

Tale of two cities: comparison of educational environment of two colleges (Jeddah and Rabigh) affiliated with one university

Muhammad Imran,¹ Muhammad Shahid Shamim,² Mukhtiar Baig,³ Mohamed Farouq,⁴ Zohair Jamil Gazzaz,⁵ Osama Mohammed Al-Mutairi⁶

Abstract

Objectives: To evaluate students' perception about the educational environment at two medical colleges.

Methods: The cross-sectional study was conducted at King Abdulaziz University, Rabigh and Jeddah campuses, in Saudi Arabia, during the first semester of the year 2014 using Dundee Ready Education Environment Measure inventory. Data was collected from undergraduate medical students and analysed using SPSS 16.

Results: Of the 279 subjects in the study, 141(50.5%) belonged to the Rabigh campus, and 138(49.5%) to the Jeddah campus. Overall mean Dundee Ready Education Environment Measure inventory score was 124.90 ± 20.66 . The score for Jeddah was 131.38 ± 21.37 and for Rabigh it was 118.56 ± 17.85 ($p=0.0001$). The difference was also statistically significant in all domains of the inventory ($p<0.05$ each).

Conclusion: Students' perception of their educational environment was positive in both campuses, it was more positive in Jeddah compared to Rabigh.

Keywords: Educational environment, DREEM inventory, Medical students. (JPMA 66: 316; 2016)

Introduction

Rabigh and Jeddah are two cities located along the shores of Red Sea in Saudi Arabia. While Jeddah is the largest seaport on the Red Sea, an important commercial hub with population exceeding 5 million, Rabigh is an ancient town on the western coast with a much smaller population of under 200,000. The Faculty of Medicine, Rabigh, is one of the recently established faculties for undergraduate medical students in Saudi Arabia, with its second batch graduating this year. On the other hand, the well-established Faculty of Medicine at the University campus in Jeddah is providing medical education since four decades. Both medical institutes are affiliated with the highly prestigious King Abdulaziz University. Though separated by a distance of 160km, medical colleges in Rabigh and Jeddah employ paralleled educational philosophy with a modular integrated curriculum that is supposed to be implemented equally effectively in the two cities. In spite of common higher administration and curriculum, the two colleges have differences in number of students, human resources, logistic support, methods of implementing the curriculum and students' demography. Hence, it is considered worthwhile to study

the differences in their educational environment.

Educational environment is defined as "everything that happens within the institute", affecting students' learning including class rooms, departments, faculty and university.¹ It may also include factors such as geographical location, community and facilities provided to the students. Together, all factors determine the conduciveness of environment. A conducive environment is essential for learning in any institute's and its students' success. Moreover, it is known to have impact on students' satisfaction with the programme, aspirations and academic achievements, both during the programme and in future.^{1,2}

Students' perception regarding their institution is one method to evaluate the educational environment, which provides opportunity for the administration, faculty and staff to identify weaknesses and shortcomings of the educational process. The environment can then be improved, thus enhancing the education process for current and future students.³

Dundee Ready Education Environment Measure (DREEM) is a validated and appropriate tool that was created by Delphi panel of faculty members from international medical schools to evaluate the educational environment of medical colleges and other health professional institutions, especially for undergraduate medical schools.⁴ It has been used extensively to measure educational environment across the world.³ The DREEM inventory has been used to assess the educational

.....
¹Department of Surgery, ²Medical Education Unit and Department of Surgery, ³Assessment Unit and Department of Biochemistry, ⁴Clinical Affairs, Department of Pediatrics, ⁵Department of Medicine, Consultant Medicine (Diabetes), ⁶6th Year Student, Rabigh Medical College, King Abdulaziz University, Jeddah, KSA.

Correspondence: Muhammad Imran. Email: minmuhammad@kau.edu.sa

environment of medical students at different medical schools of Saudi Arabia recently and in the previous years.^{5,6} Moreover, it is also emphasised that the DREEM is a valuable tool to observe transformation in educational environment over the passage of time.⁷ The DREEM inventory is found to be equally effective qualitatively even when it is compared with qualitative interviews.⁸

The current study was planned to evaluate through students' perception, the educational environment of two medical colleges, at Rabigh and Jeddah, affiliated with the same university, implementing the same curriculum, but are different in other aspects related to location, faculty members and facilities.

Subjects and Methods

The cross-sectional study was conducted at Rabigh and Jeddah campuses of King Abdulaziz University, Saudi Arabia, during the first semester of 2014. After approval from the institutional ethics committee, cohorts of students from the faculty of Medicine at Rabigh and Jeddah campuses were asked to fill the DREEM questionnaire of which the English version was provided along with Arabic translation. It contained 50 questions, evaluating five domains of students' perception about their learning, teachers, atmosphere, academics, and social self-perceptions (Appendix). The response options for close-ended questions were 0-4, where in most cases 0 is for strongly disagree and 4 for strongly agree. However, items 4, 8, 9, 17, 25, 35, 39, 48 and 50 are scored in reverse direction; 0 for strongly agree, 1 for agree, 2 for uncertain, 3 for disagree and 4 for strongly disagree.^{3,4} The guidelines for the interpretation of scores on (i) individual items, (ii) subscales and (iii) overall DREEM were all followed.^{9,10}

Convenience sampling method was used to enrol students from second year to sixth year in the study. The questionnaire was sent online with brief description of the study and filling of the questionnaire was taken as consent from the student. The questionnaire was sent to 300 students of both faculties. Identity of study participants was kept anonymous and data from the filled-up questionnaires was transferred to Excel file before analysis.

SPSS16 was used for data analysis. Shapiro-Wilk's test was used to check the normal distribution of the data and it was considered normally distributed when $p > 0.05$. Means and standard deviations of DREEM total score, and the five subscale scores were calculated for normally distributed quantitative variables. Student's *t* test was applied to compare differences in mean score for total DREEM and for its five subscales between the two sets of students.

Appendix: Interpretation of DREEM-Item scores and subscale scores.^{9,10}

Appendix-1A: Guide to interpret DREEM-Item Scores

≥ 3.5	Strong areas
2-3	Areas that could be improved
≤ 2.0	Areas that need particular attention

Appendix-1B: Guide to interpret DREEM-subscale Scores

SPL includes 12 questions, with maximum score of 48	
0-12	Very poor
13-24	Teaching is viewed negatively
25-36	A more positive approach
37-48	Teaching highly thought of
SPT includes 11 questions, with maximum score of 44	
0-11	Abysmal
12-22	In need of some retraining
23-33	Moving in the right direction
34-44	Model teachers
SAP includes 8 questions, with maximum score of 32	
0-8	Feeling of total failure
9-16	Many negative aspects
17-24	Feeling more on the positive side
25-32	Confident
SPA includes 12 questions, with maximum score of 48	
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 includes 7 questions, with maximum score of 28	
0-7	Miserable
8-14	Not a nice place
15-21	Not too bad
22-28	Very good socially
Appendix-1C: Guide to interpret Total DREEM-Scores	
0-50	Very poor
51-100	Plenty of problems
101-150	More positive than negative
151-200	Excellent

DREEM: Dundee Ready Education Environment Measure.

SPL: Students' Perceptions of Learning.

SPT: Students' Perceptions of Teachers.

SAP: Students' Academic Self-Perceptions.

SPA: Students' Perceptions of Atmosphere

SSP: Students' Social Self-perceptions.

$P < 0.05$ was considered significant.

Results

The questionnaire was sent out to students of different academic years, from 2nd to 6th year and including those of basic and clinical years (Figure). Of the 300 questionnaires distributed, 279(93%) comprised the study sample, as 10(3.3%) students did not fill the questionnaire and 11(3.6%) filled it incorrectly.

Of these 279 students, 141(51%) were from the Rabigh campus with a mean age of 22.2 ± 2.7 years, while 138(49%) were from the Jeddah campus with a mean age

Table-1: Overall DREEM domain scores for all participants from both colleges.

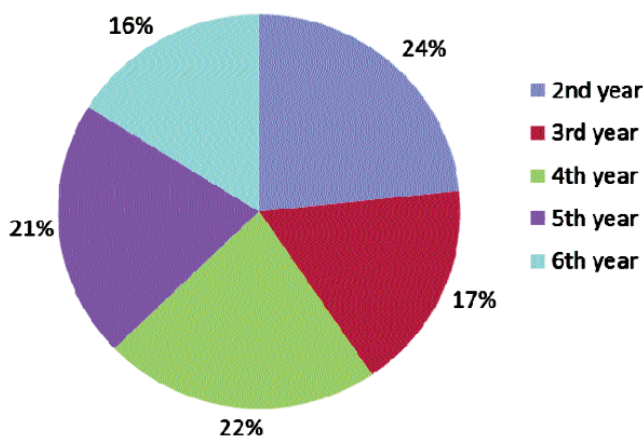
DREEM Domains	Maximum Score	Mean Score (SD)	% of maximum score
All Items (Total Score)	200	124.90 (20.66)	62
Students' Perceptions of Learning	48	29.64 (5.85)	62
Students' Perceptions of Teachers	44	27.62 (4.97)	63
Students' Academic Self-perceptions	32	20.39 (4.53)	64
Students' Perceptions of Atmosphere	48	30.06 (6.13)	63
Students' Social Self-perceptions	28	17.17 (4.06)	61

DREEM: Dundee Ready Education Environment Measure
SD=Standard Deviation.

Table-2: Comparison of DREEM domain scores between Rabigh and Jeddah students.

DREEM Domains	Rabigh N=141 Mean (SD)	Jeddah N=138 Mean (SD)	P-Value
All Items (Total Score)	118.56(17.85)	131.38(21.37)	0.0001
Students' Perceptions of Learning	28.05(4.91)	31.26(6.29)	0.0001
Students' Perceptions of Teachers	26.51(4.87)	28.76(4.83)	0.0001
Students' Academic Self-perceptions	19.47(4.44)	21.33(4.45)	0.001
Students' Perceptions of Atmosphere	28.61(5.63)	31.53(6.30)	0.0001
Students' Social Self-perceptions	15.89(4.04)	18.49(3.66)	0.0001

DREEM: Dundee Ready Education Environment Measure
SD=Standard Deviation.

**Figure:** Percentage of students from each class (both faculties).

of 21.7 ± 2.9 years. The Rabigh campus is an all-male facility, while participants from Jeddah included 71(51.4%) female and 67(48.5%) male students.

Students' perception from both campuses was positive toward their educational environment both overall and in each domain, with 200(62%) saying their overall learning environment was in a positive direction, and they thought

that their learning, the strategies implicated by their teachers for the learning process, their academic self-perception, their atmosphere and social self-perception were good (Table-1).

The students of Jeddah campus had more positive perception compared to the Rabigh campus overall and in all domains; the mean total DREEM score being 131.38 ± 21.37 for Jeddah campus and 118.56 ± 17.85 for Rabigh Campus ($p < 0.05$) (Table-2).

Discussion

The broader rationale for conducting this study was to see how we can improve the educational environment at our college. The results have shown that medical students at King Abdulaziz University have a positive perception toward their educational environment, and the total DREEM score is better (124.9/200) than a previous study conducted at the same university about a decade ago (102/200).¹¹

Comparing our DREEM scores with institutions in other countries; 586 medical students from a medical college in Pakistan showed overall DREEM score of 114.4/200.¹² In another study conducted at a university in Pakistan, the mean DREEM score was 117/200 and high achievers had more positive perception about their educational environment.⁹ It was 141/200 for students of a medical school from England,¹³ and 117/200¹⁴ from an Indian medical school (226 students). In Sri Lanka, the score was almost similar in two universities; 107.4/200 for the students of University of Colombo, Faculty of Medicine, and 107.2/200 for the students of Faculty of Medical Sciences, University of Sri Jayawardenapura.¹⁵ DREEM score from an Iranian medical school, though positive, was < 100 (99.6).¹⁶ This shows that even when the overall scores are positive, they are variable due to factors such as region and curriculum, which were identified in the above examples from different countries.

An interesting aspect of our study was comparison of two campuses under one university. Although students' perceptions were positive for both campuses, the scores from the larger campus situated in the metropolitan city of Jeddah were higher compared to the Rabigh campus. The findings give clues to the areas for improvement to bring the two campuses at par with each other. A similar study in the United Kingdom compared students' perceptions from two campuses of Hull and York Medical Schools, using DREEM inventory. In most of the domains, the differences were not significant.¹⁷ However, in the UK study, faculty was the same for both campuses, and it included only first and second year students. In our study, the faculty members were altogether different, and we

included students from second year to sixth year; which may carry a significant role in the difference in perceptions of students. On the contrary, a study from Australia showed statistically significant ($p=0.03$) better perception of students from smaller site (159.1/200) compared to the larger one (147.4/200). It emphasised on the importance of curriculum development and better infrastructure instead of campus size or other environmental factors.¹⁸

In a recently established medical college of Saudi Arabia, solely for females, overall mean DREEM score was 96.57/200.¹⁹ The study showed lesser overall score compared to Rabigh (96.57 versus 118.56). This can be due to the student-centred curriculum, which is not present at the female's college at present.

One of the limitations of our study was the sampling technique. We used convenience sampling that has a potential for missing some important points in evaluation.

Literature supports the use of DREEM inventory^{20,21} and we used the tool to evaluate our educational environment. In view of this evaluation, certain modifications in the curriculum, teaching strategies and logistic support have already been suggested to improve the educational environment for our students, with the hope that they will serve the community in a better way.

Conclusion

Students' perception of their educational environment was positive at both Rabigh and Jeddah campuses of King Abdulaziz University, but perception of Jeddah students was more positive toward their environment.

References

- Genn JM. AMEE Medical Education Guide No. 23 (Part 1): Curriculum, environment, climate, quality and change in medical education-a unifying perspective. *Med Teach* 2001; 23: 337-44.
- Mayya SS, Roff S. Students' perceptions of educational environment: A comparison of academic achievers and under-achievers at Kasturba Medical College, India. *Educ Health (Abington)* 2004; 17: 280-91.
- Miles S, Swift L, Leinster SJ. The Dundee Ready Education Environment Measure (DREEM): a review of its adoption and use. *Med Teach* 2012; 34: e620-34.
- Roff S, McAleer S, Harden RM, Al-Qahtani M, Ahmed AU, Deza H, et al. Development and validation of the Dundee Ready Education Environment Measure (DREEM). *Med Teach* 1997; 19: 295-9.
- Hasan T, Gupta P. Assessing the learning environment at Jazan medical school of Saudi Arabia. *Med Teach* 2013; 35: S90-6.
- Al-Hazimi A, Zaini R, Al-Hyiani A, Hassan N, Gunaid A, Ponnampuruma G, et al. Educational environment in traditional and innovative medical schools: A study in four undergraduate medical schools. *Educ Health (Abingdon)* 2004; 17: 192-203.
- Mojaddidi MA, Khoshhal KI, Habib F, Shalaby S, El-Bab ME, Al-Zalabani AH. Reassessment of the undergraduate educational environment in College of Medicine, Taibah University, Almadinah Almunawwarah, Saudi Arabia. *Med Teach* 2013; 35: S39-46.
- Denz-Penhey H, Murdoch JC. A comparison between findings from the DREEM questionnaire and that from qualitative interviews. *Med Teach* 2009; 31: e449-53.
- Khurshed I, Baig L. Students' perceptions of educational environment of a private medical school in Pakistan. *J Pak Med Assoc* 2014; 64: 1244-9.
- Roff S, McAleer S, Skinner A. Development and validation of an instrument to measure the postgraduate clinical learning and teaching educational environment for hospital-based junior doctors in the UK. *Med Teach* 2005; 27: 326-31.
- Al-hazimi A, Al-hyiani A, Roff S. Perceptions of the educational environment of the medical school in King Abdul Aziz University, Saudi Arabia. *Med Teach* 2004; 26: 570-3.
- Jawaid M, Raheel S, Ahmed F, Aijaz H. Students' perception of educational environment at Public Sector Medical University of Pakistan. *J Res Med Sci* 2013; 18: 417.
- Miles S, Leinster SJ. Comparing staff and student perceptions of the student experience at a new medical school. *Med Teach* 2009; 31: 539-46.
- Abraham R, Ramnarayan K, Vinod P, Torke S. Students' perceptions of learning environment in an Indian medical school. *BMC Med Educ* 2008; 8: 20.
- Lokuhetty MD, Warnakulasuriya, SP, Perera RI, De Silva HT, Wijesinghe HD. Students' perception of the educational environment in a Medical Faculty with an innovative curriculum in Sri Lanka. *South-East Asian J Med Educ* 2011; 4: 9-16.
- Aghamolaei T, Fazel I. Medical students' perceptions of the educational environment at an Iranian Medical Sciences University. *BMC Med Educ* 2010; 10: 87.
- McKendree J. Can we create an equivalent educational experience on a two campus medical school? *Med Teach* 2009; 31: e202-5.
- Denz-Penhey H, Murdoch JC. Is small beautiful? Student performance and perceptions of their experience at larger and smaller sites in rural and remote longitudinal integrated clerkships in the Rural Clinical School of Western Australia. *Rural Remote Health* 2010; 10: 1470.
- Hasan T, Ibrahim T, Ali TF. Student's perception of educational environment at an all female medical school in Saudi Arabia. *South East Asian J Med Educ* 2013; 7: 26-32.
- Ousey K, Stephenson J, Brown T, Garside J. Investigating perceptions of the academic educational environment across six undergraduate health care courses in the United Kingdom. *Nurse Educ Pract* 2014; 14: 24-9.
- Hammond SM, O'Rourke M, Kelly M, Bennett D, O'Flynn S. A psychometric appraisal of the DREEM. *BMC Med Educ* 2012; 12: 2.