

# ASSESSMENT OF EDUCATIONAL ENVIRONMENT OF AN UNDERGRADUATE MEDICAL SCHOOL IN PAKISTAN- A MIXED METHOD RESEARCH

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## ABSTRACT

**Objective:** To assess the educational environment of Khyber Medical College Peshawar, both quantitatively and qualitatively.

**Material and Methods:** This mixed method study was conducted in Khyber Medical College that is one of the pioneer medical institute in the country. A survey of DREEM questionnaire was circulated amongst 175 students both males and females belonging to year 2. A qualitative phenomenological study was conducted by involving class leaders of all years (12 in number) in the form of a focus group interview that was conducted to triangulate the results of DREEM survey. Quantitative data of survey was analyzed by SPSS version 22. Qualitative data was analyzed by recoding the interview that was later on transcribed verbatim. Thematic analysis of the transcribed data was done by identifying codes, categories and themes manually.

**Results:** A total of 150 students (out of 175) participated in the survey, amongst whom 89 were female students. The mean overall DREEM score was 103.27, which was more positive. Students perception of teaching was viewed negatively. Students perception of learning, academic and social self-perception was scored positively. Themes identified in qualitative component were quality of teaching, role modelling, social life and administrative control.

**Conclusion:** Our study revealed a positive learning environment in the college with more positives in academic and social aspects and in the meantime highlighted weaknesses in the quality of teaching.

**Keywords:** DREEM, educational environment (EE), phenomenological research.

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## INTRODUCTION

The Educational Environment (EE) consists of curricular contents, social perspectives and psychological context of an educational institute. All these factors and others affect a student's achievements, attitudes and wellbeing. It plays a significant role in relation to the student's behaviour, academic development and wellbeing<sup>1</sup>. The literature suggests that although the concept is rather subtle, the effects of the EE are substantial, real and influential<sup>2</sup>. Measuring EE in a medical

school is not easy. There are many instruments used for this purpose. The most commonly used is the DREEM (Dundee Ready Educational Environment Measure) inventory. DREEM can give an insight into the issues and strengths of an educational institute, but has some limitations<sup>3</sup>. The most important one is that it does not give an in-depth insight into the contextual problems faced by students and faculty. The present study is aimed at inquiring the educational environment of Khyber Medical College Peshawar. This study highlights the strengths and weaknesses of the educational environment in a local context, as it not only covers the survey component of the DREEM but also includes a qualitative component to know the in-depth issues related to the institution and the students. The results of the study are part of an evaluation of teaching, curriculum, learning environment, and many unexplored factors.

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To explore the EE, we identified two research questions; What is the satisfaction level of students regarding the educational environment of Khyber medical college? And, how students perceive the educational environment of Khyber medical college to be conducive for learning? The 1<sup>st</sup> research question is explored by quantitative terms (DREEM questionnaire) while the 2<sup>nd</sup> question needs an interpretivist (qualitative) paradigm.

## MATERIAL AND METHODS

The study was conducted in Khyber Medical College that is one of the pioneer institutes of undergraduate medical education and training in Pakistan and has produced more than 10000 doctors since its inception in 1954. This was a mixed method research consisting of a survey using DREEM questionnaire and a qualitative component (phenomenological research) using a focus group interview amongst 12 participants who were class representatives belonging to both genders (including all classes from year 1-5).

Educational environment was assessed by 2 measures; 1) DREEM Questionnaire developed by Daniel Staffelbeim consisting of a 50-item inventory, which was distributed amongst 175 students belonging to 2<sup>nd</sup> year (see annexure-1), and 2) A focus group interview as part of qualitative study, involving the class representatives (both males and females) of each year, from year 1 to 5.

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.

The score of each question ranged from 0 to 4 on a Likert scale, with 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) are negative statements and students were asked to score these in the reverse manner (0 for SA, 1 for A, 2 for U, 3 for D and 4 for SD).

After informed consent and approval from IREB of the KMC, the DREEM questionnaire was distributed

amongst students after briefing them about the details of the questions and method of responses. Responses were collected next day. A total of 150 students returned the response sheets. The mean response was identified amongst students in DREEM questionnaires. Six questions were designed for qualitative component of research (see table-1), and were used in interview. These questions were deduced by the researchers from the 5 main components of DREEM questionnaire as open questions and were pilot tested amongst 8 students in a focus group interview. The results of that interview have not been included in the original research presented here. The interview lasted for about 60 minutes in the office of the researcher. The co-researchers were recording field notes and the interview was audio recorded with the help of a cellular smart phone. Data was later on transcribed verbatim and field notes added to it. Thematic analysis of the data was done manually by identifying codes, categories and themes. The themes were analysed in the context of quantitative data deduced from DREEM survey. The audio-recording and transcripts were cross checked and audited by peer review to improve the validity and reliability of data analysis.

## RESULTS

**Quantitative section:** A total of 150 student's responses were collected via DREEM inventory. The number of male students attempting the questionnaire was 61, and females was 89. The mean overall DREEM score was 103.27 (figure-1). There were no gender differences in the scores. The frequencies of different responses are shown in table-2. The mean of Responses in different subscales are shown in table-3, and its interpretation in table-4.

**Qualitative section:** A total of 12 participants, 7 males and 5 female students participated in a focus group interview. A total of 27 codes were identified along with inclusion of field notes. These codes and their abbreviations are shown in table-5. After detailed analysis, 6 categories were identified, and those were further grouped into 4 themes (see figure-2). These themes belong to quality of teaching, role modeling, social life in the college and administrative control in the institution.

## DISCUSSION

The themes identified after qualitative data analysis are matching the 5 aspects of DREEM questionnaire. The student's perception of learning and teaching, academic and social self-perception and environment can easily be observed in the 4 themes of qualitative data as shown in table-6 as merged results. It is evident from table-6 that most of the questions of DREEM were

discussed in qualitative components of research and opinions of the students did not differ significantly. The most important aspect of discussion in interview was the quality of teaching and behavior of the teachers with the students. The students thought that the teachers are more authoritative rather than friendly. They were not happy with the style and approaches to teaching in the college, as these are mostly didactic and old fashioned. This observation is evident from the results of the survey of DREEM where the student` perception of teaching was more negative than positive. Even one student quoted in interview; “The environment in class is like as if teacher is a ruler and students are his disciples”. The reason for this observation of students might be that most of the teachers are following the traditional lecturing styles of teaching. The faculty is not much trained in the contemporary teaching methodologies. Recently, upon the introduction of faculty enhancement workshops in the college, it is anticipated that the curriculum will include the new teaching modalities like small group teaching and problem based learning in near future.

Role modelling is considered to be an important aspect of an educational environment and is considered to be a strong predictor of improvement in learning of students. The opinion of students in this regard was more negative than positive. In DREEM survey however, there is no explicit statement that can assess the role modelling component. The students were of the opinion that administration is much harsh with the students regarding class timings, dress code and other issues. This component although perceived by the students as negative, should be considered as positive as this is one of the most important role of administration. The perception of students about clinical teaching was negative as evident from one of the comments of a student; “*On clinical side may God have mercy on us*”. The reason behind this is most likely the busy schedule of clinical faculty with the patients along with many other factors.

Social life in the college was termed more positive in survey as well as in focus group interview. Students engage in co-curricular activities on regular bases. There are debate clubs, college magazine, sports activities, excursion trips and many more social events arranged by the administration as well as by the students themselves. Academic self-perception was termed more positive than negative. Most of the students who are admitted in the college are high achievers in the premedical years. Therefore, they carry on this trait for future years and excel in the college assessments and beyond. Similarly, the faculty of the college is considered to be academically much stronger as compared to other medical schools in the province. Therefore, these

traits are reflected in students also.

It has been seen in other studies that the overall DREEM score declines as students advance in their undergraduate studies<sup>5,6</sup>. In our case, we targeted only one class in survey, but took opinion of all class representatives of each year during focus group interview in order to triangulate the results of DREEM.

There were no differences in responses in males and females in the survey. But during focus group interview, it was found that females perceived the social environment more threatening for them as compared to males. This is comparable to other studies where negligible differences were observed in the opinions of males and females<sup>7,8</sup>.

Analysis of 11 studies using DREEM to assess the educational environment of different medical schools in Asia, Europe, North America and Africa was presented by Alzuwawe and Elzubair, which revealed a score ranging from 97 (in Canadian school) to 139 (in UK schools)<sup>9</sup>. Our study revealed a score of 103, which is more positive than negative as far as our region is

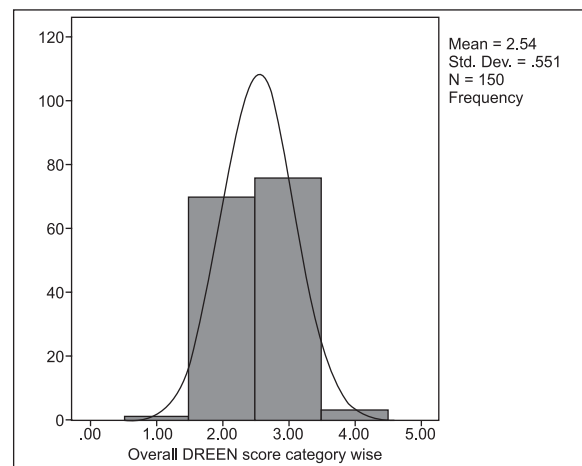


Fig 2: Interpretation of total DREEM score (1.00: Very poor, 2.00: Plenty of problems, 3.00: More positive than negative, 4.00: Excellent)

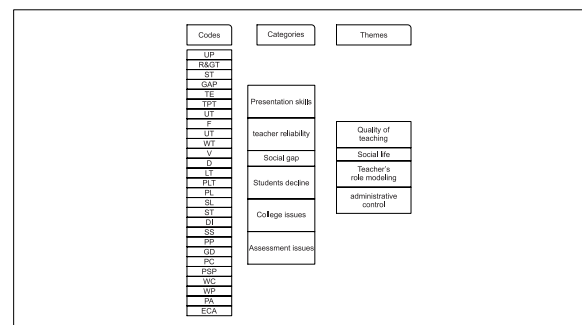


Fig 2: Result of thematic analysis of focus group interviews

concerned. Studies have revealed that medical schools following the contemporary curriculum score more on DREEM as compared to schools following the traditional curricula<sup>10, 11, 12</sup>. As our college has recently started an integrated curriculum, and the students exposed to DREEM were following that, might be the reason of

scoring more positive results as compared to other schools following traditional curricula.

Overall, the scores achieved via DREEM in our college are inferior to most of the studies done in Pakistani medical colleges, where these range from 116-126<sup>13, 14, 15</sup>. However, study like this, where the DREEM survey has been triangulated with qualitative data has not been conducted in our country. Limitations of this study are many; this include, small number of population in survey, involving a single class of students, a one time analysis, and limited number of interviews. Further studies of this kind are needed to find out the true assessment of educational environment of this college. However, the survey and focus group interview have revealed many aspects of weaknesses in the curriculum, environment, and administrative matters, that need to be acted upon. Repeat studies of this kind after these interventions are needed to further foster the environment.

**Table 1: Questions for qualitative components of research**

1	How do you perceive your learning in KMC?
2	Give your opinion about the attitudes of teachers of this college?
3	What do you think about the academic environment of the college and your academic growth.
4	Give your opinion about the college atmosphere for learning
5	What are your perceptions about your social life in KMC?
6	Any other point you want to mention

**Table 2: Cumulative frequencies of responses by students according to Likert scale**

Overall DREEM score interpretation	Frequency
Very poor	1
Plenty of problems	70
More positive than negative	76
Excellent	3
Total	150

**CONCLUSION**

Traditional methods of surveys used for assessing the educational environment may not be enough. Qualitative interviews can give an in-depth picture of the situation. Our study revealed a positive learning environment in the college with more positives in academic and social aspects and in the meantime highlighted weaknesses in the quality of teaching. Interviews revealed that most of the teachers are following the traditional styles of approaches and authoritative behaviours while teaching the students.

**Table 3: Descriptive statistics of responses by students**

Subcategories	Minimum	Maximum	Mean	Standard deviation
Student's perception of learning	4	42	24.7	7.23
Student's perception of teachers	6	37	22.3	6.05
Student's perception of atmosphere	8	43	23.9	6.97
Student's academic self-perception	5	30	17.6	4.78
Student's social self-perception	4	32	15	4.66

**Table 4: Interpretation of student's responses in DREEM questionnaire**

DREEM subscale	Average marks allotted by students	Total marks	Interpretation
Student's perception of learning	24.7	48	Moving in the right direction
Student's perception of teaching	22.3	44	Teaching is viewed negatively
Student's perception of atmosphere	23.9	32	More positive attitude
Student's academic self-perception	17.6	48	Feeling more on the positive side
Student's social self-perception	15	28	Not too bad
Total	103.5	200	More positive than negative

**Table 5: Description of codes and abbreviations used**

Codes		Abbreviations
1.	Unattractive presentations	UP
2.	Reliable and good teachers	R&GT
3.	Teachers teach superficially	ST
4.	Gap between teacher and students	GAP
5.	Tense environment	TE
6.	Teachers just pass time	TPT
7.	Teaching is unsatisfactory	UT
8.	Favouritism	F
9.	Teachers reliability issues	UT
10.	Good hospital teaching	WT
11.	Brilliant students become average	V
12.	Dependence	D
13.	Laboratory technicians teach more than teachers	LT
14.	Poor Laboratory teaching	PLT
15.	Peer learning	PL
16.	Social life affected due to superficial teaching	SL
17.	Strict college timings	ST
18.	College infrastructure is deficient	DI
19.	Self-study preferences	SS
20.	Political parties disrupt college environment	PP
21.	Gender discrimination	GD
22.	Cleanliness not up-to standard	PC
23.	Poor social life	PSP
24.	Clerical staff not trained	WC
25.	Suggestion for web portal	WP
26.	Assessment not up to the mark	PA
27.	Extracurricular activities are lacking	ECA

**Table 6: Comparison of both quantitative and qualitative components**

Quantitative component	Qualitative component
Student`s perception of learning	Quality of teaching Teacher role modeling
Student`s perception of teaching	
Student`s perception of atmosphere	Administrative control
Student`s academic self-perception	Social life
Student`s social self-perception	

## REFERENCES

- Schoeman S, Raphuthing R, Phate S, Khasoane L, Ntsere C. Assessment of the education environment of senior medical students at the University of the Free State, Bloemfontein, South Africa. *African Journal of Health Professions Education*. 2014;6(2):143-9.
- Clapham M, Wall D, Batchelor A. Educational environment in intensive care medicine—use of Postgraduate Hospital Educational Environment Measure (PHEEM). *Medical teacher*. 2007;29(6):184-91.
- Roff S. The Dundee Ready Educational Environment Measure (DREEM)—a generic instrument for measuring students' perceptions of undergraduate health professions curricula. *Medical teacher*. 2005;27(4):322-5.
- Al Ayed IH, Sheik SA. Assessment of the educational environment at the College of Medicine of King Saud University, Riyadh.
- Till H. Identifying the perceived weaknesses of a new curriculum by means of the Dundee Ready Education Environment Measure (DREEM) Inventory. *Medical teacher*. 2004;26(1):39-45.
- Pai PG, Menezes V, Srikanth AM, Shenoy JP. Medical students' perception of their educational environment. *Journal of clinical and diagnostic research: JCDR*. 2014 Jan;8(1):103-7.
- Miles S, Swift L, Leinster SJ. The Dundee Ready Education Environment Measure (DREEM): a review of its adoption and use. *Medical teacher*. 2012;34(9):e620-34.
- Varma R, Tiyagi E, Gupta JK. Determining the quality of educational climate across multiple undergraduate teaching sites using the DREEM inventory. *BMC medical education*. 2005;5(1):8-10.
- Zawawi AH, Elzubeir M. Using DREEM to compare graduating students' perceptions of learning environments at medical schools adopting contrasting educational strategies. *Medical teacher*. 2012;34(sup1):S25-31.

- 10 Shehnaz SI, Sreedharan J. Students' perceptions of educational environment in a medical school experiencing curricular transition in United Arab Emirates. *Medical teacher*. 2011;33(1):37-42.
- 11 Strobel J, Van Barneveld A. When is PBL more effective? A meta-synthesis of meta-analyses comparing PBL to conventional classrooms. *Interdisciplinary Journal of Problem-based Learning*. 2009;3(1):44-58.
- 12 Baxter CM. Evaluation of an integrated curriculum using problem-based learning in a clinical environment: the Manchester experience. *Medical education*. 2000;34(3):222-30.
- 13 Rehman R, Ghias K, Fatima SS, Hussain M, Alam F. Students' perception of educational environment at Aga Khan University Medical College, Karachi, Pakistan. *Pakistan journal of medical sciences*. 2016;32(3):720-4.
- 14 Shahid A, Mubarak S, Iqbal S, Khan MA. Evaluation of learning environment in first two years at Wah Medical College. *Pakistan Journal of Physiology*. 2017;13(4):41-4.
- 15 Nadeem A, Iqbal N, Yousaf A, Daud MA, Younis A. Students' perception of educational environment at Army Medical College, Rawalpindi: assessment by DREEM (Dundee ready Education Environment Measure). *Pakistan Armed Forces Medical Journal*. 2014;64(2):298-303.

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#### **AUTHOR'S CONTRIBUTION**

Following authors have made substantial contributions to the manuscript as under:

**Ahmed F:** Conceptualization of the project, Proposal writing, Interview conduction, Literature search, Compilation of document.

**Zafar U:** Survey conduction, Analysis of results of survey, Took part in focus group interview as scribe, Writing of manuscript.

**Samad A:** Survey conduction, Compilation of results, Literature review writing.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.