Original Research Article

Perception of Educational Environment among Undergraduate Medical Students in a Medical College in Assam

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Abstract:

Background: The academic environment of any medical college determines a student's likelihood of success. In addition to identifying the challenges and offering feedback, the aim of this research was to compare how Phase I, Phase II, and Phase III students at Assam Medical College, Dibrugarh, perceived their learning environment.

Objectives:

1. To assess, through the DREEM questionnaire, how medical students feel about their learning environment.
2. Determine whether student opinions differ based on gender.
3. Identify strengths and shortcomings in each of the 5 domains.

Methods: The DREEM (Dundee Ready Education Environment Measure) questionnaire has been utilized in a cross-sectional descriptive study that involved 408 students from various phases who were given it at various times. The students have been informed of the aim of the research and the need for confidentiality, and their cooperation was asked for. The completed surveys were gathered and subjected to statistical analysis. The mean and SD of data were shown, and a one-way analysis of variance had been utilised to find out how the scores varied among the questionnaire's five domains. Analysis was also done on the variations among the three phases and gender.

Result: The overall DREEM score was $119\pm43.53/200$ (interpretation: predominantly positive). The results attained across the various domains have been 27.90 ± 9.72 in SPL (interpretation: a more positive perception); 26.98 ± 10.42 in SPT (interpretation: moving in the right direction); 19.89 ± 8.56 in SAP (interpretation: feeling more in the positive side); 28.53 ± 9.94 in SPA (interpretation: a more positive atmosphere); and 16.23 ± 4.90 in SSSP (interpretation: not too bad). Students who were female had a higher DREEM score than students who were male, although not significant statistically. Nonetheless, the study pointed out certain inadequacies in the environment of learning.

Conclusion: Perceptions of students for their environment of learning are influenced by a broad range of hidden and diverse factors. Monitoring student feedback should be an on-going process to pinpoint problem areas and quickly implement any necessary corrective actions.

Keywords: Learning environment, Students' perception, Domain.

Introduction

An undergraduate student must acquire a variety of distinct and varied competencies upon successfully completing the challenging, demanding, and stressful curriculum that is medical education [1]. The part of the environment of learning in undergraduate medical education has drawn increasing attention and concern in recent years [2,3].

In medical education, the emphasis is shifting from the teacher to the student, with the job of the teacher being to support learning by offering materials along with a welcoming atmosphere. Prior to creating and executing a thorough curriculum, it is imperative to comprehend how students view the educational environment. Additionally, it will support stakeholders and faculty in taking stock of their actions and making necessary adjustments to preserve a top-notch learning environment [4].

One of the key elements influencing the success of an efficient curriculum is the educational environment [5]. The term 'educational environment' describes a range of elements and activities that support learning. These include the faculty, the resources used for instruction, monitoring, and assessment, as well as the methods

and techniques of teaching and learning. The educational setting has a direct effect on the students' performance [6]. In terms of students' success, happiness, motivation, and achievement, it has been established that a high-quality learning environment is essential [7,8]. An unfavourable learning environment interferes with students' social lives and hinders their capacity to learn and acquire knowledge [9]. In medical curriculum, where healthcare and patients are central to the curriculum, the provision of a conducive learning environment is very important [10].

Students may respond differently to a variety of minor variables in their learning experience. If we are able to identify the elements that make up the atmosphere or environment of education of a particular institution & course and gauge how instructors and students view them, we could change the elements to improve the process of learning in association with our instructional goals [11]. The Educational Environment may be assessed and modified using proper methodologies and instruments [12]. The DREEM questionnaire accurately captures the unique environment faced by all healthcare students [13]. This could be utilized to illustrate the advantages & disadvantages of a particular educational establishment, assess the effectiveness and performance of other medical colleges ,compare students from various years of study, and examine gender differences. It might also be recommended to adjust the curriculum and compare it to the previous one [12].

This study was performed on the Phase I, Phase II and Phase III students of Assam Medical College and Hospital, Dibrugarh with the mentioned objectives:

1. To evaluate, through the DREEM questionnaire, how medical students feel about their learning environment.

2. Determine whether student opinions differ based on gender.

3. Identify strengths and shortcomings in each of the 5 domains.

Materials and Methods:

In February and March of 2023, cross-sectional descriptive research had been performed at the Assam Medical College and Hospital in Dibrugarh, Assam, India. The Assam Medical College and Hospital's Institutional Ethics Committee granted approval (Approval no. AMC/EC/243 dated 25-01-2023). The study involved 600 students enrolled in the 1st, 2nd, and 3rd phases of their study. 408 people in total filled out the forms, consented and submitted them.

Study area: Assam Medical College and Hospital, Dibrugarh, Assam.

Study Populations: 3 phases of medical students of AMC&H, Dibrugarh, Assam.

Study Period: February 2023 to March 2023

Sample size: Total enumeration method.

Inclusion criteria: Students who will give consent for participation in the research.

Exclusion criteria: Students who decline to provide permission to take part in the study.

Data Collection tool: A prevalidated, globally approved DREEM questionnaire has been utilized as the survey method to gather information on students' perceptions of the educational environment provided by institution [12]. The responses were examined and analysed in accordance with McAleer and Roff's useful recommendations [12].

The 50 statements in each of the five categories that make up the DREEM questionnaire are scored utilizing a five-point Likert scale that goes from strongly agree (4) to strongly disagree (0). Conversely, negative comments were graded in the opposite order. The optimal state was indicated by the max score of 200 for these 50 criteria. The following were the five DREEM inventory "domains:

(a) Students' Perception of Learning (SPL)- 12 items. (Maximum score is 48).

(b) Students' Perception of Teachers (SPT)- 11 items. (Maximum score is 44).

(c) Students' Academic Self Perception (SASP)- 8 items. (Maximum score is 32).

(d) Students' Perception of Atmosphere (SPA)- 12 items. (Maximum score is 48).

(e) Students' Social Self-Perception (SSSP)- 7 items. (Maximum score is 28).

The overall score for all subscales is" 200.

Table 1: Practical guidelines for interpreting DREEM scores by McAleer and Roff

Total score
0 to 50 Very poor
51 to 100 Significant problems
101 to 150 More positive than negative
151 to 200 Excellent

Subscales
1. SPL (Student Perception of Learning)
0 to 12 Very poor
12 to 24 Negatively viewed teaching
25 to 36 More positive perception
37 to 48 Teaching highly regarded
2. SPT (Student Perception of Teacher)
0 to 11 Very poor
12 to 22 Negatively viewed teaching
23 to 33 Moving in the right direction
34 to 44 Teaching highly regarded
3. SASP (Student Academic Self-Perception)
0 to 8 Feelings of total failure
9 to 16 Many negative aspects
17 to 24 Feeling more on the positive side
25 to 32 Confident
4. SPA (Student Perception of Atmosphere)
0 to 12 Very poor environment
13 to 24 Many issues need changing
25 to 36 More positive attitude
37 to 48 Good overall feeling
5. SSSP (Student Social Self-Perception)
0 to 7 Miserable
8 to 14 Not a nice place
15 to 21 Not too bad

Items with a mean score of ≤ 2 indicate problem areas which need to be reviewed and fixed right away, whereas items having a mean score of more than 3 generally represent a strong area. Items having a mean score of 2 to 3 indicate areas that are not strong points or weaknesses, but might be improved.

Following a lecture class, the questionnaire was given to each phase I, II, and III student group at various times. The goal and methodology of the data collection were discussed with the class prior to the questionnaire being administered. The study's outline was presented to the students, who were also told that their participation would stay anonymous as all data gathered would be de-identified. They were informed that the information would be used for both research and quality control, and their cooperation has been asked.

Students who were unavailable on a given day have been requested to complete the survey at a later time. The students' anonymity was preserved.

Every DREEM item was given a score between 0 and 4, with strongly agree, agree, disagree, uncertain, and strongly disagree receiving scores of 4, 3, 2, 1, and 0, respectively. For the negative items, reverse scoring was applied (9 items namely Items 4,8,9,17,25,35,39,48 and 50).

Data Analysis: Microsoft Excel 2007 has been utilized for data collection & compilation, and SPSS 20 has been utilized for data transformation and assessment. Frequency, mean, percentage and SD have been examples of descriptive statistics that are used to characterise related variables and demographics. The differences in scores between the five domains and their subscales were determined using a one-way analysis of variance.

Results

Out of 600 students, 408 filled in the forms & submitted them. 226 were female (55.39%) and 182 (44.60) were males. Phase I had 164 (35.1%), Phase II had 119 (23.5%) and Phase III had 125 (20.6%) students. The study population (n = 408) had a mean DREEM score of 119±43.53/200, representing a more positive as compared to a negative perception of learning. Table 2-6 displays the total mean score for every DREEM item across the various domains in Phase I, Phase II, and Phase III, along with the overall scores. The mean DREEM scores for all 5 domains are compared among the various student phases and gender in Tables 7 and 8. For every domain, there have been no statistically important variations in mean values among the male & female participants.

Table 2: Mean score of each item in the SPL domain.

Item no.	SPL	Phase I Mean±SD	Phase II Mean±SD	Phase III Mean±SD	Overall Mean±SD
1	I am urged to engage in class discussion.	2.66±1.0	2.52±1.29	2.51±1.3	2.57±1.21
7	The teaching is frequently engaging.	2.52±0.96	2.50±1.41	2.46±1.44	2.50±1.26
13	The focus of the teaching is the students.	2.49±1.13	2.40±1.23	2.37±1.25	2.43±1.20
16	The teaching is focused enough on helping me advance my skills.	2.64±1.10	2.45±1.15	2.42±1.18	2.52±1.14
20	The teaching is well-focused	1.68±1.07	2.54±1.28	2.51±1.30	2.59±1.21
22	The teaching is focused enough on building my confidence.	2.40±1.09	2.50±1.27	2.46±1.30	2.45±1.21
24	The time spent educating is well-used.	2.50±1.00	2.35±1.41	2.32±1.43	2.40±1.27
25	Factual learning is overemphasized in the teaching.	1.66±1.04	1.73±1.23	1.72±1.25	1.70±1.16
38	I understand the course's learning objectives.	2.44±1.05	2.37±1.23	2.32±1.25	2.38±1.16
44	I am encouraged to be an engaged learner by the teacher.	2.44±1.19	2.27±1.36	2.22±1.38	2.32±1.30
47	Long-term learning is emphasised over short-term	2.09±1.24	2.20±1.49	2.09±1.49	2.12±1.40
48	The teaching is too teacher-centered	1.68±1.02	1.95±1.33	1.94±1.33	1.85±1.22

Table 3: Mean score of each item in the SPT domain.

Item no.	SPT	Phase I Mean±SD	Phase II Mean±SD	Phase III Mean±SD	Overall Mean±SD
2	The teachers are knowledgeable	2.80±1.37	2.74±1.41	2.70±1.43	2.75±1.40
6	The teachers provide instruction based on research.	2.54±1.20	2.66±1.54	2.61±1.57	2.60±1.42
8	The teachers ridicule the students	2.34±1.16	2.90±1.20	2.90±1.20	2.67±1.22
9	The teachers are authoritarian	1.91±1.12	1.90±1.45	1.95±1.45	1.92±1.34
18	My teachers assist me in developing my practical abilities.	2.56±1.24	2.45±1.28	2.42±1.30	2.49±1.27
29	Teachers do a great job of giving students feedback.	2.40±1.11	2.31±1.45	2.28±1.46	2.34±1.33
32	Here, the teachers offer helpful critiques.	2.58±1.16	2.23±1.35	2.18±1.38	2.36±1.30
37	The teachers give clear examples	2.55±1.14	2.46±1.38	2.42±1.41	2.49±1.30
39	The teachers get angry in the class	2.26±1.21	2.08±1.05	2.10±1.07	2.15±1.12
40	The teachers are ready for their lectures.	2.82±1.23	2.62±1.35	2.56±1.37	2.68±1.31
50	Teachers get irritated with the students.	2.27±1.16	2.40±1.16	2.38±1.18	2.34±1.16

Table 4: Mean score of each item in the SASP domain.

Item no.	SASP	Phase I Mean±SD	Phase II Mean±SD	Phase III Mean±SD	Overall Mean±SD
5	Acquiring knowledge of techniques that have helped me in the past and still help me now	2.49±1.05	2.31±1.43	2.28±1.43	2.37±1.29
10	I have confidence that I will pass this year.	2.66±1.27	2.47±1.36	2.42±1.38	2.53±1.33
21	The teaching boosts my self-assurance.	2.54±1.22	2.43±1.36	2.38±1.37	2.46±1.31
26	The work from the previous year served as a useful basis for the work this year.	2.48±1.10	2.69±1.23	2.66±1.26	2.60±1.19
27	I am able to memorise all I need	1.90±1.12	1.94±1.28	1.91±1.08	1.91±1.16
31	I now know a great deal more about how scientific research is conducted.	2.62±1.17	2.69±1.33	2.66±1.33	2.65±1.27
41	Here, my ability to solve problems is being greatly enhanced.	2.42±1.08	2.65±1.20	2.62±1.22	2.55±1.16
45	Much of what I have to learn seems relevant to a career in biological sciences	2.63±1.14	2.69±1.35	2.66±1.36	2.66±1.27

Table 5: Mean score of each item in the SPA domain.

Item no.	SPA	Phase I Mean±SD	Phase II Mean±SD	Phase III Mean±SD	Overall Mean±SD
11	The atmosphere is relaxed during laboratory/practical/fieldwork classes	2.18±1.08	2.30±1.20	2.28±1.21	2.25±1.15
12	The course is well timetabled	2.40±1.14	2.22±1.41	2.14±1.43	2.27±1.32
17	Cheating is a problem in this faculty	2.29±1.30	2.22±1.40	2.24±1.42	2.25±1.36
23	The atmosphere is relaxed during lectures	2.39±1.07	2.50±1.27	2.47±1.27	2.45±1.19
30	There are chances for me to improve my social abilities.	2.68±1.17	2.56±1.38	2.52±1.41	2.60±1.31
33	Socially, I feel at ease in the classroom.	2.45±1.12	2.41±1.36	2.37±1.37	2.41±1.27
34	The atmosphere is relaxed during seminars/tutorials	2.58±1.09	2.18±1.30	2.13±1.32	2.33±1.24
35	I thought the experience was underwhelming.	2.28±1.12	2.35±1.34	2.33±1.37	2.32±1.26
36	I have good concentration.	2.33±1.05	2.46±1.21	2.42±1.23	2.40±1.15
42	The enjoyment outweighs the stress of the course	2.20±1.17	2.70±1.27	2.66±1.29	2.49±1.26
43	The atmosphere motivates me as a learner	2.38±1.10	2.50±1.33	2.47±1.34	2.44±1.24
49	I think I can ask the questions I want to.	2.18±1.10	2.45±1.25	2.42±1.27	2.33±1.20

Table 6: Mean score of each item in the SSSL domain.

Item no.	SSSP	Phase I Mean±SD	Phase II Mean±SD	Phase III Mean±SD	Overall Mean±SD
3	A great support network is in place for students who experience stress.	2.14±1.15	2.22±1.40	2.19±1.41	2.18±1.31
4	I'm too tired to enjoy this class.	1.99±1.20	1.83±1.42	1.82±1.41	1.88±1.34
14	I am rarely bored in this course	1.88±1.14	1.91±1.06	1.96±1.08	1.91±1.09
15	I have good friends in this faculty	2.54±1.17	2.65±1.16	2.66±1.18	2.61±1.17
19	My social life is good	2.39±1.15	2.67±1.13	2.66±1.14	2.56±1.15
28	I seldom feel lonely	2.29±1.16	2.48±1.18	2.47±1.19	2.40±1.18
46	My accommodation is pleasant	2.33±1.23	2.33±1.17	2.34±1.18	2.33±1.19"

Table 7: Mean DREEM scores for all the five domains between the different phases of students.

Domain	Maximum score	Total score Mean± SD	Phase of study Mean± SD		P value
SPL	48	27.90±9.72	I	28.19±8.12	0.856
			II	27.87±10.61	
			III	27.55±10.77	
SPT	44	26.98±10.42	I	27.02±8.65	0.972
			II	27.10±11.45	
			III	26.80±11.52	
SASP	32	19.89±8.56	I	19.87±7.45	0.969
			II	20.04±9.18	
			III	19.76±9.32	
SPA	48	28.53±9.94	I	28.34±8.73	0.908
			II	28.85±10.70	
			III	28.45±10.73	
SSSP	28	16.23±4.90	I	15.88±4.99	0.505
			II	16.48±4.86	
			III	16.44±4.83	
Total score	200	119.53±43.53	I	119.32±32.62	0.957
			II	120.36±40.29	
			III	119.01±37.38	

Table 8: Mean DREEM scores for all the 5 domains according to gender.

Domain	Maximum score	Gender (Mean± SD)		P value
SPL	48	Male	27.50±9.64	0.354
		Female	28.39±9.83	
SPT	44	Male	26.30±9.85	0.146
		Female	27.80±11.04	
SASP	32	Male	20.49±7.39	0.122
		Female	19.17±9.76	
SPA	48	Male	28.43±9.58	0.829
		Female	28.64±10.39	
SSSP	28	Male	16.48±4.84	0.259
		Female	15.93±4.97	
Total	200	Male	119.19±35.44	0.840
		Female	119.94±39.70	

Discussion:

The overall DREEM score was interpreted to be predominantly positive. The scores attained in the various domains have been 27.90±9.72in SPL (interpretation: a more positive perception); 26.98±10.42 in SPT (interpretation: moving in the right direction); 19.89±8.56 in SAP (interpretation: feeling more in the positive side); 28.53±9.94in SPA (interpretation: a more positive atmosphere); and 16.23±4.90 in SSSP (interpretation: not too bad). While not statistically significant, female students' DREEM scores have been greater as compared to male students. Nonetheless, the study pointed out certain inadequacies in the learning environment.

The study's mean DREEM score was 119±43.53/200, suggesting those participants' perceptions of learning and their educational setting were more favourable than unfavourable. Comparable research conducted outside of India indicates that the mean score in Sri Lanka is 108 [14], in Nigeria, it is 118 [15], in Pakistan it is 125 [2], in the UK it is 139 [16], and in Saudi Arabia, it is 126.4 [17]. The mean scores, according to certain Indian research, are 117 [18], 123 [13], 126.3 [19], and 123 [20], in that order.

The SPL domain's overall score in the current study was 27.90±9.72, which was interpreted as a more positive perception. The mean score in females is more than in males. With the passage of time, students' perceptions of learning declined. Additionally, females' perceptions of learning were higher than males', which could be described by the fact that females tend to learn differently and spend more time studying [21]. With two exceptions (the teacher places too much focus on factual learning and the teaching is too teacher-centred), which could be improved—all of the items in this domain had mean scores between two & three. To make the learning experience more learner-centric, teaching-learning activities would need to be changed with the active involvement of the student, with students having opportunities for self-

directed learning [13] and structured and systematic teaching.

The overall SPT domain score in the current study was 26.98±10.42, which was considered a positive development. The mean score for females was higher than for males. The majority of the items in this domain had mean scores ranging from two to three. There was one problematic area with mean scores <2 - item 9 (The teachers are authoritarian). For competency-based medical education, the teaching staffs needs to be inspired to learn cutting-edge teaching techniques. To refresh faculty members' knowledge of effective learning feedback techniques, it is important to highlight the role of teacher training programs [22].

The study's overall SASP domain score was 19.89±8.56, which was interpreted as feeling more optimistic. Students in Phase II scored higher. With the exception of item 27, this is a problematic area with a mean score less than 2, the majority of the items in this domain also received mean scores between 2 and 3. The low score of item 27 (I am able to memorise all I need) is reported in many studies [5,7,11,21,23] indicating that the core curriculum should be significantly reduced while encouraging peer-to-peer learning [24].

The current study's mean SPA domain score was 28.53±9.94, which was interpreted as a more upbeat environment. A slightly higher score was obtained by female students. The mean scores for every item in this domain ranged from 2 to 3. The way that students perceive the atmosphere reflects the actual life that goes on in the classroom and at the campus and, consequently, the vibrancy of the curriculum [14].

The current study's mean SSSP domain score was 16.23±4.90, which was considered to be fairly good. The mean scores for every item in this domain ranged from 2 to 3. Problematic areas were indicated by mean scores of less than two for items 4 (I am too tired to enjoy the course) and item 14 (I am rarely bored in this course). To find out what causes boredom, research should be done. Making the

course more engaging requires taking the necessary actions. Improved access to health professionals, more regular and effective class scheduling, enhanced mentoring and career planning services, improved communication between the teachers and students etc. could all contribute to students' improved social lives.

Acknowledgement:

Strength and Limitation: Assam Medical College is the first medical college of Assam, located in rural areas, it strives to offer exceptionally competent facilitators & supportive infrastructure. However, a literature review has shown that very few researches has been performed on the educational environment in this region of the country. So, it is the first survey and more than 60% of students have given their responses. This inspired us to gather baseline information on how students felt about the learning environment at our institute in order to pinpoint areas for growth and development as well as areas of strength and weakness.

The cross-sectional nature of our study meant that participant demographics and educational stages varied, which presented a limitation. Perceptions of pre, Para and clinical students about EE were different. Secondly, although the Google form was circulated in the classroom, not all students responded to it. Thirdly, DREEM items are close-ended and hence qualitative information could not be collected.

Conclusion

Students had a positive perception of our institution's learning environment. Only a small number of the DREEM score criteria require the academic affairs department to take concrete steps to improve them and make them more in line with teaching and learning. As this is the first study of its kind at our college, it can offer a baseline report to monitor the impacts of a positive learning environment over the next few years.

References

1. Divaris K, Barlow PJ, Chendea SA, Cheong WS, Dounis A, Dragan IF, et al. The academic environment: the students' perspective. Eur J Dent Educ 2008; Suppl 1:120-30.
2. Khan JS, Tabasum S, Yousafzai UK Fatima M. DREEM on: Validation of the Dundee Ready Education Environment Measure in Pakistan. J Pak Med Assoc 2011; 61: 885-88.
3. Pierre RB, Branday JM, Pottinger A, Wierenga A. Students' perception of the educational climate at the Faculty of Medical Sciences, The University of West Indies, Jamaica. West Indian Med J 2010; 59: 45-9.
4. Rukadikar AR, Rukadikar C, Jaiswal N. Perception of 1st MBBS students about educational environment through 'DREEM' questionnaire. J Educ Technol Health Sci 2021; 8(3):111-116.
5. Bassaw B, Roff S, McAleer S, Roopnarinesing S, Lisle JD, Teelucksing S, Gopaul S: Students' perspectives on the educational environment, Faculty of Medical Sciences, Trinidad. Med Teach 2003, 25:522-526.
6. Hutchinson L. Educational Environment. BMJ. 2003; 326 (7393):810-12.
7. Arzuman H, Yusoff MS, Chit SP. Big Sib students' perceptions of the educational environment at the School of Medical Sciences, Universiti Sains Malaysia, using Dundee Ready Educational Environment Measure (DREEM) Inventory. Malays J Med Sci. 2010; 17:40-47.
8. Al-Ayed IH, Sheik SA. Assessment of the educational environment at the College of Medicine of King Saud University, Riyadh. East Mediterr Health J. 2008; 14(4):953-59.
9. Audin K, Davy J, Barkham M. University quality of life and learning (UNIQoLL): An approach to student wellbeing, satisfaction and institutional change. J Further High Educ. 2003; 27(4):365-82.
10. Soemantri D, Herrera C, Riquelme A. Measuring the educational environment in professions studies: A systematic review. Med Teach. 2010; 32(12):947-52.
11. Roff S, McAleer S, Ifere OS, Bhattacharya S. A global diagnostic tool for measuring educational environment: Comparing Nigeria and Nepal. Med Teach 2001; 23:378– 82.
12. 12.Roff S, McAleer S, Harden R, Al-Qahtani M, Ahmed AU, Deza H, et al. Development and validation of the Dundee Ready Education Environment Measure (DREEM). Med Teacher. 1997; 19(4):295-99.
13. Pai PG, Srikanth VM, Subramanian AM, Shenoy JP. Medical Students' Perception of Their Educational Environment. Journal of Clinical and Diagnostic Research. 2014; 8(1):103-07.
14. Jiffry MT, McAleer Fernandoo S, Marasinghe RB. Using the DREEM questionnaire to gather baseline information on an evolving medical school in Sri Lanka. Medical Teacher. 2005; 27:348-52.
15. Genn JM. AMEE medical education guide No. 23 (Part 2): Curriculum, environment, climate, quality and change in medical education-a

unifying perspective. Med Teach. 2001; 23(5): 445-54.

16. Varma R, Tiyagi E, Gupta JK. Determining the quality of educational climate across multiple undergraduate teaching sites using the DREEM inventory. BMC Medical Education. 2005; 5(1):8.

17. Al-Natour SH. Medical students' perceptions of their educational environment at a Saudi university. Saudi J Med Med Sci. 2019; 7:163-68.

18. Abraham R, Ramnarayan K, Vinod P, Torke S. Students perceptions of learning environment in an Indian medical school. BMC Medical Education. 2008; 8:2.

19. Tripathy S, Dudani S. Students' perception of the learning environment in a new medical college by means of the DREEM inventory. Int J Res Med Sci. 2013; 1(4):385-91.

20. Patil AA, Chaudhari VL. Students' perception of the educational environment in medical college: A study based on DREEM questionnaire. Korean J Med Educ. 2016; 28(3):281-88.

21. Nosair E, Mirghani Z, Mostafa RM. Measuring students' perceptions of educational environment in the PBL program of Sharjah Medical College. Journal of Medical Education and Curricular Development. 2015; 2:71-79.

22. Norcini J. The power of feedback. Med Educ. 2010; 44:16-17.

23. Till H. Identifying the perceived weakness of a new curriculum by means of the Dundee Ready Educational Measure (DREEM) Inventory. Med Teach. 2004; 26(1):570-73.

24. Davis MH, Harden RM. Planning and implementing an undergraduate medical education curriculum: The lesson learned. Med Teach. 2003; 25:596-608.