). The overall score indicates that the medical students' perceptions of

educational environment of the school were more positive than negative. The total mean score for the SPOA was 24.1(SD 6.41) indicating there many issues that need changing. Based on the study findings

1. Teachers are overloading the students' with factual information.

Table 9: DREEM domains for medical students (n=256)

Domain	Number of Questions	Max. DREEM score	Mean	SD
SPL	12	48	27.4	6.33
SPT	11	44	24.8	5.31
SASP	8	32	18.4	4.89
SPA	12	48	24.1	6.41
SSSP	7	28	15.34	3.16
Total DREEM score and SD	50	200	110.04	21.26

Source: Survey data, 2016

2. Majority students responded teachers are authoritarian.
3. Many students responded cheating a problem during the course.
4. Students tired to enjoy the course
5. Social support system for stressed student is very low

DREEM scores by sex and phases of Study

Table 10 shows independent sample test, P-value indicates there were significant differences in the perceptions of female and male medical students in 5 items at the 5% level of significance with higher female educational environment satisfactions.

Table 10: statistical significance difference between female and male medical students' perceptions (n=256)

Items	Females Perceptions mean	Male mean perception	P-Value
15. I have good friends on this course	3.11	2.8	0.01
19. My social life is good	2.84	2.59	0.04
21. The teaching helps to develop my confidence	2.0	2.3	0.028
23. The atmosphere is relaxed during lectures	2.14	1.78	0.008
42. The enjoyment outweighs the stress of the course	1.38	1.73	0.016

Source: Survey data, 2016

DREEM scores by phase study and medical students' perceptions

Table 11 shows independent sample test, P-values indicates there were significance differences between phases of study and medical students' perceptions in 11 items at 5% level of significance, with higher clinical year students' satisfactions with educational environment.

Students' year average performance score by level of respondents.

P- Value (0.015) indicates there was mean performance score difference among level of respondents at the 5% level of significance (Table 12).

Table 11: Statistical significance difference between phases of study and medical students' perceptions (n=256)

Items	Preclinical	Clinical	P-value
	Mean (SD)	Mean (SD)	
1. I am encouraged to participate during teaching sessions	2.36(1.04)	2.79(0.95)	0.01
2. The teachers are knowledgeable	3.06(0.61)	3.33(0.62)	0.000
3. There is a good support system for students who get stressed	1.10(0.86)	1.35(1.13)	0.046
6. The teachers adopt a patient centered approach to consulting	1.78(0.79)	2.44(0.89)	0.000
11. The atmosphere is relaxed during practical teaching	2.12(0.67)	1.60(1.06)	0.000
17. The teachers have good communication skills With patients	2.32(0.68)	2.70(0.89)	0.000
23. The teaching time is put to good use	2.56(0.84)	2.14(1.11)	0.001
31. The teachers provide constructive criticism	1.98(0.98)	2.34(1.04)	0.005
39. The teachers get angry in teaching sessions	1.51(0.88)	2.17(1.04)	0.000
40. The teachers are well prepared for their teaching sessions	2.59(0.92)	2.86(0.77)	0.011
45. Much of what I have to learn seems relevant to career in healthcare	2.18(1.08)	2.75(0.92)	0.000

Source: Survey data, 2016

Multiple Comparisons ANOVA

Table 12 : Students' year average performance score by level of respondents
Tamhane

(I) Level of respondent	of (J) Level of respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Year I	Year II	.22986	.13288	.417	-.1252	.5850
	Year III	.13983	.13507	.885	-.2214	.5011
	Year IV	.41746*	.12085	.004	.0945	.7404
Year II	Year I	-.22986	.13288	.417	-.5850	.1252
	Year III	-.09004	.14249	.989	-.4710	.2910
	Year IV	.18759	.12910	.620	-.1577	.5329
Year III	Year I	-.13983	.13507	.885	-.5011	.2214
	Year II	.09004	.14249	.989	-.2910	.4710
	Year IV	.27763	.13135	.201	-.0740	.6292
Year IV	Year I	-.41746*	.12085	.004	-.7404	-.0945
	Year II	-.18759	.12910	.620	-.5329	.1577
	Year III	-.27763	.13135	.201	-.6292	.0740

*. The mean difference is significant at the 0.05 level. Source: Survey data, 2016

DISCUSSION

A medical school is an environment in which students anticipate experiencing real-life learning activities. Any curriculum change needs to involve changes in educational environment, management, and the organization to get in the predicted outcomes. Improvement in the educational environment and curriculum is only possible by identifying problems areas. Monitoring the perception of students of their educational environment is valuable. DREEM is an instrument used to assess the educational climate of medical schools as perceived by the students.

This study provided an overview of medical students' perceptions about the educational environment at Addis Ababa University, Tikur Anbessa medical school. The findings identified problem areas in Tikur Anbessa's educational environment. There were 13 items that score less than 2. Out of 13, 5 of them were negative items. The rest 37 items mean score were between 2 and 3. The majority students felt the teachers overloading the course with detail information, teachers are authoritarian, and they are tired to enjoy the course, very low social support during stress and cheating a problem during the course.

The overall DREEM mean score was 110/200,

indicating that the TA students' perceptions of educational environment more positive than negative. Overall scores from this study were similar with results from institutions in Malaysia (134/200), India (107/200), Nigeria (118/200) London (139/200) and Nepal (130/200).

As is observed in this study, the scores for all 4 DREEM subscales reflected positive perceptions by the students except Students' perceptions of Atmosphere (SPA) which had many problem areas. Even if the four domains were positive, ratings also indicated that there is ample room for improvement in the educational environment at TASH. These results are comparable with many other reported findings (2, 3, 8, 9, 10 and 12).

CONCLUSION AND RECOMMENDATION

This study signified medical students of Tikur Anbessa exhibited a positive perception of educational environment. Female and clinical year students had higher educational environment satisfactions. Most students affirmed a positive perception in the four domains tested in the DREEM questionnaire except in SPA in which six items mean score were less than 2. It also identified many problem areas denoted by mean scores between 2.0 and 3.0 for most items where rectifying measures needed. Areas with scores of less than 2.0 need further investigation to correct the underlying problems.

A regular appraise of the students' perceptions is necessary to get ceaseless information feedback from students, so that the learning environment can be enhanced to hold up productive learning and teaching. This appraisal will provide baseline data and guidelines in areas that students feel good about, which should be reinforced, and in the weaker areas, which need improvement. Hence, follow-up research is admonished.

Finally, we need to ensure a favorable educational environment that will help our medical students achieve better academic performance and the personal and professional growth that will make them indispensable assets to our country.

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ACRONYMS

AAU- Addis Ababa University
ACGME-Graduate medical education
ANOVA-Analysis of variance
CHS-College of health sciences
DREEM- The Dundee Ready Education Environment Measure
LE-Learning environment
ME-Medical education
IRB-Institutional review board
SPL-Students' perceptions of learning
SPT-Students' perceptions of teaching
SASP-Students' academic self-perceptions
SPA-Students' perceptions of atmosphere
SSSP-Students' social self-perceptions
TA-Tikur Anbessa

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