

Survey of Undergraduate Student's Perception of Medical Education Environment among Students Attaching at the Emergency Department of St Paul Millennium Medical College/AaBET Hospital

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Abstract

Introduction: The specialty of emergency medicine and critical care is in its young state in the long history of the Ethiopian health sciences education system. Students' perception will be influenced by their own academic, social, and learning abilities, in a controlled environment. Consequently, their feedback must be monitored by knowing this dynamic aspect of students' mind, an evaluation instrument should be considered to meet objectives routinely. The purpose of this survey is to investigate student perceptions of medical education environment among, undergraduate students i.e. interns and clinical year 2 students attaching at Addis Ababa Burn Emergency and Trauma (AaBET) hospital department of Emergency Medicine and Critical care in Ethiopia using DREEM tool.

Methods: The DREEM questionnaire was administered to undergraduate students attaching at emergency medicine and critical care department. A total of 44 clinical year 2 students and 50 interns enrolled for 4-month attachment completed the survey in 2018. The data was collected and entered into a SPSS and SPSS was used for analysis of the data. Calculation of mean and standard deviation was done.

Results: The overall mean score of DREEM questionnaire was 130.73 out of 200 (i.e. with mean of 128.10 out of 200 for interns and 133.36 for c2 students) at the emergency department. The undergraduate students' perception of learning, students' perception of teachers, students' academic self-perception, students' perception of atmosphere and students' social self-perception were 31.73/48, 29.09/44, 21.89/32, 31.53/48, 16.48/28 respectively. Among the 50 items, 2 items were found to be problematic areas with scores of < 2 in both students.

Conclusions: Even though department of Emergency medicine and Critical care is new and emerging field the study showed the department is moving in the right direction. This study showed that the undergraduate medical students attaching department of emergency medicine in AaBET/SPHMMC had a more positive perception of educational environment with few areas for improvement

Keywords: *Emergency Medicine; Undergraduate Education; DREEM Tool; Resource Limited Setting*

Introduction

The specialty of Emergency Medicine and Critical care is in its young state in the long history of the Ethiopian health sciences education system. Limited number of researches have been done and published in Ethiopia regarding the quality of medical education in emergency setting. In the current era of student-oriented educational curriculum of Ethiopia, it is crucial to regularly assess the current educational system and update it to the global standards.

Medical educators were trying assess the quality of medical education in the world since 1961 [1]. Because of the dynamic changing trends of medical education, it has become crucial to measure, identify, quantify and compare the standard of educational institutes from a student's point of view.

When medical students encounter a new educational environment [2,3], they develop a unique perspective on the course atmosphere and its instructors. Even though, their perception will be influenced by their own academic, social, and learning abilities, in a controlled environment course organizers may establish or modify the curriculum and the environment to reach the identified goal and certain standards [3,4].

A conducive teaching environment, for instance, comfortable learning rooms, receptive clinical environment and motivated, skilled and approachable teachers, is believed to increase learner motivation, which in turn leads to better engagement in learning and improved performance [5,6].

Students' expectations and aspirations are often influenced by their previous experiences and the media, and are constantly changing. Consequently, their feedback must be monitored and knowing this dynamic aspect of students' mind through an evaluation instrument should be considered to meet objectives.

Roff, *et al.* developed a methodology called Dundee Ready Education Environment Measure to standardize medical education measurement. This tool have 5 subscales on perception of learning, teachers, academic, atmosphere and social self-perception which composed of 50 items with a total score of 200. It has been studied in different institutions for its reliability and consistency [1,7-10].

With the application of DREEM to AaBET at department of Emergency Medicine and Critical Care (EMCC), the main aim would be to evaluate whether the current educational system provides a student satisfactory learning environment and to analyze the variables responsible for the discrepancies if present. This would also lay down a path for future researchers and create documented evidence in the Ethiopian context.

Objectives of the Study

To investigate student's perceptions of medical education environment among undergraduate students i.e. Clinical year-2 (C2) and interns attaching at Addis Ababa Burn Emergency and Trauma (AaBET) hospital department of EMCC over 4 month period, Addis Ababa Ethiopia using DREEM tool.

Methods

A survey was conducted among undergraduate students attaching at emergency medicine and critical care department in AaBET hospital. AaBET Hospital was inaugurated in 2015 as being a branch of St Paul millennium medical college. It is one of the initial health sectors who have trauma and burn unit as a whole package. AaBET hospital is public hospital which is operated under St. Paul millennium medical college. Emergency Medicine and Critical care department became recognized as full-fledged academic department since 2015. Emergency and critical care department is established with the purpose of providing patient centered quality care, running innovative training programs and performing problem solving research in the area of emergency, trauma and related field to transform the care and training provided in the areas to higher level. Currently there are 31 EMCC residents and 9 consultants working 24/7 in emergency room. Interns and clinical year 2 students attach EMCC department for 6 weeks.

A total of 44 clinical year two students and 50 interns' candidates with respondent rate of 90.5% completed the survey. The survey was conducted anonymously with every batch being given the questionnaire at the end of a regular class after a brief introduction of the study. Consent from all the students was taken before giving them the questionnaire.

Study instrument

DREEM is a questionnaire with 50 items that assess five domains [3]:

1. Students' perceptions of learning, 12 items, and maximum score 48
2. Students' perceptions of teachers, 11 items, maximum score 44
3. Students' academic self-perception, 8 items, maximum score 32
4. Students' perceptions of atmosphere, 12 items, maximum score 48
5. Students' social self-perception, 7 items, maximum score 28.

Each item is rated on a five-point Likert scale from 0 to 4 where 0 = strongly disagree, 1 = disagree, 2 = uncertain, 3 = agree and 4 = strongly agree. However, 9 of the 50 items (numbers 4, 8, 9, 17, 25, 35, 39, 48 and 50) are negative statements and should be scored 0 for SA, 1 for A, 2 for U, 3 for D and 4 for SD. Items with a mean score of ≥ 3 are true positive points; those with a mean of ≤ 2 are problem areas; scores in between these two (between 2 and 3) limits indicate aspects of the environment that could be enhanced.

The maximal global score for the questionnaire is 200, and the global score is interpreted as follows: 0-50 = very poor, 51 - 100 = many problems; 101 - 150 = more positive than negative and 151 - 200 = excellent [1]. A score of 0 is the minimum and would be a very worrying result for any medical educator [7,8]. An approximate guide for subscales is shown in annex.

The DREEM also used to pinpoint more specific strengths and weaknesses within the educational climate. To do this one needs to look at the responses to individual items. Items that have a mean score of 3 or over are real positive points. Any item with a mean 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 the climate that could be enhanced.

The data was collected and entered into a SPSS. Furthermore, SPSS was used for analysis of the data. Calculation of mean and standard deviation was done.

Results

Out of 106 undergraduate students 44 clinical year 2 students and 50 interns (90.56%) participate in the study and completed the questionnaire over a period of 4 month. The overall mean score of the DREEM questionnaire evaluating the emergency department was 130.73. While the specific mean score was 133.72 out of 200 for C-2 students and 128.09 out of 200 for interns. Overall mean for undergraduate students' perception of learning, students' perception of teachers, students' academic self-perception, students' perception of atmosphere and students' social self-perception were 31.73/48, 29.09/44, 21.89/32, 31.53/48, 16.49/28 respectively (Table 1). Furthermore, mean for clinical two students' perception of learning, students' perception of teachers, students' academic self-perception, students' perception of atmosphere and students' social self-perception were 133.36/48, 29.22/44, 22.09/32, 33.18/48, 16.61/28 respectively. Mean for intern's perception of learning, students' perception of teachers, students' academic self-perception, students' perception of atmosphere and students' social self-perception were 31.21/48, 28.95/44, 21.69/32, 29.88/48, 16.35/28 respectively.

Domain	Number of items	Maximum score	C2		Interns		Over-all	Interpretation
			Mean	SD	Mean	SD	Mean	
Perception of Learning score	12	48	32.25	6.98	31.21	5.68	31.73	A more positive perception
Students' perception of teachers	11	44	29.23	6.47	28.95	4.85	29.08	Moving in the right direction
Students' academic self-perception	8	32	22.09	4.62	21.69	4.12	21.89	A more positive perception
Students' perception of atmosphere	12	48	33.18	7.11	29.88	6.12	31.53	A more positive attitude
Students' social self-perception	7	28	16.61	3.36	16.36	3.99	16.48	Not too bad
Overall	50	200	133.30	23.76	128.01	21.70	130.69	A more positive perception

Table 1: Undergraduate students DREEM score; C2, Interns and overall mean.

Among the 50 items, for clinical year 2 students the real positive points were: "I am encouraged to participate in teaching sessions", "The course organisers are knowledgeable", "I am confident about passing this year", and "Much of what I have to learn seems relevant to a career in healthcare". Problematic areas which require urgent improvement for improving clinical year 2 students were: "The teaching is too teacher centred", "I am too tired to enjoy this course". Multiple other areas with scores between 2 and 3 identified that require enhancement of the existing academic activities (Table 2).

Question no.	Perception question	Mean	SD	Interpretation
Perception of learning				
Q1	I am encouraged to participate in teaching sessions	3.31	0.64	Real positive point
Q7	the teaching is often stimulating	2.67	1.02	Need enhancement
Q21	The teaching helps to develop my confidence	2.85	1.05	Need enhancement
Q24	The teaching time is put to good use	2.44	1.31	Need enhancement
Q38	I am clear about the learning objectives of the course	2.32	0.64	Need enhancement
Q47	Long term learning is emphasized over short term learning	2.48	1.05	Need enhancement
Q48	The teaching is too teacher centred	1.66	1.12	Problem areas
Perception of Course organizers				
Q2	The course organisers are knowledgeable	3.44	0.78	Real positive point
Q6	The course organisers espouse a patient centred approach to consulting	2.33	1.21	Need enhancement
Q8	The course organisers ridicule their registrars	2.92	1.15	Need enhancement
Q18	The course organizers appear to have effective communication skills with patients	2.88	0.83	Need enhancement
Q49	The registrars irritate the course organisers	2.05	1.01	Need enhancement
Academic Self-Perception				
Q5	Learning strategies which worked for me before continue to work for me now	2.62	0.95	Need enhancement
Q10	I am confident about passing this year	3.06	0.89	Real positive point
Q22	I feel I am being well prepared for my profession	2.73	1.15	Need enhancement
Q45	Much of what I have to learn seems relevant to a career in healthcare	3.02	1.15	Real positive point
Perceptions of Atmosphere				
Q11	The atmosphere is relaxed during consultation teaching	2.60	1.07	Need enhancement
Q12	The course is well timetabled	2.48	1.24	Need enhancement
Q17	Cheating is a problem in this course	2.56	1.27	Need enhancement
Q23	The atmosphere is relaxed during lectures	2.79	1.14	Need enhancement
Q35	I find the experience disappointing	2.4545	1.34	Need enhancement
Q50	I feel able to ask the questions I want	2.93	0.97	Need enhancement
Students Social Self Perceptions				
Q3	There is a good support system for registrars who get stressed	2.02	1.00	Need enhancement
Q4	I am too tired to enjoy this course	1.3077	1.07	Problem point
Q14	I am rarely bored on this course	2.44	1.14	Need enhancement
Q15	I have good friends in this course	2.94	1.05	Need enhancement
Q19	My social life is good	2.79	1.13	Need enhancement
Q28	I seldom feel lonely	2.30	1.15	Need enhancement
Q46	My accommodation is pleasant	2.55	1.08	Need enhancement

Table 2: Clinical year 2 students' perception.

For interns the real positive points were: "I am encouraged to participate in teaching sessions", "The teaching helps to develop my confidence", "The course organisers are knowledgeable", "Much of what I have to learn seems relevant to a career in healthcare]", and "I have good friends in this course" (Table). Items that require urgent intervention with score of < 2 were: "I find the experience disappointing" and "there is no good support system for students who get stressed" (Table 3).

Question no.	Perception question	Mean	SD	Interpretation
Perception of learning				
Q1	I am encouraged to participate in teaching sessions	3.31	0.64	Real positive point
Q7	the teaching is often stimulating	2.67	1.02	Need enhancement
Q21	The teaching helps to develop my confidence	2.85	1.05	Need enhancement
Q24	The teaching time is put to good use	2.44	1.31	Need enhancement
Q38	I am clear about the learning objectives of the course	2.32	0.64	Need enhancement
Q47	Long term learning is emphasized over short term learning	2.48	1.05	Need enhancement
Q48	The teaching is too teacher centred	1.66	1.12	Problem areas
Perception of Course organizers				
Q2	The course organisers are knowledgeable	3.44	0.78	Real positive point
Q6	The course organisers espouse a patient centred approach to consulting	2.33	1.21	Need enhancement
Q8	The course organisers ridicule their registrars	2.92	1.15	Need enhancement
Q18	The course organizers appear to have effective communication skills with patients	2.88	0.83	Need enhancement
Q49	The registrars irritate the course organisers	2.05	1.01	Need enhancement
Academic Self-Perception				
Q5	Learning strategies which worked for me before continue to work for me now	2.62	0.95	Need enhancement
Q10	I am confident about passing this year	3.06	0.89	Real positive point
Q22	I feel I am being well prepared for my profession	2.73	1.15	Need enhancement
Q45	Much of what I have to learn seems relevant to a career in healthcare	3.02	1.15	Real positive point
Perceptions of Atmosphere				
Q11	The atmosphere is relaxed during consultation teaching	2.60	1.07	Need enhancement
Q12	The course is well timetabled	2.48	1.24	Need enhancement
Q17	Cheating is a problem in this course	2.56	1.27	Need enhancement
Q23	The atmosphere is relaxed during lectures	2.79	1.14	Need enhancement
Q35	I find the experience disappointing	2.4545	1.34	Need enhancement
Q50	I feel able to ask the questions I want	2.93	0.97	Need enhancement
Students Social Self Perceptions				
Q3	There is a good support system for registrars who get stressed	2.02	1.00	Need enhancement
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Q14	I am rarely bored on this course	2.44	1.14	Need enhancement
Q15	I have good friends in this course	2.94	1.05	Need enhancement
Q19	My social life is good	2.79	1.13	Need enhancement
Q28	I seldom feel lonely	2.34	1.20	Need enhancement
Q46	My accommodation is pleasant	2.55	1.08	Need enhancement

Table 3: Interns perception.

Discussion

With a total mean score of 133.30 and 128.09 for clinical 2 and interns respectively, this study conducted at our institute showed comparable results to the original DREEM study conducted by Roff, *et al* [8]. The good scores in all the five subscales reveal a good educational programme and learning environment as perceived by the students enrolled at the emergency department of AaBET. However, the study has identified few problem points in the institution that need to be revised in order to provide a better student-centered educational atmosphere.

In the "Students' perception about teachers' performance" subscale we scored (30 out of a total of 44), indicating is moving in the right direction. Despite this, the study showed the lowest mean score (1.66 out of 4) on the "teacher-centered rather than student centered education". The only slightly higher mean scores (3.31 out of 4) in both "I am encouraged to participate in teaching sessions" and the other items were between 2 to 3 out of 4 which need enhancement. Thus, this data indicates that our faculty need to improve the teaching methods toward a more student centered approach in order to increase the interest and motivation of students.

In the "Students' academic self - perceptions" subscale, we scored 22 (out of total 32) which signifies a more on positive side. The highest mean score of item was 3.06 out of 4 "I am confident about passing this year". The other items were between 2 to 3 out of 4. This finding illustrated that students recognize the relevancy of their courses to their future careers but they experience difficulties related to the physical fatigue due to the extended work-hours and the inherent stress of the emergency department. This call for intervention and further studies on how to smoothen the negative perspectives that can impact on the academic perception study in the future.

In the "Student perception of atmosphere" subscale, we scored 33 (out of total 48), thus indicating a more positive attitude among students and "Student's social self-perception" subscale we scored 16.6 (out of total 28), which is not too bad perception. "Cheating is a problem in this course" score was 1.51 out of 4 and "I am too tired to enjoy this course" with score of 1.30 out of 4. The finding signifies that a lot has been done for creating conducive teaching atmosphere and social support to students. But there is still a room for improvement on the rest area or leisure area for our students, creating less strenuous academic schedule that would enable students to enjoy their attachment and design a stress-management protocol for providing social support.

For clinical year 2 students the real positive points were: "I am encouraged to participate in teaching sessions", "The course organisers are knowledgeable", "I am confident about passing this year", and "Much of what I have to learn seems relevant to a career in healthcare". Problematic areas which require urgent improvement for improving clinical year 2 students were: "The teaching is too teacher centred", "The course organisers ridicule their students", "I am too tired to enjoy this course". The department should work more to make student centered educational system and create better learning environment. Other areas with scores between 2 and 3 identified that require enhancement of the existing academic activities.

For interns the real positive points were: "I am encouraged to participate in teaching sessions", "The teaching helps to develop my confidence", "The course organisers are knowledgeable", "Much of what I have to learn seems relevant to a career in healthcare", and "I have good friends in this course". Items that require urgent intervention with score of < 2 were: the course organisers ridicule their students, cheating is a problem in this course, I find the experience disappointing and there is no good support system for students who get stressed. Since the emergency department is stressful environment, there is a need to create friendly, enjoyable and good social support for those who get stressed.

Limitations

Since the survey is done at the end of the attachment there will be recall bias and will be affected by their grade of the attachment. The other limitation could be the negative questions which require scoring in reverse way may not be recognized by the participants which leads to lower score of those the negative areas.

Conclusion

Even-though department of emergency medicine and critical care is new and emerging field the study showed the department is moving in the right direction. This study showed that the undergraduate medical students attaching department of emergency medicine in AaBET/SPHMMC had a more positive perception of educational environment with few areas for improvement.

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