

## IDENTIFYING SCOPE OF IMPROVEMENT IN EDUCATIONAL ENVIRONMENT IN THE SUBJECT OF PHARMACOLOGY USING DREEM INVENTORY

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### ABSTRACT

The present study was planned with the aim of identifying scope of improvement if any, in educational environment with special focus on the subject of pharmacology in an evolving medical school from western Uttar Pradesh. The total DREEM score of the student's was 107.88 / 200. The mean domain scores were 27.66 / 48, 24.86 / 44, 18.45 / 32, 24.73 / 48, 12.18 / 28 in the domains of Student's Perceptions of Learning (SPL), Student's Perceptions of Teachers (SPT), Student's Academic Self-Perceptions (SASP), Student's Perceptions of Atmosphere (SPA) and Student's Social Self Perceptions (SSSP) respectively. Students opined that learning was teacher centered (1.76). They also opined that more importance was given on factual information (1.43). Authoritarian behavior of teachers towards students in pharmacology classes (1.95) is noteworthy.

**KEYWORDS :** Educational environment, Pharmacology, Teaching, Students, Learning

Today's medical student is tomorrow's health care provider. As these students enter their respective professions, their level of competence is not only a reflection of the educational institution they attended; it is of the utmost importance to all their future patients and the broader community. An ideal academic environment may be defined as one that best prepares students for their future professional life and contributes towards their personal and psychosomatic development along with social well-being as well (Divaris, 2008). Considerations of environment of a medical school along the lines of continuous quality improvement and innovation are likely to further the medical school as a learning organization with attendant benefits (Tripathy, 2013).

There is a proven connection between the environment and the valuable outcomes of students' achievement, satisfaction and success (Genn, 2001). It can be safely stated that a study of the curriculum is largely dependent on a study of the environment (Bassaw, 2003). Curriculums most significant manifestation is the educational and organizational environment which embraces everything that is happening in the medical college. These concepts become more relevant when an institution is in evolving phase. For higher quality of

learning it is essential to enrich learning environment by identifying the weakness of environment.

Inventories measuring learning environment in medical education are commonly being used. In the current study DREEM (Dundee Ready Education Environment Measure) inventory was used. It is a reliable and already validated instrument that identifies specific problem areas within an institution for different components of educational environment (Till, 2004). As DREEM is a unique inventory to measure educational environment so, the present study was planned with the aim of identifying scope of improvement if any, in educational environment with special focus on the subject of pharmacology in an evolving medical school from western Uttar Pradesh. Specific objectives of the study were to find out perceptions of educational environment and to identify problem areas in educational environment in the subject of pharmacology.

### MATERIALS AND METHODS

The current descriptive cross sectional study was planned and executed by the Department of Pharmacology in collaboration with Medical Education Unit, MSDS Medical College, Fatehgarh in the month of February 2015 using pretested self-administered Universal diagnostic

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inventory, Dundee Ready Education Environment Measure (DREEM), a tool to evaluate the learning environments of medical students with special focus on Pharmacology.

The study population consisted of undergraduate medical students (MBBS) who were currently posted in the Department of Pharmacology for theory and practical classes. Those students who could not be retrieved even after the third visit to classes were excluded from the study. Students were explained about the nature and purpose of study and requested to fill the questionnaires which were distributed by authors in the classrooms just after the completion of classes. Students were requested to relate the questions to Pharmacology subject (especially questions in SPL and SPT domain) and then respond wherever applicable. Anonymity of the students was maintained. Informed consent was obtained. Ethical committee approved the study.

The DREEM is a validated inventory with proven high reliability that has been used in various countries around the world to assess the educational environment of health professional/ medical institute (Roff, 1997). DREEM is a 50-item inventory consisting of 5 subscales:

- (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 total score for all subscales is 200. The inventory consists of 50 items and each item scored on a five-point likert scale with 4 = Strongly Agree, 3 = Agree, 2

= Unsure, 1 = Disagree and 0 = Strongly Disagree. Nine of the 50 items (4, 8, 9, 17, 25, 35, 39, 48, 50) were negative and scored in reverse so that a higher score indicates a more positive reading.

All the questionnaires were manually checked and edited for completeness and consistency and were then coded for computer entry. After compilation of collected data, analysis was done using Statistical Package for Social Sciences (SPSS), version 20 (IBM, Chicago, USA). The results were expressed using appropriate statistical methods. The internal consistency and reliability for this study was 0.81 (Cronbachs alpha). The unpaired t test was used for comparison.

## RESULTS

Total respondent were 78, among them 55 were male 23 were female students. The total DREEM score of the student's was 107.88 / 200. The mean domain scores were 27.66 / 48, 24.86 / 44, 18.45 / 32, 24.73 / 48, 12.18 / 28 in the domains of Student's Perceptions of Learning (SPL), Student's Perceptions of Teachers (SPT), Student's Academic Self-Perceptions (SASP), Student's Perceptions of Atmosphere (SPA) and Student's Social Self Perceptions (SSSP) respectively. (Table 1)

Seventeen items scored less than 2. Regarding teaching-learning pharmacology subject, students opined that learning was teacher centered (1.76) rather than student centered. They also opined that more importance was given on factual information (1.43). Authoritarian behavior of teachers towards students in pharmacology classes (1.95) is noteworthy. Student's felt stress in learning the subject (1.63), they feel bored (1.23), support system not adequate (1.42) and their accommodation was not pleasant (1.03) as reported by them. (Table 2)

**Table 1 : Subscale and Total Dreem Mean and Percentage Score in All Students**

Domain of DREEM	Maximum score	Mean	Percent of perception
Domain 1: Student's Perceptions of Learning (SPL)	48	27.66	57.63%
Domain 2: Student's Perceptions of Teachers (SPT)	44	24.86	56.50%
Domain 3: Student's Academic Self-Perceptions (SASP)	32	18.45	57.65%
Domain 4: Student's Perceptions of Atmosphere (SPA)	48	24.73	51.52%
Domain 5: Student's Social Self Perceptions (SSSP)	28	12.18	43.50%
Total DREEM score	200	107.88	53.94%

**Table 2 : Item Mean Score in All Students**

Domain	Item no.	Item	Mean
1.SPL	1	I am encouraged to participate in classes	2.74
	7	The teaching is often stimulating	3.32
	13	The teaching is student centred	2.51
	16	The teaching helps to develop my competence	2.28
	20	The teaching is well focused	1.94
	22	The teaching helps to develop my confidence	2.29
	24	The teaching time is put to good use	2.12
	25	The teaching overemphasizes factual learning	1.43
	38	I am clear about the learning objectives of the course	2.15
	44	The teaching encourages me to be an active learner	2.34
	47	Long term learning is emphasized over short term learning	2.78
	48	The teaching is too teacher centred	1.76
2.SPT	2	The teachers are knowledgeable	3.04
	6	The teachers are patient with patients	2.32
	8	The teachers ridicule the students	1.86
	9	The teachers are authoritarian	1.95
	18	The teachers have good communication skills with patients	2.36
	29	The teachers are good at providing feedback to students	2.17
	32	The teachers provide constructive criticism here	2.46
	37	The teachers give clear examples	2.08
	39	The teachers get angry in class	1.85
	40	The teachers are well prepared for their class	2.62
	50	The students irritate the teachers	2.15
3.SASP	5	Learning strategies which worked for me before continue to work for me now	2.74
	10	I am confident about my passing this year	2.02
	21	I feel I am being well prepared for my profession	2.25
	26	Last year's work has been a good preparation for this year's work	2.66
	27	I am able to memorize all I need	1.91
	31	I have learned a lot about empathy in my profession	2.30
	41	My problem-solving skills are being well developed here	2.25
	45	Much of what I have to learn seems relevant to a career in medicine	2.32
4.SPA	11	The atmosphere is relaxed during the ward teaching	1.74
	12	This college is well time -tabled	2.16
	17	Cheating is a problem in this college	1.96
	23	The atmosphere is relaxed during lectures	1.22
	30	There are opportunities for me to develop inter -personal skills	2.74
	33	I feel comfortable in class socially	2.54
	34	The atmosphere is relaxed during tutorials/seminars	2.97
	35	I find the experience disappointing	1.84
	36	I am able to concentrate well	2.02
	42	The enjoyment outweighs the stress of studying medicine	1.63
	43	The atmosphere motivates me as a learner	2.04
	49	I feel able to ask the questions I want	1.87

Cont.

5. SSSP	3	There is a good support system for students who get stressed	1.42
	4	I am too tired to enjoy the course	1.63
	14	I am rarely bored on this course	1.23
	15	I have good friends in this college	2.09
	19	My social life is good	2.56
	28	I seldom feel lonely	2.22
	46	My accommodation is pleasant	1.03

## DISCUSSION

This cross sectional study was conducted with a view to determine medical students' perceptions of educational environment in growing medical college located in western Uttar Pradesh. Self-administered structured questionnaire was used to collect data and DREEM inventory was used for this purpose. The DREEM domains are measure of the overall motivation and learning attitude of the individual. Five subscales or domains of DREEM were interpreted, which define the weakness or strength of educational environment.

The overall DREEM score for all students were found positive (108/200, 54%). There was no accepted agreement on what is an acceptable DREEM inventory score from published literature. There have been very few Indian studies on the students' perceptions of the medical college environment till date. The DREEM scores for medical schools globally have been reported in Srilanka as 108 / 200, in Nigeria as 118 / 200, in Nepal as 130 / 200, in Pakistan as 125 / 200 and in UK as 139 / 200(Mayya, 2004; Roff, 2001; khan, 2011; Varma, 2005).

The students were interested in completing the DREEM questionnaire as evidenced by the good response rate of seventy eight percent. Students' perceptions of learning was 57.63% i.e. more positive perception, students' perceptions of teachers was 56.50% i.e. moving in right direction, students' academic self-perception was 57.65% i.e. feeling more on positive side, students perceptions of atmosphere was 51.52% i.e. there are many issues need to change and students social self-perception was 43.50% i.e. not a nice place. It was observed on this study that the all students agreed a more positive approach regarding their perception of learning, moving in right direction for perception of teachers, feeling more on the positive side for their academic self-perception.

In this study highest score was observed in students' academic self-perception(57.65%) and lowest score in students' social self-perceptions (43.50%). Our findings regarding perceptions of five domains are consistent with another study from Trinidad (Bassaw, 2003) whereas another study from Saudi Arabia found lowest score in students' academic self-perceptions and in student's perceptions of learning and atmosphere (Hazimi, 2004).

In any medical college, besides the quality of education delivered, the ethos and values of the educational environment are equally or more important. Since, the quality standards, pressures and expectations are high, an atmosphere of understanding, tolerance and cooperation needs to be developed amongst the faculty and students. Stress may lead to violation of ethical rules and cheating during exams is thus a common observation.

The DREEM can be used to identify the gaps existing within the educational environment hampering optimal teaching and learning (Till, 2005). Less (<2) score in individual item might be because of our curriculum content overload, teachers attitude towards student, stressful environment and too much formative assessment system. The atmosphere represents the actual educational environment for learning of students and thus the dynamism of curriculum may influence atmosphere of learning. The ineffective hidden curriculum in our course might be an important factor to explain the relatively low score in students' perception of atmosphere and social self-perception. It has shown that hidden curriculum is associated with social and the physical environment and might be more effective than the manifest curriculum (Nahar, 2010).

In our study, students opined that learning was teacher centered rather than student centered. They also opined that more importance was given on factual

information. Any item with a mean of 2 or less should be examined more closely as they indicate problem areas (Roff, 2001; McAleer, 2003; Kiran, 2013). So definitely there is a scope of improvement in educational environment in the subject of pharmacology. Teaching must be student centered rather than teacher centered. This observation is of utmost importance for the teachers so as to modify their teaching style. This is also important observation for authorities involved in up gradation of faculty members. They may be involved in Basic and Advanced Training Courses in Medical Education at regular intervals at various designated nodal centers across the country. Certain issues like 'authoritarian behavior of teachers towards students in pharmacology classes' must be addressed in order to create pleasant learning environment for the students.

This study has several strengths. First, we have identified scope of improvement in educational environment in a growing medical college. In-depth analysis of this aspect has not been closely investigated by many experts in the field. This study becomes very important as long lasting impact can be achieved if rectifications of deficiencies are identified well in time and corrected at the earliest. Second, all the investigations were conducted by authors of the study only, which creates a sense of uniformity. The study has some limitations as well. Some may argue that the results obtained may not be applicable to all the medical colleges. I agree because these findings are based on a single centre study. Results may vary with different geographical terrain. More multicentric studies need to be carried out. Improvement after rectifications of deficiencies identified should have been measured.

## CONCLUSION

The findings of this study can be utilized in strategic planning to ensure better educational environment in the institution. Consequently teaching methods, teachers' behavior with students, the atmosphere during lecture/tutorial/ward teaching, the social and academic environment, support system during stress, favorable accommodation for students have come out to be the main intervention areas to make the learning experience more

enriching and fulfilling educational environment for our students.

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