

ORIGINAL ARTICLE

Assessment of Medical Education Environment by Teachers in
Pakistani Medical School

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ABSTRACT

CMH Lahore Medical College & IOD go through the transformation of their curriculum from a teacher-centered discipline to a student-centered integrated curriculum. The goal is to measure the level of awareness of the educational environment of faculty members due to the change in curriculum and to find the difference with respect to gender, field and position of faculty in CMH Lahore Medical College & IOD, Lahore, Pakistan. This cross-sectional study was conducted at CMH Lahore Medical College & IOD, Pakistan from December 2018 to March 2019, and comprised of faculty members. Data was collected using a questionnaire "Assessment of Medical Education Environment by Teachers" (AMEET). The overall score of the questionnaire and scores of each subscale were given in percentages. An independent t test was used to compare different faculty cohorts. The survey was anonymous and SPSS package 20 was used for statistical analysis. The overall AMEET score was 86%. Faculty ratings were low for subscales regarding the students (79%) and the learning atmosphere (80%). However, subscales regarding Teachers' professional self-perceptions (93.7%), Teaching (88.8%) and Learning activities (88.8%) showed high percentages. The mean score of the learning atmosphere subscale of basic science faculty were found to be significantly higher than those of the clinical faculty ($p < 0.05$). Males, clinical faculty members, Professors and Assistant Professors gave significantly higher scores to all subscales of AMEET questionnaire ($p < 0.05$) as compared to female, basic sciences faculty, associate professors and demonstrators. Faculty perceived a positive educational environment towards student centered integrated curriculum within the CMH Lahore Medical College & IOD. Results of the study implied that the environment required multiple measures of improvement in the institution to promote medical education. This study provides baseline information ranging from teaching faculty to instructional designers in planning, developing and implementing appropriate strategies and curriculum.

Keywords: curriculum, educational environment, faculty, teachers

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INTRODUCTION

Globally, several studies have been done in recent years on investigating the various factors of educational environment (EE) in medical colleges. EE is recognized as the chief component in determining the efficiency of curriculum, students' accomplishments and the standard of teaching and learning [1, 2].

The EE encountered by faculty members comprises of all the factors that influence outcomes of the curriculum. This could lead to an improvement in students and faculty members. One of the measures of assessing curriculum in a medical school involves conducting research regarding faculty's perceptions of the EE [3].

According to Roff and McAleer, if the faculty members of an educational institution are capable of identifying the variables that form the EE and evaluating the perceptions of students and faculty, the findings can assist in modifying and customizing the variables needed to optimize the productivity,

learning experiences and goals of faculty regarding teaching [2, 4-6]. Effective and suitable measures can be advised on the basis of teachers' perceptions and can be used to identify faculty development needs of the institution [7].

Medical curriculum in CMH Lahore Medical College, Pakistan is a five year course that is student centered. Numerous innovative teaching strategies are used for the integration of different disciplines. These compose of case based learning (CBL), simulations, clinicopathological conferences (CPCs), cyber anatomy; use of virtual lab, power lab, field trips, tutorials and problem based learning (PBL). Basic sciences medical teachers (BMT) teach the students in the initial three years and clinical teachers (CT) train them in the remaining two years. CTs also contribute in the initial years of the program. Several tools have been developed to investigate EE by gaining information from the learners. These are Dundee Ready Education Environment Measure (DREEM) [4], Anesthetic Theatre Education Environment Measure (ATEEM) [5], Postgraduate Hospital Educational Environment Measure (PHEEM) [6], Operating Room Educational Environment Measure (OREEM) [7] and Surgical Theater Educational Environment Measure (STEEM). "Assessment of Medical Educational Environment by the Teachers" (AMEET) is a valid, reliable and pre tested tool which is specifically developed to get viewpoints of faculty for the benefits of students relevant to EE.

Many studies have been conducted in Pakistan to investigate the perceptions of students' EE [6, 8, 9]. However, published literature regarding faculty' perceptions of EE in the medical college is limited. Faculty members often evaluate the courses and give advice regarding appropriate measures as needed. However, as per the author's knowledge no study was carried out about the faculty's perceptions of EE in CMH Lahore Medical College. Therefore, the objectives of this study are to measure the perceptions of faculty members on the EE in CMH Lahore Medical College, Pakistan and the level of differences in perceptions on the basis of their socio-demographic traits [10].

MATERIAL AND METHODS

Approval was obtained from the Ethical Committee, CMH Lahore Medical College & Institute of Dentistry (CMH, LMC, IOD) for the cross sectional study conducted there from December 2018 to September 2019. The population of study was limited to all faculty members of CMH Lahore Medical College. Moreover, the participants were told about the anonymity and voluntary nature of study. The objectives of the study were explained to faculty members as the findings of the current study would help in the development of curriculum as well as faculty. Verbal consent was obtained from all the participants. After receiving permission from Shehnaz et al, the developer of questionnaire, a valid, highly reliable (0.94)¹¹ and pretested "AMEET" inventory was distributed to faculty members of the MBBS course. The inventory comprised of six subscales and fifty items. (Table 1) (Appendix I).

Table I: Labeling of six subscales

Subscales	Items numbers	Total items	Max. score
1. Teachers' perceptions of teaching (Teaching)	1, 3, 4, 8, 14, 23, 26, 30, 42	9	36
2. Teachers' perceptions of learning activities (Learning Activities)	2, 9, 27, 31, 35, 38, 39, 43, 50	9	36
3. Teachers' perceptions of students (Students)	3, 15, 16, 22, 28, 41	6	24
4. Teachers' perceptions of learning atmosphere (Learning Atmosphere)	6, 11, 17, 32, 34, 44, 45, 47, 48, 49	10	40
5. Teachers' perceptions of collaborative atmosphere (Collaborative Atmosphere)	5, 10, 18, 19, 29, 36, 37, 40	8	32
6. Teachers' professional self-perceptions (Professional Self Perceptions)	7, 12, 20, 21, 24, 25, 33, 46	8	32

Four-point Likert scale was used for the responses on items. With 4 being "Strongly Agree" (SA), 3 "Agree" (A), 2 "Unsure" (U), 1 "Disagree" (D), or 0 being "Strongly Disagree" For nine items (4, 7, 13, 17, 23, 28, 36, 39, 45) the scoring was reversed ranging from 0 "Strongly Agree" to 4 "Strongly Disagree." Thus, for all the items the higher the marks the greater the indication of positivity of perception. This suggests that the total maximum score of "AMEET" was 200. The data was then entered in SPSS package 20. Mean and percentages were used for the total score as well as the domain score. Shapiro-wilk test was used to check the normality of data. An Independent t test was used to assess any difference of marks between the cohorts. The statistical significance was set at a value ≤ 0.05 .

RESULTS

Fifty four faculty members returned the questionnaire yielding a 90% response rate. There were 31(57.4%) females and 23(42.6 %) males (Table II). Cronbach alpha calculated for the complete questionnaire was 0.88 which showed high reliability. CT total marks were higher than BMT in four subscales regarding: "Teaching", "Students", "Collaborative Atmosphere" and "Professional Self Perceptions". In two subscales "Learning Activities" and "Learning Atmosphere," both groups obtained equal scores (Table III). Interestingly, the same pattern of percentages was observed in males and females. The group with males scored higher in the above mentioned four subscales and similarly, males and females scored equal percentages in "Learning Activities" and "Learning Atmosphere" subscales.

Table II: Characteristics of Faculty members at CMH Lahore Medical College, Pakistan 2018-Dec-2019 (N=54)

Characteristics	Results: n (%)
Gender	
Male	23 (42.6)
Female	31(57.4)
Faculty Position	
Professor	19 (35.2)
Associate Professor	12 (22.2)
Assistant Professor	13 (24.1)
Senior Demonstrator	7 (13)
Demonstrator	3 (5.6)
Faculty members	
Basic medical sciences teachers	33 (61.1)
Clinical teachers	21 (38.9)

Table III displayed the percentage of various level of faculty members that were analyzed in this research on the basis of faculty positions. Results indicated the total percentages scored by Professors and Assistant Professors (82%) were highest followed by the Associate Professors (77%). Senior & Junior demonstrators obtained the minimum percentage of 71.5% and 67% respectively.

The total percentages of all subscales were higher among: males versus females, Professors, Assistant Professors versus Associate Professors & Demonstrators, and Clinical Teachers versus basic sciences teachers. (Table III)

The highest percentage score (93.75%) was given to the "Professional Self Perceptions" subscale, followed by "Teaching" and "Learning Activities" which scored 88.89%. "Collaborative Atmosphere" subscale obtained 84%, whereas "Learning Atmosphere" scored 80%. The subscale regarding "Students" obtained the least percentage of 79%. All participants on the basis of their gender and faculty position scored the lowest percentage in this subscale. (Table III).

Table III: Subscale Scores (% of maximum score)

Characteristics of faculty members at CMHLMC, Pakistan 2019 (N=)	% max score						Total
	Teaching	Learning Activities	Students	Learning Atmosphere	Collaborative atmosphere	Professional self- perception	
Gender							
Male	88.8	88.8	79.2	80	84.4	93.8	82
Female	80.5	88.8	70.8	80	71.8	87.5	75.5
Faculty position							
Professor	88	86.1	66.7	80	84.4	93.8	82
Associate Professor	83	88.8	62.5	80	71.8	87.5	77
Assistant Professor	88.8	88.8	79.2	80	84.4	84.4	82
Faculty members							
Senior Demonstrator	83.5	80.5	58.3	72.5	78	81.3	71.5
Demonstrator	72.2	75	66.7	70	59.4	71.9	67
Clinical Teachers	88.8	88.8	79.2	80	84.4	93.8	82
Basic Medical Science Teachers	83.3	88.8	66.7	80	78.1	87.5	75.5

CT in Medicine, Surgery, Obstetrics and Gynecology, General Surgery. BMT in Anatomy, Physiology, Bio Chemistry, Pharmacology, Pathology, Forensic Medicine and Community Medicine.

The total score of the inventory was 172 out of 200 yielding a high percentage of 86%. (Table IV). There was no significant difference found on the basis of faculty's traits, whereas the mean score of the domain

“Learning Atmosphere” was observed to be significantly higher in Basic Sciences Teachers (25.60) as compared to Clinical Science Teachers (22.33) ($P < 0.015$).

Table IV: Six Subscales measuring Medical Education Environment by Teachers

Subscales	Maximum score	Total score	Range	% maximum Score
Teachers’ perceptions of Teaching (Teaching)	32	36	14	88.89%
Teachers’ perceptions of learning activities (Learning Activities)	32	36	25	88.89%
Teachers’ perceptions of students (Students)	19	24	15	79.17%
Teachers’ perceptions of learning atmosphere (Learning Atmosphere)	32	40	24	80%
Teachers’ perceptions of collaborative atmosphere (Collaborative Atmosphere)	27	32	19	84%
Teachers’ professional self-perceptions (Professional Self Perceptions)	30	32	17	93.75%
Overall marks of inventory	172	200	-	86%

DISCUSSION

In medical education, teaching and learning is a continuous process which begins upon the entry in a medical school, continues during the training period and remains throughout the life of a doctor.¹² In medical institutes all around the world, diverse teaching practices and learning strategies are used for better student learning. The key features of most faculty development interventions and programs start with the evaluation of teaching methodologies, learning activities, learning atmosphere, teachers’ perceptions of students and their self-perceptions and assessment of change in themselves.

Over the years, great emphasis has been placed on the impact of educational environment on the productivity of faculty members and students. To maintain good standards of medical education, it is necessary to assess viewpoints of the medical faculty/ teachers regarding the EE [13]. There is an inherent need for the medical teachers to work for the improvement of the educational climate as there is always room for improvement. A reliable tool for analyzing the educational environment by teachers is the AMEET (Assessment of Medical Education Environment by Teachers) inventory [11] which was applied in the current study.

In the current study, faculty members considered the EE and associated subscales to be “more positive than negative.” This is in accordance with two studies from the UAE and one from Spain that showed similar findings [14-16]. There is scarcity of published literature regarding the perspective of the assessment of teachers’ awareness on the EE in medical schools. Curriculum of an institution plays an important role in developing the EE. Additionally, research papers regarding this topic would assist in the improvement of EE in medical schools.

The faculty of CMH reported high scores which signifies positive attitude towards hybrid and problem-based curriculum. Studies in Turkey, Hong Kong and UAE also disclosed similar findings [15, 17-19]. The teachers of CMH believed that students had adequate ways to build their competence in solving problems to become life long and self-directed learners. Similarly, they reacted positively towards the problem based curriculum and believed it promoted self-directed learning and problem solving skills among students [20, 21].

Coinciding with the findings of all the cited authors, [17, 22] the results of the present study reported that the BMT showed relatively more positive attitude towards the learning atmosphere as opposed to CMT in organ based integrated curriculum [17, internal motivation, problem solving skills and satisfaction with this strategy of students [22]. The reason of this significant difference between BMT and CMT could be the time constraints of the CMT. This could lead to limited communication and poor interpersonal relationships which could impact the collaborative educational atmosphere.

Contrary to our results, a study conducted in University of British Columbia²³ by Whitney et al. revealed that clinical faculty in dentistry showed positive attitude than the basic sciences dental faculty. In this case, the exposure of clinical faculty with senior dentistry students could be the reason of the finding [24]. A study in Sweden reported no significant differences in perceptions between BMT and CMT regarding various elements of curriculum [23]. In another study, no differences in opinions on curriculum components were observed between academic teachers and clinical teachers. This was probably due to the small number of staff.

The findings of current study can be utilized for the betterment of faculty’s working environment and designing of future faculty development programs (FDPs) in the institution. Appropriate FDPs assist

faculty by considering the learning needs of students and dealing with the continuous process of curriculum renewal [25]. Positive and good working conditions of faculty members will augment faculty satisfaction and academic achievements of both faculty and students.

STRENGTHS AND LIMITATIONS

A validated and a reliable questionnaire 'AMEET' was utilized. On the contrary, the study was carried out among faculty of only one medical college of Pakistan limiting the generalization of our results. There is a need to replicate the current study amongst faculty of other medical colleges for the generalization of findings.

CONCLUSIONS

Faculty perceived positive educational environment towards student centered integrated curriculum within the CMH Lahore Medical College & IOD. Results of the study implied that the environment required multiple measures for improvement in the institution to promote medical education. This study provides baseline information ranging from teaching faculty to instructional designers in planning, developing and implementing appropriate strategies and curriculum.

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