Original Article

# Evaluation of Students' Perceptions of the Educational Environment during Curricular Transition at a Dental College in Pakistan Utilising the DREEM Inventory



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## ABSTRACT

**Objective:** The aim of this study was to assess undergraduate dental students' perceptions of the educational environment with respect to the transition of the curriculum with DREEM

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the Women Dental College, Abbottabad, Pakistan, from December 2025 to April 2026.

**Methodology:** Among the 200 invited students, 134 responded (67%). A 50-item DREEM inventory was used to assess perceptions, and scores were compared between the integrated modular and traditional curriculum groups.

**Results:** The mean total DREEM score for the integrated modular group was greater than that for the traditional group, but this difference was not statistically significant (123.68 ± 35.27 vs. 113.65 ± 28.92, p = 0.077). Teachers could improve by using more teacher-centered approaches, providing positive feedback, facilitating factual learning, and providing support for the students.

**Conclusion:** There were no statistically significant differences between the two groups; however, perceptions were more favourable within the integrated modular group. Improving students' teaching, feedback and psychosocial support can enhance the educational environment.

**Key Words:** DREEM, educational environment, dental education, integrated curriculum, curricular transition, undergraduate dental students.

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## INTRODUCTION

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The educational environment is a critical determinant of academic performance, professional development, motivation, and psychological well-being in health profession education.[1] This includes pedagogies, curriculum design, evaluation, teacher–student relationships, institutional assistance, and the learning atmosphere.[2] A positive educational environment fosters active learning, critical thinking, and professional competence, whereas a negative environment may adversely affect learning outcomes and student satisfaction.[3]

Dental education has shifted from traditional discipline-based curricula towards integrated modular approaches emphasising competency-based, student-centered, and interdisciplinary learning.[4-5] However, gradual curricular implementation may expose different cohorts to distinct educational approaches.[6]

Students' perceptions of the curriculum can be assessed to gauge the effectiveness of the curriculum and what needs to be done to improve it.[7,8]

The Dundee Ready Educational Environment Measure (DREEM) is a 50-item validated self-reported measure for five domains of the educational environment, and some institutional strengths and weaknesses are revealed by the measure.[9,10]

The integrated modular curriculum was followed by first- and second-year BDS students at Women Dental College (WDC), whereas third- and final-year students implemented the traditional curriculum. Given the lack of evidence from such a transitional context in Pakistan[11], the present study investigated students' perceptions of the educational environment via DREEM.

# METHODOLOGY

**Study Design and Setting:** This cross-sectional study was carried out at Women's Dental College (WDC) Abbottabad, Pakistan, from December 2025 to April 2026 and aimed to evaluate undergraduate dental students' perceptions of the educational environment via the DREEM inventory. The integrated modular curriculum was followed by first-year and second-year students during the study, whereas third-year and final-year students continued with the discipline-based curriculum because of the gradual, cohort wise implementation of the curricular reform.

**Study participants and sampling:** This research involved all undergraduate BDS students from the first year to the final year at the WDC who were enrolled during the study period. Participation in the study was voluntary, and students interested in the study were asked to provide informed consent. Students who did not complete the questionnaires or refused to participate were excluded. The total population sampling technique was utilised[12] and 134 completed questionnaires were used in the final analysis.

**Study instrument:** The DREEM inventory[9] was used to measure students' perceptions of the educational environment. The 50-item questionnaire measures five areas: 'Students' Perception of Learning' (12 items), 'Students' Perception of Teachers' (11 items), 'Academic Self-Perception' (8 items), 'Atmosphere' (12 items), and 'Social Self-Perception' (7 items). The responses were scored according to the standard DREEM system (0--4), with negatively worded items reverse-scored[13] (Items 4, 8, 9, 17, 25, 35, 39, 48, and 50). The maximum score is 200, and the higher the score is, the better the educational environment. The overall scores were interpreted on the basis of the DREEM guidelines.[14]

The overall DREEM scores were interpreted on the basis of established guidelines: 0--50; 'very poor', 51--100; 'plenty of problems', 101--150; 'more positive than negative', 151--200; and 'excellent educational environment'. These categories were used to interpret the overall students' perceptions of the educational environment[14].

**Data collection procedure:** After ethical approval was obtained, the students were invited to participate in the study. The purpose of the study was explained, and informed consent was obtained from the students willing to participate. The questionnaires were completed anonymously, with no involvement from the faculty, to reduce response bias.

**Statistical analysis:** The data were analysed via IBM SPSS Statistics version 20. Descriptive statistics were used to calculate the mean ± standard deviation (SD) for continuous variables, including DREEM scores and domain scores, whereas frequencies with percentages were used for categorical variables, such as academic year and curriculum type (integrated modular or traditional curriculum). A t test was used to compare the mean total DREEM scores between students enrolled in the integrated modular curriculum and those following the traditional curriculum. The overall and item-level DREEM scores were computed and interpreted following the standard guidelines.

**Ethical considerations:** The study was approved by the Institutional Ethical Review Committee of WDC. The study was conducted on a voluntary basis, and participants' confidentiality and anonymity were ensured throughout the study.

# RESULTS

A total of 134 completed questionnaires were used in the final analysis (see Figure 1 for class-wise representation).

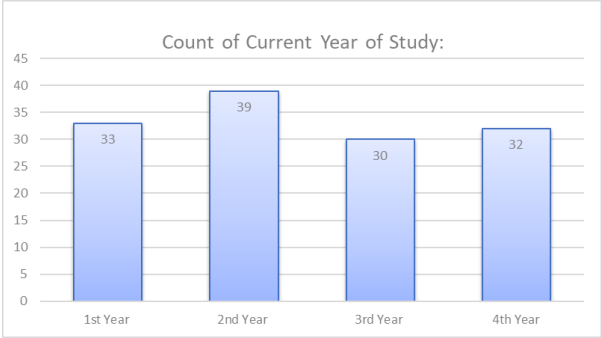



**Figure No. 1: Total No. of Participants**

The mean global DREEM score was 119.13 out of 200 (SD = 32.50), indicating that the educational environment was 'more positive' than negative'. This means that the students' overall impression of the learning climate was positive, but there were some weaknesses, as shown in Table 1.

**Table No. 1: Total DREEM score measure**

| Total DREEM score Measure | Value | Interpretation |
|---|---|---|
| Total Respondents | 134 | Modular = 72<br>Traditional = 62 |
| Mean Global DREEM Score | 119.13/200 (SD = 32.50) | 'More positive than negative' |

For the domain analysis, the highest proportional score was for 'Students' Academic Self-Perception', and the lowest was for 'Students' Social Self-Perception'. The item-level analysis of the DREEM inventory identified specific areas with relatively low mean scores. These included Q9 ('the teachers are authoritarian'), Q25 ('the teaching overemphasises factual learning'), Q48 ('the teaching is too teacher-centred'), Q32 ('the teachers provide constructive criticism'), and items related to student stress, loneliness and boredom (see Table 2 for details).

The most obvious concern at the item level was teacher authoritarianism. The report indicates that the item with the lowest mean score in the entire inventory was Q9, 'teachers are authoritarian', with a mean score of 1.57. A lack of constructive criticism and a teacher-centered approach were also noted as problem areas in the same section. The social domain was also weak, with poor support for stress, frequent loneliness and boredom identified as ongoing issues (see Table 3 for details).

Compared with the traditional curriculum group, the integrated modular group had a greater mean total DREEM score (123.68 ± 35.27 vs. 113.65 ± 28.92), with a mean difference of 10.04 points (95% CI −1.10--21.17; p = 0.077; Cohen's d = 0.31). However, this difference was not statistically significant (p = 0.077). The lack of statistical significance may partly reflect the sample size and variability within the groups and should not necessarily be interpreted as an absence of a meaningful difference. (See Table 4).

The results collectively indicate a learning environment that is generally satisfactory but not yet fully student-centered. Students' self-confidence in their academic skills was the strongest element, whereas the weakest elements were related to social support, feedback, and the teacher–student relationship. The overall picture indicates that curricular change was evident in the student experience, but pedagogical style and pastoral support remain to be addressed if the educational climate is to be consistently positive.

**Table No. 2. DREEM domain scores**

| Subscale | Mean Score | Maximum | SD | % of Max | Interpretation |
|---|---|---|---|---|---|
| Students' Perception of Learning (SPL) | **28.77** | 48 | 7.96 | 59.9% | More positive than negative |
| Students' Perception of Teachers (SPT) | **25.57** | 44 | 6.62 | 58.1% | Moving in the right direction |
| Students' Academic Self-Perception (SASP) | **20.01** | 32 | 6.56 | 62.5% | More on the positive side |
| Students' Perception of Atmosphere (SPA) | **29.08** | 48 | 9.67 | 60.6% | More positive than negative |
| Students' Social Self-Perception (SSSP) | **15.70** | 28 | 4.83 | 56.1% | Poor |

**Table No. 3. Main problem areas identified in the report**

| Q# | Question | Subscale | Mean | SD | Priority |
|---|---|---|---|---|---|
| **Q3** | There is a good support system for students who get stressed | SSSP | 1.96 | 1.46 | **MODERATE** |
| **Q4** | I am too tired to enjoy this course [NEG → reversed] | SSSP | 1.96 | 1.27 | **MODERATE** |
| **Q9** | The teachers are authoritarian [NEG → reversed] | SPT | 1.57 | 1.11 | **HIGH** |
| **Q14** | I am rarely bored during this course | SPA/SSSP | 1.84 | 1.32 | **MODERATE** |
| **Q25** | The teaching over-emphasises factual learning [NEG → reversed] | SPL | 1.60 | 1.05 | **HIGH** |
| **Q28** | I seldom feel lonely | SSSP | 1.85 | 1.30 | **MODERATE** |
| **Q32** | The teachers provide constructive criticism here | SPT | 1.77 | 1.25 | **MODERATE** |
| **Q48** | The teaching is too teacher-centered [NEG → reversed] | SPL | 1.89 | 1.17 | **MODERATE** |

**Table No. 4. Comparison of reported curriculum groups**

| Domain | Modular (Yr 1–2) | Traditional (Yr 3–4) | Mean Diff. (95% CI) | t (df) | p value | Cohen's d |
|---|---|---|---|---|---|---|
| **Total DREEM Score** | 123.68 ± 35.27 (n=72) | 113.65 ± 28.92 (n=62) | 10.04 (−1.10 to 21.17) | 1.783 (132) | 0.077 | 0.31 |

# DISCUSSION

The findings of the present study indicate that students' overall perceptions of the educational environment were 'more positive than negative' and that the mean global DREEM score was 119.13/200 ± 32.50. This result is similar to those of previous studies in dental and medical education. The overall positive score does not reflect all aspects of the educational environment. Similarly, Ali et al. (2012) reported a mean score of 115.06 and reported that 197 final-year BDS students from five dental institutions at the University of Health

Sciences, Lahore, Pakistan, had nine remediation items.[11] In 2018, Jamil et al. reported favourable perceptions among students of the integrated curriculum at Sindh Medical College and Liaquat National Medical College, Karachi; however, the curriculum differed from the one evaluated in the present study, with relative strengths in academic and social self-perception.[15] Stormon et al. reported positive perceptions among dental students at the University of Queensland, Australia, but with some areas that needed improvement, specifically academic and social self-perception.[16]

The lowest scoring item was teacher authoritarianism, and other items, such as inadequate constructive feedback, teacher-centered teaching, emphasis on factual learning, and limited support for stressed students, were also highlighted. Two research papers from India by Patil and Chaudhari and Bhosale reported similar findings, identifying gaps in learning due to authoritarian teaching methods, factual learning, teacher-centered approaches, and an inadequate student support system.[17,18] They recommend that curricular changes be implemented along with faculty development programs for student-centered teaching, facilitation skills, interactive learning, communication and feedback in a constructive manner.

Notably, one of the lowest scores in the instrument was 'Students' Social Self-Perception' (56.1%). This does not necessarily mean that it is a highly negative environment but that there may be greater concerns about students' social and psychosocial experiences. Stormon et al. reported similar results and hypothesised that academic burden, curricular transition, insufficient peer interaction, or missing student support may be contributing factors.[16] However, these cannot be determined from the DREEM inventory data itself. An increase in mentoring, peer support activities, academic advice, and identification of students who are experiencing stress may thus be beneficial. This could be further investigated through qualitative studies to explore in depth the underlying reasons for these perceptions.

This cross-sectional study revealed that students with an integrated curriculum had a better numerical trend in DREEM scores than did students with a traditional curriculum. This finding is in line with Yasmeen and Anwar's study[19], who reported that with an integrated curriculum, students received high scores on DREEM at Islamic International Medical College, Rawalpindi. However, this cannot be explained only in terms of changes in learning and teaching, curriculum design, students' workload, clinical exposure, assessment requirements, and faculty training. This suggests that the findings indicate a positive trend rather than definitive evidence of curricular superiority.[20] Similarly, this study cannot definitively conclude that higher scores in the modular curriculum were solely due to curricular changes; they may also reflect a gradual positive trend over the years.

Overall, the results indicated that the reorganisation of content is not enough to achieve successful curricular transition. For integrated education to yield the desired results, the following factors are important: faculty preparedness, student-centered teaching, constructive feedback, and psychosocial support. A continuous process of measure-intervention-reassess, which is based on DREEM, may be useful for determining priority areas, designing faculty development and student-support interventions in priority areas, and tracking subsequent progress in the educational setting.

# CONCLUSION

Overall, the study suggests a positive educational environment during curricular transition, with a positive numerical trend in the integrated modular stream. The primary shortcomings are teacher-centered practices, inadequate constructive feedback, and inadequate social support. With systematic attention to these areas, the educational climate should transition to a more student-centered and supportive environment, in line with the objectives of contemporary dental education.

**Strengths:**

- This study employed DREEM, a validated and widely used tool for the evaluation of educational environments in medical and dental schools.
- The anonymity of the data collection process with no faculty involvement seemed to have minimised response bias and increased student honesty in their responses.
- The study included all available BDS cohorts during an ongoing curricular transition, enhancing the practical relevance of the findings for curriculum evaluation.

**Limitations:**

- The study was conducted at one dental college, and the results may not be generalizable to other dental colleges because of contextual differences.
- The modular and traditional groups were from different academic years, and differences may be reflected in the training stage.

**Recommendations**

- Student-centered teaching, a reduction in authoritarian teaching behavior, and constructive feedback should be priorities for faculty development.
- The DREEM assessment should be repeated when the curriculum is fully developed, preferably in a longitudinal design, and compared with that of more than one dental college.
- A follow-up study using mixed methods would be helpful for understanding why students feel that teaching is teacher-centered and that support is weak despite curriculum reform.

**Author's Contribution:**

| | |
|---|---|
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| Agreement to accountable for all aspects of work: | All the above authors |

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