Academic High Achievers Versus Low Achievers: Divergent Views of Academic Environment among Bangladeshi Undergraduate Medical Students

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Abstract

Background: The academic environment refers to the atmosphere which influences learning experiences and academic achievements. Assessing the students' perception of academic environment is crucial for progress of institution and academic success.This study aims to compare the perceptions of high acheivers and low acheivers to find out variations in perceptions between two groups.

Materials and methods: This cross sectional study included 25 students from each phase of MBBS course who volunteered to participate. The means and standard deviations were calculated for each subscales and total DREEM. Unpaired t test was used to compare the variations in perceptions between two groups.

Results: The high achievers perceived stimulating teaching, clear learning objectives, social ease, relaxed classroom environment, diappointment and fatigue. The low achievers perceived irritation, anger and ridicule but received good feedback and support for stress. Both groups reported cheating as problem. The high achievers were found to have significantly higher mean scores in SPT (p=0.04), SPL (p=0.045), SASP (p=0.02), SPA (p=0.04), SSSP (p=0.02) and total DREEM score (p=0.002).

Conclusion: This study identified areas of concern for both groups that can guide strategic reforms for creating supportive academic environment to improve academic success.

Key words: Academic; Achievement; Environment.

Introduction

The academic environment refers to the overall setting and atmosphere in which students acquire knowledge. It includes factors like the pressures, rewards and social influences that students perceive, both formally and informally. In essence, it encompasses everything that shapes the learner's experience.[1] There is growing acknowledgment of its crucial role in determining the quality of medical education.[2] The academic environment has a significant effect on how engaged learners are and how they behave. The continuous evaluation of academic environment hellps in evolution of an institution, which ultimately benefits students.[3]

Researchers have investigated students' perceptions of their academic environment across all levels of education, from elementary school to university. Recent trends emphasize improved quality assessment and monitoring in medical education. It coincide with a growing focus on student-centered approaches in medical education and ignites an interest in this area of study.[4] Students' perception of their academic environment has a substantial influence on their academic achievements.[5] It enables learners to feel better prepared for their profession.[6] A good educational environment is essential for quality learning and training.[7,8] Poor academic performance and failure at any level of undergraduate medical education creates burden on students and undermine their confidence.[9]

Different components of academic environment influences learning styles and goals. They are significant predictors of academic achievement.[10] Improving the academic environment is crucial for fostering an environment that supports learning. Recognizing flaws in the academic atmosphere allows for necessary modifications to be implemented. It is essential to use suitable techniques and tools for accurate assessment of the academic environment.[11] The Dundee Ready Education Environment Measure (DREEM) has been developed over a decade as valid and reliable tool for assessment of academic environment by Roff et al. using Delphi technique.[12]

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The DREEM is a 50-statements questionnaire that gives a maximum score of 200. These statements are formulated to assess the students' perception on five domains such as Students' perception of learning; Students' perceptions of teachers, Students' academic self-perceptions; Students' perceptions of atmosphere and Students' social self-perceptions. The higher scores indicate a more positive environment.[7] DREEM is internationally accepted as a useful tool to indicate areas of strengths and weaknesses in the academic environment of particular educational institutions and for comparing perceptions among different groups.[13] Due to the crucial role of educational environmnet in academic achievement, this study aims to compare the perceptions of academic high acheivers and low acheivers to find out areas of significant differences in perception between two groups of students. The results could offer valuable insights into areas of academic environment that concern both sets of students which may help the educators in implementing corrective measures for the benefit of the students.

Materials and methods

This is a cross sectional study conducted on the phase 1, 2, 3 & 4 MBBS students of Marine City Medical College, Chattogram over a period of one year from 1st March, 2023 to 28th February, 2024. The study was approved by Institutional Review Board of the institution. The researchers explained about the voluntary nature of participation, purpose and procedure of the study. Then 25 students from each phase were selected by random sampling among those who were willing to participate. DREEM questionnaire was distributed among the selected students in a scheduled lecture class. DREEM is a 50 item questionnaire with a score of 200. The subscales are: Students' Perceptions of Learning (SPT)-12 items, maximum score: 48, Students' Perceptions of Teachers (SPT)-11 items,maximum score: 44, Students' Academic Self-Perceptions (SASP)-8 items, maximum score: 32, Students' Perceptions of Atmosphere (SPA)-12 items, maximum score: 48, Students' Social Self-Perceptions (SASP)-7 items, maximum score: 28. The respondents were asked to answer each item using a five-point Likert scale interpreted as follows: 4 for strongly agree, 3 for agree, 2 for uncertain, 1 for disagree and 0 for strongly disagree. The DREEM interpretation scale was used to interpret the overall DREEM scores, domain scores, and item scores.[14]

Data was analyzed using SPSS. Means and standard deviations were calculated for total DREEM and all five domains. The level of significance was taken at "$p < 0.05$". Unpaired t-test was used to find out the variations between academic high and low achievers in total DREEM score and five domain scores. The students who scored ≤70 percent marks in last university examination or major internal examination and failed in at least one of those examinations were categorized as low achievers. The students who scored >70 and did not fail were categorized as high achievers.

Results

Table I Items showing signinificant differences between academic high achievers and low achievers

Domain & Item No.		Item	High Achiever (n=54) Mean (SD)	Low Achiever (n=46) Mean (SD)	p (t test)
I	7	The teaching is often stimulating	3.11 (0.74)	2.72 (0.86)	0.02*
	38	I am clear about the learning objectives of the course	3.07 (0.67)	2.78 (0.55)	0.02*
II	2	The teachers are knowledgeable	3.74 (0.48)	3.41 (0.62)	0.01*
	50	*The students irritate the teachers*	2.67 (1.05)	2.02 (0.98)	0.002**
III	10	I am confident about passing this year	3.03 (0.78)	2.65(0.71)	0.01*
IV	23	The atmosphere is relaxed during lectures	3.28 (0.76)	2.87 (0.69)	0.01*
	33	I feel comfortable in teaching sessions socially	2.90 (0.73)	2.48 (0.94)	0.01*
	34	The atmosphere is relaxed during seminars/tutorials	3.26 (0.64)	2.87 (0.58)	0.002**
	35	*I found the experience disappointing*	2.83 (0.89)	2.39 (1.11)	0.03*
V	4	*I am too tired to enjoy this course*	2.59 (0.98)	2.0 (1.1)	0.01*·

● Items in italics represent negative statements, SPL: Students' Perceptions of Learning; SPT: Students' Perceptions of Teaching, SASP: Students' Academic Self-perceptions, SPA: Students' Perceptions of Atmosphere, SSSP: Students' Social Self-Perception, ns: not significant.

Table I represents the items showing significant differences between academic high achievers and low achievers. In SPL domain the high achievers found the teaching more stimulating (p=0.02) and they had clear idea about learning objectives (p=0.02) than low achievers. Though both groups felt that teachers were knowledgeable, high achievers were found to have significantly higher mean score (p=0.01). The low achievers perceived that teachers were irritated by the students (p=0.002) in SPT domain. In SASP doamin, the high achievers were more confident about passing examinations (p=0.01). In SPA domain, the high achievers perceived more relaxed atmosphere in lectures (p=0.01) and tutorials (p=0.002). Additionally, they felt more comfortable socially in classroom (p=0.01). On the other hand, the high achievers found their experience more disappointing (p=0.03).The findings of SSSP domain revealed that high achievers also felt more tired (p=0.01).

Table II Items showing higher mean scores in low achievers

Domain & Item No.	Item	High Achiever (n=54) Mean (SD)	Low Achiever (n=46) Mean (SD)	p (t test)
II 8	*The teachers ridicule the students*	2.44 (1.13)	2.60(0.68)	0.37 ns
29	The teachers are good at providing feedback to students	2.91 (0.68)	2.98 (0.83)	0.65 ns
39	*The teachers get angry in teaching sessions*	2.44 (1.13)	2.48 (0.94)	0.87 ns
IV 42	The enjoyment outweighs the stress of the course	2.11 (1.14)	2.48 (0.89)	0.07 ns
V 3	There is a good support system for students who get stressed	2.54 (1.19)	2.57 (1.15)	0.9 ns.

● Items in italics represent negative statements, SPT: Students' Perceptions of Teaching, SPA: Students' Perceptions of Atmosphere, SSSP: Students' Social Self-Perception, ns: not significant.

Table II showed the items with higher mean scores in low achievers but none of the mean scores of any of these items revealed any significant differences with high achievers. In SPT domain, the low achievers felt that the teachers ridicule the students, get angry in teaching sessions but they were good at providing feedback. They perceived to derive more enjoyment and felt to have a good support system.

Table III Items showing scores less than 2 (Areas of concern) in academic high achievers

Domain & Item No.	Item	High Achiever (n=54) Mean (SD)	Low Achiever (n=46) Mean (SD)	p (t test)
II 9	*The teachers are authoritarian*	2.2 (1.14)	1.85 (1.05)	0.11 ns
IV 17	*Cheating is a problem in this course*	1.78 (1.38)	1.5 (1.43)	0.33 ns
V 14	I am rarely bored on this course	2.15 (1.02)	1.74 (1.45)	0.11

● Items in italics represent negative statements, SPT: Students' Perceptions of Teaching, SPA: Students' Perceptions of Atmosphere, SSSP: Students' Social Self-Perception, ns : not significant.

Table III showed items with scores less than 2 in academic high achievers and low achievers. Any item with score less than 2 indicates area of concern. The low achievers felt authoritarian teachers (Score=1.85) and boredom (Score=1.74) as weaker aspects. Both groups perceived cheating (Scores <2) as problem.

Table IV Mean domain scores and total DREEM scores in academic high achievers and low achievers

Domain	High Achiever (n=54) Mean (SD)	Low Achiever (n=46) Mean (SD)	p (t test)
I SPL	36.04(5.19)	34.0 (4.59)	0.04*
II SPT	31.65 (5.01)	29.54 (5.28)	0.045*
III SASP	22.81 (3.16)	21.22 (3.49)	0.02*
IV SPA	33.2 (5.56)	30.85 (5.57)	0.04*
V SSSP	18.81 (3.66)	16.89 (4.22)	0.02*
DREEM score	142.17 (18.4)	132.5 (11.71)	0.002**

● SPL: Students' Perceptions of Learning, SPT: Students' Perceptions of Teaching, SASP: Students' Academic Self-Perceptions, SPA: Students' Perceptions of Atmosphere, SSSP: Students' Social Self-Perceptions, DREEM: Dundee Ready Education Environment Measure.

Table IV represents the comparison between mean domain scores and total DREEM scores between two groups. The high achievers were found to have significantly higher mean scores in SPT (p=0.04), SPL (p=0.045), SASP (p=0.02), SPA (p=0.04), SSSP (p=0.02) and total DREEM score (p=0.002). When the mean scores were matched against the DREEM guideline, both groups were found to have a positive perception about the academic environment.

Discussion

The item-wise analysis of SPL subscale (Table I) showed that low achievers found the teaching less stimulating (p=0.02) and they did not perceive to have a clear idea about learning objectives (p=0.02). A good perception about learning tend to increase the number of high achievers.[15] The teachers must possess expertise in their subject matter, deliver content logically, and employ various pedagogical techniques to make teaching effective and stimulating. The teachers' effectiveness in delivering content is known to affect students achievement most when compared to other factors.[16] The teachers may employ active learning strategies such as involving students in the learning process to ensure their participation and sustain their interest.[17] Engaging in open discussions during class which is guided by clear learning objectives, promotes a deeper grasp of the subject matter instead of relying on rote memorization.[18]

The low achievers perceived the teachers as knowledgeable (p=0.01) but irritated (p=0.002) towards students (Table I). They also scored higher on aspects of the SPT subscale related to teachers ridiculing students, displaying anger during teaching sessions. However, these differences in mean scores were not statistically significant (Table II). The authoritarian teachers (Score=1.85) was identified as weaker aspects by low achieving group (Table III). The studies in India and Bangladesh also reported similar findings in terms of authoritarian teachers.[19,20] The unreasonable behaviours from teachers such as displaying anger and irritation, pressurizing students and ridiculing them undermine students' confidence, self-efficacy and motivation. These behaviours have negative influence on students' engagement in learning, mental well being and ultimately affects their academic success.[21,22] The teachers are perceived to be good at providing feedbacks by both groups (Table II). Feedback is crucial for effective learning. It helps students to identify learning gaps as well as guide their learning style. The effectiveness of feedback is influenced by factors such as institutional culture, environment, and the level of interaction between teachers and students. When educators undergo training, their skills to provide feedback improves, leading to greater student satisfaction and success.[23]

In SASP doamin, the low achievers were less confident about passing examinations (p=0.01, Table I). Researches indicate that high self-confidence enhances learning outcomes positively, while low self-confidence has a negative impact.[24] Confidence in one's ability to learn serves as a catalyst for motivation to learn. High self-confidence correlates with improved academic achievement. Self-assured students tend to excel in their learning endeavors.[24] Practical hands-on training, individual attention, motivation and effective problem-solving in educational settings contribute to boosting students' confidence levels.[25] A transition toward integrated curriculum may bridge the gap between learning and application and foster confidence among low-achievers.[26]

The results of SPA and SSSP subscales (Table I) indicates that the low achievers perceived more rigid atmosphere in lectures (p=0.01) and tutorials (p=0.002). Moreover, they experienced less comfortable socially within the classroom (p=0.01). A supportive atmosphere and better access to teachers and peers may lead to active participation in class, resulting in improved academic performance.[27] The low achievers also reported higher level of boredom (Score=1.74, Table III). Nett et al. and Abdel Latif noted that teaching methods, learning strategy and curriculum overload can contribute to boredom, subsequently diminishing motivation, concentration and interest in academic activities.[28,29] The high achievers expressed higher levels of disappointment (p=0.03) and fatigue (p=0.01). They also reported less enjoyment, more stress and lack of adequate support system though the differences were not significant (Table II). Perfectionism, self-imposed

high goals, and continual pressure from parents and teachers to excel academically may actively increase academic stress which may lead to lack of enjoyment, fatigue and disappointment among high-achieving students.[30]

The high achievers perceived inadequacy of support for stress than their counterparts though the difference was not significant (Table II). Students may benefit from the implementation of mentorship programs, counselling services, time and stress management courses and awareness programs about the effects of stress and anxiety.[31] Social support and interaction reduce effects of stress and adverse life events, ultimately improving students' happiness, motivation and academic success.[32] Encouraging students to participate in cultural and sports activities may facilitate better social interaction and promote teamwork among them. A good perception of atmosphere and social self-perception lead to a reduced number of low achievers.[15] Addressing the issues in these domains may reduce burden on both high-achievers and low achievers while fostering satisfaction and success among them. Cheating was perceived as an area of concern for both groups (Scores <2, Table III). Many students permit peers to copy answers in the examinations from the desire to maintain good relationship. These incidences may be reduced by raising awareness about the moral implications of academic misconduct and implementing robust academic policies.[33]

Based on the result of the present study (Table IV) the high achievers (Score=147.17) had a significantly high DREEM score than low achievers (Score=132.5). Irrespective of that both groups perceived the overall environment as ‘more positive than negative’. The scores of both groups are in the similar range (score ranging between 101 and 150) as studies conducted in India and Korea.[34-36] Another study in Korea showed very low DREEM score compared to the both groups in present study (Score ranging between 50 and 100).[37]

The scores of both high and low achieving groups in the present study were indicative of positive perceptions about learning, academic perception and atmosphere. Both groups felt that teaching was in right track and they were in a good place socially. Yet the high achieving group showed significantly higher mean scores than their low achieving counter parts in SPT (p=0.04), SPL (p=0.045), SASP (p=0.02), SPA (p=0.04), SSSP (p=0.02) and total DREEM score (p=0.002). Park et al. in Korea also reported similar findings for high achievers in all subscale and DREEM scores. On the other hand, Ahmed et al.[38] in Sudan found statistically significant differences in three domains: SPT, SPA and SSSP. They did not find any significant difference in SPL or SASP subscales. The results of Abraham et al. in India is somewhat dissimilar to the findings of present study.[35] They found academic under achievers to have significantly higher scores than high achievers in the SPL and SPT subscales. They attributed this findings to strong academic support systems which was perceived by the academic low achievers. A study in Pakistan also did not find any relationship between academic environment and academic achievements of students.[39]

It should be taken into account that other factors like motivation, learning style and examination anxiety also affects performances in examination and academic achievement. These factors may be responsible for the discrepancies in results observed among different studies. Kaur & Bhalla outlined several factors affecting students' academic performance, including poor academic self-perception, low self-efficacy, mismatched instructional and learning style, lack of extra-curricular involvement, unreasonable behaviour from teachers, poor academic environment, peer pressure and negative attitude towards institution and teachers.[40]

Limitations

The sample size was relatively low. This study measures the learning experiences of the students till date which may change over time with changes in learning context, setting, curriculum etc.

Conclusion

The students from both high achieving group and low achieving group had a more positive perception about overall academic evironment. However, there were significant differences between two groups in all subscale scores and total DREEM scores. The high achievers scored significantly higher in all categories. The findings of the present study were indicative of a existing

relationship between academic environment and academic achievement. The results also pointed out the areas of concern in academic environment as perceived by both groups. These results can be helpful for guiding strategic reforms to create a better, conducive and stimulating academic environment for better academic outcome.

Recommendation

Future studies may include larger sample size and other medical colleges.

Contribution of authors

SB-Conception, data collection, interpretation of data, drafting & final approval.

RRC-Data analysis, critical revision & final approval.

MAH- Data analysis, drafting & final approval.

Disclosure

The authors declared no competing interests.

References

1. Castanelli DJ & Smith NA. Measuring the anaesthesia clinical learning environment at the department level is feasible and reliable. British Journal of Anaesthesia. 2017;118(5):733–739.

2. Weiss KB, Bagian JP, Nasca TJ. The clinical learning environment: the foundation of graduate medical education. JAMA. 2013;309:1687–1688.

3. Genn JM. AMEE Medical Education Guide No. 23 (Part 2): Curriculum, environment, climate, quality and change in medical education—a unifying perspective. Med Teach. 2001;23:445–454.

4. 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):322-325. doi: 10.1080/01421590500151054. PMID: 16024414.

5. Desai M, Pandit U, Nerurkar A, Verma C. Perception of educational environment as a predictor of academic performance in physiotherapy students. J Edu Health Promot. 2022;11:174.

6. Chew QH, Tanb E, Suma MY, Simc K. Inter-relationships between perception of educational environment and learning processes within medical undergraduate psychiatry teaching: A mediational analysis. Medical Education Online. 2021;26:1-7.

7. Karim J, Al-Halabi B, Marwan Y, Sadeq H, Dawas A, Al-Abdulrazzaq D. The educational environment of the undergraduate medical curriculum at Kuwait University. Advances in Medical Education and Practice. 2015;6:297–303.

8. Nahar N, Talukder MHK, Khan MTH, Mohammad S, Nargis T. Students' Perception of Educational Environment of Medical Colleges in Bangladesh. BSMMU J. 2010;3(2):97-102.

9. Kumar M, Sharma S, Gupta S, Vaish S, Misra R. Effect of stress on academic performance in medical students: A cross sectional study. Indian J PhysiolPharmacol. 2014;58(1):81–86.

10. Lizzio A, Wilson K& Simons R. University Students' Perceptions ofthe Learning Environment andAcademic Outcomes: implicationsfor theory and practice. Studies in Higher Education.2002;27(1):27-52.

11. Helal RM, El-Masry R & El-Gilany A. Quality of educational environment among Egyptian medical students using DREEM questionnaire. World Journal of Medical Education and Researc. 2013;3(1):6-14.

12. Miles S, Swift L &Leinster SJ. The Dundee Ready Education Environment Measure (DREEM): A review of its adoption and use. Medical Teacher. 2012;34:620–634. doi: 10.3109/0142159X.2012.668625.

13. Yusoff MSB. The Dundee Ready Educational Environment Measure: A Confirmatory Factor Analysis in a Sample of Malaysian Medical Students. International Journal of Humanities and Social Science. 2012 ;2(16):313-321.

14. Tripathy S &Dudani S. Students' perception of the learning environment in a new medical college by means of the DREEM inventory. Int J Res Med Sci. 2013;1(4):385-391.

15. Aldowsari MK, Al-Ahmari MM, Aldosari LI, Al Moaleem MM, Shariff M, et al. Comparisons Between Preclinical and Clinical Dental Students' Perceptions of the Educational Climate at the College of Dentistry, Jazan University. Adv Med EducPract. 2021;12:11-28. doi: 10.2147/AMEP.S287741. PMID: 33469403; PMCID: PMC7810588.

16. Okwuduba E & Okigbo EC. Effect of Teaching Methods on Students' Academic Performance in Chemistry in Nigeria: Meta-Analytic Review. BJSEP. 2018;12(2):418-434.

17. Richardson D. Don't dump the didactic lecture; fix it. AdvPhysiol Educ. 2008;32(1):23-24.

18. Wijnen-Meijer M [Editorial]. Advantages of learning objectives and the National Competence-based Catalogue of Learning Objectives. GMS Journal for Medical Education. 2023;40(5):1-6.

19. Sunkad MA, Javali S, Shivapur Y, Wantamutte A. Health sciences students' perception of the educational environment of KLE University, India as measured with the Dundee Ready Educational Environment Measure (DREEM). J EducEval Health Prof. 2015;12:37.

20. Mohsena M, Debsarma S & Haque M. Determining the Quality of Educational Climate in a Private Medical College in Bangladesh via the 'Dundee Ready Education Environment Measure' Instrument. J Young Pharm. 2016;8(3):266-274.

21. Chaffee KE, Noels KA &McEown MS. Learning from authoritarian teachers: Controlling the situation or controlling yourself can sustain motivation. Studies in Second Language Learning and Teaching. 2014;4(2):355-387.

22. Dyrbye LN, Satele D & West CP. Association of Characteristics of the Learning Environment and US Medical Student Burnout, Empathy, and Career Regret. JAMA Network Open. 2021;4(8):e2119110. doi:10.1001/jamanetworkopen.2021.19110.

23. Kornegay JG, Kraut A, Manthey D, Omron R, Caretta-Weyer H, et al. Feedback in Medical Education: A Critical Appraisal. AEM Educ Train. 2017;1(2):98-109.

24. AkbariO&Sahibzada J. Students' Self-Confidence and Its Impacts on Their Learning Process. American International Journal of Social Science Research. 2020;5(1).

25. Sahu PK, Chattu VK, Rewatkar A, Sakhamuri S. Best practices to impart clinical skills during preclinical years of medical curriculum. J Educ Health Promot. 2019;8:57. doi: 10.4103/jehp.jehp_354_18. PMID: 31008124; PMCID: PMC6442250.

26. Tarafdar MA. Perception of the medical students in Bangladesh regarding quality of education. Journal of Z H Sikder Women's Medical College. 2023;502. doi: https://doi.org/10.47648/zhswmcj.2023.v0502.10.

27. Cooper L & Fry KF. The Relationship between Classroom Environment and Student Course Attrition and Perceptions of Engagement. Journal of Learning Spaces. 2020;9(2):93-102.

28. Nett UE, Goetz T & Daniels LM. What to do when feeling bored? Students' strategies for coping with boredom. Learning and Individual Differences. 2010;6:626-638. doi:10.1016/j.lindif.2010.09.004.

29. Abdellatif, M. S. Modeling the Relationships Between Academic Boredom, Self-Compassion and Quality of Academic Life Among University Students. Sage Open. 2022;12(4). doi.org/10.1177/21582440221141703.

30. Haspolat N &Yalç n . Psychological symptoms in high achieving students: The multiple mediating effects of parental achievement pressure, perfectionism and academic expectation stress. Psychology in the Schools. 2023;60(11):4721–4739. doi:10.1002/pits.23012.

31. Dederichs M, Weber J, Muth T, Angerer P, Loerbroks A. Students' perspectives on interventions to reduce stress in medical school: A qualitative study. PLoS One. 2020;15(10):e0240587. doi: 10.1371/journal.pone.0240587. PMID: 33057431; PMCID: PMC7561099.

32. Zamani-Alavijeh F, Dehkordi FR &Shahry P. Perceived social support among students of medical sciences. Electron Physician. 2017 Jun;9(6):4479-4488. doi: 10.19082/4479. PMID: 28848620; PMCID: PMC5557125.

33. Kusnoor A & Falik R. Cheating in Medical School: The Unacknowledged Ailment. Southern Medical Journal. 2013;106(8):479-483.

34. Chellaiyana VG, Bhushanb K, Maruthupandiana J, Guptac S, Liaquathalid F, Jenniferbrittoe J. Perception of the Educational Environment and Its Impact on the Academic Performance of Medical School Students: A Cross-Sectional Study. Maedica – a Journal of Clinical Medicine. 2023;18(1):80-87.

35. Abraham RR, Ramnarayan K, Pallath V, Tork S. Perceptions of academic achievers and Under- achievers regarding learning environment of Melaka Manipal Medical College (Manipal Campus), Manipal, India, Using the DREEM Inventory. 2007;1(1):18-24.

36. Park KH, Park JH, Kim S, Rhee JA, Kim JH, et al. Students' per-ception of the educational environment of medical schools in Korea: findings from a nationwide survey. Korean J Med Educ. 2015;27:117–130.

37. Kim H, Jeong H, Jeon P, Kim S, Park YB, Kang Y. Perception study of Traditional Korean medical students on the medical education using the Dundee ready educational environment measure. Evid Based Complement Alternat Med. 2016;2016:6042967.

38. Ahmed Y, Taha MH, Alneel S, Gaffar AM. Students' perception of the learning environment and its relation to their study year and performance in Sudan. International Journal of Medical Education. 2018;9:145-150.

39. Baig AU, Ahmed SH, Rizvi M, Ilyas MA, Ahmed M, et al. Comparison of educational environment perception of Dow Medical College students with CGPA. International Journal of Research. 2015;2:72–79.

40. Kaur S &Bhalla M. A Fundamental Study To Understand Gifted Underachievers. International Journal Of Scientific & Technology Research. 2020;9(4):3284-3289.