Original Article

Students Perception About Educational Environment During The Entire Course Of Physiotherapy: A 4 Years Longitudinal Study

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Abstract: Background: Students perception about educational environment in their four years of education may change and its information may prove to be crucial to improve the institutional profile. The Dundee Ready Education Environment Measure (DREEM) is a validated tool to assess the EE. Purpose of this study was to collect information about students perception during their four years of graduation in a longitudinal manner and to report the changes over time. Material & Methods: 2014 batch students were included in the present study. Perception of these students was measured with the help of DREEM questionnaire after the decleration of results in each professional year under five domains: students' perceptions of learning; students' perceptions of teachers; students' academic self-perceptions; students' perceptions of atmosphere; and students' social self-perceptions. Results: The mean global DREEM score was 113.3/200 in the first year, 118.9/200 in second year, 129.9 in third year which increased to 141.9/200 in the final year. One-way analysis of variance followed by post hoc Tukey-Kramer multiple comparisons test revealed that there was statistically significant difference between first and fourth year scores with p value >0.05. Similar trend was observed in all five domains of DREEM questionnaire. Conclusion: The present study revealed Students in their final year of education found the EE to be more positive as compared to when they were in their first year. This may be due to remedial measures taken by the institute in due course of time as well as longer association of students with the institute. [Ganvir S Natl J Integr Res Med, 2020; 11(1):28-34]
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Introduction: Perception of students about Educational Environment (EE) is directly related to the motivation, satisfaction, and effective learning of medical students. Understanding student's perceptions about the EE plays a vital role in planning and implementing a holistic curriculum[1,2.] This help teaching faculty to introspect and to take corrective measures to maintain a high quality EE. Some indicators of healthy educational environment are good institutional profile, better student performance each year, higher staff morale, increased motivation among students along with appropriate student support, and quality teaching[2,3,4].

Several methods have been used by medical educators to assess and analyze student's perceptions about the specific EE in medical institutes. The Dundee Ready Education Environment Measure (DREEM) is a highly generic and internationally validated study tool used to assess student's perceptions about their EE [5,6,7].

To identify the areas of strengths and weaknesses of educational environment, to improve EE it is necessary to gather the information on a regular basis till the students finish their education in a particular institute. But the perception of students may change from one professional year to another due to the different curricular and extracurricular activities. For example attitude or behavior teachers of different teachers in different professional years may differ and it will have an impact on the students perception about educational environment. Considering the perception of students in first professional year to be a baseline data, it was thought to collect data in the DREEM format from same students in their respective professional years, as progressive data.

Material And Methods: The present study was a cross-sectional, questionnaire based study involving undergraduate Physiotherapy students of 2014-15 batch DVVPF's College of Physiotherapy, Ahmadnagar, India. Ethical clearance was obtained for the study from the Institutional Ethics Committee. 35 students who were successfully cleared their first professional year examination, were approached for the study. The information was collected with the help of DREEM questionnaire at the time of orientation programme after giving them brief idea about the study. All students participated in the study voluntarily. They were asked to fill up the information as per the directions given in the questionnaire. Similar procedure was followed each year and was continued for the next four

years. The DREEM questionnaire was used as a measure of students' perceptions about the EE.

The DREEM is a 50-item inventory involving statements related to the EE with a maximum score of 200 and the following five domains:(1) Students' perceptions of learning (SPL): 12 items; maximum score, 48 (2) Students' perceptions of teachers (SPT): 11 items; maximum score, 44 (3) Students' academic self-perceptions (SASP): 8 items; maximum score, 32(4) Students' perceptions of atmosphere (SPA): 12 items; maximum score, 48 (5) Students' social self-perceptions (SSSP): 7 items; maximum score, 28 Data was collected and shifted to computer for analysis. Statistical package of Social Sciences (SPSS) version 15 was used for statistical analysis. One-way analysis of variance followed by post

hoc Tukey-Kramer multiple comparisons test was applied. Statistical significance was presented as * $p < 0.05$,

Results: The questionnaire was immediately collected after the orientation programme , hence the reponse rate was 100%. However , there were few similar questions which were not answered by students in every Table 1 shows the general characteristics of the participants.

Table 1: General Characteristics

Variable	1st yr (n= 35)	2nd yr (n= 31)	3rd yr (n= 35)	4th yr (n= 32)
Male: Female	2:33	2:29	1: 34	0:32

Data is expressed as numbers.

Table 2: Mean (SD) Of Total DREEM Score And All Domains Score

Subscale	1st Yr (N=35)	2nd Yr (N= 31)	3rd Yr (N= 35)	4th Yr (N= 32)	Significant Difference Between Semester
Students Perception Of Learning (SPL) (48)	30.2+1.34	31.5+ 5.78	33.2+ 2.99	34.2+ 3.56	1:4*2:3*,
Students Perception Of Teachers (SPT) (44)	28.0+2.31	29.0+ 4.56	32.3+ 5.78	33.5+ 5.87	1:4*2:3*
Students Academic Self Perception (SASP) (32)	13.7+2.14	15.2+ 5.79	17.1+ 4.98	20.3+ 6.98	1:4*2:3*,3:4*
Students Perception Of Atmosphere (SPA) (48)	31+1.89	31.1+ 6.72	32.2+ 2.45	34.9+ 5.67	1:4*2:3*, 3:4*
Students Social Self Perceptions (SSSP) (28)	10.6+ 2.34	12.1+ 4.32	15.1+ 7.89	19.0+ 9.32	1:4*2:3*, 3:4*
Total	113.3+ 9.56	118.9+ 4.67	129.9+ 5.21	141.9+ 7.54	1:4*,2:3*, 3:4*

#(Data is presented as mean ± standard deviation. SPL: Students' perceptions of learning, SPT: Students' perceptions of teachers, SASP: Students' academic self-perceptions, SPA: Students' perceptions of atmosphere, SSSP: Students' social self-perceptions. One-way analysis of variance followed by post hoc Tukey-Kramer multiple comparisons test was applied. Statistical significance was present as * $p < 0.05$,)

Table 3: Mean And SD Of Individual Items In SPL Domain

No.	Item	1st Yr (N= 35)	2nd Yr (N= 31)	3rd Yr (N= 35)	4th Yr (N= 32)	Significant Difference Between Semester
1	I Am Encouraged To Participate In Teaching Sessions.	3.5+ 0.45	3.6+ 0.43	3.4 + 0.43	3.2 + 0.45	NS
7	The Teaching Is Often Stimulating.	2.3 + 0.56	3.1+0.54	3.5 +0.54	2.6+0.54	2:3*, 3:4*
13	The Teaching Is Student Centered.	2.0 + 0.87	2.8 +0.56	2.3 +0.56	2.8 +0.72	1:3*
16	The Teaching Helps To Develop My Competence.	3.2 + 0.76	2.9+ 0.87	3.0 +0.67	2.8+ 0.54	NS
20	The Teaching Is Well Focused.	3.1 + 1.1	2.9 +1.4	2.8 +0.65	3.0 +0.59	1:2*

21	The Teaching Helps To Develop My Confidence.	3.5 +0.54	2.8+ 1.2	3.2 +0.45	3.1 +0.56	1:2*,2:3*
24	The Teaching Time Is Put To Good Use.	2.4 + 0.54	2.5 +0.54	2.8 +0.53	2.1+ 0.71	1:2*,2:3*
25	The Teaching Over Emphasizes Factual Learning.	1.5 +0.32	1.7+ 0.54	1.8 +0.65	1.5 +0.83	NS
38	I Am Clear About The Learning Objectives Of The Course.	2.1 +0.23	2.6 +0,76	2.5 +0.61	2.8 +0.61	1:2*.2:3*
44	The Teaching Encourages Me To Be An Active Learner	2.8 + 0.43	3.0+ 0.65	3.2 +0.73	3.5+0.54	1:4*
47	Long Term Learning Is Emphasized Over Short Term Learning.	2.0 +0.12	2.4 +0.97	3.1 +0.61	3.2+ 0.74	2:3*
48	The Teaching Is Too Teacher Centred.	1.8 +0.32	1.2+ 0.67	1.2 +0.79	1.0 + 0.93	NS

Table 5 Mean And SD Of Individual Items In SPT Domain

No.	Item	1st Yr (N= 35)	2nd Yr (N= 31)	3rd Yr (N= 35)	4th Yr (N= 32)	Significant Difference Between Semester
2	The Course Organizers Are Knowledgeable.	3.2 + 1.1	3.0 + .49	3.2 + 0.43	3.6+ 0. 01	1:2*,
6	The Course Organizers Espouse A Patient Centered Approach To Consulting.	1.2 + 1.2	2.5 + 0.34	3.1 + 0.98	3.5 + 0.09	1:4*
8	The Course Organizers Ridicule Their Students.	2.5+ 0.98	2.3+ 0.76	1.9+ 0.54	1.9 + 0.32	1:3*,1:4*
9	The Course Organizers Are Authoritarian.	2.5 +1.1	2.6 + 0.45	2.3 +0.65	2.2 + 0.65	1:4*, 1:3*
18	The Course Organizers Appear To Have Effective Communication Skills With Patients.	1.5+ 1.4	3.2 + 0.10	3.5 + 0.2	3.8 + 0.63	1:3*,1:4*
29	The Teachers Are Good At Providing Feedback To Students.	3.5 +0.4	3.0 + 0.74	3.2 + 0.73	3.6 + 0.02	NS
32	The Teachers Provide Constructive Criticism Here.	3.6+ 0.3	3.3 + 0.53	3.1 + 1.1	3.5+0.03	NS
37	The Teachers Give Clear Examples.	3.5 + 0.1	3.4 + 0.54	3.8 +0.06	3.4 + 0.04	NS
39	The Teachers Get Angry In Teaching Sessions.	2.0+ 0.43	1.5 + 0.76	2.4 + 0.43	2.5 + 0.16	1:4*
35	The Teachers Are Well Prepared For Their Teaching Sessions.	3.5 + 0.45	2.8 + 0.65	3.5+ 0.54	3.6 + 0.14	NS
49	The Students Irritate The Teachers.	1.0+ 1.43	1.0 +0.12	1.9+0.65	1.7 +0.65	NS

Table 6: Mean And SD Of Individual Items In SASP Domain

No.	Item	1st Yr (N= 35)	2nd Yr (N= 31)	3rd Yr (N= 35)	4th Yr (N= 32)	Significant Difference Between Semester
5	Learning Strategies Which Worked For Me Before Continue To Work For Me Now.	2.3+ 0.54	2.6 + 0.43	2.2+0.54	2.2+1.54	1:4*
10	I Am Confident About Passing This Year.	2.5 + 0.76	2.5 +0.52	3.1 +0.65	3.4+ 0.98	NS

22	I Feel I Am Being Well Prepared For My Profession.	1.5 +0.91	2.1 + 0.72	2.4 + 0.61	3.1+ 0.06	1:4*,2:4*
26	Last Year's Work Has Been A Good Preparation For This Year's Work.	0.5 + 0.94	1.9 + 0.1	2.9 +0.13	2.9+0.06	1:4*,2:3*,1:3*
27	I Am Able To Memorize All I Need	2.5 + 0.84	2.1 + 0.56	2.1 +0.17	2.9 + 1.7	NS
31	I Have Learned A Lot About Empathy In My Profession.	1.5 + 0.59	1.9 + 0.36	2.2+ 0.3	3.1+ 1.2	1:4*,2:4*
41	My Problem Solving Skills Are Being Well Developed Here.	1.9+ 1.1	2.2 +1.2	2.1 +0.5	3.0+1.1	1:3*,1:4*
45	Much Of What I Have To Learn Seems Relevant To A Career In Healthcare.	1.0 +0,43	1.5+ 0.32	2.0 +0.56	3.1+ 1.6	1:3*,1:4*

Table 7: Mean And SD Of Individual Items In SPA Domain

No.	Item	1st Yr (N= 35)	2nd Yr (N= 31)	3rd Yr (N= 35)	4th Yr (N= 32)	Significant Difference Between Semester
11	The Atmosphere Is Relaxed During Consultation Teaching	3.0+ 2.1	2.5 + 0.21	3.1+ 0.54	3.2+ 0.02	2:4*
12	The Course Is Well Timetabled	2.1 + 1.6	2.0 +0.56	3.2 +0.65	3.4 + 0.09	1:4*
17	Cheating Is A Problem In This Course	2.0+ 0.12	1.5 + 0.45	1.5 +0.65	1.5 +0.34	NS
23	The Atmosphere Is Relaxed During Lectures.	2.1 +0.21	2.6+ 0.83	3.2+0.84	3.4 +0.02	1:4*
30	There Are Opportunities For Me To Develop Interpersonal Skills.	3.5 +0.32	3.0+ 0.65	3.2 + 0.87	3.5 +0.01	NS
33	I Feel Comfortable In Teaching Sessions Socially.	3.0 + 0.98	2.0 + 0.78	3.5 + 0.43	3.5 +0.29	2:4*
34	The Atmosphere Is Relaxed During Tutorials	3.0 + 0.65	3.0 + 0.76	3.2 +0.62	3.3+0.26	NS
35	I Find Experience Disappointing	2.2 + 0.12	2.0+ 0.54	2.1 +0.81	2.0 +0.23	NS
36	I Am Able To Concentrate Well	3.0 +0.12	2.5 + 0.43	3.1 +0.93	3.2 +0.06	2:4*
42	The Enjoyment Outweighs The Stress Of Studying Medicine	2.0 + 0.63	2.5 + 0.54	3.0 +0.67	3.4 + 0.04	1:4*
43	The Atmosphere Motivates Me As A Learner	2.2 +0.54	2.0 + 0.54	3.3 +0.51	3.5 + 0.05	2:4*
50	I Feel Able To Ask The Questions I Want	2.0 +0.78	2.9+ 0.96	3.1 + 0.56	3.5+ 0.06	1:4*

Table 8: Mean And SD Of Individual Items In SSSP Domain

No.	Item	1st Yr (N= 35)	2nd Yr (N= 31)	3rd Yr (N= 35)	4th Yr (N= 32)	Significant Difference Between Semester
3	There Is A Good Support System For Students Who Get Stressed.	1.0+ 0.54	2.2 +0.6	3.1+ 0.26	3.3 + 0.32	1:4*2:4*
4	I Am Too Tired To Enjoy This Course.	1.5 +0.43	1.1+ 0.98	1.2 +0.87	1.0+ 0.78	NS
14	I Am Rarely Bored On This Course.	2.0+ 0.72	2.3 +0.32	3.1 +0.54	3.5 + 0.91	1:4*1:3*
15	I Have Good Friends In This Course.	1.5 +0.85	2.0 +0.54	3.0 +0.56	3.1 + 0.70	1:3*,1:4*
19	My Social Life Is Good.	1.6+0.76	2.2+ 0.62	3.0 + 0.93	3.2+ 0.65	1:3*,1:4*
28	I Seldom Feel Lonely.	1.5 +0.67	1.6 +0.56	3.0+ 0.09	3.1 +0,98	1:3*,1:4*
46	My Accommodation Is Pleasant.	1.5 +0.02	1.7+0.32	2.1 +0.76	2.1+ 1.2	NS

Discussion: Physiotherapy curriculum in India is of four and half years duration out of which the last 6 months is internship. Perception about educational environment taken from the same

sample for over four year time period as they moved from one professional year to next, reveals that there is a trend of positive change compared to previous year specially in third year and fourth year. Total score of DREEM in the present study is 113+9.56 in first year which increased to 141.9+7.54 as the students moved to final year. Several studies have shown the score in this similar range with maximum being 139 [11,12,13,14].

Also Previous studies have Compared different semester students and has revealed that the global DREEM score as well as the domain scores of fifth semester students were significantly more positive than other semester students[15,16,17]. In our study also, there is a significant change in perception between first year and third year along with fourth year. This is the first study which is conducted for four years time period wherein the perception of same batch students is investigated longitudinally which gave a better picture for analysis. Improved perception of students may be seen due to measures taken by the institute in the intervening academic year based on the feedback received from student every year at the beginning of academic session. Another reason can be the long association of students with the institute may help to adopt to the environment.

On domain wise analysis, students perception of learning (SPL) showed more fluctuating scores whereas students perception of teachers (SPT), students perception of atmosphere (SPA) scored

more constantly. However Student's academic self perception (SASP) and students social self perception (SSSP) showed a dramatic improvement in scores from first year to fourth year. Similar trends are seen in other studies as well [18,19,20] which were conducted on different semester students.

On further analysis of Students perception of Learning domain, it was found that the there was no significant difference among all four years in the items of 'I am encouraged to participate in teaching sessions', 'The teaching helps to develop my competence', 'The teaching overemphasizes factual learning' and 'The teaching is too teacher centered'. The highest score was given to 'The teaching encourages me to be the active learner'. This may be due to weekly one student led seminar for each professional year, weekly one

session of self directed learning in second year, regular weekly one and four student case presentations in third and fourth year respectively, conduction of short student research projects in fourth year. Another item 'The teaching is well focused' also scored 3.1+0.59 which can be attributed to preparation of teaching plan at the beginning of each month for each subject. This teaching plan facilitates students learning by giving them opportunity to be better receptive. Very few studies have done this in depth analysis[21].

Domain of Students perception of teachers is a mix of positive (items 2,6,18,29,32,37,35) and negative(items 8,9,39,49) statements. The positive statements about teacher's ability to provide knowledge in the efficient way were given higher scores by the students in almost all four academic years. This may be due to the fact that the institute makes it sure that every teacher undergoes mandatory Teacher's training workshop organized by the university on a regular basis. 'The teachers are good at providing feedback to the students' scored maximum which may be is the result of this training received by teachers.

Student's Academic Self Perception (SASP) showed more constant increase in score over four years as compared to other domains. This domain contains all positive statements about perception of a learner about his growth in terms of academics. Most of the items are related to previous year's experience and may be are more linked to each other. Item 10 (I am confident about my passing this year) was scored maximum by the students as also reported by other studies [22,23]. Systematic approach towards conducting the formative examination which is a primary area of concern for the students may have contributed to this positive perception of students.

Students Perception of Atmosphere also showed a constant increase in scores over four academic years except for a drop in second year. Atmosphere refers to the factors which supplement and facilitates the overall learning experience of a learner. Some items points towards the personal factors such as 33, 35, 36,43 and 50. Class room environment, clinical consultation, part of a team contributes to other aspects. Over the four years there was no significant difference in the items 'Cheating is a problem in this course', 'there are opportunities

for me to develop interpersonal skills', 'I find the experience disappointing' 'the atmosphere is relaxed during the tutorials'. However, higher scores were given to all items by the students when they were in their fourth year. Thus the overall scoring in fourth year was more as compared to other years. This may be due to the longer association with the institute, better interaction being the senior most students with teachers, more acquaintance with teachers and supporting staff, improved confidence due to successful completion of previous three years.

Students social Self Perception also showed a linear increase in scores over four academic years. Support system for the students has been very strong in our institute in the form of effective mentorship programme, Active Students Council, regular interaction students and teachers. Also regular co curricular and extracurricular activities in the institute with equal participation from all students ensure that the students do not get bored on this course (item 14). Item 46 (my accommodation is pleasant) scored less in all four academic years which is probably due to the fact that maximum students stay in the hostel and most of them staying away from home for the first time.

Similar study was done on other students of the same institute as a pilot study for carrying out a longitudinal study at a later time period25. First and second year is a pre clinical phase. Third and fourth year students are posted in the clinical settings. Hence few questions related to clinical set up probably were not answered by first and second year students. Also item no 49 (students irritate the teachers) was not answered by many students as the meaning of this statement is not very clear. Similarly item no 17 – 'Cheating is a problem in this course' might have confused the students and hence was not answered by overall 20% of the students.

Conclusion: It was satisfying to note that the there was overall improvement in the scores of DREEM scale from 1st professional year to 4th year in same batch of students. Components of this scale along with their scores can be incorporated in SWOT analysis of the institution for further improvement in educational experience of students at our institute.

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