BRIEF REPORT

Moroccan medical students' perceptions of their educational environment

Jihane Belayachi[1], Rachid Razine[1,2], Amina Boufars[1,2], Asma Saadi[1,2], Naoufal Madani[1], Souad Chaouir[3], Redouane Abouqal[1,2]*

[1]Medical Emergency Department, Ibn Sina University Hospital, Rabat, Morocco; [2]Laboratory of Biostatistics, Clinical and Epidemiological Research, Faculty of Medicine and Pharmacy, University Mohamed V, Rabat, Morocco; [3]Radiology Department, Military Hospital Mohammed V, Rabat, Morocco

Abstract

This study aimed to assess students' perceptions of their educational environment in the Faculty of Medicine and Pharmacy of Rabat, Morocco, using the Dundee Ready Educational Environment Measure (DREEM). A cross-sectional survey was conducted in the Faculty of Medicine and Pharmacy of Rabat, Morocco, in which medical students' perceptions of their educational environment were assessed using the DREEM criteria during the 2013-2014 academic years. The DREEM inventory encompasses 50 items divided into five subdomains: perceptions of learning, perceptions of teaching, academic self-perceptions, perceptions of atmosphere, and social self-perceptions. The DREEM has a maximum score of 200, which would correspond to a perfect educational environment. The mean scores (± standard deviation) of students' responses were compared according to their year of study and gender. The responses of 189 postgraduate medical students were included. The mean total DREEM score was 90.8 (45.4%). The mean total scores for five subdomains were 21.2/48 (44.2%), 21.8/44 (49.6%), 13.1/32 (40.9%), 19.0/48 (39.6%), and 15.6/28 (55.7%) respectively. Female students reported higher perceptions of teaching scores than males (P = 0.002), and students in their fifth year of study reported significantly higher social self-perceptions scores than those in their fourth year (P = 0.03). In this study of the oldest faculty of medicine in Morocco, students perceived the educational environment as having many problems.

Key Words: *Cross-sectional studies; Morocco; Self-concept; Social perception; Medical students*

Educational environment is an important factor in determining the effectiveness and success of a medical school curriculum [1]. Throughout the world, medical educators are attempting to reform the educational environment of medical schools. The evaluation of educational environments provides a baseline for instituting measures leading to curricular reform [2,3]. The medical curriculum in the Faculty of Medicine and Pharmacy of Rabat is traditional and discipline-based. It occurs in three cycles, with a total duration that varies from seven years for general medicine to 12 years for specialties. The undergraduate curriculum is as follows: undergraduate preclinical sciences in the first and second years; postgraduate clinical sciences in the third, fourth, and fifth years; a full-time externship at the University Hospital during the sixth year; and a seventh-year internship in a peripheral hospital or another institution in the health system. At the end of the seventh year, once clinical competency has been established, the student defends his or her thesis. In Morocco, the most recent reform of medical education took place in 1983. The Faculty of Medicine and Pharmacy of Rabat (FMPR) is the oldest in Morocco. Students' perceptions of the educational environment are a veritable mirror of the services offered by the Moroccan medical educational system. Assessing the learning

environment is very important for identifying both the strengths and weaknesses of the system, and is a prerequisite for embarking on an effective program of reforms. However, no assessment of students' perceptions of the learning environment has been carried out in Morocco, either in a faculty of medicine or in any other university program. It aimed to assess students' perceptions of the educational environment in the FMPR, using the Dundee Ready Educational Environment Measure (DREEM).

We conducted a cross-sectional questionnaire-based survey, in which data were collected from students in the FMPR during the 2013-2014 academic years. The questionnaire was given to postgraduate students in their fourth and fifth years of medical study. All students present in the class during a routine lecture were included. The information sheet gave a brief introduction of the aim of the study and of DREEM. The questionnaire was anonymous and was voluntarily self-administered. Since it was anonymous, a separate consent form was collected. The study protocol and consent procedure were approved by the Rabat Ethics Committee for Biomedical Research. The perceptions of medical students in this study were assessed using the validated DREEM tool. The students were asked to read all the statements and to answer each question using a five-point Likert scale. Higher DREEM scores indicate more positive evaluations. The maximum score of 200 would correspond to a perfect educational environment. A score less than 50 indicates a very poor learning environment, a score of 51-100 indicates a considerable amount of problems, a score of 101-150 is 'more positive than negative, and a score greater than 151 indicates an excellent learning environment. The inventory encompasses five subdomains: perceptions of learning, perceptions of teaching, academic self-perceptions, perceptions of atmosphere, and social self-perceptions. The scores for each item were computed as follows: 4, strongly agree; 3, agree; 2, unsure; 1, disagree; and 0, strongly disagree. The scores for statements relating to negative attributes were computed in the reverse order. Reliability analysis was applied to determine the internal consistency of the DREEM inventory. The internal consistency of items was evaluated using Cronbach's alpha. The Cronbach's alpha value for DREEM in this study was 0.79. Descriptive statistics were computed to evaluate the distribution of study participants according to gender and year of study. Analysis of variance was performed to analyze the variance of group means. The mean scores of male and female students were compared, and the Student's t-test was used to identify statistically significant differences. In this study, P-values less than 0.05 were considered to indicate statistical significance. PASW SPSS ver. 18.0 (SPSS Inc., Chicago, IL, USA) was used for data analysis.

A total of 231 questionnaires were distributed; however, 10 students refused to participate and many other questionnaires were missing some responses. Thus, the responses of 189 students were ultimately included in the study (response rate, 82%). Of the students included in the study, 68.3% were female, 31.7% were male, 34.9% were in their fourth year of study, and 65.1% were in their fifth year of study. The mean total DREEM score and mean scores of the five subdomains are presented in Table 1. The total mean DREEM score was 90.8 out of 200. More than two thirds (71.5%) of the students reported that their learning environment had many problems. Table 2 compares the mean DREEM subdomain scores according to year of study and between genders. Female students reported better perceptions of teaching than male students (23.4 ± 5.4 vs. 20.5 ± 4.9; P = 0.002). Students in their fifth year of study reported significantly better social self-perception scores (16.1 ± 3.4 vs. 14.9 ± 3.1; P = 0.03) than those in their fourth year. The overall mean DREEM score in this study was 90.5/200.

Since the mean scores reported here can be interpreted as providing useful diagnostic information about the strengths and weaknesses of the educational environment as perceived by the student respondents, analyzing our results may help determine the specific curriculum changes that can be made to enhance the perceived educational environment. This study provides factual data about perceptions of the learning environment among medical students in Morocco, as well as guidance about what needs to be addressed in the curriculum.

In conclusion, students perceived the educational environment of FMPR as having many problems. This was the first study to evaluate the educational environment in the Moroccan educational system, and our results should be used to support the decisions of educators in determining priorities for reforms, as well as serving as a template for evaluating the effectiveness of reforms. Further continuous assessments of the learning environment are needed to evaluate the effectiveness of changes once they are introduced.

ORCID: Jihane Belayachi: http://orcid.org/0000-0001-5617-5860; Rachid Razine: http://orcid.org/0000-0002-1576-5204; Amina Boufars: http://orcid.org/0000-0002-2620-8008; Asma Saadi: http://orcid.org /0000-0002-8229-1539; Naoufal Madani: http://orcid.org/0000-0001-7336-6386; Souad Chaouir: http://orcid.org/0000-0002-4852-0190; Redouane Abouqal: http://orcid.org/0000-0002-6117-4341

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

Table 1. Mean total scores on the Dundee Ready Educational Environment Measure and its five subdomains: perceptions of learning, perceptions of teaching, academic self-perceptions, perceptions of atmosphere and social self-perceptions from 189 medical students during the 2013-2014 academic years in Faculty of Medicine and Pharmacy of Rabat, Morocco

Subdomain	Items	Mean (maximum 4)	SD
Perceptions of learning (12 items)	1. I am encouraged to participate in class.	1.38	1
	7. The teaching is often stimulating.	1.2	0.9
	13. The teaching is student-centered.	2.04	1.3
	16. The teaching helps to develop my competence.	1.93	1.2
	20. The teaching is well focused.	1.58	1.2
	22. The teaching helps to develop my confidence.	1.6	1.06
	24. The teaching time is put to good use.	2.7	1.1
	25. The teaching overemphasizes factual learning.	2.01	1.1
	38. I am clear about the learning objectives of the course.	1.34	1.07
	44. The teaching encourages me to be an active learner.	0.7	1
	47. Long-term learning is emphasized over short-term learning.	2.35	1.2
	48. The teaching is too teacher-centered.	2.35	1.2
Total subdomain score		21.2/48	6.2
Perceptions of teaching (11 items)	2. The teachers are knowledgeable.	3	0.8
	6. The teachers are patient with students.	2.47	1
	8. The teachers ridicule the students.	1.8	1.2
	9. The teachers are authoritarian.	2.18	1.2
	18. The teachers have good communication skills with students.	2.56	1.05
	29. The teachers are good at providing feedback to students.	0.9	1.06
	32. The teachers provide constructive criticism.	1.8	1.2
	37. The teachers give clear examples.	2.4	1.1
	39. The teachers get angry in class.	1.7	1.2
	40. The teachers are well prepared for their classes.	1.8	1.2
	50. The students irritate the teachers.	1.1	1.5
Total subdomain score		21.8/44	5.3
Academic self-perceptions (8 items)	5. Learning strategies which worked for me before continue to work for me now.	1.34	1.2
	10. I am confident about passing this year.	2	1.3
	21. I feel I am being well prepared for my profession.	1.34	1.2
	26. Last year's work has been a good preparation for this year's work.	1.9	1.2
	27. I am able to memorize all I need.	1.06	1.1
	31. I have learned a lot about empathy in my profession.	1.7	1.3
	41. My problem solving skills are being well developed.	1.4	1
	45. Much of what I have to learn seems relevant to a career in healthcare.	2.1	1.2
Total subdomain score		13.1/32	5
Perceptions of atmosphere (12 items)	11. The environment is relaxed during ward teaching.	1.1	1.1
	12. This school is well scheduled.	1.8	1.2
	17. Cheating is a problem in this school.	2.5	1.3
	23. The atmosphere is relaxed during lectures.	1.8	1.2
	30. There are opportunities for me to develop interpersonal skills.	1.4	1.1
	33. I feel comfortable in class socially.	2.3	1.3
	34. The atmosphere is relaxed during seminars/tutorials.	2.0	1.2
	35. I find the experience disappointing.	1.3	1.2
	36. I am able to concentrate well.	1.9	1.2
	42. The enjoyment outweighs the stress of the course.	1.1	1.1
	43. The atmosphere motivates me as a learner.	1.4	1.1
	49. I feel able to ask the questions I want.	2.1	1.3
Total subdomain score		19.0/48	5.3
Social self-perceptions (7 items)	3. There is a good support system for students who get stressed.	0.7	0.8
	4. I am too tired to enjoy the course.	3.1	1.1
	14. I am rarely bored on this course.	1.2	1.2
	15. I have good friends in this school.	3.3	0.7
	19. My social life is good.	2.3	1.3
	28. I seldom feel lonely.	2.1	1.3
	46. My accommodations are pleasant.	3.0	1.1
Total subdomain score		15.6/28	3.4
Total DREEM score		90.8/200	17.6

Table 2. Analysis of variance between different years of study and gender for the Dundee Ready Educational Environment Measure subdomains from 189 medical students during the 2013-2014 academic years in Faculty of Medicine and Pharmacy of Rabat, Morocco

Domain	Year of study	Mean ± SD	P-value	Gender	Mean ± SD	P-value
Students' perceptions of learning	Year 4	21.3 ± 5.1	0.9	Male	21.5 ± 5.1	0.5
	Year 5	21.5 ± 6.7		Female	21 ± 6.6	
Students' perceptions of teachers	Year 4	22.4 ± 6.3	0.2	Male	20.5 ± 4.9	0.002
	Year 5	21.5 ± 4.7		Female	23.4 ± 5.4	
Students' academic self-perception	Year 4	13.1 ± 5.4	0.9	Male	13.4 ± 5.2	0.5
	Year 5	13.1 ± 4.9		Female	12.9 ± 5.1	
Students' perceptions of atmosphere	Year 4	19.2 ± 5.1	0.6	Male	18.3 ± 8.1	0.2
	Year 5	18.8 ± 5.4		Female	19.3 ± 5.4	
Students' social self-perceptions	Year 4	14.9 ± 3.1	0.03	Male	15.67 ± 3.6	0.9
	Year 5	16.1 ± 3.4		Female	15.6 ± 3.3	
Total scores	Year 4	91.01 ± 16.3	0.8	Male	89.5 ± 15.1	0.5
	Year 5	90.6 ± 18.3		Female	91.3 ± 18.1	

SUPPLEMENTARY MATERIAL

Audio recording of the abstract.

REFERENCES

1. Abraham R, Ramnarayan K, Vinod P, Torke S. Students' perceptions of learning environment in an Indian medical school. BMC Med Educ. 2008;8:20. http://dx.doi.org/10.1186/1472-6920-8-20

2. Zawawi AH, Elzubeir M. Using DREEM to compare graduating students' perceptions of learning environments at medical schools adopting contrasting educational strategies. Med Teach. 2012; 34:S25-31. http://dx.doi.org/10.3109/0142159X.2012.656747

3. Dimoliatis ID, Vasilaki E, Anastassopoulos P, Ioannidis JP, Roff S. Validation of the Greek translation of the Dundee Ready Education Environment Measure (DREEM). Educ Health (Abingdon). 2010;23:348.