



Comparison of Educational Environment Perception of Dow Medical College Students with CGPA

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Abstract

Background: *DREEM (Dundee Ready Educational Environment Measure) is a validated and global tool for assessing educational environment. It can be used to make comparative analysis of educational environment. Our aim is to study medical school students' perception of their environment and correlate this with cGPA, gender and year of study.*

Materials and Method: *This cross-sectional study involved students of semesters 5, 7 and 9 of Dow*

Medical College from August 2013 to August 2014. DREEM questionnaires were provided to participants in written form. Descriptive statistics were used to evaluate mean and SD score for total

DREEM and DREEM domains. One way ANOVA was used to categorize any variation related to three semesters and unpaired t- test was used to classify gender related variances.

Results: *Total number of respondents was 246 (response rate=82.0%), of which 69(28.04%) were males and 177(71.95%) were females. Total DREEM score was calculated as 110.4/200(55.2%). Maximum score was established in the domain of students' self-social perception (56.8%) and lowest in domain of students' perceptions of learning (53.3%).*

Conclusion: *The research shows that students' perception of their educational environment is slightly more positive than average. It is clear that cGPA does not have an enormous impact on the mind-set of students as commonly perceived.*



Key Words: Dundee Ready Education Environment Measure; DREEM; educational environment; cGPA; undergraduate; medical education

Introduction

The 'educational environment' defined as everything that happens within the classroom, campus or university as whole is crucial in determining the success of medical education [1]. In 1998, the World Federation for Medical Education highlighted learning environment as one of the determining factors in the evaluation of medical education programs [2]. Medical educators widely agree upon the fact that the outcomes of the learning environment, both academic and clinical, are important determinants of medical students' attitude, knowledge and skill [2]. The key to provision of highly motivated, student centered education is precise evaluation of the academic and clinical aspects of a medical institution. For such high quality and accurate assessment, there is a need of comprehensive and valid tool [3, 4, 5, 6, 7, 8].

For decades, researchers have assessed and developed various tools to measure learning environment in primary, secondary as well as tertiary education [9, 10, 11]. In health profession, nursing educational system and their students' perception of environment has been studied comprehensively as well [12, 13, 14, 15]. Educators and researchers have attempted to differentiate and measure the medical education environment as basis for implementing modifications and thus optimizing the educational environment [16, 17, 18, 19]. The most widely used contemporary tool is certainly the Dundee Ready Education Environment Measure (DREEM) [20]. The DREEM is a 50-item measure of students'

perceptions of their learning environment which projects scores on five domains. These five domains are labeled as, students' perception of learning, perception of course organizers, academic self-perception, perception of atmosphere and social self-perception [21]. DREEM questionnaire, developed by an international Delphi panel, has been applied to several undergraduate courses for health professionals worldwide. It produces global readings and diagnostic analysis which allows quality comparisons to be made in the performance and effectiveness of different medical schools. This instrument has been translated into Spanish, Portuguese, Arabic, Chinese, Dutch Swedish, Norwegian, Malay and Thai and used in several settings including the Middle East, Thailand, Nepal and Nigeria [22, 23, 24]. It is currently being utilized in the medical schools of the UK, Canada, Ireland, Thailand, Indonesia, Malaysia, Norway,

Sweden, Venezuela, the West Indies, Sri Lanka, Oman and the Kingdom Of Saudi Arabia to evaluate the students' perception and help health schools to recognize their educational priorities and as a result, introduce more effective measures [25, 26, 27, 28, 29 30]

Dow Medical College, located in Karachi, is one of the oldest medical schools in Pakistan. In 2003, it became a constituent college of the newly formed Dow University of Health Sciences. Gradual but definitive changes in the teaching strategies are being implemented at Dow Medical College. With the batch of 2009, Dow University of Health Sciences has introduced an integrated modular curriculum. Dow University is the first public sector medical university of Pakistan to have introduced this modern method of education. Dow University of Health Sciences conducts



educational training, based on the semester system, and adopts integrated teaching methodology. This is in line with the direction of the Higher Education Commission (HEC) and the approval of the Pakistan Medical & Dental Council (PMDC). University's integrated curriculum can be defined as courses with subject matter classified by organ systems rather than according to departments such as anatomy, physiology or biochemistry. Such a curriculum fosters professional development, and is coupled with systematic and coherent development of clinical and communication skills. The curriculum has been developed and constantly improved by a strong team of faculty members of the University. This has greatly enhanced the teaching standards. Moreover, it has been proved to greatly impact students' perception of their learning environment. Throughout their semesters, students have to attend class lectures and clinical skills labs, participate in case based clinical scenario sessions and rotate through different wards. The course work of five years has been divided into 10 semesters and a semester examination is conducted at the end of 6 months course. Modular and midterm examinations are held for regular appraisal of students. University formulates cGPA according to the criterion provided by the Higher Education Commission of Pakistan. The rationale of this study is to evaluate the effect of cGPA on the students' perception of educational environment at Dow Medical College, and to assess any differences in perception related to gender and year of study using Dundee Ready Education Environment Measure (DREEM).

Materials and Methods

This is a cross-sectional study, conducted on the target population of the students of semester 5, 7 & 9 of Dow Medical College, Karachi from 30th August 2013 to 30th August 2014. The study was approved by the Medical Ethics Committee of Dow University of Health Sciences.

DREEM questionnaires were distributed to 246 students of semesters 5, 7 & 9. DREEM consists of 50 statements, grouped in five domains, relevant to the educational environment. The DREEM inventory has a maximum score of 200. It consists of the following domains: Students' Perceptions of Learning (12 questions, maximum score: 48) Students' Perceptions of Teachers (11 questions, maximum score: 44) Students' Academic Self-Perceptions (8 questions, maximum score: 32) Students' Perceptions of Atmosphere (12 questions, maximum score: 48) Students' Social Self-Perceptions (7 questions, maximum score: 28).

The respondents were asked to study each statement carefully and to answer using a five-point Likert scale ranging from strongly agree to strongly disagree. Each item was scored as follows: 4 for strongly agree, 3 for agree, 2 for uncertain, 1 for disagree and 0 for strongly disagree.

It was made sure that the personal identity of the students remained anonymous. It was also explained that the data would not be forwarded to third party. Before distributing the research questionnaire to the students, a thorough

explanation was given to them in order to describe the objectives & dimensions of the study.

Data was analyzed using SPSS version-16.0. Descriptive statistics tool was used to evaluate arithmetic means and standard deviation for total DREEM & all five sub-scales. One way ANOVA was used to categorize any variation related to three semesters and level of significance was taken at “ $p < 0.05$ ”. Unpaired t-test was used to classify gender related variances between total DREEM score & five subscales. For evaluation of cGPA, we categorized students, arbitrarily, into three groups as: low cGPA group (2.00-2.70), medium cGPA group (2.70-3.40), and high cGPA group (3.40-4.00) based on their prior examination scores^[31].

Results

Response rate: Response rate of students was 82% (246/300), and the distribution of response rate in selected semesters was semester 5: 101 (41.05%); semester 7: 75 (30.48%); semester 9: 70 (28.45%). Male and female students accounted for 69 (28.04%) and 177 (71.95%) for responding samples, respectively.

Total DREEM mean score was calculated to be 110.4/200 (55.2%) among all three semesters.

Components of **Table 1**, are: Maximum and minimum scores of DREEM inventory and its five domains, arithmetic mean with standard deviation and percentage of mean score with interpretations.

In **Table 1**, the highest score was recorded in the domain of students' social self-

perceptions (56.8%) and lowest in the of students' perception of learning domain (53.3%).

Table 2 shows the mean scores of DREEM inventory in selected semesters. There has been a significant difference in the perceptions of students of semesters 5, 7 and 9 regarding environment.

Students of semester 9 hold a considerable positive attitude which is exhibited not only by their mean DREEM score but also when viewing all the domains of DREEM individually, with a maximum of 61.4% positivity in the domain of “Students' self-social perception” and a minimum of 58.8% in the sub-scale of “Students' perception of atmosphere”.

Response of semester 7 students' is somewhat positive as shown by their mean DREEM score of 112/200 (56%), score being highest of 57.8% in the subscale of “Students' social self-perceptions” and lowest of 54.3% in “Students' perception of teachers” domain.

Response of semester 5 students' in all domains, though not in negative integers, is certainly poor being just 51.35% on the mean DREEM score of 102.7/200. Response rate is maximum in the sub-scale of “Students' social self-perceptions” and minimum in “Students' perception of learning”

These results show that students of all three semesters had maximum positive response as represented by their respective scores in the sub-scale of “Students' social self-perception”. This is further explained under the section of discussions.

Table 3 describes another objective of this study which is, the effect of cGPA on students' mind-set regarding academic studies, social life



and teachers. Using DREEM inventory, it is remarkable to know that cGPA is an insignificant factor from analyzed data. This is suggestive that cGPA is not an accurate representative of academic status of student at the medical college.

Table 4 delineates difference in the observation of educational environment as perceived by male and female gender. Males were found to be more positive about educational environment with response rate of 58.1% on total DREEM score of 116.2/200 while females had the total DREEM score of 108.1/200 with response rate of 54.1%. Males' response was substantially more positive in every subscale except "Students' academic self-perceptions" domain which was determined as a non-significant factor in this comparison between males and females perceptions of their environment.

Discussion

According to the practical guide of McAleer, a mean score between 50 and 100 indicates probable problems in the learning environment ^[32]. In medical schools, with a traditional curriculum, domain scores are found to be less than 120; however, in modern, student-centered curriculums, the mean score is generally improved ^[33].

The results presented herein revealed a mean score of 110.4/200 (55.2%) for the five domains of DREEM. Subscale analysis exhibited maximum score in the section of students' social self-perceptions and lowest in domain of students' perception of learning.

The DREEM score of semester 9 students was slightly positive than students of semesters 5 and 7 presumably because they did not follow the

modular system. Their studies were not fast paced therefore they were not over burdened by the course. Since the modular system has specified a limited time span for the completion of each course comprehensively, the high burn out rate was apparent in students of this new, fast paced system. Hence, the students of semester 5 and 7 perceived the milieu more negatively than semester 9 students.

Effect of cGPA on students' academic lives was an important aspect of this study. From the results obtained, it is clear that cGPA did not have an enormous impact on the mind-set of students as commonly anticipated. This could be attributable to the fact that majority of the students at DMC, instead of competing for marks, aimed to compete for practical expertise. From the response given by the students, it also appeared that respondents of this research preferred their semester papers to be more clinically oriented in lieu of constructed on outmoded system which is based rote-learning.

Students' perception of the educational environment has a considerable influence on their performance, motivation and academic accomplishments. The analysis also showed the lowest score in the domain of students' perception of self-learning. It could be attributable to discrepancy between compact learning time and vast, challenging course. This is a point of concern because students are important stake holders of any educational institution and if they are not satisfied with the perception of self-learning then this matter should be taken into consideration by the concerned authorities with sincerity and wherever necessary, credence should be given to students opinion as well.



The analysis explained the DREEM score of male students to be more positive than the female students. One reason of this might be the ratio of female students is much higher than the ratio of male students in medical colleges which may be the cause of a competitive approach to learning amongst girls hence more chances of disappointments and negative opinions about the environment.

Conclusion

Our research proposes that cGPA does not have an enormous impact on the mind-set of students. In all sub-scales, the DREEM score is slightly more positive than average. Mean DREEM score in all three semesters in Dow Medical College is 110.4/200 (55.2%) which clearly establishes slight positivity in the medical students' perceptions of their educational environment. Sub-scale analysis reveals maximum score in the domain of students' social self-perceptions and lowest in domain of students' perception of learning. Results obtained in study can be astutely used to make reforms in academic curriculum, examination patterns, and to direct tactical improvement in order to make educational environment more interesting and better for students.

List of Abbreviations

DREEM: Dundee Ready Education Environment Measure

Competing interests

Authors declare no conflict of interest.

Authors' contributions

AUB, SHA, MR, MAI, MA, MSR were responsible for the distribution of questionnaires.

Afore-mentioned authors also carried out literature review of relevant studies. AUB, SHA, MAI, MA, MSR were involved in data entry. AUB, SHA conducted research analysis. AUB, SHA and MR executed the writing of manuscript. SI supervised the study, guiding us at all points and in reviewing the final manuscript. All authors read and acknowledged the final manuscript. All were thoroughly involved in the conception of the idea and design of the study.

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