

Original Research Article

Medical students' perception of their educational environment during foundation course

Shreekrishna Maharjan^{1*}, Tripti Shakya²

¹Department of Biochemistry, ²Department of Anatomy, School of Medicine, Patan Academy of Health sciences, Lagankhel, Lalitpur, Nepal

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*Correspondence:

Dr. Shreekrishna Maharjan,

E-mail: shreekrishnamaharjan@pahs.edu.np

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ABSTRACT

Background: Learning environment is how students perceive the climate of an institution. The strength and weakness of learning environment should be identified to help change, adjust and manage training programs with objectives for improving learning quality. Dundee Ready Education Environment Measure (DREEM) is a validated tool designed to measure educational environment specifically for medical schools and other health profession institutions. This tool has been used in 20 countries, including Nepal. The aim of this study was to determine the perception of medical students of Foundation Course toward their learning environment using this tool.

Methods: The study was conducted among the medical students attending Foundation Course in School of Medicine at Patan Academy of Health Sciences in Nepal using the DREEM tool.

Results: Total mean of DREEM score was 150.51 and that of subscales for Students' Perception of Learning (SPL), Students' Perception of Teachers (SPT), Students' Academic Self-Perception (SASP), Students' Perception of Atmosphere (SPOA) and Students' Social Self-Perception (SSSP) were 36.96/48, 34.01/44, 23.96/32, 36.03/48 and 19.55/28 respectively. In item scores, students scored more than 3 for 29 items, between 2 and 3 for 20 items and only 1 item received less than 2 score indicating an issue requiring attention on overemphasis of factual learning during the course.

Conclusions: Students have a positive perception about their educational environment. Their perception is a valuable resource for institutional curriculum planners to make appropriate changes to enhance student learning. It is important to get feedbacks from students on how they are experiencing their learning environment.

Keywords: Dundee Ready Education Environment Measure, Educational environment, Medical students, Perception

INTRODUCTION

Learning environment is how students perceive the climate of an institution. It includes their perception regarding infrastructure of campus, learning opportunities, teachers' skills and attitudes, their interaction with peers and many other factors.¹ It significantly affects learning and behaviors of students. There is a strong relationship between learning environment and valuable components such as students' satisfaction and success. The strength and weakness of the

learning environment should be identified to help change, adjust, and manage training programs with the aim of improving learning quality.² Many studies have proven scientifically that for effective learning, the quality of educational environment plays a crucial role and educational climate can be improved based on the assessment of students' perception of this climate.^{3,4} In order to make the learning environment measurable, Roff et al, developed the Dundee Ready Education Environment Measure (DREEM).⁵ It is a validated tool designed to measure the

educational environment specifically for medical schools and other health professional institutions. The DREEM tool has been used in 20 different countries, including Nepal and has been translated into several languages.⁶ It is a useful tool in identifying the strength and limitation of the educational environment.⁷ The present study was conducted to determine the perception of medical students in Foundation Course at School of Medicine (SOM), Patan Academy of Health Sciences (PAHS) towards learning environment based on the DREEM tool so that remedial measures could be taken to enhance students learning experience and to improve quality of their educational environment.

METHODS

It is a descriptive cross sectional study using a structured questionnaire. Study population involves students of Foundation Course, School of Medicine (SOM), Patan Academy of Health Sciences (PAHS), Lagankhel, Lalitpur - 5, Nepal, conducted for the duration of 3 months from June 15th, 2018 to September 15th, 2018. At PAHS, the current MBBS curriculum consists of 10 weeks of Foundation Course that is designed to teach the students about the fundamental concepts of ethics, professionalism, communication skills, basic principles of community health sciences as well as basics of history taking and physical examination skills under introduction of clinical medicine (ICM). All medical students in foundation course was included. Those students not willing to participate in the study were excluded. Study instrument includes Dundee Ready Education Environment Measure (DREEM) is a validated tool designed to measure the educational environment. This tool is a questionnaire with 50 items that assess 5 domains.

- Students’ Perception of Learning (SPL) - 12 items; maximum scores is 48.
- Students’ Perception of Teachers (SPT) - 11 items; maximum scores is 44.
- Students’ Academic Self-Perception (SASP) - 8 items; maximum scores is 32.
- Students’ Perception of Atmosphere (SPA) - 12 items; maximum scores is 48.
- Students’ Social Self-Perception (SSSP) - 7 items; maximum scores is 28.

Each DREEM item is rated on a 5-point Likert scale from 0 to 4, where 0 = strongly disagree, 1 = disagree, 2 = uncertain, 3 = agree and 4 =strongly agree. There are 9 negatively phrased items (items 4, 8, 9, 17, 25, 35, 39, 48 and 50), requiring reverse coding and are scored as 0 = strongly agree, 1 = agree, 2 = uncertain, 3 = disagree and 4 = strongly disagree. The DREEM tool has a maximum score of 200, representing an ideal educational environment and the minimum is 0 suggesting a worrying result for an institution. Items with a mean score of ≥ 3 are true positive points; those with a mean score of ≤ 2 are problem areas; those in between these two (between 2 and 3) limits indicate aspects of the environment that could be enhanced.⁶

The guide to interpret the overall score and subscale score of the DREEM tool is given in Appendix I.⁸ The DREEM questionnaire was distributed to students attending Foundation Course following a brief explanation of the objectives including anonymity and the importance of voluntary based participation. Meanings of some terms such as authoritarian, constructive criticism and empathy were explained to them prior to the administration of the questionnaire.

Data collection

- Data collection was done after the completion of Foundation Course and after getting the approval from IRC of PAHS.
- Verbal informed consent was taken from each participating student after explaining the objectives of the study.
- The questionnaire was distributed to the students by the researchers during their self-study period. The average time to complete the questionnaire was about 30 to 35 minutes.

Statistical analysis

The data collected were entered manually into a Microsoft Excel spreadsheet because several items of the instrument needed reverse scoring (items 4, 8, 9, 17, 25, 35, 39, 48 and 50). The data were subsequently exported to SPSS version 17. Descriptive statistics was used to calculate means and SDs for each item of the DREEM tool along with the total scores and 5 subscale scores of the tool.

Table 1: Five subscales and total DREEM mean score with interpretation of scores.

Subscales	Maximum score	Mean±SD	Score interpretation
Students’ Perception of Learning (SPL)	48	36.96±7.11	More positive approach
Students’ Perception of Teachers (SPT)	44	34.01±8.04	Model teachers
Students’ Academic Self-Perception (SASP)	32	23.96±5.03	Feeling more on positive side
Students’ Perceptions of Atmosphere (SPA)	48	36.03±7.58	More positive atmosphere
Students’ Social Self-Perception (SSSP)	28	19.55±5.10	Not too bad
Total DREEM item score	200	150.51±32.86	More positive than negative

Table 2: Individual DREEM item scores for mean with standard deviation (SD).

Domain	Item	Mean (SD)
Students' Perception of Learning (SPL)	1. I am encouraged to participate in class	3.30±0.46
	7. The teaching is often stimulating	3.11±0.56
	13. The teaching is student centered	3.30±0.61
	16. The teaching helps to develop my competence	3.39±0.52
	20. The teaching is well focused	3.30±0.49
	22. The teaching helps to develop my confidence	3.33±0.54
	24. The teaching time is put to good use	3.05±0.52
	25. The teaching over emphasizes factual learning	1.63±1.09
	38. I am clear about the learning objectives of the course	3.05±0.49
	44. The teaching encourages me to be an active learner	3.31±0.53
Students' Perception of Teachers (SPT)	47. Long term learning is emphasized over short term learning	3.17±0.55
	48. The teaching is too teacher centered	3.02±0.75
	2. The teachers are knowledgeable	3.69 ± 0.47
	6. The teachers are patient with patients	2.97±0.59
	8. The teachers ridicule the students	3.14±0.83
	9. The teachers are authoritarian	2.81±1.11
	18. The teachers have good communication skills with patients	3.22±0.68
	29. The teachers are good at providing feedback to students	3.36±0.80
	32. The teachers provide constructive criticism	3.09±0.79
	37. The teachers give clear examples	3.06±0.50
Students' Academic Self-Perception (SASP)	39. The teachers get angry in teaching sessions	2.95±0.72
	40. The teachers are well prepared for their teaching sessions	3.20±0.54
	50. The students irritate the teachers	2.52±1.01
	5. Learning strategies which worked for me before continue to work for me now	2.66±0.90
	10. I am confident about my passing this year	3.11±0.65
	21. I feel I am being well prepared for my profession	3.17±0.61
	26. Last year's work has been a good preparation for this year's work	2.73±0.65
	27. I am able to memorize all I need	2.59±0.68
Students' Perception of Atmosphere (SPA)	31. I have learnt a lot about empathy in my profession	3.38±0.55
	41. My problem solving skills are being well developed	3.02±0.42
	45. Much of what I have to learn seems relevant to a career in healthcare	3.3±0.58
	11. The atmosphere is relaxed during ward teaching	2.89±0.59
	12. This course is well time tabled	2.98±0.75
	17. Cheating is a problem in this course	2.87±1.11
	23. The atmosphere is relaxed during lectures	2.91±0.64
	30. There are opportunities for me to develop interpersonal skills	3.45±0.50
	33. I feel comfortable in teaching sessions socially	3.08±0.51
	34. The atmosphere is relaxed during seminars / tutorials	3.05±0.52
Students' Social Self-Perception (SSSP)	35. I find the experience disappointing	3.30±0.55
	36. I am able to concentrate well	2.97±0.47
	42. The enjoyment outweighs the stress of the course	2.67±0.64
	43. The atmosphere motivates me as a learner	3.08±0.51
	49. I feel able to ask the questions I want	2.78±0.79
	3. There is a good support system for students who get stressed	2.52±0.76
	4. I am too tired to enjoy the course	2.97±0.59
	14. I am rarely bored on this course	2.38±1.05
	15. I have good friends on this course	3.44±0.56
	19. My social life is good	2.91±0.61
	28. I seldom feel lonely	2.39±0.95
	46. My accommodation is pleasant	2.94±0.59

RESULTS

Among the total 65 students in Foundation Course, 64 students participated in the study representing 98.46% of the study population. The respondents were 36 (56.2%) males and 28 (43.8%) females. The mean and standard deviation (SD) of the students' age were 18.67 ± 1.085 . Age of the students ranged from 17 to 21 years.

The total mean of the DREEM score was 150.51 and that of the subscales for Students' Perception of Learning (SPL), Students' Perception of Teachers (SPT), Students' Academic Self-Perception (SASP), Students' Perception of Atmosphere (SPA) and Students Social Self-Perception (SSSP) were 36.96/48, 34.01/44, 23.96/32, 36.03/48 and 19.55/28 respectively as shown in Table 1.

Table 2 below showed the mean scores of the individual DREEM items of all the students. In the item scores, students scored more than 3 for 29 items (1, 2, 7, 8, 10, 13, 15, 17, 18, 20, 21, 22, 24, 29, 30, 31, 32, 33, 34, 35, 37, 38, 40, 41, 43, 44, 45, 47, 48), indicating true positive points. Among them, the item no. 2 obtained a mean score greater than 3.5. Likewise, 20 items scored between 2 and 3 (3, 4, 5, 6, 9, 11, 12, 14, 17, 19, 23, 26, 27, 28, 36, 39, 42, 46, 49, 50), indicating these items were aspects of the educational environment that could be enhanced. And only 1 item, that is, the item no. 25 received a mean score less than 2, indicating the problem area.

DISCUSSION

The DREEM tool has been used in the present study to measure the perception of the medical students in Foundation Course regarding their educational environment in the institute. The overall mean DREEM score of the students was 150.51/200 that indicated positive educational environment. In a similar study conducted by Sarwar et al. in Pakistan, the overall mean DREEM score was 116.13.⁹ Another similar study conducted in 15 medical colleges in Bangladesh among 1,903 medical students revealed the total mean score of 110/200.² Yet another similar study conducted in Iran obtained the total mean score of 99.6/200.¹⁰ Likewise, the study conducted in King Saud University, Riyadh revealed the total DREEM score of 108.42/200.¹¹

These obtained mean total scores were lower than those obtained in the present study, revealing deficiencies in their educational methodology that may be due to the reason that these institutions employed a traditional educational system with a curriculum based mainly on teacher-centered rather than student centered. In the medical schools with a traditional teacher centered system, scores were found below 120; however, in the modern student-centered ones, the mean scores were generally much higher.^{12,13} While in a study conducted by James D et al, in India, a mean score of 159.8/200 was obtained that was higher than the one obtained in this study that may reflect that this institution may be fairly

innovative in terms of providing a student-centered approach to medical education.¹⁴

In the present study, the subscale scores for Students' Perception of Learning, Students' Perception of Teachers, Students' Academic Self-Perception, Students' Perception of Atmosphere and Students' Social Self-Perceptions were 36.96/48, 34.01/44, 23.96/32, 36.03/48 and 19.55/28 respectively, indicating that the mean teaching was viewed positively; regarding their perception of teachers, as model teacher; regarding their academic self-perception, feeling more on the positive side; regarding their perception of the atmosphere, feeling more positive; and regarding the students' social self-perception, not too bad. The scores obtained for the aforementioned subscales were 27.97, 25.76, 18.67, 27.76 and 15.97 respectively in the study conducted by Sarwar et al, in Pakistan and in the similar study conducted in Bangladesh, the subscale scores obtained were 28, 24, 19.5, 24 and 14 respectively.^{9,2} In both these studies, the subscale scores were lower than those in the present study that might be explained by the traditional system prevailing in these institutions. Al Hazimi et al, concluded that students from the traditional schools rated their learning and teaching environment in addition to their academic, social self-perception and their atmosphere lower than those from the innovative medical schools.¹⁵

In the item scores, the scores were more than 3 for 29 items, indicating the strength of the educational environment among which the item no. 2, the teachers are knowledgeable, received a mean score of 3.69 that was greater than 3.5, indicating the individual areas of excellence. The students in the present study perceived their teachers as knowledgeable. Similar findings were also reported by the students in the studies done in India, Saudi Arabia and Malaysia.^{4,16,17} The individual item score between 2 and 3 for 20 items indicated the aspects of the environment that needed to be enhanced while planning the curriculum for the future generations. Only one item, that was, the item no. 25 received a score less than 2, indicating issues requiring attention was overemphasis of the factual learning during the course. An overemphasized learning through memorizing reflects the discomfort of the students with the matter. This sheds lights on an issue that deserves special attention as active learning methodologies advocate skills development and integrated knowledge rather than memorizing the contents excessively. Similar studies conducted by James D et al, and Dashputra et al, also reported consistent findings that teaching emphasized more on the factual learning.^{14,18}

The good score in the total mean and subscales in the present study revealed a good educational program and learning environment as perceived by the students. However, the study also revealed certain problematic areas, requiring a need to adopt some remedial measures to provide a better educational atmosphere.

CONCLUSION

The medical students in Foundation Course of Patan Academy of Health Sciences (PAHS) have a positive perception about their educational environment in the institute. Regarding the students' perception of learning (SPL), teaching is viewed positively; regarding their perception of teachers (SPT), they are model teachers; regarding their academic self-perception (SASP), feeling more on the positive side; regarding their perception of the atmosphere (SPA), feeling more positive; and regarding the students' social self-perception (SSSP), not too bad.

Therefore, improvements are still required across these four domains, such as SPT, SASP, SPA and SSSP in achieving a higher quality educational environment. In the individual item score analysis, the identified weakness issue is the excessive demand for learning through memorizing facts that needs to be given attention so as to improve in the performance of the students. The quality of the educational environment is important for effective learning. Students' perception of their educational environment is a useful basis for modifying and improving educational quality, as it affects student motivation and achievement. Therefore, it is important to get timely feedbacks from the students on how they are experiencing their learning environment in the institution.

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APPENDIX - I

The following is an approximate guide to interpret the overall score

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

An approximate guide to interpret the subscales is shown below

Subscale	Score	Interpretation
SPL	0 - 12	Very poor
	1 - 24	Teaching is viewed negatively
	2 - 36	A more positive approach
	3 - 48	Teaching highly thought of
SPT	0 - 11	Abysmal
	12 - 22	In need of some retraining
	23 - 33	Moving in the right direction
	34 - 44	Model teachers
SASP	0 - 8	Feeling of total failure
	9 - 16	Many negative aspects
	17 - 24	Feeling more on the positive side
	25 - 32	Confident
SPA	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
SSSP	0 - 7	Miserable
	8 - 14	Not a nice place
	15 - 21	Not too bad
	22 - 28	Very good socially

SPL - Students' Perception of Learning; SPT - Students' Perception of Teachers;
 SASP - Students' Academic Self-Perception; SPA - Students' Perception of Atmosphere;
 SSSP - Students' Social Self-Perception