

Medical Student's Perception of Learning Environment in Different Phases of Medical Course

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ABSTRACT

Aims & objectives: To determine differences in the perception of learning environment between pre-clinical and clinical year medical student at university Medical & Dental college, FSD.

Study type: Observational, cross sectional.

Place of study: University Medical & Dental College, FSD.

Duration of study: 6 months from Aug 2010 to Jan 2011.

Methods: Dundee Ready Education Environment Measure (DREEM) was used to gather information about the learning environment at University Medical & Dental College, FSD. It was administered to first, second & final professional year medical students at UMDC, FSD. Data was collected and analyzed using SPSS version 15. Chi-square goodness of fit was used as test of statistical significance. P-value of < 0.05 was considered significant

Results: The total mean score of DREEM at UMDC, FSD for first year medical students was 111.50/200, for second year medical students was 111.40/200, and for final year medical students was 112.10/200. Pre-clinical and

clinical medical students varied in their perception of learning environment on SPL (29.50/48 V/S 29.90/48 V/S 31.80/48), SPT (24.50/44 V/S 23.80/44 V/S 23.00/44) domains of DREEM questionnaire. However, no/slight difference was observed for SASP (18.50/32 V/S 18.70/32, V/S 19.00/32), SSSP (12.00/28 V/S 12.50/28 V/S 12.30/28) and SPA (27.00/48 V/S 26.50/48 V/S 26.00/48) domains.

Conclusion: Pre-clinical and clinical medical students vary in their perception on certain domains and individual items of these domains of DREEM questionnaire, and further studies are required to explore the identified domains and individual items of these domains, particularly in terms of curriculum.

Key words: differences, perception, educational environment

INTRODUCTION:

Environment in the context of educational setting is an important issue ⁽¹⁾ and substantial literature is available on this issue ⁽²⁾; especially in relation to the way in which it is measured ⁽³⁾. The Dundee Ready Education Environment Measure (DREEM) questionnaire is most commonly used instrument for this purpose. It was developed at the University of Dundee in 1997 and has been validated for use regardless of country & culture ⁽⁴⁾. It has been used for multiple purposes such as information about learning environment in an institution⁽⁶⁾, comparison of disciplines within an institution⁽⁷⁾, comparison of academic achievers and under achievers ⁽⁸⁾, to get a baseline before curriculum reform⁽⁹⁾, student's perception of ideal

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educational environment ⁽¹⁰⁾, and as an instrument for improvement ⁽¹¹⁾.

Studies related to educational environment of health institutions have been conducted successfully using the DREEM questionnaire ^(12, 13). However sparse studies are available to compare student's perception of learning environment in different phases of medical course. This prompted author to conduct the study to determine difference in student's perception of learning environment between preclinical and clinical phases of medical course at her institution.

AIMS & OBJECTIVES:

To determine differences in perception of learning environment between pre-clinical and clinical medical students at university Medical & Dental college, FSD.

METHODOLOGY:

After approval from ethical committee, information sheet about the study (highlighting assurance that participation as well information will not affect their future learning opportunities, scores, and academic careers) was provided to medical students of first, second and final professional year.

Inclusion criteria:

- Medical students of 1st, 2nd & final professional year.
- Medical students who consented for participation.

Exclusion criteria:

- Medical students of 3rd and 4th professional year.
- Dental students at UMDC, FSD.
- Medical students who did not consent for participation in the study.

Selected students (via inclusion/exclusion criteria) were asked to gather in auditorium in break at 10.30 A.M (all professional years medical student have a break of 30 minutes). After briefing for instruction to complete DREEM ^(4, 5) questionnaire, as elaborated in section of Scoring DREEM questionnaire, it was administered to students. They were asked to complete it confidentially and submit within next 2 days.

The DREEM questionnaire contains 50 statements relating to a range of topics directly relevant to educational environment. The subscales are as follows:

- Students' perceptions of Learning (SPL) – containing 12 items with a maximum score of 48.
- Students' perceptions of Teachers (SPT) – containing 11 items with a maximum score of 44.
- Students' Academic Self Perception (SASP) – containing 8 items with a maximum score of 32.
- Students' perceptions of Atmosphere (SPA) – containing 12 items with a maximum score of 48.
- Students' social self-perceptions (SSSP) – containing 7 items with a maximum score of 28.

Scoring the DREEM questionnaire

Scoring system of DREEM questionnaire was the one suggested by McAleer & Roff ⁽⁴⁾. Each DREEM item was instructed to be scored from 0 to 4. Assignment for the scores was as: 0(strongly disagree-SD), 1(disagree-D), 2(uncertain-U), 3(agree-A), and 4(strongly agree-SA). However, 9 of the 50 items (numbers 4, 8, 9, 17, 25, 35, 39, 48 and 50) were negative statements and asked to be scored in the reverse manner(0 for SA, 1 for A, 2 for U, 3 for D and 4 for SD) table I& II. The maximum score is 200.

Data was collected and shifted to computer for analysis. Statistical package of Social Sciences (SPSS) version 15 was used for statistical analysis. Chi-square goodness of fit was the test of statistical significance. p -value of < 0.05 was considered significant

Table I

Guide for overall score interpretation

Score	Interpretation
0-50	Very poor
51-100	Plenty of problems
101-150	More positive than negative
151-200	Excellent

Table 1I:
Guide for DOMAIN Score Interpretation

Domain	Score
SPL	<ul style="list-style-type: none"> • 0–12 Very poor • 13–24 Teaching is viewed negatively • 25–36 A more positive approach • 37–48 Teaching highly thought of
SPT	<ul style="list-style-type: none"> • 0–11 Abysmal • 12–22 In need of some retraining • 23–33 Moving in the right direction • 34–44 Model teachers
SASP	<ul style="list-style-type: none"> • 0–8 Feeling of total failure • 9–16 Many negative aspects • 17–24 Feeling more on the positive side • 25–32 Confident
SPA	<ul style="list-style-type: none"> • 0–12 A terrible environment • 13–24 There are many issues that need changing • 25–36 A more positive atmosphere • 37–48 A good feeling overall
SSP	<ul style="list-style-type: none"> • 0–7 Miserable • 8–14 Not a nice place • 15–21 Not too bad • 22–28 Very good socially

RESULTS:

A total of 150 students were included in this study. All the students were female as UMDC is an institution for females only. However E Gudrun et al ⁽¹⁴⁾ stated male to female ratio of 41.1% to 59.8% in his study, and in an Iranian study by Taemur Aghamolaei and Ismaeil Faz, male and female students accounted for 38.5% and 61.5% of the responding sample, respectively ⁽¹⁵⁾.

The total mean score of DREEM at UMDC, FSD was 111.50/200 for first year medical students, 111.40/200 for 2nd year medical students, and 112.10/200 for final year medical students (table III).

0-50 score range indicate very poor score, scores in the range of 51-100 indicate plenty of problems, 101-150 are viewed as more positive than negative and 151-200 as excellent ⁽⁷⁾

The total score of each five subscales of DREEM questionnaire is also listed in table III. The total score of SPL domain was 29.50/48 (61.45%) for 1st year, 29.90/48 (62.29%) for 2nd year and 31.80(66.25%) for final year medical students. For SPT domain, 1st year total score was 24.50/44 (55.68%), for 2nd year 23.80/44 (54.09%), and for final year 23.00/44 (52.27%). For SASP domain 1st year medical students scored 18.50/32 (57.81%), 2nd year 18.70/32 (58.43%), and final year 19.00/32 (59.37%). SPA domain score was found to be 27.00/48

(56.25%) for 1st year, 26.50/48 (55.20%) for 2nd year and 26.00/48 (54.16%) for final year medical students. For SSSP domain 1st year medical students scored 12.00/28 (42.85%), 2nd year 12.50/28 (44.64%), and final year 12.30/28

(43.92%). For SPL, SPT, SASP, and SPA domains the score was $\geq 50\%$. However for SSP domain the score was $< 50\%$. Individual score of each item in each domain is listed in table IV to VIII.

Table III : Total score of five subclasses of DREEM for 1st, 2nd, and final professional year

Domain	1 st year	2 nd year	Final year
Students perception of learning(SPL)	29.50	29.90	31.80
Students perception of teachers(SPT)	24.50	23.80	23.00
Students academic self perception(SASP)	18.50	18.70	19.00
Students perception of atmosphere(SPA)	27.00	26.50	26.00
Students social self perceptions(SSSP)	12.00	12.50	12.30
Total	111.50	111.40	112.10

Table IV: Individual score of SPL domain

No	Item	1 st year	2 nd year	Final year
1	I am encouraged to participate in teaching sessions.	3.2	3.5	3.8
7	The teaching is often stimulating.	2.3	2.5	3.5
13	The teaching is student centered.	2.0	2.5	2.6
16	The teaching helps to develop my competence.	3.2	2.5	3.0
20	The teaching is well focused.	3.1	2.5	2.5
21	The teaching helps to develop my confidence.	3.0	2.2	2.2
24	The teaching time is put to good use.	2.3	1.9	2.5
25	<i>The teaching over emphasizes factual learning.</i>	1.5	1.7	1.5
38	I am clear about the learning objectives of the course.	2.1	2.0	2.0
44	The teaching encourages me to be an active learner	2.8	3.0	3.5
47	Long term learning is emphasized over short term learning.	2.0	2.6	3.5
48	The teaching is too teacher centred.	1.5	3.2	1.2

Table V: Individual score of SPT domain

No	Item	1 st year	2 nd year	Final year
2	The course organizers are knowledgeable.	2.7	2.0	2.0
6	The course organizers espouse a patient centered approach to consulting.	1.2	1.5	2.0
8	<i>The course organizers ridicule their students.</i>	2.5	2.3	0.8
9	<i>The course organizers are authoritarian.</i>	3.5	3.6	2.5
18	The course organizers appear to have effective communication skills with patients.	1.5	1.8	3.3
29	The teachers are good at providing feedback to students.	2.0	2.5	2.6
32	The teachers provide constructive criticism here.	2.6	2.0	1.5
37	The teachers give clear examples.	3.5	1.8	3.2
39	The teachers get angry in teaching sessions.	2.0	2.5	0.5
40	The teachers are well prepared for their teaching sessions.	2.0	2.8	3.2
49	The students irritate the teachers.	1.0	1.0	0.5

Table VI: Individual score of SASP domain

No	Item	1 st year	2 nd year	Final year
5	Learning strategies which worked for me before continue to work for me now.	2.5	2.6	1.5
10	I am confident about passing this year.	2.5	2.5	2.0
22	I feel I am being well prepared for my profession.	3.5	3.5	2.0
26	<i>Last year's work has been a good preparation for this year's work.</i>	0.5	1.5	2.8
27	I am able to memorize all I need	2.5	2.7	1.5
31	I have learned a lot about empathy in my profession.	2.5	2.2	2.5
41	My problem solving skills are being well developed here.	2.5	1.2	3.2
45	Much of what I have to learn seems relevant to a career in healthcare.	2.0	2.5	3.4

Table VII: Individual score of SPA domain

No	Item	1 st year	2 nd year	Final year
11	The atmosphere is relaxed during consultation teaching	2.5	2.5	2.1
12	The course is well timetabled	2.2	2.0	2.2
17	Cheating is a problem in this course	2.1	1.5	1.0
23	The atmosphere is relaxed during lectures.	3.5	2.5	2.0
30	There are opportunities for me to develop interpersonal skills.	2.8	3.0	3.8
33	<i>I feel comfortable in teaching sessions socially.</i>	1.6	2.0	1.5
34	The atmosphere is relaxed during tutorials	2.5	3.0	2.0
36	I am able to concentrate well	2.5	2.5	2.1
42	The enjoyment outweighs the stress of studying medicine	2.1	0.5	1.5
43	The atmosphere motivates me as a learner	2.0	2.0	3.2
50	<i>I feel able to ask the questions I want</i>	1.0	2.0	2.1

Table VIII: Individual score of SSSP domain

No	Item	1 st year	2 nd year	Final year
3	There is a good support system for students who get stressed.	1.0	1.2	1.0
4	I am too tired to enjoy this course.	1.5	1.8	1.5
14	I am rarely bored on this course.	2.0	2.2	2.2
15	I have good friends in this course.	2.5	2.2	2.5
19	My social life is good.	2.0	2.5	2.2
28	I seldom feel lonely.	1.5	1.5	1.5
46	My accommodation is pleasant.	1.5	1.0	1.5

DISCUSSION:

The Dundee Ready Education Environment Measure (DREEM) questionnaire was developed at University of Dundee in 1997 ⁽⁴⁾. The goal was to develop a non-culturally specific instrument that would provide a diagnostic tool to investigate educational environment in health profession institutions. Since then various studies have been conducted to determine different aspects of educational

environment using DREEM questionnaire; For example “ Medical student’s perceptions of the educational environment at an Iranian Medical Sciences University” ⁽¹⁵⁾ “student’s perception of Educational Environment: A comparison of Academic Achievers and Under-Achievers at Kasturba Medical College, India” ⁽¹⁶⁾, “Comparing the educational environment (as measured by DREEM) at two different stages of curriculum reform” ⁽¹⁷⁾, “Identifying the

perceived weaknesses of a new curriculum by means of the Dundee Ready Education Environment Measure (DREEM) Inventory”⁽¹⁸⁾ and many more.

This study was conducted to determine the differences in the perception of learning environment between pre-clinical and clinical medical students at university Medical & Dental College, FSD.

The results of this study showed an overall good DREEM score, as it was 111.00/200 for first year medical students, 111.40 for second year medical students and 112.60 for final year medical students. On analysis of score for individual domains of DREEM questionnaire it was observed that in certain domains perceptions of pre-clinical and clinical medical students converge and in others diverge.

For SPL domain 1st year scored 29.50/48 (61.50%), second year scored 31.80(66.25%), and final year scored 31.80(66.25%), reflecting a more positive trend from pre-clinical to clinical phase of medical course. A somewhat different behavior was observed in a Sri-Lankan study indicating a static pattern over all phases of medical course (SPL domain score of 25.90 for 1st year, 30.90 for 2nd year and 25.6 for final year)⁽⁹⁾. In contrast in an Indian study it was observed to decrease gradually from first to final year, as 1st year scored 31.0, and final year 24.0 for SPL domain⁽¹⁹⁾.

On analysis of individual items of SPL domain, it was observed that 1st, 2nd and final year medical students diverge significantly in their perception on items number 7: “The teaching is often stimulating”, and item No 47: “Long term learning is emphasized over short term learning”. For item No 7 final year medical students scored 3.5, while 2nd and 1st year medical students scored 2.5 and 2.3 respectively. For item No 47 final year medical students scored 3.5, while 2nd and 1st year medical students scored 2.6 and 2.0 respectively This may be due to increasing maturity and self responsibility for learning acquired with age, but definitely indicate a need to explore 1st and 2nd year curriculum regarding learning experiences. For SPT domain, 1st, 2nd, and final year medical students scored 24.50, 23.80, and 23.00 respectively- moving away from positive perception. Similar pattern with marked

difference was observed in above mentioned Indian study, as it was 27.00 for 1st, and 22.00 for final year students. The scores indicate that pre-clinical and clinical medical students differ in their perceptions of teacher’s roles, as pre-clinical medical students ranked teacher characteristics higher in contrast with clinical medical students. The above-mentioned differences between pre-clinical and clinical medical student’s perceptions are consistent with Sritter’s learning vector theory. According to this theory, learners progress from dependence on teachers to collaboration with them, until they reach independence from their teachers while pursuing their learning objectives⁽²⁰⁾.

On analysis of score for individual items, 1st, 2nd, and final year medical students diverge on Items No 18: “The course organizers appear to have effective communication skills with patients”. Final year medical students scored 3.3, while 2nd and 1st year medical students scored 1.8 and 1.5 respectively. It may be due to the fact that 1st, and 2nd year medical students at UMDC do not attend clinical site, and it may simply be their assumption, or personal experience out of educational environment context.

No/slight divergence was observed for SASP, SSSP, and SPA domains of DREEM questionnaire between pre-clinical and clinical medical students.

Conclusion of the results indicate that overall, medical student’ perception of learning environment, vary from pre-clinical to clinical years of medical course. On analysis of score for individual domains, and for individual items of each domain it was observed that on certain items preclinical medical students scored less, and on other clinical medical students did so, indicating these as areas of exploration; and further studies are required to explore these areas, particularly in terms of curriculum of medical college.

CONCLUSION:

Pre-clinical and clinical medical students vary in their perception on certain domains and individual items of these domains of DREEM questionnaire, and further studies are required to explore the identified domains and individuals items of these domains, particularly in terms of curriculum.

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