Physiotherapy and pharmacy students' perception of educational environment in a medical university from Pakistan

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Abstract

Objective: To assess and compare the perceptions of the educational environment between physiotherapy and pharmacy students in a public-sector medical university.

Methods: This cross-sectional study was conducted at the Peoples University of Medical and Health Sciences for Women, Nawabshah, Pakistan, and comprised undergraduate physiotherapy and pharmacy students. The Dundee Ready Educational Environment Measure questionnaire was used to assess the perceptions of students about their educational environment. Global and subscale scores were computed and compared between the respondents. P<0.05 was considered statistically significant.

Results: Of the 300 questionnaires, 281(93.66%) were returned duly filled in. The overall mean global score was 127.2±16.0. For physiotherapy students, the mean global score was 124.9±14.0 while it was 131.7±18.9 for pharmacy students (p=0.16). The domain scores were comparable for both specialties (p>0.05). There was no significance difference in the global and domain scores for preclinical and clinical years in the students (p>0.05). However, in the physiotherapy students, the global and domain scores for Dundee Ready Educational Environment Measure were significantly lower in clinical than preclinical students (p<0.05) except for students' social self-perception (p>0.05).

Conclusion: Students were overall positive about their educational environment.

Keywords: Cross-sectional studies, DREEM questionnaire, Educational environment, Medical students, Pakistan. (JPMA 68: 71; 2018)

Introduction

The educational environment (EE) is everything happening within the university including classrooms and departments.[1] It embraces learning opportunities, perceptions about infrastructure, interaction of students with peers, attitude and skills of teachers, and many related factors.[2] However, different cultural background of students, availability of facilities, curriculum, students' expectations, and quality of the faculty influence students' perception of educational environment.[3] Previous studies have reported that students' achievement, success, motivation, and happiness is affected by educational environment.[4] Also, EE is detrimental in the success of undergraduate (UG) medical education.[1] It also affects students' behaviour and well-being.[5,6] The World Federation for Medical Education considers assessment of the educational environment as one of the major areas for evaluating medical education programmes.[7,8] Therefore, it is important to assess the educational environment of the institution regularly so as to improve the areas needing attention and foster the areas of excellence.[8]

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Various qualitative and quantitative instruments and methodologies have been designed to evaluate the EE, particularly in UG medical institutions.[3,6] However, most of these methodologies are outdated now, but the Dundee Ready Educational Environment Measure (DREEM) is one the most widely used instruments to measure EE of the UG health professions institutions.[3,9] This inventory has been translated into different languages and has successfully been validated in various countries including Pakistan.[6,7,10] However, this area had been addressed in institutions from metropolitan cities and limited to specific fields.[2,3,7-9] We could not find studies from Pakistan in rural institutions conducted among physiotherapy and pharmacy students. Therefore, the current study was conducted to assess and compare physiotherapy and pharmacy students' perception of educational environment.

Subjects and Methods

This cross-sectional, questionnaire-based study was conducted at the Peoples University of Medical and Health Sciences for Women, Nawabshah, Pakistan, from September to December 2016, and comprised of undergraduate physiotherapy and pharmacy students. After getting ethical approval from the institutional committee, data was collected from the students of the Institute of Physiotherapy and Rehabilitation Sciences enrolled in the Doctor of Physical

Therapy (DPT) programme, and those from the Institute of Pharmaceutical Sciences enrolled in the Doctor of Pharmacy (Pharm.D) programme. Students from the School of Nursing and postgraduate students were excluded as these programmes were recently introduced and had extremely low number of students. The sample size was calculated using Raosoft Sample Size Calculator (http://www.raosoft.com/samplesize.html) with 95% confidence interval (CI), 5% margin of error, and considering a response rate of 50%; the minimum number of students required was 194.[11]

To ensure the voluntary participation of students, the questionnaires were distributed during the tutorial/self-study classes or during break time through a teaching assistant who did not have any influence on students. The researchers did not have direct contact with the students as it could lead to participation under coercion. The questionnaires were collected by the teaching assistant and submitted to the researchers after completion.

The undergraduate courses for the two institutes at the university are divided into two phases: preclinical (initial two years or four semesters) and clinical (later three years or six semesters). The curriculum followed in the university is traditional for most of the courses, with very few integrated, student-centred subjects. There is still a lack of integrating, problem-based learning in educational programmes offered in this university.

The DREEM questionnaire was used to assess the perceptions of students about their educational environment.[12] The DREEM measure consists of 50 items on a 5-point Likert scale, each scored 0-4 (from strongly disagree [SD] to strongly agree [SA]). There are nine items (4, 8, 9, 17, 25, 35, 39, 48 and 50) which are reverse scored 0-4 (from SA to SD). The DREEM inventory consists of five subscales: a) students' perceptions of learning (SPL or PoL) [12 items: 1, 7, 13, 16, 20, 22, 24, 25, 38, 44, 47 and 48; maximum score is 48]; b) students' perceptions of teachers (SPT or PoT) [11 items: 2, 6, 8, 9, 18, 29, 32, 37, 39, 40 and 50; maximum score is 44]; c) students' academic self-perceptions(SASP or ASP) [8 items: 5, 10, 21, 26, 27, 31, 41 and 45; maximum score is 32]; d) students' perceptions of atmosphere (SPA or PoA) [12 items: 11, 12, 17, 23, 30, 33, 34, 35, 36, 42, 43 and 49; maximum score is 48]; and e) students' social self-perceptions (SSSP or SSP) [7 items: 3, 4, 14, 15, 19, 28 and 46; maximum score is 28]. The overall DREEM score was calculated by adding scores of all subscales. The guidelines for interpretation of the mean scores for sub-domains and overall DREEM items was based on the previous studies.[8,12]

The data was entered in Microsoft Excel spreadsheets and analysed in SPSS 20. The total and subscale scores obtained were reported as mean±standard deviation. Categorical variables were expressed in terms of frequencies and percentages while the continuous variables were reported as means and standard deviations. For comparison between the groups, independent t-test and Fisher's exact test were used, where applicable.

Prior to the administration of the DREEM questionnaire, the purpose and details of the study were explained to the students and participant information sheet was also given to them. Participation was voluntary and students were asked to sign the participant consent form prior to providing their data. Anonymity and confidentiality of the students was ensured. Students were given approximately 30 minutes to complete the questionnaire, and the basic information of the students was also recorded.

Results

There were total 261 DPT students and 127 Pharm.D

Table-1: Demographic information about the study participants.

Variable	DPT (n=188)	Pharm.D (n=93)	Total (n=281)	P value
Age (years)	20.8±1.6	20.2±1.3	20.6±1.5 (17-25)	0.44*
Semester				
2nd	48 (17.1%)	38 (13.5%)	86 (30.6%)	
4th	58 (20.6%)	36 (12.8%)	94 (33.5%)	
6th	46 (16.4%)	19 (6.8%)	65 (23.1%)	<0.001**
8th	36 (12.8%)	00 (0.0%)	36 (12.8%)	

*Independent t test **Fisher's exact test
DPT: Doctor of Physical Therapy
Pharm.D: Doctor of Pharmacy.

Table-2: DREEM scores for DPT and Pharm.D students.

DREEM Domains	DPT	Pharm.D	Total (min-max)	P value
SPL	31.9±4.0	33.8±5.7	32.5±4.7 (7-47)	0.12
SPT	27.7±3.6	29.1±4.4	28.2±4.0 (8-40)	0.29
SASP	23.1±3.1	24.0±4.4	23.4±3.6 (8-32)	0.08
SPA	32.6±5.1	34.7±5.6	33.3±5.3 (10-48)	0.83
SSSP	9.6±2.0	10.0±2.2	9.7±2.1 (1-15)	0.43
Global Score	124.9±14.0	131.7±18.9	127.2±16.0 (40-170)	0.16

Statistically significant at <0.05
DREEM: Dundee Ready Educational Environment Measure
DPT: Doctor of Physical Therapy
Pharm.D: Doctor of Pharmacy
SPL: Students' perceptions of learning
SPT: Students' perceptions of teachers
SASP: Students' academic self-perceptions
SPA: Students' perceptions of atmosphere
SSSP: Students' social self-perceptions.

Table-3: DREEM scores for Preclinical and Clinical students.

Domain Scores		Pre-Clinical (n=180)	Clinical (n=101)	P value
SPL	Total	32.7±4.7	32.2±4.7	0.745
	DPT	32.2±3.2	31.6±4.8	0.012*
	Pharm.D	33.5±6.2	34.7±3.2	0.056
SPT	Total	28.1±3.9	28.3±4.0	0.577
	DPT	27.4±3.1	28.0±4.3	0.003*
	Pharm.D	29.1±4.7	29.4±2.5	0.070
SASP	Total	23.4±3.6	23.6±3.6	0.799
	DPT	22.8±2.7	23.6±3.6	0.046*
	Pharm.D	24.2±4.6	23.4±3.6	0.687
SPA	Total	33.7±5.0	32.5±5.8	0.079
	DPT	33.0±4.4	32.0±5.8	0.027*
	Pharm.D	34.8±5.6	34.6±5.7	0.932
SSSP	Total	9.8±2.0	9.6±2.1	0.906
	DPT	9.6±1.9	9.5±2.2	0.837
	Pharm.D	10.1±2.2	9.8±1.8	0.525
Global Score	Total	127.7±15.9	126.2±16.4	0.447
	DPT	125.0±11.4	124.8±16.8	0.002*
	Pharm.D	131.6±20.1	131.9±13.1	0.377

DREEM: Dundee Ready Educational Environment Measure
DPT: Doctor of Physical Therapy
Pharm.D: Doctor of Pharmacy
SPL: Students' perceptions of learning
SPT: Students' perceptions of teachers
SASP: Students' academic self-perceptions
SPA: Students' perceptions of atmosphere
SSSP: Students' social self-perceptions.

students. All of them were invited to participate. A total of 300(77%) questionnaires were distributed among those who volunteered. Of the total, 281(93.66%) questionnaires were returned completely filled in. Of them, 188(66.9%) were from DPT and 93(33%) from Pharm.D programme. The overall mean age was 20.6±1.5 years (range: 17-25 years). The mean age in the DPT and Pharm.D groups were 20.8±1.6 and 20.2±1.3 years, respectively (p=0.44) (Table-1).

The global DREEM score for the students was 127.2±16.0. The students of Pharm.D had comparable global scores to the DPT students (131.7±18.9 vs 124.9±14.0; p=0.16). For the domains, the scores were 32.5±4.7 SPL, 28.2±4.0 SPT, 23.4±3.6 SASP, 33.3±5.3 SPA, and 9.7±2.1 SSSP. Significant difference was not observed between the scores (p>0.05) of students from the two institutions of our university (Table-2).

The students from preclinical years had comparable global score to the clinical years (127.7±15.9 vs 126.2±16.4; p=0.44). While DPT students had statistically significant scores when comparing preclinical years with clinical years (125.0±11.4 vs 124.8±16.8; p=0.002), the opposite was observed for Pharm.D students (131.6±20.1 vs 131.9±13.1; p=0.377) (Table-3).

Discussion

Educational environment affects achievement, success, motivation and happiness of students, and it is considered detrimental in the success of undergraduate medical

Table-4: DREEM scores in various studies conducted in Pakistan.

Author	SPL	SPT	SASP	SPA	SSSP	Total	Sample size	Population studied	City
Khursheed I et al [8]	27.9±5.0	24.0±4.2	20.7±4.0	28.7±5.9	15.4±3.1	117.0±8.3	200	MBBS	Karachi
Imran N et al [7]	25.1±7.2	22.5±7.1	17.2±6.5	24.8±7	15.4±3.9	105.0±25.8	2084	MBBS	6 medical colleges across Pakistan (2 Punjab, 2 KPK, 1 Sindh, 1 Balochistan)
Sarwar S et al [2]	28.8±5.8	26.6±4.2	18.8±3.9	28.0±6.1	16.2±3.1	118.4±17.9	180	MBBS	Gujranwala
Jawaid M et al [3]	25.8±5.7	25.4±5.6	18.8±4.6	28.0±6.2	16.3±4.0	114.4±20.0	586	MBBS	Karachi
Rehman R et al [18]	29.7±6.5	27.1±5.6	20.9±4.0	31.7±6.9	17.6±15.3	125.7±18.8	426	MBBS	Karachi
Rehman R et al [13]	30.5±6.2	25.2±5.1	21.3±3.9	32.8±6.6	18.2±4.0	128.0±20.7	416	MBBS	Karachi
Ali K et al[9]	27.1±7.6	24.6±5.5	20.4±6.0	26.8±6.7	16.1±4.0	115.1±21.5	197	BDS	5 institutes of Punjab
Anwar MS et al [19]	21.8	20.4	13.5	22.6	12.3	90.4	220	MBBS	Rahim Yar Khan and Lahore
Victor D et al [20]	30	26	21	29	13	119	219	Nursing Undergraduates	Islamabad

DREEM: Dundee Ready Educational Environment Measure
SPL: Students' perceptions of learning
SPT: Students' perceptions of teachers
SASP: Students' academic self-perceptions
SPA: Students' perceptions of atmosphere
SSSP: Students' social self-perceptions
MBBS: Bachelor of Medicine, Bachelor of Surgery,
BDS: Bachelor of Dental Surgery.

education.[1,4] Therefore, the assessment of EE is important so as to improve the areas needing attention and foster the areas of excellence.[8] The mean global DREEM score in this study was 127.2, indicating a more positive EE perception. Several studies from Pakistan reported global DREEM scores in the range of 90 to 128 (Table-4). The global scores for all the studies were lower than the results of our study except one study.[13] This reflects that our university has comparatively better EE than other institutions of the country. However, DREEM scores range between 101 and 139 in various studies across the world.[1,3] There is no established agreement for the DREEM scores nationally or internationally due to different educational environment in the institutions.[3,10] Western countries foster a modern, student-centred educational environment and show better DREEM scores.[3] Moreover, there is evidence that students in traditional, teacher-centred educational system score less than the students in modern, student-centred system.[14] Noteworthy, most of the studies using DREEM have been conducted on medical students with few on physiotherapy students.[15-17]

The domain scores were highest in SPA, followed by SPL, SPT, SASP and SSSP. These results are better than those reported in previous studies, but the SSSP scores are much lower, needing immediate attention.[1-5,7-9,17-20] This may be because a majority of the students in this study were dormitory dwellers with limited options for recreation and relaxation off-campus. The diversity of socio-economic background of the students could also be a possible reason for this. Likewise, accommodation problems, less exposure to the society, and loneliness or boredom could have led to lower SSSP scores. It is necessary that the emphasis should be given to strengthen social and leisure activities as a supportive mechanism in order to generating a more positive environment for all students and particularly for those living in the dormitory. It is worthwhile to note that the DPT students scored lower than the Pharm.D students in all the domains, this warrants the need to improve all the areas of improvement included in the DREEM inventory. The sudden shift of the Institute of the Physiotherapy and Rehabilitation Sciences to the new campus (located out of the city in no men's land) could be the main reason for these lower scores, and also the limited number of facilities in this institution might be attributive to this.

The students in preclinical years scored higher than the clinical years, but there was not a significant difference observed either in the global or domains scores between the groups. DPT students, however, had significant difference in DREEM scores when preclinical years were compared to the clinical years. Previous studies have shown mixed results for comparison between students in clinical and preclinical years.[7,18] The variation in the results may be due to difference in study setting, sample size, educational system and population characteristics. Particularly, in this study, the students scored higher in SPA and SSSP, but lower in SPT and SASP for preclinical years than clinical years. This may be because the students in this university, during their clinical years, are exposed to student-centred, better teaching methods (patient interviews, group discussion and problem-based learning, etc.), and academic environment but the atmosphere has some infrastructure deficiencies. As reported earlier, facilities with noisy rooms, uncomfortable seating, or teaching in overheated or cold rooms make it difficult for students to relax and pay attention.[7]

The strength of this study is that it addresses the educational environment in a university located in a less developed area of the country and includes sample from two unaddressed study programmes. Another strength of the study was that the teachers were not directly involved in data collection which could lead to participation under coercion, but it has some limitations also. The first limitation is the use of convenience sampling method which may produce somewhat inflated results. Secondly, although DREEM is the most widely used measure for EE assessment, it is limited in providing the underlying causes for its domain scores. Thirdly, the study was conducted in a single institution without comparison with any other public or private sector institute. These limitations could be addressed in future by conducting mixed-method studies where quantitative component includes a larger sample size, from multiple institutions, and uses a probability sampling technique incorporated with qualitative in-depth interviews.

Conclusion

The perceptions of all the students about their educational environment were reasonably positive, indicating adequate level of satisfaction. The problematic area was students' social self-perception. Clinical-phase physiotherapy students need to be given serious attention in context to the areas of weakness identified. We plan to tackle this issue by improving the aspects of social support system, including mentoring, social interaction and accommodation of these students.

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