ORIGINAL ARTICLE

EDUCATIONAL ENVIRONMENT IN THE TRANSITION PHASE OF CURRICULUM AT AYUB MEDICAL COLLEGE ABBOTTABAD, PAKISTAN

Muhammad Junaid Khan, Brekhna Jamil, Ahsan Sethi, Uswah Noor[2], Hamza Javed[2], Humera Adeeb

Institute of Health Professions Education and Research, Khyber Medical University Peshawar, [2]Ayub Medical College, Abbottabad-Pakistan

Background: Evaluation of the educational environment is key to the delivery of high-quality medical education. Especially, when an institute is in the transition phase of curriculum. In curriculum transformation phase of Ayub Medical College Abbottabad, no such evaluation has been done. This study aimed to find the direction of Educational environment in the transition phase curriculum of Ayub Medical College Abbottabad and compare different domains of educational environment with gender, residency, pre-medical education's medium of instruction, and doctors among sibling or parents. **Methods:** This descriptive cross-sectional survey was conducted among students of integrated and traditional curriculum of Ayub Medical College, Abbottabad from 1st December 2019 to 29th February 2020. By Non-probability convenience sampling technique, pre-validated Dundee Ready Educational Environment Measure questionnaire was used. Descriptive and inferential statistics were calculated in SPSS v22. **Results:** A total 149 (100%) participants, 66 (44.3%) males and 83 (55.7%) females with mean age of 20.5±1.07 years responded. Among total, 76 (51%) were from integrated curriculum and 73 (49%) were of traditional curriculum. Significant difference was found among different aspect of education environments and both classes. **Conclusion:** The current transitional phase of curriculum at Ayub Medical College Abbottabad is more positive than negative. Some areas like student social-self-perception still need improvement. Moreover, gender and place of birth affect student's perception about their learning environment.

Keywords: Educational environment; Transition phase; Modular curriculum; DREEM; Medical education; Literature.

Citation: Khan MJ, Jamil B, Sethi A, Noor U, Javed H, Adeeb H. Educational environment in the transition phase of curriculum at Ayub Medical College Abbottabad, Pakistan. J Ayub Med Coll Abbottabad 2021;33(3):456–61.

INTRODUCTION

Educational environment (EE) is an umbrella term. It includes everything that is happening in a class, department or institute which has an ultimate effect on undergraduate students' learning process, not only in a medical milieu, EE of any institute has direct or indirect effect on students' achievement, failure or satisfaction.[1] The overall academic achievement of an institute is strongly based on its EE. EE can be positive or negative. When it promotes student learning, develop their skills and improve behaviour, enhance the sense of well-being and motivate student psychosocially, it is considered as positive EE.[2] It is constituted by different interconnected domains. Like, competent teachers and other workforce, appropriate resources and infrastructure, well-defined learning outcomes, effective strategies for mode of information transfer, students support system, proper curriculum deployment and fare assessment methods contrive an effective EE.

Apart from these, studies suggest that students' gender, year of study, pre-medical education and family background also affect their perception about EE.[3] Moreover, it is the function of an institute's administration and medical education to ensure a positive EE for its students. However, evaluation of EE reflects the quality of curriculum. A curriculum is a planned outline, map or sophisticated blend of available courses, their outcomes, strategies of study and teaching methodologies and assessment ways of a medical institute.[4] Worldwide, teacher-centred, subject-based medical education (known as traditional) is shifted towards a student-centred system based interdisciplinary (modular) approach. Educational transformation (now onward, called the transition phase) enables students to acquire updated knowledge and adopt innovative skills.[5] Such a transition requires a major relocation of EE. Since, infrastructure, teaching methodologies, resources and other few factors of teacher-centred didactic approach of medical education is different from student-centred modular approach, therefore, their

EE and student's perception of their EE must have been different. Additionally, many untold issues and challenges of transition phase curriculum may affect the students as well as overall academic performance of institute.[6]

Many tools have been used to investigate different aspects of EE. Among them, the Dundee ready education environment measure (DREEM) is the most widely used instrument. Its validity and reliability have been established worldwide.[7] Along with weak areas of EE, DREEM survey identifies differences of EE of modular and traditional approach of medical education and gives an overview for improvement. It is important to know the progress of such transition phase curriculum. Only then, strategies and plan can be devised and implemented in areas where improvement is required.

This study aims to find the direction of EE in the transition phase curriculum of Ayub Medical College Abbottabad and to compare the perception and different domains of EE with gender, residency, pre-medical education's medium of instruction, and doctors among sibling or parents.

MATERIAL AND METHODS

A cross-sectional study, conducted on 2nd year (Integrated curriculum) and 3rd year (traditional curriculum) students of Ayub Medical College, Abbottabad from 1st December 2019 to 29th February 2020. By Non-probability convenience sampling technique, a total of 149 Students were gathered in the same institute. With the approval of institutional ethical review board and permission from the administration, a brief presentation was given by one of the co-authors which included clarifying difficult questions and an open discussion session was conducted for students' queries. Afterword, eDREEM inventory with 1–4 Likert scale (permission taken from the developer) was shared via instant message. Data was saved into an excel sheet and later on converted into SPSS (vr.22) for statistical analysis. The tool consists of five domains, namely; students' perception of learning (SPL), students' perceptions of teachers (SPT), students' academic self-perceptions (SASS), students' perception of atmosphere (SPA) and students' social self-perceptions (SSSP). Scoring of tool was done according to the developer guidelines.[8] Students' participation was volunteered. Hence fulfilling the objective, irrespective of age and gender, only modular undergraduate students and the next senior class of traditional curriculum were included. Dual nationality holders, detainees or those who joined the institution within 6 months of the first-class commencement were excluded.

Participants' characteristics are presented in frequencies, percentages and mean±SD where applied. SD and interquartile range (IQR) values are rounded to two and percentages to one decimal. Shapiro-Wilk test (p>0.05) was used when DREEM subscales and total score was normally distributed. For comparison of independent (grouping variables: gender, class, residency, pre-medical college mode of instruction, doctors in family) and domains of DREEM (test variables: SPL, SPT, SASS, SPA and total score), independent t-test was applied to normally distributed data. Mann-Whitney was used for non-parametric data. p-value <0.05 were considered significant. Data was presented in tables.

RESULTS

A total 149 participants, 66 (44.3%) males and 83 (55.7%) females with mean age of 20.52±1.069 years were included in the survey. Among total, 76 (51%) were from modular class and 73 (49%) were of traditional curriculum. (Table-1)

Item number 2 and 10 mean values falls into the category of "positive educational aspect" while item number 3, 4, 9, 13, 25, 30, 31, 32, 39, 41, 48, 49, 50 appeared in "problematic areas". All other items (ranged mean value, 2.01-3.00) were suggestive of improvement. (Table-2)

DREEM subscales of SPL and SPA of integrated curriculum appeared to be higher than other. (Table-3)

SPT, SASP, SPA and total score was found normally distributed by Shapiro Wilk test. (SPT=0.075, SASP=0.089, SPA=0.071, and total score=0.074). Independent t-test was applied for grouping variables which are dichotomous. Equal variance was assumed when sig.>0.005. Significant difference was found between SASP, SPA and total DREEM score with modular and traditional classes (t_{147} = 4.559, p=0.001; t_{147} = 4.431, p=0.001 and t_{147} = 4.135, p=0.001 respectively). Gender wise, significant difference was found with DREEM total score (t_{147} = 2.056, p=0.042) and permanent residence with SPA (t147=2.310, p=0.022). (Table-4)

For non-parametric DREEM subscales (Shapiro-Wilk alpha value of SPL=0.001 and SSSP=0.006), Mann-Whitney test was applied. SPL in gender group was statistically different (U=1968, p=0.003). Similarly, SPL and SSSP in class group was highly significant in modular class than traditional (U=2208, p=0.0031 & U=2058, p=0.006 respectively). SSPL in pre-medical education mode of instruction was significant in public sector colleges then private (U=2085, p=0.035). (Table-5)

Table-1: Class wise distribution of demographic variables of participants

Grouping variables		Class Year		Total
		2nd Year	3rd Year	
Gender	Male	27 (35.5)	39 (53.4)	66 (44.3)
	Female	49 (64.5)	34 (46.6)	83 (55.7)
Permeant Residency	Urban	53 (69.7)	44 (60.3)	97 (65.1)
	Rural	23 (30.3)	29 (39.7)	52 (34.9)
Current residency	Day scholar	28 (36.8)	23 (31.5)	51 (34.2)
	Boarder	48 (63.2)	50 (68.5)	98 (65.8)
Pre-medical education	Government	35 (46.1)	22 (30.1)	57 (38.3)
	Private	41 (53.9)	51 (69.9)	92 (61.7)
Doctor among siblings/parents	Yes	32 (28.9)	19 (26)	51 (27.5)
	No	54 (71.1)	54 (74)	108 (72.5)
	Total	76 (100)	73 (100)	149 (100)

Table-2: Mean and standard deviation of all items of DREEM survey

Item		Mean	± Std. Deviation
1	I am encouraged to participate in class	2.2	1.08
7	The teaching is often stimulating	2.2	1.11
13	The teaching is student centered	1.9	1.11
16	The teaching helps to develop my competence	2.1	1.07
20	The teaching is well focused	2.4	0.98
22	The teaching helps to develop my confidence	2.2	1.18
25	The teaching over-emphasizes factual learning	1.9	0.94
38	I am clear about the learning objectives of the course	2.5	1.01
44	The teaching encourages me to be an active learner	2.1	1.18
48	The teaching is too teacher centered	1.8	1.08
24	The teaching time is put to good use	2.4	1.05
47	Long term learning is emphasized over short term learning	2.2	1.30
2	The teachers are knowledgeable	3.1	0.85
6	The teachers deliver research-led teaching	2.1	1.05
8	The teachers ridicule the students	2.1	1.24
9	The teachers are authoritarian	1.5	1.07
18	The teachers help me to develop my practical skills	2.2	1.06
29	The teachers are good at providing feedback to students	2.1	1.02
32	The teachers provide constructive criticism here	1.9	1.09
37	The teachers give clear examples	2.6	0.90
39	The teachers get angry in class	1.8	1.30
40	The teachers are well prepared for their classes	2.7	0.89
50	The students irritate the teachers	1.5	1.22
5	Learning strategies which worked for me before continue to work for me now	2.5	1.09
10	I am confident about passing this year	3.1	0.95
21	I feel I am being well prepared for my career	2.6	1.20
26	Last year's work has been a good preparation for this year's work	2.5	1.10
27	I am able to memorize all I need	2.3	1.14
31	I have learned a lot about empathy in my profession	1.7	1.14
41	My problem-solving skills are being well developed here	1.0	1.13
45	Much of what I have to learn seems relevant to a career in biological sciences	2.6	1.00
11	The atmosphere is relaxed during laboratory/practical/fieldwork classes	2.5	1.15
12	The course is well timetabled	2.7	1.20
17	Cheating is a problem in this faculty	2.1	1.29
23	The atmosphere is relaxed during lectures	2.2	1.13
30	There are opportunities for me to develop my interpersonal skills	2.0	1.18
33	I feel comfortable in class socially	2.5	1.09
34	The atmosphere is relaxed during seminars/tutorials	2.5	1.11
35	I find the experience disappointing	2.2	1.20
36	I am able to concentrate well	2.1	1.24
42	The enjoyment outweighs the stress of the course	2.1	1.20
43	The atmosphere motivates me as a learner	2.1	1.21
49	I feel able to ask the questions I want	1.9	1.23
3	There is a good support system for students who get stressed	1.7	1.25
4	I am too tired to enjoy the course	1.8	1.25
14	I am rarely bored on this course	2.1	1.19
15	I have good friends in this faculty	2.6	1.15
19	My social life is good	2.7	1.09
28	I seldom feel lonely	2.2	1.26
46	My accommodation is pleasant	2.7	1.14

Table-3: Mean distribution of DREEM subscales with modular and traditional system of medical education

Domain (range)	Modular class	Traditional class	Overall score
	Mean (SD) Outcome	Mean (SD) Outcome	Mean (SD) Outcome
SPL	26.9 (6.80) A more positive perception	25.0 (6.22) A more positive perception	26.0 (6.57) A more positive perception
SPT	24.3 (4.21) Moving in the right direction	23.2 (3.73) Moving in the right direction	23.7 (4.01) Moving in the right direction
SASP	21.2 (4.94) more on the positive side	17.3 (5.46) more on the positive side	19.3 (5.54) more on the positive side
SPA	29.5 (6.88) A more positive atmosphere	24.1 (7.89) many issues which need changing	26.8 (7.84) A more positive atmosphere
SSSP	16.7 (3.84) Not too bad	14.9 (4.04) Not a nice place	15.8 (4.03) Not too bad
Total	118.5 (21.30) more positive than negative	104.4 (20.47) more positive than negative	111.6 (22.01) more positive than negative

Table-4: Independent t-test of DREEM parametric subscales with grouping variables

Grouping variable		**SPT Mean (SD)**	**SASP Mean (SD)**	**SPA Mean (SD)**	**Total**
Class	Modular class	24.3 (4.21)	21.2 (4.94)	29.5 (6.88)	118 (21.30)
	Traditional class	23.15 (3.73)	17.3 (5.46)	24.1 (7.81)	104.4 (20.37)
	p-value	0.090	0.001*	0.001*	0.001*
Gender	Male	23.0 (4.32)	18.9 (5.72)	26.2 (8.12)	107.5 (23.01)
	Female	24.3 (3.66)	19.5 (5.40)	27.4 (7.54)	114.9 (20.63)
	p value	0.051	0.537	0.325	0.042*
Permanent residence	Urban	18.7 (5.63)	18.7 (5.63)	25.8 (7.88)	109.3 (22.00)
	Rural	23.9 (3.94)	20.3 (5.27)	28.8 (7.32)	115.8 (21.43)
	p-value	0.744	0.108	0.022*	0.085
Current residence	Day Scholar	23.8 (4.02)	18.8 (4.59)	26.1 (7.44)	110.0 (21.08)
	Boarder	23.7 (4.02)	19.5 (5.98)	27.3 (7.99)	112.4 (22.46)
	p-value	0.919	0.456	0.380	0.534
Pre-medical medium of education	Public	23.4 (4.27)	19.9 (6.16)	28.1 (7.35)	114.4 (24.17)
	Private	23.9 (3.85)	18.8 (5.10)	26.1 (8.01)	109.9 (20.40)
	p-value	0.478	0.243	0.142	0.218
Doctors among siblings/parents	Yes	24.1 (3.55)	19.3 (5.65)	26.3 (6.77)	111.8 (22.59)
	No	23.5 (4.18)	19.2 (5.52)	27.0 (8.17)	111.6 (21.82)
	p-value	0.450	0.959	0.603	0.962
*independent t-test p = <0.05 significant.					

Table-5*:* Mann-Whitney test and other statistics of DREEM non-parametric subscales with grouping variables

Grouping variable		SPL				SSSP			
		Median (IQR)	95%CI (Min–Max)	U	*p*-value	Median (IQR)	95%CI (Min-Max)	U	*p* value
Class	Modular class	29.0 (9.0)	25.37–28.47	2208.5	0.031*	17.0 (12.2)	15.85–17.61	2058.5	0.006*
	Traditional class	17.0 (4.0)	15.85–17.61			26.0 (7.9)	23.50–26.40		
Gender	Male	25.0 (12.2)	22.17–25.77	1968.5	0.003*	16.5 (7.0)	14.32–16.60	2058.5	0.502
	Female	28.0 (7.0)	26.34–28.72			17.0 (4.0)	15.37–16.89		
Permanent residence	Urban	27.0 (9.5)	24.31–26.89	2327.0	0.437	17.0 (5.5)	14.78–16.42	2376.5	0.561
	Rural	17 (5.5)	24.70–28.54			17.0 (4.8)	15.18–17.35		
Current residence	Day Scholar	27.0 (10.0)	24.27–27.90	2480.5	0.941	16.0 (4.0)	14.24–16.35	2376.5	0.176
	Boarder	16.0 (4.0)	24.50–27.21			17.0 (6.0)	15.20–16.94		
Pre-medical medium of education	Public	28.0 (9)	24.31–28.32	2330.0	0.253	17.0 (4.5)	15.60–17.83	2085.0	0.035*
	Private	26.0 (9.0)	24.50–26.95			16.0 (5.0)	14.49–16.08		
Doctors among siblings	Yes	27.0 (8.5)	24.29–28.54	2090.5	0.599	15.0 (7.0)	14.14–17.08	2085.0	0.445
	No	27.0 (10.0)	24.53–27.02			17.0 (4.8)	15.19–16.64		
*Mann-Whitney (U) p = <0.05 significant.									

DISCUSSION

For any medical institution, the transitional phase of the curriculum is very exacting.[5] EE is the best source of reflection and measure of the curriculum. In such situation, it is assertive to know the students' perception of EE of modular and traditional curricula. A significant difference in both curricula is

suggestive of positive EE. This study concluded with very supportive results, i.e., all subscales (except SPT) and total score of DREEM of both curricula are highly statically significant from one another.

The overall students' perception of EE of current study ensued in "a more positive than negative" (111/200). While comparing total DREEM score with similar study conducted at Madina University of Faisalabad, very close relation was noted, i.e., 112/200.[9] Similarly, a study conducted in three medical colleges affiliated with Dow Medical University, Karachi and another of Rehman Medical College, Peshawar showed that the mean score of this study is slightly less than theirs (114.4/200 and 116/200 respectively).[10,11] Moreover, DREEM surveys conducted on comparison of modular and traditional curriculum in Karachi and Gujranwala (Pakistan) resulted in similar total mean scores.[12–14] Likewise, Ogun from Nigeria, Al-Natour SH from Saudi Arabia (SA) and others concluded with coinciding results.[15–18] However, Jamil , 2018 found statistically difference in both curricula with SASP.[12] This is probably due to the homogeneity of these institutes. The infrastructure, study contents, staff requirement etc of all these medical institutes are uniform and according to the demand of Pakistan Medical Council (PMC). That is why a majority of national literature corresponds to the similar outcome.

Highest subscale mean value was observed for SPL and SPA. While comparing within-country studies[10,13] and from Saudi Arabia[18], France[19] and Canada[20] found the same results. Whereas, Till H[21] from UAE and Ikeda Y[22] from Japan concluded with a maximum positive mean value of SPL. In the modular curriculum, current study concluded with the highest mean value of SPA and traditional curriculum with SPL. In contrast to modular but with an agreement to traditional curriculum of this study. Jamil , 2018; Ogun *et al*., 2018 found the highest mean score for SPL in both curricula. Learning environment varies globally.[12,15] Infect, this diversity is due to the different backgrounds of the countries. As greater difference is evident from developed countries.

DREEM items with total mean score >3.0 were only two items (2 &10), i.e., "teachers are more knowledgeable and I am confident to pass the year". Surprisingly, studies from two Nigerian medical colleges appeared supportive to current study.[15] SPT of Gulf Medical College, UAE, and Imam Abdulrahman Bin Faisal University, SA also reported that their teachers are more knowledgeable.[16,21] Teachers always occupy higher cognitive level than their students and the majority of medical milieu hire the best faculty. This is why item 2 scored higher. Total 13 items were below 2.00 which meant educational problematic areas. Item 24, "The teaching over-emphasizes factual learning" was found less than 2.00 in four studies.[20,22–24] Item 9, "The teachers are authoritarian" in three[3,15,24], item 48 "The teaching is too teacher-centred" in two[3,22]. Noreen *et al*., 2018 mentioned total 11 items in Gujranwala Medical College Gujranwala, Pakistan with item number 4, 9, 25 and 48 concurring with this study. It appeared that most of the similarities of these items are with the institutes of middle east countries[14]. This is because of the teaching faculty most of whom belong to Pakistan. They are graduated here and create similar EE in their respective institutes.

In the current study, irrespective of curricula, total DREEM score and SPL was greater in females than males. Shehnaz & Sreedharan, 2011 found no effect of gender on over total DREEM score but there was a significantly greater score of SSSP in males than females.[25] Students in medical institutes came from a diverse background with different medium and type of pre-medical education. It was thought that students with a doctor's profession among first-degree relatives might affect the student's perception of EE. After data analysis, no significant difference was found for any DREEM score and doctors among sibling/parents. According to the best knowledge of author, inclusion of medical profession among relatives is being tested for the first time. Therefore, no similar literature in current country is found.

Similarly, permeant (urban/rural) and current residency (day scholar/boarders) of students were also studied. No significant finding, except for SPA was found for permanent residency. Students from remote rural areas had a positive opinion about the institute's atmosphere. This is because they have moved to the cities and found many things like the college atmosphere interesting and novel. Sandeep B, in India, used same concept and found opposite results then this study. In addition to this, He found SASP and SSSP as more positive in students from a rural background. [3]

CONCLUSION

The current transition phase of curriculum is more positive than negative with supportive influence on the educational environment. The global DREEM score of the study is better than many other institutes. Yet, some areas (student social-self-perception) need improvement for achieving the quality of excelling in medical education. Gender difference, and residency somehow influence the educational environment of institute. Whereas, the presence of doctors among

first-degree relatives do not change student's perception about learning environment.

AUTHORS' CONTRIBUTION

MJK: Study design, conceptualization, data analysis, interpretation, manuscript writing and proof read. BJ: Study design, proof read. AS: Data interpretation and final approval. UN, HA: Data collection and literature search. HJ: Data interpretation and results writing.

REFERENCES

1. Altemani AH, Merghani TH. The quality of the educational environment in a medical college in Saudi Arabia. Int J Med Educ 2017;8:128–32.
2. Dunham L, Dekhtyar M, Gruener G, CichoskiKelly E, Deitz J, Elliott D, *et al*. Medical Student Perceptions of the Learning Environment in Medical School Change as Students Transition to Clinical Training in Undergraduate Medical School. Teach Learn Med 2017;29(4):383–91.
3. Bavdekar S, Save S, Pillai A, Kasbe AM. DREEM Study: Students Perceptions of Learning Environment in a Medical College in Mumbai, India. J Assoc Physicians India 2019;67(4):50–4.
4. Al-Eyd G, Achike F, Agarwal M, Atamna H, Atapattu DN, Castro L, *et al*. Curriculum mapping as a tool to facilitate curriculum development: a new School of Medicine experience. BMC Med Educ 2018;18(1):185.
5. Atherley AE, Hambleton IR, Unwin N, George C, Lashley PM, Taylor Jr CG. Exploring the transition of undergraduate medical students into a clinical clerkship using organizational socialization theory. Perspect Med Educ 2016;5(2):78–87.
6. Bakhshialiabad H, Bakhshi M, Hassanshahi G. Students' perceptions of the academic learning environment in seven medical sciences courses based on DREEM. Adv Med Educ Pract 2015;6:195–203.
7. Roff S. The Dundee Ready Educational Environment Measure (DREEM) a generic instrument for measuring students' perceptions of undergraduate health professions curricula. Med Teach 2005;27(4):322–5.
8. Miles S, Swift L, Leinster SJ. The Dundee Ready Education Environment Measure (DREEM): A review of its adoption and use. Med Teach 2012;34(9):e620–34.
9. Umber A, Khan S, Hussnaian MU, Ihsan S. Educational Environment at University Medical and Dental College, FSD. Ann King Edward Med Univ 2011;17(3):292–8.
10. 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(5):417–21.
11. Mufti T, Raza A, Batool S. Student perception of educational environment in Rehman Medical College, Peshawar, Pakistan. J Rehman Med Inst 2016;2(3):56–60.
12. Jamil A. Perception of environment and educational outcomes by students and faculty in traditional versus integrated curriculum. J Coll Physicians Surg Pakistan 2018;28(12):945–9.
13. Baig A, Baig AU, Ahmed SH, Rizvi M, Ilyas MA, Ahmed M, *et al*. Comparison of Educational Environment Perception of Dow Medical College Students with CGPA. Int J Res 2015;2(9):72–9.
14. Noreen K, Khan K, Nehra R. Students' perception of learning environment using dundee ready education environment measure (dreem) inventory. Pak J Public Health 2018;8(2):112–6.
15. Ogun OA, Nottidge TE, Roff S. Students' perceptions of the learning environment in two Nigerian medical schools offering different curricula. Ghana Med J 2018;52(3):116–21.
16. Kuwaiti AA, Subbarayalu AV. Reducing Hospital-acquired Infection Rate using the Six Sigma DMAIC Approach Define, Measure, Analyze, Improve and Control model Define Phase. Saudi J Med Med Sci 2017;260–7.
17. Salih K, Idris M, Elfaki O, Osman N, Nour S, Elsiddig H, *et al*. Measurement of the educational environment in MBBS teaching program, according to DREEM in College of Medicine, University of Bahri, Khartoum, Sudan. Adv Med Educ Pract 2018;9:617–22.
18. Soliman M, Sattar K, Alnassar S, Alsaif F, AlSwat K, Alghonaim M, *et al*. Medical students’ perception of the learning environment at King Saud University Medical College, Saudi Arabia, using DREEM Inventory. Adv Med Educ Pract 2017;8:221–7.
19. Gustin MP, Abbiati M, Bonvin R, Gerbase MW, Baroffio A. Integrated problem-based learning versus lectures: a path analysis modelling of the relationships between educational context and learning approaches. Med Educ Online 2018;23(1):1489690.
20. Till H. Identifying the perceived weaknesses of a new curriculum by means of the Dundee Ready Education Environment Measure (DREEM) inventory. Med Teach 2004;26(1):39–45.
21. Shehnaz SI, Arifulla M. The Evolving Educational Environment in a Medical School Undergoing Curricular Change in the United Arab Emirates. Gulf Med Univ Proc 2014;6:170–9.
22. Ikeda Y, Kubota Y, Hiraide A. Relationship between evaluation of the teaching environment using DREEM scores and students' school learning scores. MedEdPublish 2019;8(1):1–13.
23. Irfan F, Al Faris E, Al Maflehi N, Karim SI, Ponnamperuma G, Saad H, *et al*. The learning environment of four undergraduate health professional schools: Lessons learned. Pak J Med Sci 2019;35(3):598–604.
24. Mohd Said N, Rogayah J, Hafizah A. A study of learning environments in the Kulliyyah (Faculty) of Nursing, International Islamic University Malaysia. Malaysian J Med Sci 2009;16(4):15–24.
25. Shehnaz SI, Sreedharan J. Students' perceptions of educational environment in a medical school experiencing curricular transition in United Arab Emirates. Med Teach 2011;33(1):e37–42.

Submitted: June 19, 2020	*Revised: April 21, 2021*	*Accepted: May 5, 2021*

Address for Correspondence:

Muhammad Junaid Khan, Institute of Health Professions Education and Research, Khyber Medical University Peshawar-Pakistan

Cell: +92 344 456 6444

Email: drmjunaidkhan@yahoo.com