

# Medical Student's Perspectives on Educational Environment: A Cross-sectional Study from a South Indian Rural Medical College

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## ABSTRACT

**Background:** The World Federation for Medical Education draws special emphasis on learning environment as one of the targets for the evaluation of medical education system. Students satisfaction on education environment strongly influences their approach to learning and the quality of learning outcome.

**Objectives:** The objectives of the study were to assess the student's perception on educational environment using the Dundee Ready Education Environment Measure (DREEM) questionnaire among 2<sup>nd</sup> year undergraduate medical students.

**Materials and Methods:** A cross-sectional study was conducted among 2<sup>nd</sup> year undergraduate medical students. A globally accepted DREEM questionnaire was used as a tool to gather student's perception toward the educational environment. DREEM questionnaire consists of five components with 50 statements assessed on five-point Likert scale (0–4). After obtaining ethical clearance, questionnaire was distributed among consented participants ( $n = 130$ ). The completed questionnaires were collated for statistical analysis. Data were expressed as mean and SD, frequency, and percentages. McAleer and Roff practical guidelines were used to analyze and interpret the responses.

**Results:** The response rate was 86.15%. The overall mean DREEM score was  $127.4 \pm 29$  (63.7%). Among the five domains of DREEM, academic self-perception was scored highest (69.9%) and social self-perception was scored least (60.4%). Statements "teachers are knowledgeable" and "I am confident about passing this year" scored  $\geq 3$  of 4 points.

**Conclusion:** The overall mean DREEM score was indicative of "a more positive than negative perception." The more constructive responses were on student's confidence, teacher's knowledge, and curricular relevance, encouragement to participate in teaching session, teacher's preparedness, and on having good friends in the campus. Nevertheless, there is a room for improvement in weaker areas such as student's boredom and creative teaching.

**KEY WORDS:** Medical, student, learning, questionnaire, perception.

## Introduction

Medical education is transforming from "Sage on Stage" to "Guide by Side" where the role of medical teachers is to facilitate learning by providing proper content and a positive learning environment. The quality of the learning environment has been identified to be crucial for effective learning.<sup>[1]</sup> The World Federation for Medical Education draws special emphasis on

learning environment as one of the targets for the evaluation of medical education system.<sup>[2]</sup> In India also, national accreditation agencies like the National Assessment and Accreditation Council emphasize on the educational environment as one of the important criteria in improving the quality system of an institution as evident by its mission statement "to stimulate the academic environment for promotion of quality of teaching-learning and research in higher education institutions."<sup>[3]</sup>

Students satisfaction on educational environment strongly influence their approach to learning and the quality of their learning outcome.<sup>[4]</sup> Successful implementation and management of the curriculum can happen only with systematic feedback and assessment.<sup>[5]</sup> Understanding the student's perception

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about educational environment plays a key role in designing and executing a holistic curriculum.

Globally medical educators are making an effort to reform the educational environment so as to make it learner friendly without compromising standards and quality of learning. Adichunchanagiri Institute of Medical Sciences, a rural medical college from South India, strives to provide outstanding educational experiences to the students through competent facilitators and supportive infrastructure. In this regard, this study was designed to assess the educational environment of Adichunchanagiri Institute of Medical Sciences as perceived by students using a globally accepted Dundee Ready Education Environment Measure (DREEM) questionnaire among undergraduate medical students.

## Materials And Methods

A cross-sectional questionnaire-based study was conducted from September 2017 to February 2018 at Adichunchanagiri Institute of Medical Sciences among 2<sup>nd</sup> year medical undergraduate students to assess the perception of students toward the educational environment of the institute. A convenient sampling technique was used and all 150 students of 5<sup>th</sup> term were invited to participate in the study as they are exposed to pre-clinical, paraclinical, and recently clinical teaching environment. The study was approved by the Institutional Ethical Committee. A prevalidated globally accepted DREEM questionnaire<sup>[6]</sup> was used as a survey tool to gather information on student's perception toward educational environment offered by the institution. A pilot study was done and few terminologies were modified without changing the meaning of the items in the inventory.

The purpose of the study and maintenance of confidentiality was explained to the students. DREEM questionnaire was distributed among willing participants after taking written consent ( $n = 130$ ). After half an hour, the completed questionnaire was collected back. The completed questionnaires were collated for further statistical analysis. Continuous variables were described as mean and SD, categorical variables were presented as frequency and percentage. McAleer and Roff practical guidelines<sup>[7]</sup> was used to analyze and interpret the responses.

DREEM questionnaire consists of five domains with 50 statements assessed on five-point Likert scale ranging from strongly agree (4) to strongly disagree (0). However, negative statements were scored

in reverse order. These 50 items will be having a maximum score of 200 which indicates an ideal situation. The five domains of DREEM inventory are as follows:

1. Student's perceptions of learning (SPoL - 12 items/48 marks)
2. Student's perceptions of teachers (SPoT - 11 items/44 marks)
3. Student's academic self-perception (SASP - 8 items/32 marks)
4. Students perception of atmosphere (SPoA - 12 items/48 marks)
5. Student's social self-perceptions (SSSP - 7 items/28 marks) [Table 1].

**Table 1: McAleer and Roff practical guidelines to interpret DREEM scores**

Domain	Score	Interpretation
SPoL	0–12	Very poor
	13–24	Teaching is viewed negatively
	25–36	A more positive approach
	37–48	Teaching highly thought of
SPoT	0–11	Abysmal
	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 the positive side
	25–32	Confident
SPoA	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 overall
SSSP	0–7	Miserable
	8–14	Not a nice place
	15–21	Not too bad
	22–28	Very good socially
Overall	0–50	Very poor
	51–100	Plenty of problems
	101–150	More positive than negative
	151–200	Excellent

SPoL: Students' perceptions of learning, SPoT: Students' perceptions of teaching, SASP: Students' academic self-perceptions, SPoA: Students' perceptions of atmosphere, SSSP: Students' social self-perceptions

The individual DREEM items in each domain were interpreted as follows: Items having a mean score of  $\geq 3.5$  are real positive points;  $\leq 2$  indicates problematic areas and scores between 2 and 3 are aspects of the educational environment that could be enhanced.

## Results

Of the 150, 130 students consented to participate in the study and 112 students completed the questionnaire (response rate was 86.15%).

The global DREEM mean score was  $127.4 \pm 29.1$  (63.67%). The highest score was rated to student's academic self-perception domain (69.9%)

and least for student's social self-perception (60.4%) by the participants [Table 2].

Table 3 represents the individual item analysis in each domain of DREEM inventory. Highest was scored for the teacher's knowledge and confidence of the students of passing the exams this year and least was scored for emphasis on factual learning and authoritative teachers.

The more constructive responses were on student's confidence, teacher's knowledge, curricular relevance, encouragement to participate in teaching session, teacher's preparedness, and on having good friends in the campus.

**Table 2: Mean scores and result interpretation using DREEM inventory**

DREEM subscale	Max score	Mean $\pm$ SD	Percentage of perception	Interpretation of DREEM subscale scores
SPoL	48	$31.15 \pm 6.32$	64.89	A more positive approach
SPoT	44	$27.11 \pm 5.77$	61.61	Moving in the right direction
SASP	32	$22.37 \pm 5.37$	69.90	Feeling more on the positive side
SPoA	48	$29.82 \pm 6.37$	62.12	A more positive atmosphere
SSSP	28	$16.90 \pm 5.27$	60.35	Not too bad
Global DREEM score	200	$127.4 \pm 29.1$	63.67	As more positive than negative

SPoL: Students' perceptions of learning, SPoT: Students' perceptions of teaching, SASP: Students' academic self-perceptions, SPoA: Students' perceptions of atmosphere, SSSP: Students' social self-perceptions

**Table 3: Mean scores of items in all the five domains**

Items	Mean $\pm$ SD
<b>Student's perception of learning</b>	
I am encouraged to participate in teaching sessions (class)	$2.97 \pm 0.81$
The teaching is often stimulating	$2.70 \pm 0.93$
The teaching is student centered	$2.74 \pm 0.98$
The teaching helps to develop my competence	$2.70 \pm 1.03$
The teaching is well focused	$2.96 \pm 0.90$
The teaching helps to develop my confidence	$2.61 \pm 0.93$
The teaching time is put to good use	$2.77 \pm 0.98$
The teaching over emphasizes factual learning* #	$1.51 \pm 1.09$
I am clear about the learning objectives of the course	$2.92 \pm 0.95$
The teaching encourages me to be an active learner	$2.73 \pm 1.04$
Long term learning is emphasized over short term learning	$2.54 \pm 1.04$
The teaching is too teacher centered* #	$1.98 \pm 0.97$
<b>Students perception of teachers</b>	
The teachers are knowledgeable**	$3.23 \pm 0.82$
The teachers place emphasis on being patient centered during their interaction with patient	$2.88 \pm 0.81$

(Contd...)

**Table 3: (Continued)**

<b>Items</b>	<b>Mean <math>\pm</math> SD</b>
The teachers ridicule the students*	2.12 $\pm$ 1.10
The teachers are authoritarian* #	1.52 $\pm$ 1.04
The teachers appear to have effective communication skills with patients	2.83 $\pm$ 0.94
The teachers are good at providing feedback to students	2.62 $\pm$ 1.01
The teachers provide constructive criticism here	2.35 $\pm$ 1.15
The teachers give clear examples	2.91 $\pm$ 0.94
The teachers get angry in teaching sessions (class)* #	1.96 $\pm$ 1.23
The teachers are well prepared for their teaching sessions	2.95 $\pm$ 1.03
The students irritate the teachers#	1.72 $\pm$ 1.27
<b>Students' academic self-perception</b>	
Learning strategies which worked for me before continue to work for me now	2.59 $\pm$ 1.05
I am confident about passing this year**	3.24 $\pm$ 0.81
I feel I am being well prepared for my profession	2.88 $\pm$ 0.88
Last year's work has been good preparation for this year's work	2.91 $\pm$ 1.06
I am able to memorize all I need	2.14 $\pm$ 1.06
I have learned a lot about empathy in my profession	2.92 $\pm$ 0.83
My problem-solving skills are being well developed here	2.67 $\pm$ 1.07
Much of what I have to learn seems relevant to a career in health care**	3.01 $\pm$ 0.81
<b>Students perception of atmosphere</b>	
The atmosphere is relaxed during consultation teaching (ward)	2.80 $\pm$ 0.97
The course is well timetabled	2.84 $\pm$ 1.09
Cheating is a problem in this course* #	1.87 $\pm$ 1.35
The atmosphere is relaxed during lectures	2.57 $\pm$ 1.02
There are opportunities for me to develop interpersonal skills	2.81 $\pm$ 1.07
I feel comfortable in teaching sessions socially	2.61 $\pm$ 1.05
The atmosphere is relaxed during seminars/tutorials	2.67 $\pm$ 1.09
I find the experience disappointing*	2.56 $\pm$ 1.10
I am able to concentrate well	2.58 $\pm$ 0.98
The enjoyment outweighs the stress of studying medicine	2.21 $\pm$ 1.20
The atmosphere motivates me as a learner	2.76 $\pm$ 1.02
I feel able to ask the questions I want* #	1.55 $\pm$ 1.08
<b>Students social self-perception</b>	
There is a good support system for students who get stressed	2.29 $\pm$ 1.27
I am too tired to enjoy this course*	2.41 $\pm$ 1.27
I am rarely bored on this course	2.06 $\pm$ 1.27
I have good friends in this course	2.99 $\pm$ 1.16
My social life is good	2.73 $\pm$ 1.21
I seldom feel lonely	2.16 $\pm$ 1.30
My accommodation is pleasant	2.25 $\pm$ 1.50

\*Negative statements, \*\* items with score more than 3, # items with score <2

## Discussion

Educational environment is one of the important determinants of an effective curriculum and also assist in the evaluation of program appraisal.<sup>[1]</sup> In this regard, the present study was conducted to examine the educational environment offered by our institution using DREEM inventory as a tool. The responses provided by the students identified the strengths and weakness in the learning atmosphere of the institute.

The overall mean DREEM score in the current study was  $127.35 \pm 29.1$ , indicative of a “more positive than negative perception.” This is analogous with the overall results of several studies done in India<sup>[8-10]</sup> and other countries.<sup>[11-13]</sup>

According to McAleer and Roff guide,<sup>[7]</sup> the subscale DREEM scores of the present study indicate that the student's perception of learning had a “more positive approach” and that their perception of teachers was “moving in the positive direction.” The academic self-perception of the participants was found to be “more positive atmosphere,” and the student's social self-perception was “not too bad.”

The mean scores of all the five domains expressed as percentage were between 60.4% and 69.9%. This indicates that there is a scope for improvement and requires remedial measures to ensure and maintain a high-quality learning environment for the students.

The highest score was found in the subscale of student's academic self-perception (69.9%) and lowest was for students social self-perception (60.4%). The results are fairly in agreement with others done in medical students and in students of other disciplines.<sup>[14-16]</sup>

There were seven items which scored >3 score. Among these two statements, “The teachers are knowledgeable” and “I am confident about passing this year” scored >3.2. This conveys that student is contended with the learning environment provided by the institution. They perceived that the faculty is well equipped with extensive knowledge to guide them in all aspects of medical course and is well prepared for the classes. Students were very much confident about passing this year, which may be attributed to the fact that they were regularly exposed to formative assessments as well as deftly established academic mentoring program in the institution. These results are in accordance with the reports of a few studies done in India.<sup>[8,17]</sup>

On the other hand, the students felt that faculty is little authoritative, overemphasizes factual learning, and lack in providing constructive criticism. Similar results were reported by few other researchers.<sup>[8-9,16]</sup> In this regard, it is important to sensitize the faculty that respect for the student is critical to the learning process. Further, the ability to give timely and specific feedback is an important skill that sets students on the right path to learning. Immoderate unpleasant criticism, on the other hand, or lack of feedback of any kind, is contemplated to be discouraging and damaging to students' self-confidence. The teaching style and learning experience in pre-clinical and paraclinical subjects are more of theoretical and fact oriented while in clinical period, it is more of real-time experience and practical oriented.

This is the first-ever evaluation of medical student's perception of educational environment at this institution, and thus it provides a baseline report to track the effects of constructive learning environment/program transformation over a period of time in future. Overall, the students perceived the educational environment at our institution as a positive one. The DREEM questionnaire in its existing pattern may not be completely assessing all aspects of a medical education system and a version that is more suitable to our set up is desirable.

## Limitations

This is a cross-sectional study with its own innate limitation. Response to DREEM questionnaire was collected only from 2<sup>nd</sup> year medical students without the involvement of students from other phases. Students perception on educational environment collected in the present study depicts the summative aggregate of learning experiences from basic science subjects. There is an implied assumption that learning environment may be consistent over time and across different subjects. A comprehensive frame of reflection across diverse and intricate learning subjects including clinical subjects may be more appropriate to assess the learning environment.

## Conclusion

Students assessed the educational environment at this institution as more positive than negative; however, improvements are required across all five domains. The more constructive responses were on student's confidence, teacher's knowledge, curricular relevance, encouragement to participate



in the teaching session, teacher's preparedness, and on having good friends in the campus however there is a room for improvement in weaker areas such as student's boredom and creative teaching.

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