ORIGINAL ARTICLE

Evaluating the Educational Environment in Undergraduate Medical Training with DREEM-12 Scale at Puducherry, South India

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CITATION

Chellamuthu L, Vasudevan J, Jenisha A, Anbarasan E, Balamurugan V. Evaluating the Educational Environment in Undergraduate Medical Training with DREEM-12 Scale at Puducherry, South India. Indian J Comm Health. 2026;38(2):313-316. https://doi.org/10.47203/IJCH.2026.v38i02.017

ARTICLE CYCLE

Received: 21/02/2026; Accepted: 17/03/2026; Published: 31/03/2026

Abstract

The quality of the educational environment is a key determinant of effective medical training. The Dundee Ready Educational Environment Measure–12 (DREEM-12) is a validated tool used globally to assess student perceptions of learning, teaching, academic self-perception, atmosphere, and social support. **Objective:** This study aimed to evaluate the educational environment among undergraduate medical students in Puducherry, South India. **Methods:** A cross-sectional study was conducted among 538 MBBS students of Phase II to IV. Data were collected using the DREEM-12 questionnaire administered through a structured Google Form after obtaining electronic informed consent. **Results:** The overall DREEM-12 mean score was 38.52, indicating an excellent learning environment. **Conclusion:** The study demonstrates a highly positive educational environment across all domains, with strengths in teacher-related factors and academic self-perception. Areas requiring targeted improvement include student support systems and learning atmosphere. These findings contribute to ongoing quality enhancement efforts in undergraduate medical education in South India.

Keywords

Perception, Medical Education, Curriculum, India, Puducherry, Dundee Ready Education Environment Measure

Introduction

The educational environment plays a crucial role in shaping the learning experiences, academic performance, and overall well-being of medical students. It encompasses the physical, psychological, social, and academic contexts in which students engage with their training institutions.(1) A positive learning environment promotes motivation, empathy, and professional growth, whereas a negative one may contribute to stress, burnout, and poor academic outcomes.(2) Therefore, assessing students' perceptions of their educational environment is vital for ensuring quality medical education and continuous curriculum improvement.

The Dundee Ready Education Environment Measure (DREEM) is a validated instrument widely used across medical schools globally to evaluate the educational climate.(3) It consists of five domains—students' perceptions of learning, teachers, academic self-perception, atmosphere, and social self-perception.(4) While the original DREEM contains 50 items, a concise and psychometrically robust version, DREEM-12, has been developed to enhance feasibility without compromising validity.(5) The DREEM-12 enables quick and efficient evaluation of students' perspectives, making it particularly useful in resource-limited or high-volume educational settings.

In India, with its diverse educational contexts and varying institutional resources, understanding the learning environment is essential for promoting competency-based medical education (CBME) as recommended by the National Medical Commission.(6) However, limited data exist on the educational climate in South Indian medical colleges using the DREEM-12 tool.

Hence, this study aims to evaluate the educational environment among undergraduate medical students using the DREEM-12 scale at a tertiary care medical institution in Puducherry, South India. The findings are expected to provide insights into students' perceptions and highlight areas for pedagogical and infrastructural enhancement in undergraduate medical training.

Material & Methods

A facility-based, cross-sectional survey on educational environment among undergraduate medical students was carried out for three months from August to October 2025. The undergraduate medical students in their

second, third and final year of MBBS course and who consent for the study were included in the study. Universal sampling was employed to recruit all the 750 students from third and final year. The study tool included two sections first covering the socio-demographic details and the next section comprised of the DREEM-12 questionnaire an abridged validated version of the DREEM-50 questionnaire with a Cronbach's alpha of 0.88. (1,7) The study tool was shared with all the participants through Google forms. Written informed consent was also obtained electronically using the same **Google forms** interface. Before the answering the study questionnaire, the initial section of the form contained the participant information sheet describing the objectives, methodology, voluntary nature of participation, and data confidentiality. Students were required to indicate their consent by selecting the 'I agree' option before proceeding to the actual questionnaire. Students were requested to respond to the DREEM-12 question items in a 5-point Likert-type scale format ranging from strongly disagree (0) to disagree (1), uncertain (2), agree (3), or strongly agree (4). Their responses were invited for a period of 14 days. The excel spreadsheet data was exported from the google form and analyzed using standard software Statistical Package for the Social Sciences (SPSS) (v24.0; IBM Corp, Armonk, New York) software. The mean score for each variable was calculated. Variable scores were summed up to get each domain score and was interpreted as very poor (0–12), plenty of problems (13–24), more positive than negative (25–36), excellent (37–48). The institute's scientific and ethics committee approval were obtained before the commencement of the study (MGMCRI/2024/03/04/IHEC/106).

RESULTS

The DREEM-12 questionnaire was passed on to 750 students of second, third and final year M.B.B.S of which responses were received from 538 students, with an approximate overall response rate of 71.73% as illustrated in figure 1.

Among 538 students participated, more than half of the students 298 (55.40%) were females and 240 (44.60%) were males. The highest proportion of participants were **third-year MBBS students 221 (44.60%)**, followed by second-year students 174 (32.34) and 143 (26.56%) final year students. Nearly three-fourth students 381 (70.80%) were hostlers, reaming 106 (19.70%) respondents were staying off campus with family and 51 (9.50%) were residing off campus away from family.

Responses were captured from 538 students for 12 items distributed under five domains. The scoring system and interpretation for the responses was performed based on Table 1.(8) The individual item and domain mean score for this study were calculated and interpreted as shown in Table 2.

Figure 1: Distribution of students based on response rate

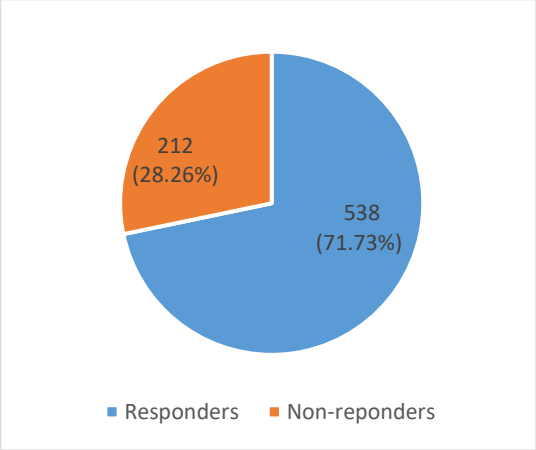

Table 1: Dundee Ready Educational Environment Measure-12 (DREEM-12) and its scoring system

Domain	Perception Item	Interpretation
Student's Perception of Learning (SPOL)	1. The teaching encourages me to be an active learner	0-2: Very poor
	2. The teaching helps to develop my confidence	3-4: Teaching is viewed negatively
		5-6: A more positive perception
		7-8: Teaching highly thought of
Student's Perception of Teachers (SPOT)	3. The course organizers are knowledgeable	0-2: Abysmal
	4. The course organizers give clear examples	4-6: In need of some retraining
	5. The course organizers have good communication skills with students	7-9: Moving in the right direction
		10-12: Model course organizers
Student's Academic Self-Perception (SASP)	6. I feel I am being well prepared for my profession	0-3: Feelings of total failure
	7. My problem-solving skills are being well developed here	4-6: Many negative aspects
		7-9: Feeling more on the positive side
	8. Much of what I have learned seems relevant to a career in healthcare	10-12: Confident
Student's Perception of Atmosphere (SPOA)	9. I am able to concentrate well	0-2: A terrible environment
	10. The atmosphere motivates me as a learner	3-4: There are many issues which need changing
		5-6: A more positive attitude
		7-8: A good feeling overall
	11. There is a good support system for students who get stressed	0-2: Miserable
		3-4: Not a nice place

Domain	Perception Item	Interpretation
Student's Social Self-Perception (SSSP)	12. My social life is good	5-6: Not too bad 7-8: Very good socially
Total score	Items of DREEM-12	0 - 12: Very poor 13 - 24: Plenty of problems 25 - 36: More positive than negative 37 – 48: Excellent environment

Table 2: Dundee Ready Educational Environment Measure-12 (DREEM-12) mean score and its interpretation

Domain	Perception Item	Mean score	Domain Mean score	Interpretation
SPOL	1. The teaching encourages me to be an active learner	3.27	6.51	Teaching highly thought of
	2. The teaching helps to develop my confidence	3.24		
SPOT	3. The course organizers are knowledgeable	3.28	9.75	Model Teachers
	4. The course organizers give clear examples	3.24		
	5. The course organizers have good communication skills with students	3.23		
SASP	6. I feel I am being well prepared for my profession	3.20	9.66	Confident
	7. My problem-solving skills are being well developed here	3.20		
	8. Much of what I have learned seems relevant to a career in healthcare	3.26		
SPOA	9. I am able to concentrate well	3.18	6.33	A More positive attitude
	10. The atmosphere motivates me as a learner	3.15		
SSSP	11. There is a good support system for students who get stressed	3.09	6.27	Not too bad
	12. My social life is good	3.18		
Total DREEM-12 mean score	Items of DREEM-12	38.52		Excellent learning environment

SPOL – Student's Perception of Learning; SPOT - Student's Perception of Teachers; SASP - Student's Academic Self-Perception; SPOA - Student's Perception of Atmosphere; SSSP - Student's Social Self-Perception.

DISCUSSION

The present study assessed the educational environment among undergraduate medical students in a tertiary care institution in Puducherry using the DREEM-12 scale. The overall mean score of **38.52/48** indicates an **excellent educational environment**, reflecting a predominantly positive perception of learning, teaching, academic support, atmosphere, and social well-being. This aligns with global literature that associates higher DREEM scores with supportive learning environments and effective curricular implementation.(9)

Overall score comparison with other Indian studies

Although only a few Indian studies have used the abridged DREEM-12 tool, findings from the available literature demonstrate similar positive trends. An Ahmedabad-based study by Mehta A et al using DREEM-12 reported a total mean score of 33.1/48, interpreted as "more positive than negative," which is slightly lower than the score obtained in the present study.(8)

When compared with other Indian studies where original DREEM-50 version was used the findings remain consistent. Studies from Gujarat and West Bengal have reported total DREEM scores ranging between 114–138/200, corresponding to "more positive than negative" educational climates.(10,11) When proportionately converted to a DREEM-12 equivalent, these scores reflect moderately positive to strong educational environments, which are comparable with the excellent score found in the present study.

Across Indian studies, SPOL (learning) and SPOT (teachers) have consistently been the strongest domains, highlighting students' appreciation for knowledgeable and supportive teachers.(8,10,11) Our findings mirror this trend, with SPOL at 6.51 and SPOT at 9.75, suggesting that teaching quality and clarity of instruction are key strengths of the institution.

Domain-wise comparison with other studies

The SPOL score (6.51) indicated that teaching methods encouraged active learning and supported student confidence. Similar findings were reported by studies from Mumbai and New Delhi, where interactive and structured teaching practices contributed to positive perceptions.(12,13) Such outcomes may reflect the increasing adoption of competency-based medical education (CBME) across Indian medical schools.

The SPOT domain received one of the highest scores, with students perceiving teachers as knowledgeable, communicative, and good role models. Positive teacher-related perceptions are frequently reported in Indian literature (8,11) and underscore the importance of faculty development programs and mentoring systems in maintaining supportive teacher–student relationships.

The SASP domain (9.66) demonstrated that students felt confident and well prepared academically. This is comparable to other Indian reports in which SASP scores

were moderate to high, reflecting supportive pedagogical structures.(14,15) This suggests that curriculum design and assessments adequately promote academic competence.

The SSSP domain (6.27) was the lowest but still fell under the "not too bad" category. Social support and well-being challenges have been consistently reported across Indian medical colleges.(8,11,16) High academic pressure, limited time for recreational activities, and stress are common contributors. The findings suggest scope for strengthened counselling services, peer support groups, and student wellness initiatives.

Conclusion

A major strength of this study is its large sample size capturing perceptions across multiple years of training through a validated, concise tool. The use of electronic data collection improved response completeness and feasibility. However, being a cross-sectional self-reported survey, the responses may be influenced by temporary academic stressors or recall bias. Additionally, direct comparisons with other Indian DREEM-12 studies are limited due to scarce published data.

Recommendation

The study demonstrates an overall excellent educational environment in the institution, with high scores in teaching quality and academic support. The findings align with trends reported in Indian literature and highlight the need to further strengthen student wellness and social support systems. Periodic DREEM-12 assessments can guide targeted improvements in learning environments and support the goals of CBME implementation in India.

Authors Contribution

All authors have contributed equally.

Financial Support and Sponsorship

Nil

Conflict of Interest

There are no conflicts of interest.

Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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