ORIGINAL ARTICLE
STUDENTS DREEM FROM PRE-CLINICAL TO CLINICAL YEARS–A CROSS SECTIONAL ANALYSIS FROM REHMAN MEDICAL COLLEGE, PESHAWAR

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Background: Educational environment is a key indicator of student learning and reflects quality of education and curriculum. With the boom of medical colleges in the private sector, parents put great stress on education and educational environment. The purpose of this study was to investigate the difference in perceptions regarding educational environment between pre-clinical and clinical year MBBS students and to determine year wise strengths and weaknesses of the MBBS program. **Methods:** The study utilized the cross-sectional study design and employed, "Dundee Ready Educational Environment Measure (DREEM) questionnaire. The survey included 142 pre-clinical (1st and 2nd year MBBS) and 185 clinical students (3rd to Final year MBBS). **Results:** The total DREEM score for the program was 119/200. Total score for pre-clinical years was 120/200 and that for clinical years was 118/200. There was no statistically significant difference between students' perceptions of pre-clinical and clinical years. When the sub scale analysis was done, perceptions of learning (POL) (p=0.007), perceptions of teachers (POT) (p=0.003) and social self-perception (SSP) (p=0.025) scales showed statistically significant difference between pre-clinical and clinical years. Academic self-perception (ASP) and perceptions of atmosphere (POA) showed no statistically significant difference. **Conclusion:** About the educational environment perception students regarded it as more positive than negative. Pre-clinical students were more satisfied than clinical students except for SSP scale. Students pointed out weaknesses in the curriculum especially for teaching and learning and in the atmosphere, more so for clinical students than pre-clinical students. Findings of this study guide that emphasis shall be put on teaching development and CME activities and regular feedback mechanisms for both students and faculty members.
Keywords: DREEM; Educational Environment; Students Perception; Curriculum

INTRODUCTION

Educational environment as perceived by the students becomes the climate. It is this educational climate that influences their behaviour.[1] It is a key indicator of student learning and reflects quality of education and curriculum.[2] With the boom of medical colleges in the private sector, parents put great stress on education and educational environment. Research on educational environment shows that the environment affects students at all levels. It affects their motivation to learn, achievement of educational outcomes and ultimately success and satisfaction with the education being provided.[3] Climate epitomizes the actual world of not only the environment but also of the adopted curriculum. Physical surroundings as well as psychological, cultural and social aspects are included and affected by the educational climate.[4] These multi-dimensional facets impact how, why and what students learn and is vital to the curriculum success.[5] The perception of students towards curriculum influences the affective domain of students learning and hence, affects the quality of learning.

We can compare climates of medical schools, of various departments within the medical school, professional levels, sections and other settings. The information based on this comparison can be sought by medical teachers themselves, for diagnosing, understanding and enhancing the quality of educational environments.[6] Since the environment is a changing phenomenon, these studies help in bringing about modifications in the desired areas, once the educational practices are in line with institutional goals; the result is excellence.

To evaluate the quality of medical education provided by the institutes, a valid and reliable tool is essential. The Dundee Ready Educational Environment Measure (DREEM) instrument has been developed and validated to be used on a culturally diverse student population.[7] The inventory can be used both as a diagnostic tool

and improvement tool by the institutions. It helps in creating a profile of their strengths and weaknesses or by comparative analysis, that can be used as a predictor of student performance.[8]

A number of international studies have used DREEM inventory for various purposes. Some have used the inventory to check the curricular reforms in their institutions[9,10], to find out the strengths and weaknesses of curriculum in their medical colleges[11], still others have used it to access students' perceptions in specialized departments[12]. A Spanish study used DREEM inventory to compare pre-clinical and clinical medical students in seven medical colleges[2]. In Pakistan, the studies have used the measure to compare private and public sector medical colleges.[13,14]

Medical colleges in Pakistan are adopting and implementing integrated curricula, mostly in hybrid forms. They are implementing modern medical education innovations and still maintain traditional, teacher centered curricula with conventional separation between pre-clinical and clinical years.

In the 1st and 2nd year the clinical attachment is very limited and in majority of the cases absent, the clinical postings start in 3rd year and continue in successive years. The students' perception of educational environment changes over time. What may be important to a first-year student may not be of any significance to a final year student. These perceptions are influenced by the growing diversity of student population, their problems and expectations from the educational environment, institutional circumstances and academic facilities.[14]

The research gap identified through the literature was the absence of comparison about specific curricular aspects of medical colleges using DREEM. Therefore, this study was designed to examine difference in perceptions of pre-clinical and clinical students and the trends on various DREEM sub-categories as they move up in their academic ladder.

Following were the research question: 1). Is there a difference in students' perceptions of pre-clinical years (1st and 2nd year MBBS) and clinical years (3rd to final year MBBS) about the educational environment of the medical college? 2). How much do the students' perceptions vary from 1st year to Final year MBBS?

MATERIAL AND METHODS

It was a cross sectional study with the study population including all students of 1st year to final year MBBS at Rehman Medical College (RMC), Peshawar affiliated with Khyber Medical University (KMU). RMC follows a hybrid modular integrated system of medical education. The study was conducted from December 2017 to October 2018. Data was collected from April to June 2018 depending upon the session ending dates of respective years. All the students present on the day were asked to participate in the study.

The DREEM Inventory was used that was developed by Roff and MacAleer in 1996 and it has been translated into different languages. The inventory comprises 50 items, each with a five-point Likert response ("Strongly Agree (4), "Agree" (3), "Unsure" (2), "Disagree" (1) and "Strongly Disagree" (0)). Nine items (Item 4, 8, 9, 17, 25, 35, 39, 48 and 50) are negative and the scores are reversed, high scores on these items indicate disagreement. The statements can be examined individually, combined into five subscales or a total DREEM score. The maximum score is 200. The five subscales are, 'Perception of Learning' (PoL) maximum score 48 (satisfactory score = 24), 'Perceptions of teachers' (PoT) maximum score 44 (satisfactory score = 22), 'Perceptions of Atmosphere' (PoA) maximum score 48 (satisfactory score = 24), 'Academic Self-Perception' (ASP) maximum score 32 (satisfactory score =16) and 'Social Self-Perception' (SSP) maximum score 28. (Satisfactory score=14).[4,15] Higher scores would indicate better educational environment and satisfaction level of the students.

The study was done after approval from Ethical review board of Rehman Medical College, Peshawar. All the students from respective classes who volunteered to participate in the study were given a small presentation about the data collection instrument DREEM. Key terms and difficult terminologies were explained to the students. The data was collected anonymously.

Data was analysed using SPSS version 22. Mean score of the individual items and sub scale scores were calculated and so was the total DREEM score. Pre-clinical and clinical years were taken as independent groups. Test of normality were applied on the sub scale scores and total DREEM score. Significant scores were flagged for analysis.

RESULTS

Table 1 shows the number and percentage of participants by professional year and orientation by pre-clinical and clinical years. From a total of 500 students, 327 medical students (65%) responded to the DREEM questionnaire from 5 professional years. Of these, 142 (43 %) students were from pre-clinical years, i.e., 1st and 2nd year MBBS and

185 (57 %) students were from clinical years, i.e., 3rd to final year MBBS. The questionnaires were filled anonymously hence, we have not included age and gender in our analysis.

The Cronbach's α coefficients for the inventory were considered separately for individual years. The overall score for the coefficients were 1st (0.90), 2nd (0.92), 3rd (0.73), 4th (0.90) and final year (0.82). Item analysis coefficients showed decrease score for social perception sub scale for all years.

The total DREEM score for all years of study was 119. Score for pre-clinical years was 120±30.8.and for clinical years was 118±21.0 – showing similar results as pre-clinical years. Statistically the study found no difference between the pre-clinical and clinical years.

The mean scores for five sub scales domains for all the professional years were Perception of Learning (POL) 29.46±7.9, Perception of Teaching (POT) 27.54±6.2, Academic Self Perception (ASP) 19.72±6.4, Perception of Atmosphere (POA) 26.71±7.8 and Social Self Perception (SSP) 15.90±4.8.

The scores for pre -clinical and clinical years are presented in Table 2. The normality test - Shapiro Wilk for the data is found significant ($p<0.05$) for both sets and for all the sub scale domains and total DREEM score. This suggests that data is not normally distributed and we shall be employing non parametric test on the data set. A p-value of ≤ 0.05 shall be taken as significant. For the two independent samples (Pre-clinical and Clinical) Mann – Whitney U test was used.

The interpretation of the sub scales, according to guidelines by McAleer and Roff[16] depicts that learning, teaching and social perception scales show statistically significant difference between two data sets ($p= .007$, $p= .003$, $p= .025$). Students from both pre-clinical and clinical lied on the same spectrum scores, the learning was having a more positive perception, teaching was regarded as moving in the right direction and socially students regarded themselves as not too bad. Academic and atmosphere perception scales seemed to have statistically similar effects on students from pre-clinical and clinical years and were showing "more positive attitude" for both scales.

According to the guidelines by McAleer and Roff[16], the individual items can be categorized into areas with weakness (Mean Score ≤2.0) and strengths (Mean Score ≥3.5) and areas needing improvement with a mean score between 2.0 and 3.0. However, for this analysis stricter approach has been adopted by identifying weak areas with a mean score of 2.25 or less. Strength areas were identified with mean scores above 3.0, and kept the bar for areas needing improvement between 2.25 and 3.0. This was in context of present study and guideline by Louise Swift and Susan Miles.

Students from pre-clinical and clinical years showed statistically significant difference ($p\leq0.05$) between students' perceptions about learning. However, item wise results provide in depth analysis of the situation. Overall, 1st year students were perceiving the learning very positively, the colleges environment changed their views substantially in proceeding years. 1st year students thought teaching is student centered and not teacher centered (Mean=3.17 – Strong agreement), this view became a weakness in 2nd year (Mean – 2.18 – Weakness Area). The perception changed when the students entered the clinical years from 3rd year to final year MBBS (Mean = 2.38); obviously it needed an improvement. As students from the clinical years especially the final year MBBS also showed concerns regarding the teacher centered approach.

Learning perception was rated very high by 1st year students (Mean = 35.89) which is a measure of student expectations. This mean decreased by 10 points in 2nd year (Mean = 25.79), and then maintained a plateau state till final year (Mean = 29.35).

All the students believed that teachers were knowledgeable, had good communication skills and were not authoritarian, shown by very high scores throughout the MBBS program (Table-3). However, the students believed that teachers lacked skills to provide feedback and constructive criticism and were also getting angry in teaching sessions. With high disagreement scores in the above-mentioned domains marks it as an important finding from this study. Also, a common theme emerged as feedback from this survey is that teachers are being irritated by the students in the teaching sessions; except from 1st year MBBS; the rest all the year students shared a common finding; this may be because of the familiarity of the students with the environment. Teaching Perception was regarded as "moving in the right direction" but scored high than the rest of the years. However, as students reached final year the mean and satisfaction score for teachers decreased (Mean = 25.65).

Academically students of clinical years were more confident than the pre – clinical years. Surprisingly, students in 1st year were least confident about passing in the exams (Mean = 1.62 – Weakness) while the case was opposite for final year MBBS (Mean = 3.14 - Strength). Students

thought that course materials were relevant for their professions, and they believed that the program is aimed at developing them professionally and their problem-solving skills are improving.

The study explored fluctuations in the score for academic self-perception, 1st year (Mean=20.67) and final year (Mean=20.35) in between more change was noted in students of 2nd year than the rest of the students.

The perceptions of students didn't change with regards to their atmosphere as they progressed from 1st year to final year. Most of the weaknesses were identified in atmosphere domain. All the students believed that program is not time tabled well and cheating is a problem during the exam. Mean for poor program time tabling from 1st year (Mean=2.20) and final year (Mean=1.53) and same trend continued for other years as well. This needs to be explored more. Similarly, students perceived that the program is not offering them many opportunities to develop interpersonal skills, and the 1st year Mean (2.70) is changed to 1.92 for 4th year MBBS. Another finding from this study is that student found their experience in medical school as disappointing. Both the pre-clinical and clinical years having strong agreement score for the statement with Final year (Mean=1.67). This statement is reinforced by the disagreement for

items, "the atmosphere motivates me as a learner" (Mean=1.61 – Weakness for 2nd year MBBS and Mean=2.24 – Weakness for Final year MBBS) and "the enjoyment outweighs the stress of studying medicine" Mean=1.71 – Weakness for 2nd year MBBS and Mean=1.68 – Weakness for Final year MBBS.

Educational atmosphere score had positive effects on the students, 1st year (Mean=29.61) and final year (Mean = 27.75). The remaining years were on the same interpretation scale (Table-3).

The study found statistically significant difference between pre-clinical and clinical years in social self-perception scale. This means students from 1st and 2nd year were perceiving their social self-different than the 3rd to final year students. Students had consensus that medical schools lacked support system for students who are stressed or have other behavioural or academic issues (Mean=2.08 – 1st year MBBS and Mean=1.29 for Final year MBBS). Students from 3rd to Final years had good friendships and perceived their social life better than the students from 1st and 2nd year MBBS (Mean=2.15 for 1st year MBBS and Mean=2.82 for Final year MBBS). Social perception improves as students become senior. Hence, 1st year (Mean=15.26) improves as students reach final year MBBS (Mean=16.29)

Table 1: Demographic characteristics of Medical Students at Rehman Medical College (RMC), Peshawar

Year of Study (MBBS)	Frequency (n=327)	Percentage (%)
1st year	66	20
2nd year	76	23
3rd year	38	12
4th year	71	22
Final year	76	23
Orientation by Pre-Clinical / Clinical		
Pre – Clinical	142	43
Clinical	185	57

Table-2: Mean (SD) total DREEM and sub scale domain scores of MBBS Pre-clinical and clinical year students

Total and Sub Scale DREEM Scores	Pre-clinical (n = 142) Mean± S.D	Clinical (n = 185) Mean±S. D	*p*-value
Total	120±30.8	118±21.0	.174
POL	30.46±9.6	28.68±6.1	*.007*
POT	28.51±7.7	26.80±4.6	*.003*
ASP	19.49±7.5	19.92±5.4	.905
POA	26.87±8.7	26.59±7.0	.423
SSP	15.14±5.8	16.49±3.9	*.025*

Table-3: Individual item analysis and item wise comparison between pre-clinical and clinical year students

Items	Pre – Clinical Years		Clinical Years			p- Value Pre – clinical /Clinical Years
	1st year	2nd year	3rd year	4th year	Final year	
I am encouraged to participate in class	2.50		2.77			.650
	2.89	2.16	2.71	2.70	2.87	
The teaching is often stimulating	2.63		2.50			.046
	3.45	1.92	2.53	2.56	2.42	
The teaching is student centered	2.64		2.38			.005
	3.17	2.18	2.55	2.31	2.37	
The teaching helps to develop my competence	2.46		2.39			.266
	3.06	1.95	2.37	2.10	2.68	
The teaching is well focused	2.61		2.46			.032
	3.09	2.18	2.42	2.41	2.53	
The teaching helps to develop my confidence	2.46		2.31			.054
	2.97	2.01	2.50	2.01	2.49	
The teaching time is put to good use	2.73		2.37			.000
	3.17	2.36	2.50	2.23	2.45	
The teaching over emphasizes factual learning	2.63		2.33			.000
	2.91	2.38	2.29	2.44	2.25	
I am clear about the learning objectives of the course	2.85		2.55			.001
	3.29	2.46	2.47	2.63	2.51	
The teaching encourages me to be an active learner	2.25		2.35			.800
	2.61	1.93	2.45	2.18	2.45	
Long term learning is emphasized over short term learning	2.15		2.26			.832
	2.55	1.80	1.79	2.23	2.53	
The teaching is too teacher centred	2.56		2.07			.000
	2.70	2.45	2.00	2.27	1.92	
Total Perception of Learning	**35.85**	**25.79**	**28.58**	**28.03**	**29.35**	
The teachers are knowledgeable	2.85		2.99			.490
	2.98	2.74	2.95	2.82	3.17	
The teachers are patient with patients	2.46		2.50			.880
	2.85	2.12	2.34	2.41	2.67	
The teachers ridicule their students	2.60		2.24			.001
	2.71	2.50	2.37	2.41	2.03	
The teachers are authoritarian	2.77		2.57			.003
	2.70	2.83	2.76	2.58	2.47	
The teachers have good communication skills with patients	2.59		2.73			.456
	3.00	2.24	2.47	2.77	2.82	
The teachers are good at providing feedback to students	2.58		2.17			.000
	2.95	2.26	1.87	2.30	2.21	
The teachers provide constructive criticism here	2.49		2.05			.000
	2.83	2.18	1.82	2.15	2.07	
The teachers give clear examples	2.63		2.64			.568
	3.05	2.26	2.63	2.68	2.62	
The teachers get angry in teaching sessions	2.59		2.28			.010
	1.85	3.24	2.53	2.69	1.78	
The teachers are well prepared for their teaching sessions	2.78		2.91			.403
	2.89	2.68	3.08	2.93	2.80	
The students irritate the teachers	2.17		1.76			.008
	2.67	1.74	2.24	2.15	1.14	
Total Perception of Teaching	**30.48**	**26.79**	**27.05**	**27.89**	**25.65**	
Learning strategies which worked for me before continue to work for	2.42		2.45			.814
	2.82	2.08	2.58	2.45	2.39	
I am confident about passing this year	2.32		2.95			.016
	1.62	2.92	2.92	2.76	3.14	
I feel I am being well prepared for my profession	2.42		2.51			.605
	2.26	2.55	2.74	2.39	2.51	
Last year's work has been a good preparation for this year's work	2.54		2.12			.000
	2.83	2.29	2.39	2.15	1.96	
I am able to memorize all I need	2.31		2.34			.864
	2.56	2.09	2.42	2.28	2.34	
I have learned a lot about empathy in my profession	2.49		2.58			.850
	2.86	2.16	2.61	2.30	2.83	
My problem-solving skills are being well developed here	2.42		2.26			.055
	2.89	2.01	2.34	2.13	2.34	
Much of what I have to learn seems relevant to a career in healthcare	2.57		2.74			.816
	2.82	2.36	2.71	2.59	2.88	

Items	Pre – Clinical Years		Clinical Years			*p*- Value Pre – clinical /Clinical Years
	1st year	2nd year	3rd year	4th year	Final year	
Total Academic Self Perception	**20.67**	**18.46**	**20.71**	**19.04**	**20.35**	
The atmosphere is relaxed during ward teaching		2.44		2.17		.066
	2.68	2.22	1.79	1.87	2.64	
The course is well timetabled		2.18		1.74		.004
	2.20	2.17	1.87	1.90	1.53	
Cheating is a problem in this course		1.96		2.23		.090
	2.12	1.83	2.37	2.21	2.17	
The atmosphere is relaxed during lectures		2.04		2.45		.010
	2.41	1.72	2.37	2.09	2.83	
There are opportunities for me to develop interpersonal skills		2.27		2.16		.263
	2.70	1.89	2.24	1.92	2.34	
I feel comfortable in teaching sessions socially		2.47		2.50		.580
	2.82	2.17	2.53	2.30	2.67	
The atmosphere is relaxed during seminars/tutorials		2.44		2.51		.838
	2.58	2.33	1.95	2.41	2.88	
I find the experience disappointing		2.32		2.08		.026
	2.17	2.45	2.11	2.49	1.67	
I am able to concentrate well		2.49		2.44		.147
	2.83	2.20	2.47	2.37	2.49	
The enjoyment outweighs the stress of studying medicine		2.01		1.82		.212
	2.36	1.71	1.66	2.06	1.68	
The atmosphere motivates me as a learner		2.15		2.15		.844
	2.61	1.76	2.24	2.01	2.24	
I feel able to ask the questions I want		2.08		2.37		.078
	2.14	2.03	2.29	2.21	2.55	
Total Perception of Atmosphere	**29.61**	**24.49**	**25.87**	**25.74**	**27.75**	
There is a good support system for registrars who get stressed		1.61		1.41		.304
	2.08	1.20	1.42	1.52	1.29	
I am too tired to enjoy this course		2.42		2.50		.594
	2.23	2.59	2.37	2.55	2.51	
I am rarely bored on this course		2.06		1.94		.406
	2.47	1.71	1.84	2.08	1.86	
I have good friends in this course		2.64		2.98		.378
	2.11	3.11	3.26	2.75	3.05	
My social life is good		2.14		2.71		.004
	2.15	2.13	2.68	2.61	2.82	
I seldom feel lonely		2.19		2.29		.623
	2.05	2.32	2.24	2.65	1.97	
My accommodation is pleasant		2.07		2.68		.007
	2.17	1.99	2.84	2.51	2.76	
Total Social Self Perception	**15.26**	**15.04**	**16.66**	**16.61**	**16.29**	
Total DREEM Score	**132**	**111**	**119**	**117**	**119**	

Table 4: Pre-Clinical vs Clinical year – how students perceived years

Orientation	Weaknesses Mean = < 2.25	Improvement Areas Mean= 2.25 – 3.0	Strengths Mean = ≥ 3.0
Pre- clinical	13	37	00
Clinical	15	35	00

Table: 5 Year wise weakness, improvements and strengths

Year	Weaknesses Mean = < 2.25	Improvement Areas Mean= 2.25 – 3.0	Strengths Mean = ≥ 3.0
1st year MBBS	12	30	8
2nd year MBBS	30	18	2
3rd year MBBS	15	33	2
4th year MBBS	19	31	0
Final year MBBS	15	32	3

DISCUSSION

The aim of the study was to examine the educational environment at undergraduate level offered at Rehman Medical College, Peshawar. The student feedbacks were used to test two hypotheses; (1) the student's perception regarding educational environment at pre-clinical years is same as in clinical years. (2) There is no net difference in students' perception regarding educational environment from 1st year to Final year MBBS.

Testing these hypotheses, provided us with strengths and weakness at professional levels, and the data allowed us to compare two independent samples (pre-clinical and clinical years). Educational environment having effects on all the stake holders can be regarded as a true measure of the curriculum (operational as well as hidden).[17] The goal of this

study was not to rank students based on scores, but to guide good practice by adopting strengths and improving the weaknesses.[18]

The study was done using data from a single medical college (n=327), although one study done in Pakistan (n=2084)[14] and studies done in Spain (n=1513)[2], Chile (n=1092)[19], and Saudia Arabia (n=1072)[20] employed larger data sets with many undergraduate medical schools. This study is different from others as its main objective is to determine students' perception at pre-clinical or clinical level and its effects on the change of perception scores year wise.

In other studies, the participation of students is essentially more than 50% in surveys done in medical schools[2], however, unlike other studies where participation is more in junior years (pre-clinical years). The participation was approximately equal throughout the professional years except for 3rd year MBBS (38%). Overall, there were 57% students from clinical Years and 43% from Pre-clinical years, this may be because of more population of clinical students than the pre-clinical students.

The Cronbach's α coefficient values showed a high reliability for the total scale except for 3rd year MBBS and for Social Self Perception Scale. These findings are in congruence with other studies.[19,21–23]

The study demonstrated that students at pre-clinical years (Mean=120±30.8) were more satisfied with the educational environment than the clinical year students (Mean=118±21.0). Regarding educational environment as more positive than negative, the difference was not significant for both orientations. Pre-clinical year students highlighted 26% of the weaknesses as compared to 30% for clinical years. This finding continued as sub scale scores were analysed. These findings suggest that improvements are needed at many levels throughout the curriculum. These findings are consistent with studies done elsewhere. A study from Spain described pre-clinical vs clinical mean score as 116±24.9 vs 104±29.5.[2] Similarly, a study from Pakistan described mean scores for both orientations as 108±24.0 vs. 103±26.5.[14] Both studies mentioned significant difference in perceptions of students at pre-clinical and clinical levels which is not the case in our study. Few studies reported opposite results, indicating clinical years as more satisfactory period than the pre-clinical phase.[23,24]

According to Roff, medical schools with traditional curriculum scored below 120.[25] Year wise analysis in our study shows that scores were below 120 for 2nd to final year MBBS while 1st year MBBS had a mean score of 132. Apart from curriculum, the decrease in mean scores in subscale DREEM items may be a result of student expectations and more familiarity with the medical school environment as they become senior. The results for total DREEM scores in the current study follows the same pattern, as studies done in other parts of the world, where scores ranged between 101 and 140.[7,14,21,26] Overall both the pre-clinical and clinical years were found to score satisfactory for all the sub scale domains. Problem areas were identified in each sub scale, in item and in the respective years but the general outcome is that educational environment worsens in clinical years, as mentioned above.

Individual subscales and item analysis were done to understand the situation deeply. In perception of learning, teaching and social self-perception pre-clinical and clinical years were significantly different from each other, which is not the case when we analyse studies from Pakistan[14], Malaysia[17] and Kuwait[27]. In learning and teaching domains, the three highly scored items for pre-clinical years were item 38 "I am clear about the learning objectives of the course"; Item 2," The teachers are knowledgeable" and Item 40," The teachers are well prepared for their teaching sessions".

Similarly, for clinical years, three highly scored items for the mentioned sub domains were; Item 1, "I am encouraged to participate in class", Items 2 and 40.

Lowest scoring item for both orientations in above mentioned scales was item 50," the students irritate the teachers" (Mean=1.76). Based on cut off levels, clinical students were more able to identify weaknesses than the pre-clinical students. Teachers ridiculing students, lacking ability to provide feedback and teaching being too teacher centered were the major weaknesses. These findings may be the result of teacher centered, subject based curricula and lack of training of the clinical staff.

Items 2 and 40, as mentioned above were highlighted in the study done in Malaysia[17] and were linked to good teaching standards.

In social self-perception scale, statistically students differed in their opinions however, the lowest scoring items for both orientations were; Item 3, "there is a good support system for students who get stressed" (Mean 1.61 vs 1.41) and Item 14, "I am rarely bored on this course" (Mean 2.06 vs 1.94). The highest scoring item was, Item 15, "I have good friends in this course" (Mean 2.98). These findings are consistent with social self-perception scoring done by other authors. In countries, where tutorial system is implemented, even than students are found complaining about lack of support system.[2] Boredom of the program as students get seniority and lack of support system is a common problem encountered.[7,17,20,28] Structured mentoring programs and improvements in the information dissemination

system using technology seems to improve student's feedback.

Student's perception regarding their academia and atmosphere seems to be unchanged throughout the professional years. The highest scoring item for clinical years was, item 10 "I am confident about passing this year" (Mean 2.95), while the mean scores for rest of the academic self-perception items lied between 2 and 3. It is worth mentioning that students in First year MBBS scored very less for this item (Mean 1.62). The confidence on the medical school and medical education improves with time. Unlike studies done in Spain, Malaysia, Saudi Arabia and Kuwait, students in this survey did not complain of memorization issues, empathy in medical profession and development of problem-solving skills.[2,17,20,27] One possible reason for this difference may be because students in Pakistani medical colleges usually come from background where rote memorization is stressed.

Atmosphere is an intangible attribute and affects medical education, learning, and teaching at all levels. The lowest scoring items at clinical levels were, Item 12, "the program is well time tabled" (Mean 1.74) and item 42, "the enjoyment outweighs the stress of studying medicine" (Mean 1.82); the two items in turn produced disappointment among students (Item 35; Mean 2.08). Pre-clinical year students perceived cheating to be a major problem in the course (Item 17; Mean 1.96). The rest of the items scored between 2 and 3, which means that these are the areas that need improvement. These findings were similar to the studies done in Malaysia and Iran.[17,23] Poor program time tabling has emerged as a common theme in most of the quantitative surveys. This can be because students are not considered a stakeholder during the finalization of time tables. Both pre-clinical and clinical students didn't differ much in their perception about atmosphere shown by non-significant and close mean results.

Study limitations:

The study was done using validated and reliable quantitative measure – DREEM. The study was successful in identifying strengths and weaknesses in accordance with the global literature, but at the same time quantitative measures do not pinpoint the exact reasons for the weaknesses. The student participation was less, and hence, the response rate. This may be because, the surveys were conducted at the end of the academic sessions and during that time students were busy in their preparation and clearance.

CONCLUSION

The students perceived the educational environment at Rehman Medical College (RMC) as satisfactory. There were problem areas both at pre-clinical and clinical levels. However, students in 1st and 2nd year MBBS graded their environment as more positive than the 3rd to Final year MBBS students. More orientation of clinical faculty with medical education can improve the students' perception. Continuous Medical Education (CME) activities on medical education will help to improve specific aspects of the implemented curriculum which in turn will improve students' perception. The understanding of students' perception will help in understanding students' psychology and development of enhanced educational strategies leading to better learning outcomes.

AUTHORS' CONTRIBUTION

AR – Idea Conception, Data collection, Entry and Analysis, Final Write up. TK – Literature Search, Data Analysis, Article write up and final review.

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