

ASSESSMENT OF EDUCATIONAL ENVIRONMENT OF UNDERGRADUATE MEDICAL STUDENTS USING DREEM (DUNDEE READY EDUCATION ENVIRONMENT MEASURE) QUESTIONNAIRE” –A CROSS SECTIONAL STUDY.

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ABSTRACT

Background: The Dundee ready education environment measure is a highly generic and internationally validated study tool used to assess student perception about their educational environment. Being in medical teaching profession we are concerned about student's views on these aspects. So far, literature search has shown that no such studies have been done in this part of the state. **Aim:** To assess the Educational Environment using DREEM and to compare students' response assessed by this on the basis of the year of study, gender and to identify areas of strengths and weaknesses in the current educational environment. **Methods:** The questionnaire was designed so as to collect the medical undergraduate student's perception on the following aspects like learning perception of teachers, academic self perception, perception of atmosphere, and students social self perception. The students were asked to read each question and to respond using a 5point Likert scale. The data was analysed using descriptive statistics like percentages and mean. Student 't' test was used for the comparison of the scores between the gender and scores between different years of study. $P < 0.05$ was considered to be statistically significant. **Results:** The mean score of overall DREEM questionnaire was 116.22 ± 18.86 and it was on the higher side with 2nd year MBBS students (119.9 ± 16.08) and lowest was with 1st year students. ($p < 0.05$). **Conclusion:** Our study concluded that the overall perception of our students regarding educational environment was positive. The highlights of our study can be addressed with positive perception in order to improve and strengthen the educational environment in our institute.

Keywords: Learning, Education Environment, Dundee Ready Education Environment (DREEM) Questionnaire, Teachers, Social Perception

INTRODUCTION

The “educational environment” (EE) is defined as everything that happens within the classroom, department, faculty or university and is crucial in determining the success of undergraduate medical

education. (1) Educational and professional environments for medical students across the world are considered highly stressful. The educational environment (EE) is one of main factors that

regulates student learning and is often employed for evaluation of medical education programmes. (2) The quality of educational environment reflects the quality of the curriculum. (3) Various methodologies have been utilised to investigate educational climate. There are other related tools including the pre-cursor to the DREEM, the MEEM (Medical Education Environment Measure) and several subsequent tools that have been designed to measure the educational environment in specific post-graduate medical settings for example, the PHEEM (Postgraduate Hospital Educational Environment Measure), STEEM (Surgical Theatre Educational Environment Measure) and ATEEM (Anaesthetic Theatre Educational Environment Measure). (4)

Educational and professional environments for medical students across the world are considered highly stressful. (5, 6) The educational environment (EE) is one of main factors that regulates student learning and is often employed for evaluation of medical education programmes. It is more specific on medical and healthcare-related programmes. Being in medical teaching profession we are concerned about student's views on these aspects. The learning environment acts as a hidden curriculum with a major impact on student's learning. An excellent environment is reflective of a quality curriculum.

The Dundee ready education environment measure is a highly generic and internationally validated study tool used to assess student perception about their educational environment. (7, 8) The DREEM was developed to evaluate the educational environment in undergraduate medical education institutions and has recently been recommended as the most suitable tool for educational purpose. It has been translated into various languages and used in different countries. (5) It is used as an evaluation measure to diagnose deficiencies in the current educational environment, to compare different groups' experiences with the educational environment, and to compare actual experiences of the educational environment with an ideal/expected in the same group. It has also been used to examine the relationship between the educational environment and other measures. (5)

So far, literature search has shown that very few studies have been done in this part of the state. And even study using DREEM questionnaires has not been done in our setup. So we undertook this study to assess the Educational Environment of Undergraduate Medical students using DREEM (Dundee Ready Education Environment Measure) and also to compare students' response assessed by Dundee Ready Educational Environment Measure on the basis of the year of study, gender and to identify areas of strengths and weaknesses in the current educational environment. Hence we planned to assess the educational environment of undergraduate medical students using DREEM questionnaire.

MATERIALS AND METHODS

Method of collection of data

Informed and written consent was taken from all the students involved in the study. The questionnaire was designed so as to collect the medical undergraduate student's perception on the following aspects like learning perception of teachers, academic self-perception, perception of atmosphere, and students social self-perception. The students were asked to read each question (total 50) and to respond using a 5point Likert scale ranging from strongly agrees to strongly disagree (4=strongly agree, 3=agree, 2=uncertain, 1=disagree, 0=strongly disagree). The negative statements were scored in reverse. 50 item DREEM has a maximum score of 200. Higher the score, better and favourable is the educational environment.

LIST OF QUESTIONS. (7, 8)

Sl no.	Questions
1.	I am encouraged to participate in class discussion
2.	The teachers are knowledgeable
3.	There is good support system for students who get stressed
4.	I am too tired to enjoy the course

5.	Learning strategies that worked for me before medical school continue to work for me now also
6.	The teachers adapt patient centered approach towards students
7.	The teaching is often stimulating
8.	The teachers reticule and dismiss the students
9.	The teachers are authoritarian.
10.	I am confident about my passing this year
11.	The atmosphere is relaxed during ward teaching
12.	The course content is well time tabled.
13.	The teaching here is student centered.
14.	I am rarely bored on this course
15.	I have good friends in this college
16.	The teaching here helps to develop my competence.
17.	Cheating is a problem in this medical school
18.	The teachers have good communication skills with patients
19.	My social life is good
20.	The teaching is well focused
21.	I feel I am being well prepared for my profession
22.	The teaching is sufficiently concerned to develop my confidence
23.	The atmosphere is relaxed during lectures
24.	The teaching time is put to good use
25.	The teaching over-emphasizes factual learning

26.	Last year's work has been a good preparation for this year's work
27.	I am able to memorize all I need
28.	I seldom feel lonely
29.	The teachers are good at providing feedback to students
30.	There are opportunities for me to develop my interpersonal skills
31.	I have learned a lot about empathy in my profession
32.	The teachers provide constructive criticism here
33.	I feel comfortable in class socially
34.	The atmosphere is relaxed during seminars/tutorials
35.	I find the experience here as disappointing
36.	I am able concentrate well
37.	The teachers give clear examples
38.	I am clear about the learning objectives of the course
39.	The teachers get angry during teaching sessions
40.	The teachers are well prepared for their classes
41.	My problem solving skills are being well developed here
42.	The enjoyment outweighs the stress of the course
43.	The atmosphere motivates me as a learner
44.	The teaching here encourages me to be an active learner
45.	Much of what I have to learn seems relevant to a career in healthcare

46	My accommodation is pleasant
47.	Long term learning emphasizes over short term
48.	The teaching is too teacher-centred
49.	I feel able to ask the questions I want
50	The students irritate the teachers

Statistical Analysis plan: The data was analysed using descriptive statistics like percentages and mean. Student 't' test was used for the comparison of the scores between the gender and scores between different years of study. All of data was analysed using SPSS (version 23) and all the graphs were made using graph pad prism 6 and $P < 0.05$ was considered to be statistically significant.

RESULTS

The DREEM questionnaire were given to students of all the phases of MBBS course and the perception of these students towards validated DREEM questionnaire were evaluated.

Of the 628 participants 189 were from 1st year, 172 from 2nd year. 153 from 3rd and 114 were from final year MBBS. 328/600 (52.2%) were male and 295/600 (47%) were females. The data from 5

students (0.8%) was incomplete. The mean score of overall DREEM questionnaire was 116.22 ± 18.86 . we undertook standard measures to maintain fair consistency in the responses for subscales of DREEM questions.

The mean DREEM score of male student was higher than that of female students (117.92 ± 18.78 v/s 114.41 ± 18.92) and there was no much significant difference. The students perception on various domain were evaluated on the following aspects like perception of learning, academic self perception, perception of faculty, perception of atmosphere, and students social self perception. Viewing the comparison of each subscale it was observed that perception of students towards learning and perception towards course organizers, social self perception and perception of atmosphere were found to be significant. ($p < 0.001$).

Only domain that fail to show significant result was students' academic self perception ($p = 0.004$).

The overall mean DREEM score was 111.5 ± 23.82 for 1st year students, 119.9 ± 16.08 for 2nd year, 116.1 ± 16.36 in 3rd year, 118.7 ± 14.69 in 4th which gives significant results ($p < 0.001$). it was found that the total DREEM score was on the higher side with 2nd year MBBS students (119.9 ± 16.08) and lowest was with 1st year students.

Table I: Demographic details of the students.

	TOTAL (%)	1 ST YEAR (%)	2 ND YEAR (%)	3 RD YEAR (%)	4 TH YEAR (%)
MALE	328 (52.2%)	76 (40.2%)	120 (69.8%)	82 (53.6%)	50 (43.9%)
FEMALE	295 (47%)	112 (59.3)	52 (30.2%)	71 (46.4%)	60 (52.6%)
NOT AVAILABLE	5 (0.8%)	1 (0.5%)	0	0	4 (3.5%)
TOTAL	628 (100%)	189 (100%)	172 (100%)	153 (100%)	114 00%)

Table II: Differences in mean DREEM domain and total scores between students according to sex. Analysis done by independent samples t-test.

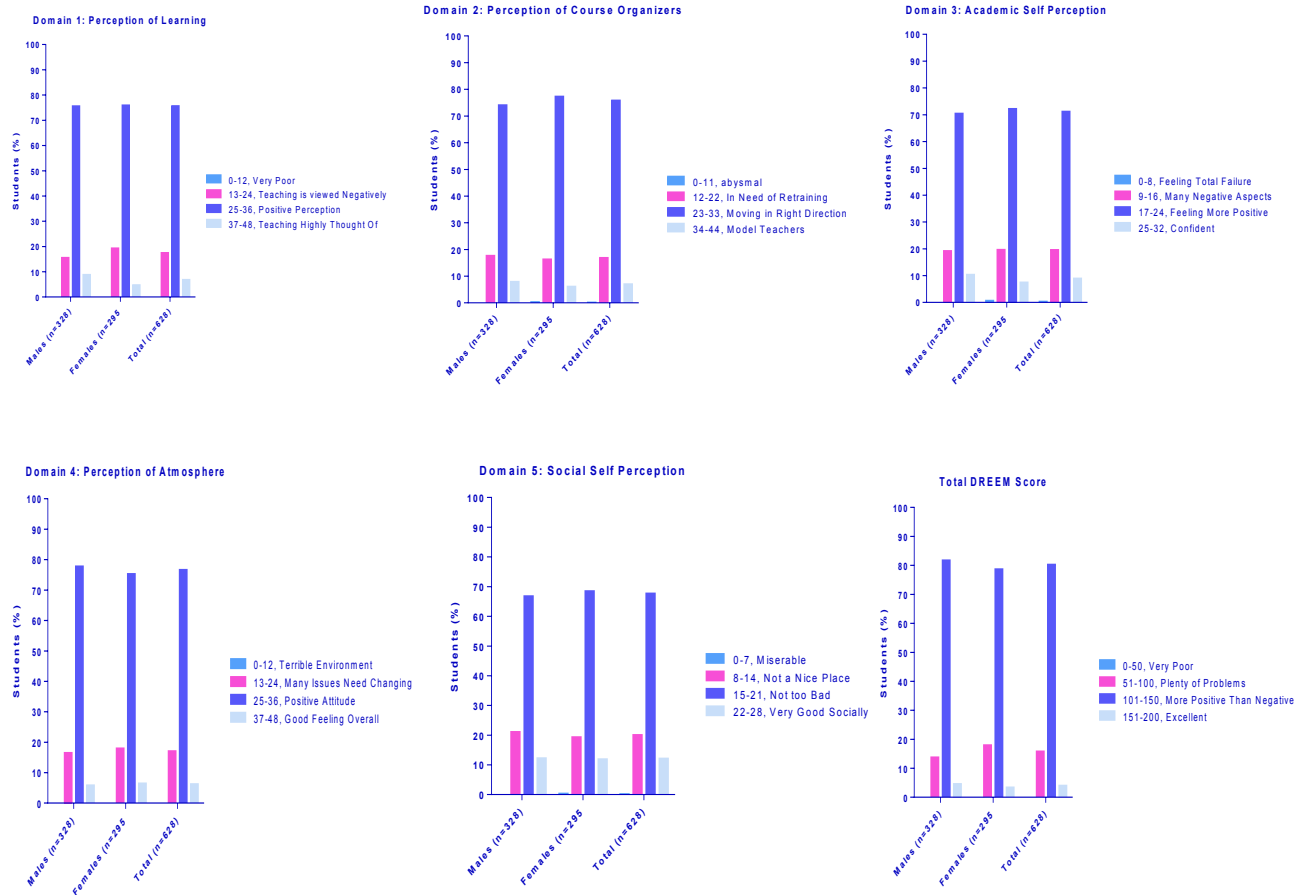
Domains	Total students (n=628) Mean ± SD	Males (n=328) Mean ± SD	Females (n=295) Mean ± SD	P value
Domain 1: perception of learning	27.8±5.69	28.51±5.87	27.04±5.39	0.001
Domain 2: perception of course organizers	25.64±4.95	25.99±5.19	25.27±4.68	0.071
Domain 3: academic self perception	18.28±4.05	18.59±4.12	18±3.94	0.070
Domain 4: perception of atmosphere	28.02±5.34	28.34±5.19	27.66±5.51	0.11
Domain 5: social self perception	16.47±3.64	16.48±3.68	16.44±3.6	0.88
Total DREEM Score	116.22±18.86	117.92±18.78	114.41±18.92	0.021

Table III: Comparison among all four years (total DREEM score) by using one way ANOVA.

Domains	1 st year Mean ± SD	2 nd year Mean ± SD	3 rd year Mean ± SD	4 th year Mean ± SD	P value
Domain 1: perception of learning	26.46±6.76	29.1±5.01	27.9±5.57	27.95±4.25	<0.001*
Domain 2: perception of course organizers	24.37±6.01	26.01±4.43	26.29±4.72	26.34±3.48	<0.001*
Domain 3: academic self perception	17.95±4.62	19.17±3.35	17.66±4.33	18.32±3.37	0.004
Domain 4: perception of atmosphere	26.93±6.11	29.28±4.93	27.62±5.14	28.46±4.36	<0.001*
Domain 5: social self perception	15.8±4.08	16.33±3.32	16.63±3.59	17.6±3.09	<0.001*
Total DREEM Score	111.5±23.82	119.9±16.08	116.1±16.36	118.7±14.69	<0.001*

*p<0.05

Graph 1 : Details of DREEM score of all the Domains and total DREEM score.



DISCUSSION

In this study we used the validated DREEM questionnaire as a tool to study the perceptions of our students about their educational environment. The total duration of the undergraduate course curriculum in our institute is five and half years and is divided into three phases: preclinical, paraclinical and clinical followed by an internship for 1 year. In our study we included all phases of students except internship.

The mean overall DREEM score of our students was 116/200 (table 2) which indicates a positive perception about educational environment. Various studies around the world have reported DREEM score in the range from 100 to 140. (11-15) The questionnaire were designed so as to collect the medical undergraduate student's perception on the

following aspects like perception of learning, academic self perception, perception of faculty, perception of atmosphere, and students social self perception.

In our study, highest score was reported in the domain of perception of atmosphere with 2nd year students (p value <0.001) indicating students' satisfaction towards learning atmosphere. Newer learning environment and away from home for 1st year preclinical students and for final year clinical students ,the vast clinical curriculum, examination stress, with application of clinical knowledge could be the reason for their less positive response.

The next better score was observed in domain 'perception of learning' and this one was too towards positive side with p <0.001. Students agreed that they were encouraged to participate in teaching sessions,

teaching was well focused and students centred, they were clear about their learning objectives and were able to develop the desired competence. However Students felt that teaching in our institute overemphasizes evidence based medical education.

The domain students' perception of teachers also moved in positive direction with $p < 0.001$. In this domain final year clinical students scored higher in comparison to other students on the following items like 'teachers were knowledgeable', teachers gave constructive criticism, teachers were good at providing proper feedback to the students and teachers gave clear examples. On the other hand few students felt that teachers were authoritarian and that they get angry during class. Such finding were also seen in most of the studies. **(16-20)** This emphasises the need for the faculty to under go faculty development program to fulfil the changing demand of medical students.

The students scored less in other domains like social self perception and academic self perception as they felt the course curriculum was vast and stressful. The learning strategies of them before joining the course couldn't be applied in medicine. One of the limitation of our study was we could not include the interns as many would have opted for mutual transfer and due to their busy schedule.

This is the first evaluation of students' perception of educational environment at our institution; thus, this baseline data will be useful over a period of time in the future to supervise the effects of curricular transformation.

CONCLUSION

Our study concluded that the overall perception of our students regarding educational environment was positive. The Para-clinical student's response was better than that of other students. The highlights of our study can be addressed with positive perception in order to improve and strengthen the educational environment in our institute.

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