DOI: https://doi.org/10.54393/pbmj.v4i2.164

PAKISTAN BIOMEDICAL JOURNAL
https://www.pakistanbmj.com/journal/index.php/pbmj/index
Volume 4, Issue 2 (July-Dec 2021)

Original Article

Perception of Medical Students Towards Teaching and Training at Public and Private Medical Colleges of Peshawar Using Dundee Ready Education Environment Measure

Sobia Haris[1], Muhammad Haris[2*], Farah Deeba[1], Muhammad Jehangir Khan[3], Ahmad Sharjeel Karam[4]

[1]Department of Medical Education, Nowshera Medical College, Nowshera, Pakistan
[2]Department of Anatomy, Nowshera Medical College, Nowshera, Pakistan
[3]Department of Pediatric Surgery, Makka Medical Center, Nowshera, Pakistan
[4]Kabir Medical College, Peshawar, Pakistan

ARTICLE INFO

Keywords:
neck pain, range of motion, mechanical, cervical rotation

How to Cite:
Haris, S. ., Haris, M. ., Deeba, F., Karam, A. S. ., & Khan, M. J. (2021). Perception of Medical Students towards Teaching and Training at Public and Private Medical Colleges of Peshawar Using Dundee Ready Education Environment Measure. *Pakistan BioMedical Journal*, 4(2). https://doi.org/10.54393/pbmj.v4i2.164

***Corresponding Author:**
Muhammad Haris
Department of Anatomy, Nowshera Medical College, Nowshera, Pakistan.
dx_harris@hotmail.com

ABSTRACT

Objective: The importance of teaching and training quality has been acknowledged as critical for successful learning and practical skill development. The perceptions of medical students toward teaching and training offer a good basis for altering and refining the quality of medical teaching. The purpose of this study was to analyses students' perceptions of teaching also training at public and private medical colleges of Peshawar, Pakistan. **Methods:** The Dundee Ready Educational Environment Measure (DREEM) questionnaire was given to 240 pupils from various public and private medical schools. The questionnaire has 27 items that were rated on an 0-4 Likert scale (total scores between 0-108). The questionnaire had five subscales that assessed students' perceptions of learning, teaching, environment, academic self-perception, and social self-perception. Data was collected and mean and standard deviation for each subscale was calculated using SPSS. **Results:** The total mean score of DREEM both public and private was 64/108 (59%). The total mean score for public and private was 65/108 (60%) and 62/108 (57%) respectively. The total score of SPL domain for public and private was 16.81/28 (61%) and 16.09/28 (57%). The total score of SPT was 19.52/32 (61%) for pubic and 19.67/32 (61%), while that of SASP was 5.02/8 (62%) and 4.33/8 (54%). The total score of SPA domain was 19.31/32 (60%) and 17.91/32 (55%) while that of SSSP was 4.9/8 (61%) and 4.49/8 (56%) for public and private medical colleges respectively. For SPA, SSSP, SASP, SPL and SPT domain the score of public medical colleges was ≥60% and for private only SPT was 61% and the remaining were <60%. **Conclusions:** Total DREEM score was 64.02 which are more positive than negative. However, the individual scores of domains for both public and private medical colleges were showing a positive perception of students except the SASP domain for private medical colleges, which is showing many negative aspects and needs further exploration.

INTRODUCTION

Medical education is a rapidly evolving field with the potential for innovation in teaching, learning and assessment. It is the practice that should be assessed and modified on a regular basis in order to create an overall productive learning environment [1]. Many difficulties have arisen as a result of our policymakers' and the general public's strict attitude, which must be addressed and corrective measures implemented. With the inclusion of new learning tools and the promotion of unique educational techniques, the trends of medical education in the classroom and on the bedside are rapidly evolving [2]. The route of becoming a doctor is such an essential component of humanity that there should be absolutely no compromise in any aspect for the resources and methods of training. It is high time to consider the teaching methodologies applied at public and private medical colleges, as today 's medical students will be the future doctors who will save the precious lives. Most professors at private medical institutions have not completed any professional teaching technique courses, and this is reflected in their present teaching practices: the elder the teacher, the stronger his attitude of ignorance of the current demands of millennial learners [3,4].

"Tomorrow's physicians" require a shift in educational thought and learning methodologies in response to shifting community expectations. According to studies, two-dimensional teaching techniques, such as lectures, PowerPoint presentations, or films, are the simplest and least costly, but the incorporation of contemporary technology, such as the use of a third education software

DOI: https://doi.org/10.54393/pbmj.v4i2.164

with dissection models, has increased student learning [5]. Third education software may include dissection dummies or virtual patients that simulate authentic patient problems through which students could learn lessons at their own pace and evaluate their performance. Teaching at medical schools is aimed around passing tests, and those exams only examine the knowledge portion of the topic. Today, the whole emphasis of Pakistan's medical education system is on static memorization of information; most of it is obsolete or outdated, instead of finding via inquiry and experimentation. Clinical learning is at the heart of medical education as well. Clinical teachers provide a vital contribution to clinical education's effectiveness by assisting students, fostering introspection, and offering constructive and regular feedback [6].

When it comes to private medical colleges, their students go through some other problems as well like limited clinical exposure and the discriminatory attitude of senior doctors while in public hospitals, doctors get the chance to deal with variety of cases because of larger influx of patients. In today's environment, patients are replaced with live or mechanical simulators. However, in the lack of such a facility, medical students in Pakistan are unable to exercise their clinical abilities, leaving them with just theoretical understanding of the topic [7-9]. Hospitals of private medical colleges are not able to provide the best clinical practices to the students. The lack of equipment and less influx of patients makes it difficult for a medical student to gain knowledge in the particular aspect he's trying to learn. Thus, private medical students are missing out on the one of the basic needs of medical education. Co-curricular activities play a vital role in the physical and mental health of medical students and private medical colleges lack these activities. Such activities instill confidence in students, produce great minds with a sense of moral, ethical and social standards [8-12].

The goal of this study is to use the DREEM approach to measure students' attitudes on teaching and training at their individual universities. The DREEM tool is extensively used to assess the educational atmospheres of medical colleges and health-care training facilities. Since its inception roughly ten years ago, this tool utilized to identify institutions' strengths and weaknesses founded on student views. DREEM was created in 1997 by means of the Delphi method for evaluating the educational atmosphere around the globe, and it was created on the Postgraduate Hospital Educational Environment Measure (PHEEM), Surgical Theatre Educational Environment Measure (STEEM), Medical Educational Environment Measure (MEEM), and Anesthetic Theatre Environment Measure (ATEEM) [13]. DREEM Inventory is a 50-questions closed-ended questionnaire split into five sub levels: students' views of education (12 questions), perceptions about instructors (11 items), academic self-perceptions (8 items), environmental perceptions (12 items), and societal self-perceptions (12 items) (7 items). Each declaration is graded on a five-point Likert scale: "Strongly agree" (4), "Agree" (3), "Unsure" (2), "Disagree" (1), and "Strongly disagree" (0) [13]. Item numbers 4, 8, 9, 17, 25, 35, 39, 48, and 50 require reverse coding. DREEM findings can be evaluated at the individual, subscale, and total DREEM Score levels. The DREEM data may be analyzed at three levels: (i) individual items, (ii) subscales, and (iii) total DREEM. Each contributor's unprocessed scores for all subscales are totaled, and the average of this summated score is used to create subscale summary scores [13]. It is used in assessment for diagnostic purposes, group comparisons, and comparisons with ideal/expected results.

METHODS:

This was a descriptive cross-sectional study of students from both private and public medical institutes. The selection of medical colleges was unbiased; therefore, we selected two private medical institutions [Peshawar Medical College (PMC) and Kabir medical college] and two government medical institutions [Khyber Medical College (KMC) and Khyber Girls Medical College (KGMC)], Peshawar, Pakistan.

Study duration, sample size and sampling technique: This study was done during a one-month period from 11th October, 2020 to 11th November, 2020 after receiving ethical permission from the Institutional Ethical Review Board (IERB) of Nowshera Medical College, Nowshera, Pakistan, via letter No: 28/NMC/IERB/Sec. Students from both private and public medical schools were included in the study. The sample size was 200 pupils, 100 were males and 100 females. In the analysis, a non-probability convenient sampling approach was used.

Data collection: A pre-validated structured questionnaire [13] was devised with the goal of gathering all required information on students' attitudes toward teaching and training in both public and private sector medical colleges. The questionnaire consisted of open-ended questions and all the questions were kept as simple as possible. Before taking the response a written and oral consent was acquired from students as well as administration. The inclusion criteria were clinically exposed students, which comprised third and fourth year MBBS students from both private and public sector medical institutions. All first, second, and final year students were excluded from participating in the study. The technique of data collection was face to face interviewing after obtaining the informed consent from the

Data analysis: All the data was compiled into a master sheet, transferred to the operating system, processed & presented in the form of tables, pie charts & histograms. SPSS version

DOI: https://doi.org/10.54393/pbmj.v4i2.164

26.0 was used for data processing. The DREEM questionnaire was developed to assess students' attitudes toward teaching and training at medical schools. DREEM is a 50-item question-and-answer test with a highest score of 200 [12], but for our convenience we took 27 questions out of 50 with having the maximum score of 108. The five areas stated above are as follows:

1) Students'perceptions of learning (SPL): 7 questions;highest possible score, 28.
2) Students'perceptions of teachers (SPT): 8 questions; highest possible score, 32.
3) Students'academic self-perceptions (SASP):2 questions; highest possible score, 8.
4) Students'perceptions of atmosphere (SPA): 8 questions; highest possible score, 32.
5) Students'social self-perceptions (SSSP): 2 questions; highest possible score, 8.

The contributing students were given a clarification of the study's goal and the DREEM survey, and an agreement form. Pupils were instructed to carefully read all statements and react on a 5-point Likert type scale representing agree (4) to strongly disagree (0). Partially finished surveys were removed from consideration for the investigation. For the two negative items (Q.5 and Q.20), reverse scoring was utilized, with strongly agree scoring 0 and strongly disagree scoring 4. To interpret results, the McAleer and Roff applied recommendation [13] was utilized: a total score of 0 to 27 as very poor, 28 to 54 as plenty of difficulties, 55 to 81 more positive than negative, and 82 to 108 as excellent. The DREEM questions were estimated as follows: questions with an average score of ≥3.5 are real positive points, ≤2 show problem areas, and score between 2 and 3 are characteristics of the atmosphere that can be amended.

RESULTS:

Scoring DREEM Questionnaire:

McAleer and Roff proposed the DREEM questionnaire scoring system was adopted [12]. Each DREEM item had to be graded on a scale of 0 to 4. The scores were assigned as follows:0 (strongly disagree – SD), 1 (disagree – D), 2 (uncertain – U), 3 (agree – A), and 4 (strongly agree – SA). However, two of the 27 questions (Q.5 and Q.20.) were negative assertions that were graded in other way (0 for SA, 1 for A, 2 for U, 3 for D and 4 for SD).

Domain	Score
SPL	0-7. Very poor 8-14 Teaching is viewed Negatively 15-21 A more positive approach
SPT	22-28 Teaching highly thought of0 -8. Absymal 9-16. In used of some retraining 17-24. Moving in the right direction
SASP	25-31. Model teachers0-2. Feeling of total failure 3-4. Many negative aspects 5-6. Feeling more on positive side
SPA	7-8. Confident0-8. A terrible environment 9-16. There are many issues that need to be changed 17-24. A more positive atmosphere
SSSP	25-32. A good feeling overall0-2. Miserable 3-4. Not a nice place 5-6. Not too bad 7-8. Very good socially

Table 1: Guide for DOMAIN Score Interpretation

Score	Interpretation
0-27	Very Poor
28-54	Plenty of problems
55-81	More positive than negative
82-108	Excellent

Table 2: Guide for overall score interpretation

This research involved 240 students in total. Half of the pupils were from public medical schools, while the other half were from private medical colleges. DREEM's overall mean score, including public and private, was 64/108. (59 percent). Scores between 55 and 81 are considered more positive than negative, while scores between 82 and 108 are considered excellent. Scores in the 28-54 range, on the other hand, suggest a plenty of problems, while 0-27 is very poor. The total mean score for public and private sectors was 65/108 (60%) and 62/108 (57%), respectively. Table 3 shows the overall results of both public and private medical institutions. While overall score of each DREEM questionnaire subscale for public and private medical organizations is provided in table 4.

Domain	Score	Mean	SD	%
SPL	16.45	2.35	0.3532	58.75%
SPT	19.59	2.44	0.2055	61.21%
SASP	4.67	2.33	0.2040	58.37%
SPA	18.61	2.32	0.3264	58.15%
SSSP	4.69	2.35	0.2638	58.62%

Table 3: Overall results of both public and private medical colleges

The total score of SPL domain for public and private was 16.81/28 (61%) and 16.09/28 (57%) both showing a more positive approach. The total score of SPT was 19.52/32 (61%) for pubic and 19.67/32 (61%) for private medical colleges. The results of this subscale indicate going in the right direction, while that of SASP was 5.02/8 (62%) and 4.33/8 (54%). In this subscale the perception of students of public and private sector is different from each other. Those in the public

DOI: https://doi.org/10.54393/pbmj.v4i2.164

sector are more optimistic, whereas students in the private sector are more pessimistic. The total score of SPA domain was 19.31/32 (60%) and 17.91/32 (55%) while that of SSSP was 4.9/8 (61%) and 4.49/8 (56%) for public and private medical colleges respectively. Score of both sectors SPA indicates a more positive atmosphere and that of SSP is showing not too bad. For SPL, SPT, SASP, SPA and SSSP domain the score of public medical colleges was ≥60% and for private only SPT was 61% and the remaining were <60%. The highest value was obtained by students of public medical colleges for SASP, and was 5.02/8 (62%). The lowest value was obtained by students of private medical colleges for SASP and was 4.33 (54%). Tables 5 to 9 provide the individual scores for each item in each domain.

Domain	Public Medical Colleges			Private Medical Colleges		
	Score	Mean(SD)	%	Score	Mean(SD)	%
SPL	16.81	2.40 (0.40)	60%	16.09	2.29 (0.278)	57%
SPT	19.52	2.44 (0.22)	61%	19.67	2.45 (0.186)	61%
SASP	5.02	2.50 (0.15)	62%	4.33	2.16 (0.035)	54%
SPA	19.31	2.40 (0.30)	60%	17.91	2.23 (0.323)	55%
SSSP	4.9	2.46 (0.16)	61%	4.49	2.24 (0.295)	56%
Total	65.56			62.49		

Table 4: Total score of Public and private medical colleges

Question	PUBLIC COLLEGES	PRIVATE COLLEGES
Q1. I am invigorated to take part in teaching sessions.	2.63	2.58
Q2. The training is frequently stimulating.	2.56	2.34
Q3.The teaching is concentrated on the students.	2.55	2.44
Q4. The training is well focused.	2.63	2.34
Q5. The teaching over stresses factuallearning.	1.45	1.65
Q6. I understand the course's learning goals.	2.71	2.44
Q7. My confidence is growing as a result of the teaching.	2.28	2.3

Table 5: Individual score of SPL domain.

Question	PUBLIC COLLEGES	PRIVATE COLLEGES
Q8. The teachers offer positive condemnationhere.	2.34	2.62
Q9. The tutors are good at giving response topupils.	2.58	2.37
Q10. The teachers are enduring with thestudents.	2.49	2.52
Q11.The teachers have excellent patient communication abilities.	2.72	2.65
Q12. The teachers are adequately prepared for their lessons.	2.75	2.63
Q13. The teaching tools employed by our teachers help them to deliver lectures in the widest possible prospective.	2.36	2.50
Q14. Teaching is more interactive.	2.1	2.31
Q15. Regular assessment of students onassignments is conducted.	2.18	2.07

Table 6: Individual score of SPT domain

Question	PUBLIC COLLEGES	PRIVATE COLLEGES
Q16. My problem-solving abilities are being sharpened here.	2.36	2.2
Q17. Learning tactics that previously worked for me continue to work for me now.	2.66	2.13

Table 7: Individual score of SASP domain

Question	PUBLIC COLLEGES	PRIVATE COLLEGES
Q18.The course is well timetabled.	2.69	2.39
Q19. The environment inspires me as a learner.	2.66	2.39
Q20. I have the confidence to ask the questions I desire.	1.7	1.46
Q21. There are chances for me to improve my interpersonal abilities.	2.34	2.37
Q22. I am able to focus well.	2.4	2.44
Q23. During consultation teaching, the environment is relaxed.	2.33	2.17
Q24. During lectures,the environment is pleasant.	2.49	2.61
Q25. Are co-curricular activities enough to keep good impact on students' mental health?	2.7	2.18

Table 8: Individual score of SPA domain

Question	PUBLIC COLLEGES	PRIVATE COLLEGES
Q26. There is an excellent support system inplace for pupils who are stressed.	2.3	1.95
Q27. My accommodation is pleasant.	2.644	2.54

Table 9: Individual score of SSSP Domain

DOI: https://doi.org/10.54393/pbmj.v4i2.164

DISCUSSION:

Because the educational atmosphere has a substantial influence on students' achievement, contentment, and success, it is critical to solicit regular student input if we are to modify and enhance the quality of health care education in our country [14-16]. Keeping in mind this perspective, we conducted a cross-sectional study which highlights the students'perception regarding teaching and training administered at their respective colleges and hospitals. We believe students can play a pivotal role in the up gradation of activities related to teaching and training going on, and students are the ones who are well aware of the consequences of the prevailing issues they face at their institutions. The total mean score of our research using DREEM inventory is 64.02 out of 108, having 27 DREEM questions. In this regard, our study consists of 5 basic domains; 60% of the public and 57% (Table 4) of the private medical students are reported to be satisfied with the learning practices going on in their institutes. Score for SPL (students'perception of learning) comes out to be 16.81 for public while 16.09 (Table 4) for private medical colleges which is more towards the positive approach (Table 1). Analysis of individual items in this domain reveals that Q: 6 (I understand the course's learning goals) scored highest (2.71) in public while Q: 1 (I am invigorated to take part in teaching sessions) scored highest (2.58) in private medical colleges. Q: 5 has been reported to have the lowest score<2, which indicates the problem area (Table 5). Sixty one percent (61%) of the public and 61.48% (Table 4) of the private medical students are reported to be satisfied with the teaching practices going on in their institutes.

Score for SPT (students'perception of teachers) comes out to be 19.52 for public and 19.67 (Table no 4) for private medical colleges which indicate a positive approach/movement in the right way (Table 1). Analysis of individual items in this domain reveals that Q: 12 (The teachers are adequately prepared for their lessons) scored highest (2.75) in public medical colleges while Q: 11 (The teachers have excellent patient communication abilities) scored highest (2.65) in private medical colleges. Q: 14 in public while Q: 15 in private medical colleges are reported to have the lowest scores between 2 and 3 signifying that these aspects can be improved (Table 6). It has been reported that 62.75% of public and 54.12% (Table no 4) of private medical students are satisfied with domain of SASP (students'academic self-perception). Score for SASP comes out to be 5.02 for public and 4.33 (Table 4) for private medical colleges which show that perception of public med students is more on a positive side (Table 1) while that of private medical students has many negative aspects. Analysis of individual items in this domain shows that Q: 17 (Learning tactics that previously worked for me continue to work for me now) scored highest (2.66) in public while Q: 16 (My problem-solving abilities are being sharpened here) has scored highest (2.2) in private medical colleges. Q:16 in public while Q: 17 in private medical colleges are reported to have the lowest scores between 2 and 3 representing that these aspects can be better (Table 7). It has been shown that 60.3% of public and 55.9% (Table 4) of private medical students are content with the domain of SPA (students'perception of atmosphere). Score for SPA comes out to be 19.31 for public and 17.91 (Table 4) for private medical colleges which indicate that perception of students is towards a positive side (Table 4). Analysis of individual items in this domain shows that Q: 18 (The course is well time tabled) scored highest (2.69) in public while Q: 24 (The atmosphere is relaxed during lectures) scored highest (2.61) in private medical colleges. Q: 20 in public and private medical colleges are reported to have the lowest score <2 indicate problem areas (Table 8). 61.6% of the public and 56.12% (Table 4) of private medical students is reported to be satisfied with the domain of SSSP (students'social self-perception). Score for SSSP comes out be 4.9 for public and 4.49 (Table 4) for private medical colleges which indicate that perception of students is not nice. Analysis of individual items in this domain shows that Q: 27 (My accommodation is pleasant) in public and private medical colleges, has been reported to have the highest score (2.644 and 2.3), and Q: 26 has the lowest score which indicates towards the problematic areas (Table 9).

Since due to COVID-19, reaching and contacting people is becoming hard day by day. As in research we have to contact research subjects for interviews, questionnaires and testing their views which stopped since social distancing went into effect. This problem is solved up to an extent by online communication. Thematic analysis of questionnaire responses and investigator comments specifies four significant advantages and three main drawbacks of online group surveys with susceptible persons and their backing groups. The benefits include being easy, non-intrusive, and secure; captivating and convenient; and quick to set up for online contact. The limitations stem from a lack of nonverbal communication, a poor setup, and privacy and access problems [17-20]. The questionnaire doesn't possibly cover all the aspects of our study and some subjects were withdrawn automatically during the research study. Furthermore, the questionnaires were not distributed properly or if then with difficulty due to pandemic. Our study is cross-sectional. Some points in our study design also limit our research study as we all were newbie to this methodology. The size of sample should be big enough to accurately assess the prevalence of the conditions of interest. The study is hampered since the sample chosen was inadequate owing to the epidemic. Furthermore, there were no outcome variables thus it indicates that no chi

DOI: https://doi.org/10.54393/pbmj.v4i2.164

square or t test were performed.

CONCLUSIONS:

We concluded that, the students are satisfied with the teaching and training administered at their respective colleges. According to the given results, it is more towards a positive approach. The total score of SPL (61% for public and 57% for private medical colleges') shows that the learning strategies are being carried out in an effective manner. Similarly, SPT score (61% for both public and private medical colleges) depict that teaching is being conducted in a right direction. Similarly, there are several different elements between private and public medical institutions that contribute to all of the prejudice experienced by private medical college students. They include limited clinical exposure, extortionate fee structure, lack of extracurricular activities and affordability. The students are content with the teaching methodologies which are being employed in their colleges. Some amendments may be required but overall teaching tools have been approved by the students.

REFERENCES:

[1] Reza Z, Jadoon HK, Danish SH, Fahad Kazmi SA, Ahmed F. Student's opinion regarding teaching methods: A survey amongst MBBS and BDS students of a private Medical University in Karachi - Short Communication. JPMA. The Journal of the Pakistan Medical Association. 2018 Aug;68(8):1281-1284.

[2] Shazia N, Rehan A, Raheela Y. Teachers' perception of their roles in medical colleges. Adv Health Prof Educ. 2015;1(1):24-9.

[3] Javaeed A. The Crisis of Health Professions Education in Pakistan. MedEdPublish. 2019 Feb 11;8. doi.org/10.15694/mep.2019.000027.1

[4] Bakhshi, H., Bakhshialiabad, M., & Hassanshahi, G. (2014). Students' perceptions of the educational environment in an Iranian Medical School, as measured by The Dundee Ready Education Environment Measure. Bangladesh Medical Research Council Bulletin, 40(1): 36-41. doi.org/10.3329/bmrcb.v40i1.20335

[5] Stadler, C., Feifel, J., Rohrmann, S. et al. Peer-Victimization and Mental Health Problems in Adolescents: Are Parental and School Support Protective?.Child Psychiatry Hum Dev, 41: 371-386 (2010). doi.org/10.1007/s10578-010-0174-5

[6] Naqvi AS. Problems of medical education in Pakistan. Journal of Pakistan Medical Association. 1997 Nov 1;47:267-269.

[7] Flexner A. Medical education in the United States and Canada. Science. 1910 Jul 8;32(810):41-50. doi.org/10.1126/science.32.810.41

[8] Craft SW. The impact of extracurricular activities on student achievement at the high school level. The University of Southern Mississippi; 2012.

[9] Sue Roff, Sean McAleer, O.S. Ifere& Soumya Bhattacharya(2001)A global diagnostic tool for measuring educational environment: comparing Nigeria and Nepal,Medical Teacher,23:4,378-382.doi.org/10.1080/01421590120043080

[10] J. M. Genn& R. M. Harden(1986)What is Medical Education Here Really Like? Suggestions for action research studies of climates of medical education environments,Medical Teacher,8:2,111-124,doi.org/10.3109/01421598609010737

[11] Schönrock-Adema J, Bouwkamp-Timmer T, van Hell EA, Cohen-Schotanus J. Key elements in assessing the educational environment: where is the theory?. Advances in Health Sciences Education. 2012 Dec 1;17(5):727-42.doi.org/10.1007/s10459-011-9346-8

[12] Susan Miles, Louise Swift & Sam J. Leinster(2012)The Dundee Ready Education Environment Measure (DREEM): A review of its adoption and use,Medical Teacher,34:9,e620e634,doi.org/10.3109/0142159X.2012.668625

[13] McAleer S, Roff S. A practical guide to using the Dundee Ready Education Environment Measure (DREEM). AMEE medical education guide. 2001;23(5):29-33.

[14] Gonzales CQ. Achieving high-quality health care and access for all. Academic Medicine: Journal of the Association of American Medical Colleges. 1999 Apr;74(4):305-307. doi.org/10.1097/00001888-199904000-00007

[15] Irum, S., M.Z. Iqbal and F. Naumeri. 2018. Perception of medical students regarding educational environment in a public sector medical college: A cross-sectional survey using the Dundee Ready Education Environment Measure (DREEM) questionnaire. Annals of King Edward Medical University,24(1):129133.doi.org/10.21649/akemu.v24i1.2340

[16] Al-Naggar RA, Abdulghani M, Osman MT, Al-Kubaisy W, Daher AM, Nor Aripin KN, Assabri A, Al-Hidabi DA, Ibrahim MI, Al-Rofaai A, Ibrahim HS, Al-Talib H, Al-Khateeb A, Othman GQ, Abdulaziz QA, Chinna K, Bobryshev YV. The Malaysia DREEM: perceptions of medical students about the learning environment in a medical school in Malaysia. Adv Med Educ Pract. 2014 Jun 9;5:177-84.doi.org/10.2147/AMEP.S61805

[17] Thomas HF, Simmons RJ, Jin G, Almeda AA, Mannos AA. Comparison of student outcomes for a classroom-based vs. an internet-based construction safety course. The Journal of SH&E Research. 2005;2(1):1-5.

DOI: https://doi.org/10.54393/pbmj.v4i2.164

[18] Ortega B J, Pérez V C, Ortiz M L, et al. [An assessment of the Dundee Ready Education Environment Measure (DREEM) in Chilean university students]. Revista Medica de Chile. 2015 May;143(5):651-657. doi.org/10.4067/S0034-98872015000500013

[19] Christopher Yi Wen Chan, Min Yi Sum, Giles Ming Yee Tan, Phern-Chern Tor & Kang Sim (2018) Adoption and correlates of the Dundee Ready Educational Environment Measure (DREEM) in the evaluation of undergraduate learning environments - a systematic review, Medical Teacher, 40:12, 1240-1247, doi.org/10.1080/0142159X.2018.1426842

[20] Bhosale U. Medical Students' Perception about the Educational Environment in Western Maharashtra in Medical College using DREEM Scale. J Clin Diagn Res. 2015Nov;9(11):JC014.doi:10.7860/JCDR/2015/15094.6809.