What do the undergraduate medical students think of their educational environment: An inquiry through DREEM inventory

Surendra Singh
Assistant Professor, Department of Community Medicine, Veer Chandra Singh Garhwali Government Institute of Medical Sciences and Research, Srinagar, Pauri, Uttarakhand, India-246174
Email: surendra.109@gmail.com

Vijay Kumar
Associate Professor, Department of Community Medicine, Phulo Jhano Medical College, Dumka, Jharkhand, India-814101
E-mail: vijay.pmch@gmail.com

Dilip Kumar Paswan
Senior Resident, Department of Community Medicine, Medinirai Medical College, Palamu, Jharkhand, India-822101
Email: dilipmyself09@gmail.com

Risabh Kumar Rana
Assistant Professor, Department of Community Medicine, Shaheed Nirmal Mahto Medical College, Dhanbad, Jharkhand, India-826001
E-mail: bakwasandsony@gmail.com

Abstract---Context: Assessment of medical education is important to identify the deficiencies in medical educational environment. Dundee Ready Education Environment Measure (DREEM) is a pre-validated inventory tool that helps to assess and thereby address those deficiencies. Aims: To know about the student's perception regarding the education environment at Rajendra Institute of Medical sciences (RIMS), Ranchi. Methods and Material: This cross-sectional study was conducted amongst the undergraduate medical students of 2017, 2018 and 2019 batch studying at RIMS, Ranchi; between the periods of January 2020 to March 2020. Statistical analysis used: Means (with standard deviations) were used to describe sample variables. Mann Whitney U test was used to compare the individual as well as the subscale and overall scores with gender and the Kruskal Wallis H test was used to compare the subscale and overall sores with the

---

batch to which respondent belonged to. Results: Out of a total 450 students, 291 submitted the Google forms representing an overall response ratio of 65%. Most number of responses was submitted by undergraduates from 2019 batch (93%). More than half of the respondents were female (59.8%). There was a significant difference in the overall DREEM scores across male and female respondents, with males seemingly more satisfied with the overall educational environment, 126.05 vs 120.76 (p .038). Conclusions: The overall DREEM score represents more positive than negative environment however individualised items on the inventory need to be strengthened.

Keywords---education, Dundee, inventory, learning, student, medical.

Introduction

"Learning is multi-factorial and is affected by the learner's motivation and the perception of relevance" [1]. The context and the environment in which learning is taking place are also vital to education [1]. In fact behavioural learning theories propose that stimulus in the environment can produce changes in the individual [2]. Educational environment is in essence the sum of all influences that impact the process of learning in students. A positive medical education environment is related to student's experiences of their achievements, satisfaction and success [3]. Educational environment has also been proven to be an important determinant for performance related outcomes in medical and dental settings [4, 5].

The undergraduate medical students are the future clinicians and as such it is imperative for medical colleges to provide them with scholarly education. Inherent to this process, is the need for periodic assessment of medical education. The importance of assessment in medical education has been also stressed by the National Medical Commission (NMC), the apex body governing medical education in India. NMC stresses on competency based assessment which due to its secular nature, provision of developmental feedback and authentic settings, results in lowering the dependence on individual assessments [6].

Assessment should be critical to the needs of its students and should help in identifying the deficiencies so that rederessal mechanisms are instituted. For example assessment of medical education may help in updating the curriculum, adapt the teaching habits of teachers, modify the physical environment so that it may be more conducive to learning etc. Multiple validated tools are available for assessing the medical educational environment like Dundee Ready Education Environment Measure (DREEM), Postgraduate Hospital Educational Environment Measure (PHEEM), Medical Education Environment Measure (MEEM) etc. However DREEM has been the most widely used and reported scale to measure educational environment in multiple medical education settings [7]. DREEM helps to measure student's perception of their medical educational environment.

The present study used DREEM to assess the educational environment in Rajendra Institute of Medical Sciences, Ranchi which is one of the premier institutes for medical education in Eastern India. This study is one of the few studies that have been conducted in this part of the country and aims to recognise the strengths and limitations of the educational environment prevalent at this institute from the student's perspective and thus to address the deficiencies that was identified.

Subjects and Methods

Study setting: Rajendra Institute of Medical Sciences (RIMS), Ranchi is an apex medical institute in the state of Jharkhand that has been training undergraduate and post graduate medical students for long. Each year at least 150 undergraduate students take admission in the medical degree programme at the institute, wherein they are trained in promotive, preventive, curative and other clinical skills. This cross-sectional study was conducted amongst the undergraduate medical students of 2017, 2018 and 2019 batch studying at RIMS, Ranchi; between the periods of January 2020 to March 2020.

Study population and Sampling method: The study population were all the medical undergraduates from batches 2017, 2018 and 2019 and were willing to participate in the study after providing informed consent and the sampling technique used in this study was Convenience sampling. Study procedure: Before the data collection period at least one researcher explained about the nature of study as well as the data collection form and format in all the three batches. Thereafter a Google form containing the questions was framed and the link of the form was shared and circulated to the undergraduate students through internet. Filing of completed Google forms by respondents was considered as consent to participate in the study. The participants were also assured of confidentiality of their data and that their data would be analysed without any personal identifiers.

Data Collection tool: The Dundee Ready Education Environment Measure (DREEM) is a pre validated tool to measure learning environment of an educational institution. It consists of 50 Likert type statements which are scored "Strongly agree" (4), "Agree" (3), "Unsure" (2), "Disagree" (1) and "Strongly disagree" (0) to give a maximum overall score of 200. In addition to providing an overall score, DREEM also provides the individual measure for items in the inventory and subscale measures, which give student's insight into five other domains: Student's perception of learning, SPoL (12 questions), Student's perception of teachers, SPoT (11 questions), Student's academic self-perception, SASP (8 questions), Student's perception of atmosphere, SPoA (12 questions), and Student's social self-perception, SSSP (7 questions). For individual items, with a mean score greater than 3.5 indicate a more positive outlook while mean scores below 2 are problematic areas that need to be addressed. Items that fall within the scores of 2 – 3 represent areas that can be strengthened. For subscale and overall scores, the interpretation of the scores was done based on the recommendations by McAleer and Roff, Table-1 [8]. Reverse coding was required for 9 items on the scale. Higher scores indicate a more satisfactory outcome of the evaluation.

Statistical analysis: The data were analyzed using Statistical Package of Social Science (SPSS Version 20). Means (with standard deviations) were used to describe sample variables. Data was checked for normality by Kolmogorov-Smirnov test as well as by checking their distribution. Mann Whitney U test was used to compare the individual as well as the subscale and overall scores with gender and the Kruskal Wallis H test was used to compare the subscale and overall sores with the batch to which respondent belonged to. Post hoc test using Dunn's procedure with a Bonferroni adjustment was used for determining significance among the variables. Missing data was dealt with by available case analysis, as our sample was large enough to be adequately powered. For analysis $p < 0.05$ was considered statistically significant for all tests of hypothesis.

Ethical clearance

The ethical approval for the study was obtained from Institutional Ethics Committee of RIMS, Ranchi.

Results

Baseline characteristics

Out of a total 450 students, 291 submitted the Google forms representing an overall response ratio of 65%. Most number of responses were submitted by undergraduates from 2019 batch (93%) followed by 2018 batch (64%) and 2017 batch (37%). More than half of the respondents were female (59.8%). The mean age of the respondents was 20.12 ± 1.3 years with minimum and maximum ages ranging from 17 years to 24 years. Almost all (89.3%) had attended coaching classes prior to admission into the medical programme. However at least half (67%) of the students reported that their coaching class was situated outside their city of residence. More than half had parents who had completed graduation (57%) while some also had completed post graduation (23.7%) and only some of the parents were illiterate (2.1%). Only a fraction of the students (7.9%) were receiving any kind of allowance under central/state government scheme.

Gender differences in DREEM

There was a statistically significant difference in the overall DREEM scores across male and female respondents, with males seemingly more satisfied with the overall educational environment, 126.05 vs 120.76 (p .038) Table-1. Statistically significant difference between male and females was also found between Student's Perception of Teaching, 28.00 vs 26.31(p .002), Student's Perception of Atmosphere, 30.55 vs 29.08 (p .039) and Student's Academic Self-Perception, 20.39 vs 19.37 (p .038) Table-1; wherein more males perceived the environment to be positive. For the subscale of Student's Perception of Learning and Student's Social Self-Perception, there was no significant difference in the scores of males and females, 30.04 vs 29.46 and 17.05 vs 16.53 respectively.

Individual DREEM inventory items for the variable Gender are shown in Table-2. For the domain student's perception of learning (SPoL), statistically significant differences were found between means for the males and females for the items

"the teaching is student centred", "teaching is well focussed", "I am clear about the learning objectives of the program" and "the teaching helped them to be active learners" , with higher mean scores for males. On negatively worded items in SPoL namely, "the teaching over emphasises factual learning" and "teaching being too teaching centred" mean values for males were statistically significantly lower than for females. Similarly for the domain, student's perception of teaching (SPoT), statistically significant differences with greater mean values for males were found for the items "the teacher's are knowledgeable", "teachers adopt a patient centred approach to consulting", "the teachers have good communication skills with patients", "the teachers give clear examples" and "the teachers are well prepared for their class". In contrast, females had statistically significant lower mean values for the negative items in SPoT for the items "the teachers get angry in class" and "the students irritate the teachers". Four items in student's perception of atmosphere (SPoA) were of statistically significant difference between the males and females, with higher mean scores for males; which were "the atmosphere is relaxed during clinic teaching", "there are opportunities for me to develop interpersonal skills", "I feel comfortable in class socially" and "the atmosphere is relaxed during tutorial and practical sessions". Among the domain of Student's Academic Self-Perception (SASP), three items, namely, "learning strategies which worked for me before continue to work for me now", "I feel I am being well prepared for my profession" and "my problems solving skills are being well developed here" were found to statistically differ between males and female. For the items "my social life is good" and "my accommodation is pleasant", measured under the domain Student's Social Self-Perception (SSSP), mean for males differed significantly from females.

Batch differences in DREEM

There were differences in the overall score and subscale scores across the different batches but these differences were not statistically significant. 2018 Batch had the highest overall score, 124.20, 14.64 (mean, SD), meaning that out of the three batches they were most satisfied with their educational environment. 2018 Batch also had the highest subscale score for Student's Perception of Learning 30.23, 4.09 (mean, SD), Student's Perception of Atmosphere 30.30, 4.27 (mean, SD) and Student's Social Self-Perception 16.96, 3.09 (mean, SD). In contrast 2019 Batch had the highest subscale score for the domains Student's Perception of Teaching 27.50, 4.41 (mean, SD) and Student's Academic Self-Perception 19.85, 3.55 (mean, SD).

Discussion

To the best of our knowledge this is the first study that has been conducted in Jharkhand which tries to assess the perceptions of undergraduate medical students regarding their educational environment using a validated tool. These findings were used to address the lacunae found out in the course of our study. The mean age of the participants, 20.12 ± 1.3 years, in our study was similar to other studies [9, 10] indicating that relatively younger student's got admitted to medical colleges. Similarly greater number of female respondents participated in the present study which matches the distribution of gender across the different batches. Coaching before joining the medical education programme was

commonly seen and is in accordance to the current socio-cultural norms that govern education; moreover the tendency of small town students to shift to cities that are epicentre of coaching is quite common and this phenomenon was also found out in the present study.

Overall mean DREEM scores for the institute was 122.89 ± 18.05, which represented a more positive than negative environment and is closer to the mean scores reported in different studies [9, 11, 12]. The overall subscale scores for the domains SPoL 29.69 ± 5.0, SPoT 26.99 ± 4.4 and SASP 19.78 ± 3.76 were also found to be more positive than negative. This is due to the greater engagement of students by teachers. Regarding the SPoA 29.67 ± 5.54 and SASP scores 16.74 ± 3.44, the students found the atmosphere to be fostering more positive attitude and their social perception of the environment to be not too bad. These findings mirror other studies from India [9, 12].

Gender and DREEM

In the present study males had higher overall scores for DREEM, Table-2, showing that the males were more satisfied with the prevailing educational environment than the females. Moreover for all the domains males had higher scores than females. These findings were also reported from a study done amongst students enrolled in health sciences programs at KLE University, Karnataka [13]. However our study found significant differences across gender for the domains Student's Perception of Teaching, Student's Perception of Atmosphere and Student's Academic Self-Perception while the study from KLE reported significant difference between the domains of Students Perception of Learning, Student's Perception of Atmosphere and Student's Social Self-Perception [13]. Another study reported significant differences in their perception of teachers [14]. These findings can be explained in terms of unique settings found across different educational institutions. Moreover greater engagement of teachers at this institute may also explain these findings.

On comparing the percentage distribution across domains in between the genders, more number of females perceived learning (85.1% vs 73.5%), atmosphere (79.3% vs 74.4%) and social elements (60.8% vs 39.2%) to be positive. This was in contrast to the domain of teaching (84.6% vs 76.4%) and academic self perception (81.2% vs 72.4%) wherein greater number of males felt that teaching was moving in the right direction and that the course organizers were very efficient. For the individual items, Table-3, in the domain student's perception of learning (SPoL); "the teaching is student centred", "teaching is well focussed", "I am clear about the learning objectives of the program" and "the teaching helped them to be active learners", significantly higher mean scores were obtained for males. The means for all the four items for both males and females was within 2 - 3 which indicates that learning of students can be improved further. Similarly another study also found statistical difference between the genders across the item "the teaching helped them to be active learners" [14]. These results point towards the need of greater participation of females in the learning process. On negatively worded items in SPoL namely, "the teaching over emphasises factual learning" and "teaching being too teaching centred" mean values for males were statistically significantly lower than for females. Similarly

for the domain, student's perception of teaching (SPoT), males scored mean values greater than 3 for the items "the teacher's are knowledgeable" and "the teachers are well prepared for their class" while scores of females for all the items in the domain were between 2 – 3, with the lowest mean scores for females being for the item concerning feedback from teachers. Males and females both felt that teaching was moving in the right direction. These findings were also supported by other studies [14, 15]. Lesser number of females believed that teachers got angry in class. Teachers in classes and clinics thus need to be sensitised that active engagement of females in class is essential for optimal medical educational environment. Moreover teachers should be the mentors and role models to their students.

Both males and females were positively satisfied with the atmosphere of their educational environment with higher mean scores for males. Students reported that "the atmosphere was relaxed during clinic teaching as well as practical/tutorial", "there were opportunities for them to develop interpersonal skills" and "felt comfortable in class socially". Among the domain of Student's Academic Self-Perception (SASP), three individual items, namely, "learning strategies which worked for me before continue to work for me now", "I feel I am being well prepared for my profession" and "my problems solving skills are being well developed here" were found to statistically differ between males and female. Academic self perception was however positive for both genders and the students were highly confident of passing in their exams. More males reported that their "social life is good" and that their "accommodation was pleasant". Overall both the genders indicated that their social life was not too bad.

DREEM by Batch

Though we could not find any statistically significant difference between the three batches that participated in our study, Table-4, we found that 2018 batch was the most satisfied overall. The means of 2018 Batch also had the highest subscale score for Student's Perception of Learning, Student's Perception of Atmosphere and Student's Social Self-Perception indicating a more positive outlook. This can be due to weaning novelty of medical education in first year with increased excitement for clinical postings in later years. However another study found first year students to hold a positive outlook for learning and teaching [15]. The first year 2019 Batch had the highest subscale score for the domains Student's Perception of Teaching and Student's Academic Self-Perception which is similar to a study that noted that the first-year students had a more positive perception of the teaching and academics than the third, fifth and seventh semester students [12]. This may be due to increased excitement of new students to learn about new subjects. After reviewing the above findings following points were noted:

- Females had lesser score overall and for all other domains in the DREEM inventory.
- The teachers are knowledgeable, well prepared for their class.
- Social life of the students is good and they are confident of passing in the exams.
- Almost all of the areas need to be strengthened to make a better educational environment for students.

Limitation and strengths of the study

Lesser number of respondents participated from higher batches which may lead to response bias. The strength of this study is the use of pre-validated DREEM tool to assess the medical education environment at this college.

Conclusion

From the present evaluation study it can be concluded that both males and females perceived the educational environment positively. However females tended to be less satisfied to their educational environment than their male counterparts. Almost all the items in the DREEM inventory scored between 2 – 3 and therefore are areas that need to be strengthened in the medical college.

Acknowledgement

We thank the MBBS students who participated in our study.

References

1. Hutchinson L. (2003). Educational environment. BMJ (Clinical research ed.), 326(7393), 810–812. https://doi.org/10.1136/bmj.326.7393.810
2. Palis, A. G., & Quiros, P. A. (2014). Adult learning principles and presentation pearls. Middle East African journal of ophthalmology, 21(2), 114–122. https://doi.org/10.4103/0974-9233.129748
3. Genn J. M. (2001). AMEE Medical Education Guide No. 23 (Part 1): Curriculum, environment, climate, quality and change in medical education-a unifying perspective. Medical teacher, 23(4), 337–344. https://doi.org/10.1080/01421590120063330
4. Shimizu T, Tsugawa Y, Tanoue Y et al. (2013). The hospital educational environment and performance of residents in the General Medicine In-Training Examination: a multicenter study in Japan. International journal of general medicine, 6, 637–640. https://doi.org/10.2147/IJGM.S45336
5. Al-Ansari MA, Tantawi M. Predicting academic performance of dental students using perception of educational environment. J Dent Educ. 2015; 79:30. doi:10.1002/j.0022-0337.2015.79.3.tb05889.x
6. Medical Council of India. Assessment Module for Undergraduate Medical Education Training Program, 2019: pp 1-29
7. Susan Miles, Louise Swift & Sam J. Leinster (2012) The Dundee Ready Education Environment Measure (DREEM): A review of its adoption and use, Medical Teacher, 34:9, e620-e634, DOI: 10.3109/0142159X.2012.668625
8. McAleer S, Roff S. A practical guide to using the Dundee Ready Education Environment Measure (DREEM). Curriculum, environment, climate, quality and change in medical education: A unifying perspective. AMEE Education Guide No. 23, JM Genn. AMEE, Dundee, Scotland 2001; 29–33
9. Patil AA & Chaudhari VL (2016). Students' perception of the educational environment in medical college: a study based on DREEM questionnaire. *Korean journal of medical education*, *28*(3), 281–288. https://doi.org/10.3946/kjme.2016.32

10. Mayya SS, Roff S: Students' Perceptions of Educational Environment: A Comparison of Academic Achievers and Under-Achievers at Kasturba Medical College, India. Education for Health. 2004, 17: 280-291. 10.1080/13576280400002445.
11. Kiran H S, Gowdappa BH. "DREEM" comes true - Students' perceptions of educational environment in an Indian medical school . J Postgrad Med 2013;59:300-5
12. Pai PG, Menezes V, Srikanth , Subramanian AM, Shenoy JP.Medical Students' Perception of Their Educational Environment.J Clin of Diagn Res.2014; 8(1):103-107.
13. Sunkad, M. A., Javali, S., Shivapur, Y., & Wantamutte, A. (2015). Health sciences students' perception of the educational environment of KLE University, India as measured with the Dundee Ready Educational Environment Measure (DREEM). Journal of educational evaluation for health professions, 12, 37. https://doi.org/10.3352/jeehp.2015.12.37
14. Altemani, A. H., & Merghani, T. H. (2017). The quality of the educational environment in a medical college in Saudi Arabia. International journal of medical education, 8, 128–132. https://doi.org/10.5116/ijme.58ce.55d2
15. Abraham, R., Ramnarayan, K., Vinod, P. et al. Students' perceptions of learning environment in an Indian medical school. BMC Med Educ 8, 20 (2008). https://doi.org/10.1186/1472-6920-8-20

Table 1
Guide for Interpreting Overall and Subscale Scores

Domain	No. of Items	Scores	Interpretation
Students Perception of Learning (SPoL)	12	0 - 12	Very poor
		13 - 24	Teaching is viewed negatively
		25 - 36	A more positive perception
		37 - 48	Teaching highly thought of
Students Perception of Teaching (SPoT)	11	0 - 11	Abysmal
		12 - 22	In need of some retraining
		23 - 33	Moving in the right direction
		34 - 44	Model course organizers
Student's Perception of Atmosphere (SPoA)	12	0 - 12	A terrible environment
		13 - 24	There are many issues that need changing
		25 - 36	A more positive attitude
		37 - 48	A good feeling overall
Student's Academic Self-Perception (SASP)	8	0 - 8	Feelings of total failure
		9 - 16	Many negative aspects
		17 - 24	Feeling more on the positive side
		25 - 32	Confident
Student's Social Self-Perception (SSSP)	7	0 - 7	Miserable
		8 - 14	Not a nice place

	15 - 21	Not too bad
	22 - 28	Very good socially
Overall	50	0 - 50	Very poor environment
		51 - 100	Plenty of problems in the environment
		101 - 150	More positive than negative environment
		151 - 200	Excellent environment

Table2
Subscale and overall scores for DREEM inventory items according to Gender:
reported as Mean (SD)

DREEM INVENTORY ITEMS	GENDER		
	MALE	FEMALE	p-value
Student's Perception of Learning (SPoL)	30.04 (5.49)	29.46 (4.64)	0.226
Student's Perception of Teaching (SPoT)	28.00 (4.05)	26.31 (4.51)	0.002*
Student's Perception of Atmosphere (SPoA)	30.55 (5.94)	29.08 (5.19)	0.039*
Student's Academic Self-Perception (SASP)	20.39 (3.99)	19.37 (3.55)	0.038*
Student's Social Self-Perception (SSSP)	17.05 (3.28)	16.53 (3.54)	0.513
Overall Score	126.05 (18.43)	120.76 (17.52)	0.038*

* Represents statistically significant findings

Table 3
Score of individual DREEM items according to Gender: reported as Mean (SD)

		GENDER		
	DREEM INVENTORY ITEMS	MALE	FEMALE	p-value
SPoL	I am encouraged to participate in teaching sessions	2.72 (0.90)	2.71 (0.67)	0.476
	The teaching is often stimulating	2.55 (0.90)	2.63 (0.72)	0.596
	The teaching is student centred	2.74 (0.91)	2.46 (0.87)	0.006*
	The teaching helps to develop my competence	2.84 (.090)	2.76 (0.68)	0.079
	The teaching is well focussed	2.85 (0.75)	2.63 (0.70)	0.003*
	The teaching helps to develop my confidence	2.73 (0.96)	2.76 (0.67)	0.457
	The teaching time is put to good use	2.73 (0.76)	2.60 (0.78)	0.179
	The teaching over emphasizes factual learning	1.19 (0.75)	1.60 (0.85)	0.003*
	I am clear about the learning objectives of the program	2.79 (0.86)	2.60 (0.71)	0.011*
	The teaching encourages me to be an active learner	2.99 (0.80)	2.82 (0.66)	0.036*
	Long term learning is emphasized over short learning	2.65 (1.06)	2.65 (0.78)	0.389

	The teaching are too teacher centred	1.36 (0.91)	1.53 (0.75)	0.043*
SPoT	The teachers organizer are knowledgeable	3.10 (0.68)	2.93 (0.70)	0.02*
	The teachers adopt a patient-centred approach to consulting	2.84 (1.02)	2.50 (0.78)	<.001*
	The teacher ridicule the students	2.34 (0.95)	2.28 (0.87)	0.457
	The teacher are authoritarian	1.41 (0.94)	1.49 (0.75)	0.313
	The teachers have good communication skills with patients	2.94 (0.79)	2.76 (0.67)	0.014*
	The teachers are good at providing feedback to students	2.48 (1.01)	2.33 (0.91)	0.094
	The teachers provide constructive criticism here	2.40 (0.90)	2.46 (0.75)	0.709
	The teacher give clear examples	2.89 (0.82)	2.70 (0.74)	0.007*
	The teachers get angry in class	2.10 (1.02)	1.88 (0.90)	0.02*
	The teachers are well prepared for their classes	3.09 (0.69)	2.87 (0.66)	0.005*
	The students irritate the teachers	2.34 (1.07)	2.15 (0.95)	0.022*
SPoA	The atmosphere is relaxed during clinic teaching	2.79 (0.85)	2.56 (0.77)	0.008*
	The course is well timetabled	2.22 (1.24)	2.09 (1.10)	0.132
	Cheating is problem in this course	1.66 (1.21)	1.70 (1.02)	0.699
	The atmosphere is relaxed during lecture	2.80 (0.79)	2.61 (0.79)	0.069
	There are opportunities for me to develop interpersonal skills	2.92 (0.90)	2.63 (0.81)	0.001*
	I feel comfortable in class socially	3.02 (0.76)	2.85 (0.54)	0.007*
	The atmosphere is relaxed during tutorial and practical sessions	3.05 (0.80)	2.91 (0.60)	0.011*
	I find experience disappointing	2.32 (1.01)	2.34 (0.79)	0.872
	I am able to concentrate well	2.42 (1.06)	2.36 (0.82)	0.3
	The enjoyment outweighs the stress of the course	2.49 (1.11)	2.37 (0.96)	0.185
	The environment motivates me as a learner	2.79 (0.83)	2.67 (0.74)	0.222
	I feel able to ask the questions I want	2.36 (1.12	2.22 (0.92)	0.131
SASP	Learning strategies which worked for me before continue to work for me now	2.43 (1.02)	2.21 (0.94)	0.019*
	I am confident about passing this year	3.09 (0.78)	2.98 (0.69)	0.234
	I feel I am being well prepared for my profession	2.91 (0.90)	2.65 (0.66)	0.001*
	Last year work has been good preparation for this year works	2.65 (0.76)	2.50 (0.79)	0.223
	I am able to memorise all I need	1.84 (1.10)	1.73 (0.96)	0.323
	I have learned a lot about empathy in my profession	2.97 (0.77)	2.87 (0.65)	0.213
	My problems solving skills are being well developed here	2.62 (0.87)	2.37 (0.82)	0.027*
	Much of what I learn seems relevant to a career in healthcare	2.18 (1.09)	2.21 (0.97)	0.8
SSSP	There is good support system for students who get stressed	2.24 (1.10)	2.15 (0.97)	0.195
	I am too tired to enjoy the course	1.90 (1.04)	2.00 (0.97)	0.493
	I am rarely bored during this course	1.90 (1.10)	1.85 (0.99)	0.576
	I have good friends in this course	3.21 (0.76)	3.05 (0.81)	0.12
	My social life is good	2.84 (0.93)	2.66 (0.93)	0.09
	I seldom feel lonely	2.20 (1.12)	2.12 (0.99)	0.742

	My accommodation is pleasant	2.80 (1.01)	2.60 (0.73)	0.003*

* Represents statistically significant findings

Table4
Subscale and overall scores for DREEM inventory items for different Batch:
reported as Mean (SD)

DREEM INVENTORY ITEMS	BATCH			
	2017	2018	2019	p-value
Student's Perception of Learning (SPoL)	29.03 (5.95)	30.23 (4.09)	29.59 (5.14)	0.529
Student's Perception of Teaching (SPoT)	25.80 (5.21)	26.94 (3.74)	27.50 (4.41)	0.073
Student's Perception of Atmosphere (SPoA)	28.78 (6.81)	30.30 (4.27)	29.59 (5.73)	0.175
Student's Academic Self-Perception (SASP)	19.66 (4.46)	19.75 (3.65)	19.85 (3.55)	0.676
Student's Social Self-Perception (SSSP)	16.35 (4.13)	16.96 (3.09)	16.74 (3.38)	0.587
Overall Score	119.64 (23.06)	124.20 (14.65)	123.28 (17.87)	0.221