International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Exploring the Educational Landscape: A Comprehensive Assessment of Educational Environment of a Government Medical College in North India

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Abstract: ***Background*: Medical colleges are improving their teaching methodology across the world gradually using educational environment measurement. The results from such surveys can be utilised to evaluate and implement adjustments to the curricula, instruction, and physical environment of the institute. *Material and Methods*: This was a cross-sectional study involving 150 first-year medical students studying at the Vardaman Mahavir Medical College, New Delhi. The educational environment of the institute was assessed using the Dundee Ready Education Environment Measure (DREEM) tool. *Results*: The response rate to the questionnaire was 72% (108 out of 150 students). The mean score for the Perception of Learning- Teachers, Academic atmosphere, Academic Self Perception, and Social Perception was 25.6, 27.2, 26.1, 15.9, and 16.1, respectively. The mean DREEM score of our institute was 110.9 ranging from a minimum of 35 to a maximum of 146. The domain of Academic self-perception performed most poorly. Overall, there were a total of 7 problematic area. *Conclusions*: The first-year teaching programme at our institute had strengths as well as weaknesses. Study assisted in identifying area which needed immediate attention and improvements.***

Keywords: Medical Education, Teaching, Educational Environment.

1. Introduction

The first year of medical education marks the transition from an ordinary school student to an outstanding medical practitioner serving society either as a physician or surgeon. This successful transition depends to a greater extent on the prevailing educational environment in any given institute.[1] The educational environment in a medical college typically consists of a combination of classroom lectures, hands-on laboratory sessions, clinical rotations, and independent study.[2] In the classroom, medical students learn foundational concepts in anatomy, physiology, pharmacology, and other basic clinical sciences.[3,4] They also attend lectures on medical ethics, patient communication, and other important topics related to medical practice.[5] Students are expected to keep up with the latest medical research, read scientific papers, and stay abreast of advances in medical technology and treatment. Overall, the educational environment in a medical college is designed to provide students with a comprehensive understanding of the human body and medical practice, as well as hands-on experience and exposure to real-world medical situations.[5]

The phrase "*Educational environment*" refers to all elements that influence how students learn, including their physical surroundings, instructors, peers, and culture. The success of undergraduate medical education is determined by everything that occurs in the classroom, department, faculty, or university.[1] The success or failure of the learning process depends on several factors, including the lecture hall where students study, how they connect with their professors, how well those professors can facilitate their learning, how they view one another, and the culture in which they are educated.[2] When the setting boosts students' interest in learning, advances their knowledge and abilities, and energises their sense of social well-being, it can be said to be a productive learning environment.

The necessity to assess the educational climate of medical schools has increased because of recent developments in medical curricula, the growing diversity of undergraduate students, and the commissioning of several new medical institutes.[4,6] A validated method that is frequently used to evaluate the learning environment provided in medical schools is the Dundee Ready Education Environment Measure (DREEM).[7] Since its debut in 1996, it has been utilised in numerous institutions all over the world to look into the institutional status of the learning environment, to compare various groups within the same institution, and to determine links between students' academic performance and the educational setting. The fact that it has been translated from English into numerous other languages and is used in numerous nations worldwide shows how widely this tool is accepted.[8]

To identify areas for improvement in the future and to compare medical schools on a national and international scale, educators find the DREEM to be a very reliable tool. Prior research has been done in South Asian countries to compare medical schools using various instructional approaches and assess students' perspectives within and between institutions.[9-14] The objective of the present study was to assess the educational environment of the Vardhman Mahavir Medical College's Undergraduate Medical Education program for training physicians from the student's perspective.

2. Material and Methods

***Study Design*:** A single-centre, cross-sectional observational study.

***Study Settings*:** Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India. The study was approved by the ethical committee of the institute.

***Study Participants*:** First-year medical students at the institute.

***Sample Size*:** All students studying in the first semester of medical college.

***Sampling Technique*:** All students studying in the first semester were enrolled in the present study. Thus, no sampling technique was required to recruit participants for the present study.

***Data Collection Tool*:** Bilingual (Hindi and English) version of the Pre-validated DREEM questionnaire. The Dundee Ready Educational Environment Measure (DREEM) questionnaire consists of 50 items each scored 0-4 (Likert's scale) on a 5-point scale and was given to first-year medical students (0 strongly disagrees; 1 is disagree, 2 is neither agree or disagree, 3 is agree and 4 is strongly agree).[7] Items 4, 8, 9, 17, 25, 35, 39, 48 and 50 are negatively worded and these require recoding prior to calculating the total and subscale scores. The questionnaire generates an overall score for the course. DREEM is a 50-item inventory, consisting of five subscales.[7]

a) Perceptions of Learning (PoL) – 12 items, maximum score of 48;
b) Perceptions of Teachers (PoT) – eleven items, maximum score of 44;
c) Academic self-Perceptions (AsP) – eight items, maximum score of 32;
d) Perceptions of Atmosphere (PoA) – 12 items, maximum score of 48; and
e) Social self-Perceptions (SsP) – seven items, maximum score of 28.

The total score for the DREEM tool is 200. In addition, the students were also given questionnaires consisting of open-ended questions to get additional information in order to interpret the responses and consider possible remedial measures.

***Source of Data*:** Responses of the participants to the questionnaire.

***Informed Consent*:** A bilingual (Hindi/English) informed consent was given to the participants along with the data collection tool to read and sign.

***Process of Data Collection*:** During the last week of the end of the first trimester, all the first-semester students were instructed by the institute's faculty to gather in the lecture hall. All the study participants were provided with a paper-based DREEM questionnaire. Thereafter, study participants were asked to complete the questionnaires during their free time. In addition, study participants were also instructed to return the completed questionnaire in an unmarked envelope in a drop box placed at a specified location in the college. Students were also instructed to return blank questionnaires if they did not wish to be involved. The researchers did not pay any money, fees, incentive, or freebies to students to participate in the study.

***Data analysis*:** The responses from each completed DREEM questionnaire were manually entered into SPSS version 21 (IBM Corp, USA). Mean, standard deviation and standard error of the mean (with 95% confidence intervals) were generated for each item on the DREEM along with the total and subscale scores for the DREEM, in line with the scales reported by Roff et al.

3. Results

There were a total of 150 students in the first semester. A total of 142 students attended the lecture session organised for the purpose of this study. Further, of the total 142 students who attended the lecture; 12 students did not return the questionnaire, 22 questionnaires were incomplete (hence excluded) and the remaining 108 completed questionnaires were included in the data analysis. There were 78 male and 30 female participants. The mean age of the participants was 19.6 years (±1.1). There were 37 students who's medium of education at school was Hindi and the remaining 71 students were educated in English medium school.

4. Discussion

For students to participate in teaching and learning, they must become active participants rather than only passive recipients.[1] The environment, both educational and organisational, which encompasses everything taking place in the medical school, is the most significant embodiment and conception of the curriculum.[2] The relationship between the environment and the beneficial effects on students achievement, satisfaction, and success has been demonstrated by several studies conducted earlier in several different fields of education. Therefore, every study institute should strive to provide students with the greatest environment and educational experience to inspire them to reach their full potential. Areas of concern in the educational environment of medical teaching institutes can be identified and prioritized using the DREEM tool.[4,5,15] The DREEM questionnaire has been shown to have good reliability and validity, and it provides a comprehensive assessment of the learning environment that can be used to identify areas for improvement.[16–18] It can be administered to students, faculty, and staff in medical and healthcare education settings, and the results can be used to guide interventions aimed at

improving the learning environment and ultimately, the quality of education provided to students. We conducted the present study with the aim to assess the educational environment of Vardhman Mahaveer Medical College, New Delhi from the perspective of first-year medical students.

In the present study, the mean score for the PoL, PoT, PoA, AsP, and SsP was 25.6, 27.2, 26.1, 15.9, and 16.1, respectively. The mean DREEM score of our institute was 110.9 (ranging from a minimum of 45 to a maximum of 146) i.e., more positive than negative. The domain of Academic self-perception performed most poorly, and the performance of the institute was best in the domain of 'perception of teaching'. According to Abraham R et al., (2008), the DREEM score among first-year medical students at their institute was 119 and 114 for the clinical batch students.[10] Another study conducted in a different medical school in India reported a mean DREEM score of 107.44. The DREEM score can be influenced by several factors including the student's background, teacher(s), culture, and the institute itself. In addition, the DREEM score can also be influenced by the medical student's semester and the time (the infrastructure of many institutes develops over a period of time). Studies conducted at medical schools in Sri Lanka[19], Nepal[20], Nigeria[20], Trinidad[21]and the UK[22] reported a DREEM score of 108, 130, 118, and 139, respectively.

The comparisons with other nations or medical schools that use different types of curricula (traditional, integrated, or problem-based learning) may be challenging because perceptions of the environment may vary depending on the educational backgrounds of the students from different regions. Moreover, several researchers have argued that the best use of DREEM tool is for the institute to monitor their performance rather than for international comparison.[23] This is because most evaluations aim to enhance the learning environment at the institution conducting them. By using DREEM to analyse its own educational environment, any given institute can identify its own strengths and shortcomings. However, there are always lessons to be learned from how other institutions are addressing their own areas of weakness that could help you improve the same areas at your own institution. Additionally, other institutions may have developed creative solutions to this issue that your institution could adopt as well.

At our institute, we identified a total of 7 problematic areas. Perhaps the most important, problematic area in our view was that '*Teaching was too teacher centric*'. While medical educators who receive low scores on this item will probably want to take action to improve their performance in this area to increase student satisfaction, it may be interesting and perhaps reassuring to know that students could express their feelings without any risk of fear or retribution. Other problematic areas included '*My accommodation is pleasant*' and '*I am too tired to enjoy the course'*. Improving the accommodation is a multidimensional challenge for the institute's administration. Further, the institute should arrange for recreational activities within their limited budget and premises to improve the perception of the students.

Miles et al. recommend looking into the DREEM data at three different levels: overall, subscales, and items.[23, 24] The subscale's elements don't directly reflect the educational plan itself, but rather the student as a learner. According to the literature documenting the use of the DREEM, those who have used it have found it to be a useful tool for a variety of evaluation-related tasks, such as diagnostics, group comparisons, comparisons of the same group under various circumstances, and investigations into the relationship between the educational environment and other measures.[23] The research also reveals that there is minimal agreement about the analysis and reporting of DREEM data. There have been both parametric (such as the t-test and analysis of variance) and non-parametric (such as the Mann-Whitney-U and Kruskal-Wallis) tests applied. Although the test's objective or the sample size might play a role in the decision to use a particular approach, this does not appear to be the case.[23]

Conclusion: It is crucial to gather feedback from students especially first-year students on how they are findings the transition from school to college as the new learning environment has an effect on the level of motivation and achievement that students have. The present study revealed that the educational environment at our institute was '*more positive than negative'*. By means of this study, we were able to identify the areas of concern that needed immediate attention. The present study's findings have given the programme directors knowledge that wasn't previously available. They can use this information to help them decide what needs to be done to improve the educational environment at our institute. The findings of the present study are planned to be utilised as part of a comprehensive teaching programme evaluation strategy to guide programme reviews, give data to the programme accrediting body, and track programme modifications.

Table 1: Mean Score and interpretation of the different domains of the DREEM tool (n=108)

Domain	Mean (±SD)	Range	Interpretation
PoL	25.6 (6.6)	8- 47	A more positive approach
PoT	27.2 (4.9)	6-37	Moving in the right direction
PoA	26.1 (5.3)	8 – 38	Feeling more on the positive side
AsP	15.9 (4.5)	7 -32	There are many issues that need changing
SsP	16.1 (4.2)	6- 24	Not too bad
Total	110.9	35 - 146	More positive than negative

Table 1 illustrates the mean score of the five domains of the DREEM questionnaire. The mean score for the PoL, PoT, PoA, AsP, and SsP was 25.6, 27.2, 26.1, 15.9, and 16.1, respectively. The mean DREEM score of our institute was 110.9 ranging from a minimum of 45 to a maximum of 146. The domain of Academic self-perception performed most poorly.

Table 2: Mean score for different questions related to Perception of Learning and Perception of Teaching among the participants

Question	Mean	SD
Perception of Learning		
I am encouraged to participate in class	2.5	0.71
The teaching is often stimulating.	2.4	0.64
The teaching is student-centred.	2.2	0.54
The teaching is sufficiently concerned to develop my competence.	2.5	0.59
The teaching is well-focused.	2.6	0.53
I feel I am being well prepared for my profession.	2.4	0.54
The teaching time is put to good use.	2.3	0.63
The teaching over-emphasizes factual learning	2.3	0.61
I am clear about the learning objectives of the course.	2.4	0.58
The teaching encourages me to be an active learner.	2.3	0.63
Long-term learning emphasizes the short-term.	2.3	0.49
The teaching is too teacher centred.	1.8	0.34
Perception of Teachers		
The teachers are knowledgeable	3.1	0.72
The teachers are patient with patients	2.7	0.54
The teachers ridicule the students.	1.2	0.29
The teachers are authoritarian.	2.0	0.44
The teachers have good communications skills with patients	2.6	0.46
The teachers are good at providing feedback to students.	2.5	0.49
The teachers provide constructive criticism here	2.1	0.38
The teachers give clear examples	1.9	0.31
The teachers get angry in class.	1.9	0.32
The teachers are well-prepared for their classes	2.9	0.59
I feel able to ask the questions I want.	2.8	0.51

Table 2 shows the mean score for all the questions in the domain of Student's Perception of the Learning atmosphere and Student's Perception of Teachers. In the domain of Student's Perception of the Learning, there was only one 'Problematic area' (score < 2.0) - "The teaching is too teacher-centred". In comparison, for the domain of Student's Perception of Teachers, there were three 'Problematic area' (score < 2.0) - the teachers ridicule the students; the teachers give clear examples; and the teachers get angry in class.

Table 3: Mean score for questions related to Perception of Academic Atmosphere, Self-Perception, and Social Self Perception

Question	Mean	SD
Perception of Academic Atmosphere		
Learning strategies which worked for me before continue to work	2.4	0.48
The atmosphere motivates me as a learner	2.0	0.34
The enjoyment outweighs the stress of learning	2.2	0.41
I am able to concentrate well.	1.9	0.32
I find the experience disappointing	1.6	0.21
The atmosphere is relaxed during the ward teaching	2.3	0.43
The atmosphere is relaxed during lectures.	2.4	0.39
Cheating is a problem in this school	2.0	0.32
This course is well time-tabled	2.3	0.38
The atmosphere is relaxed during seminars/tutorials.	2.3	0.43
There is a good support system for students who get stressed	2.0	0.35
The teaching is sufficiently concerned to develop my confidence.	2.7	0.39
Academic Self Perception		
Much of what I have to learn seems relevant to a career in healthcare.	2.5	0.32
My problem-solving skills are being well developed here.	2.3	0.28
I have learned a lot about empathy in my profession.	2.5	0.32
Learning strategies which worked for me before continue to work for me now	1.9	0.28
I am able to memorize all I need	1.4	0.12
Last year's work has been a good preparation for this year's work.	1.9	0.20
I am confident about my passing this year.	2.9	0.26
There are opportunities for me to develop interpersonal skills.	2.7	0.24
Social Self Perception		
My accommodation is pleasant.	1.8	0.19
I am rarely bored on this course.	1.6	0.14
I have good friends in this school.	3.0	0.43
I feel comfortable in class socially	2.8	0.42
I seldom feel lonely.	2.1	0.34
My social life is good.	2.8	0.36

I am too tired to enjoy the course	1.9	0.21

Table 3 illustrates the mean score of the questions related to the Student's Perception of the Academic Atmosphere, academic self-perception, and social self-perception. In the domain of Student's Perception of the Academic Atmosphere, there was only one 'Problematic area' (score < 2.0) - "I am able to concentrate well". In comparison, in the domain of Student's Perception of the Academic Atmosphere, there was two 'Problematic area' (score < 2.0). In the domain of Student's Perception of the Social environment, there were three 'Problematic areas' (score < 2.0).

Acknowledgements
The authors are very grateful to those medical students who participated in the study. We, all the authors, acknowledge the administrative and technical support of Departments of Anatomy Vardhman Mahavir Medical college and Safdarjung hospital, New Delhi.

Funding: None

Conflict of Interest: We, all the authors, declare that there is no conflict of interest.

Credit authorship contribution statement
Puja Chauhan: Conceptualization, Writing – original draft, Writing – review & editing.
Asha Gupta: Writing – review & editing.
Sonam Singh: Writing – review & editing.
Bindusar Kalita: Writing – review & editing.

Availability of data and material: The authors affirm that this manuscript is honest, accurate, and transparent account of the study being reported; that no important aspects of study have been omitted; and that any discrepancies from the study (if relevant) have been explained.

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