

## Exploring Learning Approaches of Undergraduate Nursing Students and the Association with their Educational Environment: A Cross-Sectional Study

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### Abstract

**Background/Aim:** It is imperative that we investigate the learning approaches of students in order to build effective and lifelong learners, which is the most vital and fundamental objective of medical education. Educators' perceptions of the significance of the educational environment are the foundation of improved learning. The aim of the study is to analyse undergraduate nursing students' learning approaches and their perception of the educational environment across four years of education. **Materials and methods:** This was a cross-sectional, questionnaire-based descriptive study among 152 B.Sc. Nursing students from all four academic years of a medical institution from February to March 2024. Data collection instruments used in this study were the Approaches and Study Skills Inventory for Students (ASSIST) short-form and the Dundee Ready Educational Environment Measure (DREEM). The ASSIST tool measured three learning approaches of deep learning along with strategic and surface learning while the DREEM questionnaire assessed student perceptions about their educational environment through the five subscales. The analysis was performed with SPSS version 24 through chi-square assessment of categorical variables and mean and standard deviation calculation. An unpaired t-test determined mean value comparisons between different study years. **Results:** The deep learning approach scores achieved were highest among third-year pupils ( $24.50 \pm 4.32$ ), while surface learning scores remained consistent throughout the fourth year. There were no big differences in learning approaches between males and females throughout the study. Students evaluated teachers' perception at 18.50 while academic self-perception earned them a score of 20.61. The learning atmosphere among students demonstrated a positive outcome because the DREEM score amounted to 104.83/200 (52.4%). **Conclusion:** Academic self-perception among nursing students appeared strong yet they recognized opportunities for educational environment development and teaching improvement. The improvement of nursing education outcomes depends on better faculty-student relationships and an interactive learning space combined with regular assessments through DREEM.

**Key words:** Nursing students, learning approaches, surface approach, deep approach, strategic approach, perception, cross-sectional study, educational environment, ASSIST questionnaire, DREEM questionnaire

## 1. Introduction

Nursing has a significant role in the future development of health care and at the same time, how students learn and get experience in the learning environment will affect their academic success and careers. The paradigm shifts to student centred interactive teaching from teacher centred lecture-based teaching is influenced by the learning styles and approaches of the graduates [1]. The way students approach learning directly influences their academic performance. If facilitators could figure out these factors, it would be easier to come up with appropriate and acceptable ways to help the students [2]. The predominant learning approaches include superficial, strategic, and deep. ASSIST [3-5] is an ideal tool that classifies students according to their learning approaches. Teachers' perceptions of EEs positively correlate with excellent learning. It influences how, why, and what the students learn [6, 7]. EE encompasses all activities associated with educational institutions [8]. Evaluating EE is important for providing high-quality education and curriculum. We must identify the gap that exists between student expectations and their actual experiences. The Dundee Ready Education Environment Measure (DREEM) is a validated tool to assess the student's perception of their education environment [9,10]. There is a lot of effort put into the current institution to provide the highest standard of education and a suitable environment that helps and motivates them to build their clinical and interactive skills, which are crucial in the nursing field. To our knowledge, no prior studies have been conducted in our region. For this reason, the study was conducted to understand the students' approaches to learning and their perceptions of the educational environment provided at Kannur Medical College & RI to bring about a positive change, if needed, for the benefit of the nursing students.

## 2. Materials and methods

### 2.1. Study design and setting

This was a cross-sectional, questionnaire-based descriptive study conducted in a medical college from February to March 2024.

### 2.2. Participants

The target population consisted of 152 Bachelor of Science nursing students (B.Sc. nursing)) students from all four academic years. The study included all students who agreed to participate and completed the questionnaire. The study excluded respondents who had studied in the institution for less than 6 months and those who refused to participate or did not fill out the questionnaires.

### 2.3. Ethical considerations

After getting permission from the Institute's ethics committee, each participant provided written informed consent.

#### **2.4. Data collection**

We collected data through self-administered, anonymous questionnaires from students using Google Forms to minimize bias, ensuring that the presence of faculty did not influence their responses. The participants completed a demographic questionnaire that included features such as gender, the year of study and discipline and the assessment tools.

#### **2.5. Assessment tools**

The 18-item Approaches and Study Skills Inventory for Students (ASSIST) short-form questionnaire, with six questions in each of the three scales, was used to measure the deep, strategic, and surface learning approaches. A subscale describes the content of the items below it. The deep approach is defined as the extent to which the student monitors the development of his understanding. In the surface approach, the majority of learning involves memorization of information rather than comprehension, which leads to a superficial retention of knowledge. In this approach, students prioritize obtaining a qualification over comprehending the concepts and subjects. In a strategic approach, the focus of learners is to ensure high grades in assessment by organizing their work and time management [3-5]. Items in this instrument were rated using a 5-point Likert scale, where a score of 5 indicates agree, 4 indicates agree somewhat, 3 indicates unsure, 2 indicates disagree somewhat, 1 indicates disagree. Scores were created by summing the sub-scales for each of the three main approaches. Computers typically perform scoring using software programs like the Statistical Package for Social Sciences (SPSS). Each item is set to a variable and a scale total is produced by creating a new variable by summing up the items. The highest mean was taken to indicate the predominant learning approach in students.

The educational environment based on students' perceptions across 5 subscales was evaluated using the 50-item Dundee Ready Educational Environment Measure (DREEM) is as follows:

- a) Students' Perception of Learning (SPL) - 12 items; maximum score is 48
- b) Students' Perception of Teachers (SPT) - 11 items; maximum score is 44
- c) Students' Academic Self-Perceptions (SASP) - 8 items; maximum score is 32
- d) Students' Perception of Atmosphere (SPA) - 12 items; maximum score is 48
- e) Students' Social Self-Perceptions (SSSP) - 7 items; maximum score is 28

The questionnaire generates an overall score for the course. DREEM gives a global score (maximum score out of 200) for the 50 items. The higher the total scores, the better the environment. McAleer and Roff [11] suggested that a total DREEM mean score of 0 to 50 indicates a poor learning environment, an average score of 51 to 100 indicates a learning environment with multiple problems and an average DREEM score of 101 to 150 indicates a poor learning environment. A mean score of 101 to 150 indicates a positive rather than a negative environment, while mean scores between 151 and 200 indicate that students perceive the educational environment as excellent. DREEM facilitates comparisons between different courses, as well as within a single

course [9, 11]. The questionnaires were also rated based on a 5-point Likert scale. The Likert scale is used to measure all the items except nine. The system scores these nine negative statements (Items 4, 8, 9, 17, 25, 35, 39, 48 and 50) in reverse order, indicating disagreement with the negative statement and a positive result.

## 2.6. Statistical analysis

Data were collected in MS Excel and then analysed using the statistical tool SPSS version 24. Mean and standard deviations were used for measuring the central tendency of continuous variables, and the Chi-square test was used, while proportions and percentages were used for categorical variables. An unpaired t-test was performed to test the differences in means across the study years. The  $p < 0.05$  was considered statistically significant.

## 3. Results

**Table 1:** Demographic details of the nursing students with the distribution of learning approaches

| Gender              | 1 <sup>st</sup> year<br>(n= 37) (%) <sup>a</sup> | 2 <sup>nd</sup> year<br>(n=39) (%) | 3 <sup>rd</sup> year<br>(n=40) (%) | 4 <sup>th</sup> year<br>(n=36) (%) | Total<br>(n=152) (%) |
|---------------------|--|------------------------------------|------------------------------------|------------------------------------|----------------------|
| Male                | 8(27.6%)   | 10(34.5%)                          | 10(34.5%)                          | 1(3.4%)                            | 29(100.0%)           |
| Female              | 29(23.5%)  | 29(23.5%)                          | 30(24.5%)                          | 35(28.5%)                          | 123(100.0%)          |
| Learning approaches | Mean $\pm$ SD <sup>b</sup>                       | Mean $\pm$ SD                      | Mean $\pm$ SD                      | Mean $\pm$ SD                      | Mean $\pm$ SD        |
| Deep approach       | 24.22 $\pm$ 3.93                                 | 22.64 $\pm$ 5.78                   | 24.50 $\pm$ 4.32                   | 22.14 $\pm$ 3.74                   | 23.23 $\pm$ 4.62     |
| Strategic approach  | 22.86 $\pm$ 4.62                                 | 21.23 $\pm$ 6.34                   | 22.40 $\pm$ 5.48                   | 21.11 $\pm$ 3.86                   | 21.83 $\pm$ 5.14     |
| Surface approach    | 21.32 $\pm$ 3.50                                 | 23.10 $\pm$ 5.24                   | 23.15 $\pm$ 2.97                   | 22.00 $\pm$ 3.26                   | 22.31 $\pm$ 4.01     |

a: Data are presented as number (%) b: mean  $\pm$  standard deviation (SD)

Table 1 provides the demographic characteristics of the B.Sc. nursing students who participated in the study. A total of 152 nursing students from each year participated in the study, of whom 80.9% of them were female. The ASSIST short-form questionnaire was used to assess the learning approaches. Third-year students scored highest on the deep approach (24.50  $\pm$  4.32). There was no significant difference test yet, with first-year students scoring highest (22.86  $\pm$  4.62) and slightly lower in subsequent years. Meanwhile, the surface approach increased in years 2 and 3 but remained stable across the fourth year (22.31  $\pm$  4.01).

**Table 2: Gender variations of nursing students in selecting approaches to learning**

| Gender              | 1 <sup>st</sup> year<br>(n= 37) (%) <sup>a</sup> | 2 <sup>nd</sup> year<br>(n=39) (%) | 3 <sup>rd</sup> year<br>(n=40) (%) | 4 <sup>th</sup> year<br>(n=36) (%) | Total<br>(n=152) (%) |
|---------------------|--|------------------------------------|------------------------------------|------------------------------------|----------------------|
| Male                | 8(27.6%)   | 10(34.5%)                          | 10(34.5%)                          | 1(3.4%)                            | 29(100.0%)           |
| Female              | 29(23.5%)  | 29(23.5%)                          | 30(24.5%)                          | 35(28.5%)                          | 123(100.0%)          |
| Learning approaches | Mean $\pm$ SD <sup>b</sup>                       | Mean $\pm$ SD                      | Mean $\pm$ SD                      | Mean $\pm$ SD                      | Mean $\pm$ SD        |
| Deep approach       | 24.22 $\pm$ 3.93                                 | 22.64 $\pm$ 5.78                   | 24.50 $\pm$ 4.32                   | 22.14 $\pm$ 3.74                   | 23.23 $\pm$ 4.62     |
| Strategic approach  | 22.86 $\pm$ 4.62                                 | 21.23 $\pm$ 6.34                   | 22.40 $\pm$ 5.48                   | 21.11 $\pm$ 3.86                   | 21.83 $\pm$ 5.14     |
| Surface approach    | 21.32 $\pm$ 3.50                                 | 23.10 $\pm$ 5.24                   | 23.15 $\pm$ 2.97                   | 22.00 $\pm$ 3.26                   | 22.31 $\pm$ 4.01     |

a: Data are presented as mean  $\pm$  standard deviation (SD) b:  $p < 0.05$  was considered statistically significant

Compared to gender, results for nursing students indicated no significant differences in learning approaches, though female participants showed a slightly more strategic approach than males ( $p = 0.823$ ) (Table 2).

Analysis of the mean subscale revealed that third-year students outperformed second-year students on "Interest in Ideas" ( $p = 0.047$ ) (deep approach).

**Table 3: Mean( $\pm$ SD) of sub scale scores of learning approaches among nursing students**

| Comparison of mean scores of learning approaches and sub scale scores among nursing students |                                 |                                |                                |                                |                             |
|--|---------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------------------------|
| Learning approach  | 1 <sup>st</sup> year<br>(n= 37) | 2 <sup>nd</sup> year<br>(n=39) | 3 <sup>rd</sup> year<br>(n=40) | 4 <sup>th</sup> year<br>(n=36) | <i>p-value</i> <sup>b</sup> |
| <b>Deep approach</b>   |                                 |                                |                                |                                |                             |
| <i>Seeking meaning</i>   | 4.22 $\pm$ 1.03                 | 4.08 $\pm$ 1.17                | 4.10 $\pm$ 1.21                | 3.97 $\pm$ 0.97                | 0.819                       |
| <i>Interest in ideas</i>   | 3.97 $\pm$ 1.09                 | 3.26 $\pm$ 1.40                | 4.00 $\pm$ 1.21                | 3.50 $\pm$ 1.29                | 0.047                       |
| <i>Relating ideas</i>  | 8.00 $\pm$ 1.54                 | 7.76 $\pm$ 2.20                | 8.25 $\pm$ 1.29                | 7.27 $\pm$ 1.27                | 0.148                       |
| <i>Use of evidence</i>   | 8.02 $\pm$ 1.51                 | 7.53 $\pm$ 2.06                | 8.15 $\pm$ 1.38                | 7.38 $\pm$ 1.74                | 0.256                       |
| <b>Strategic approach</b>  |                                 |                                |                                |                                |                             |
| <i>Time management</i>   | 8.21 $\pm$ 1.81                 | 7.28 $\pm$ 2.28                | 7.45 $\pm$ 2.60                | 7.38 $\pm$ 1.31                | 0.172                       |
| <i>Alert to assessment</i>   | 3.38 $\pm$ 1.42                 | 3.23 $\pm$ 1.36                | 3.25 $\pm$ 1.51                | 2.89 $\pm$ 1.09                | 0.455                       |
| <i>Achieving</i>   | 7.32 $\pm$ 1.97                 | 7.30 $\pm$ 2.23                | 7.80 $\pm$ 1.67                | 7.44 $\pm$ 1.74                | 0.807                       |
| <i>Organized studying</i>  | 3.95 $\pm$ 1.07                 | 3.41 $\pm$ 1.31                | 3.90 $\pm$ 1.07                | 3.39 $\pm$ 1.07                | 0.081                       |
| <b>Surface approach</b>  |                                 |                                |                                |                                |                             |
| <i>Lack of purpose</i>   | 3.41 $\pm$ 1.27                 | 3.85 $\pm$ 0.84                | 3.85 $\pm$ 0.87                | 3.86 $\pm$ 0.79                | 0.141                       |
| <i>Syllabus bound</i>  | 3.08 $\pm$ 1.53                 | 3.79 $\pm$ 1.38                | 3.25 $\pm$ 1.51                | 3.56 $\pm$ 0.96                | 0.120                       |
| <i>Unrelated memorizing</i>  | 7.64 $\pm$ 1.33                 | 7.97 $\pm$ 2.07                | 8.00 $\pm$ 1.45                | 7.33 $\pm$ 1.45                | 0.310                       |
| <i>Fear of failure</i>   | 7.18 $\pm$ 1.48                 | 7.48 $\pm$ 2.36                | 8.05 $\pm$ 1.19                | 7.25 $\pm$ 1.51                | 0.317                       |

a: Data are presented as mean  $\pm$  standard deviation (SD) b:  $p < 0.05$  was considered statistically significant

There were significant differences among fourth-year students showing decreased scores from the previous year in "organized studying" (strategic approach) and "fear of failure" (surface approach) (Table 3).

Academic self-perception (SASP) revealed the highest confidence level, with an average score of 20.61. Students' perceptions of teachers (SPT) had the lowest score, with an average score of 18.50. Statistical results showed that  $p$  values in SPL, SPT, SASP and SPA were significantly different (Table 4).

**Table 4: Comparison of mean DREEM scores of nursing students across academic years**

| Domains                                   | 1 <sup>st</sup> year<br>Mean $\pm$ SD <sup>a</sup><br>(n= 37) | 2 <sup>nd</sup> year<br>Mean $\pm$ SD<br>(n=39) | 3 <sup>rd</sup> year<br>Mean $\pm$ SD<br>(n= 40) | 4 <sup>th</sup> year<br>Mean $\pm$ SD<br>(n=36) | Average<br>means score | p-<br>value <sup>b</sup> |
|---|---|---|--|---|------------------------|--------------------------|
| Students' perception of                   | 26.90 $\pm$ 4.81  | 21.65 $\pm$ 6.29                                | 27.00 $\pm$ 6.10                                 | 24.48 $\pm$ 4.87                                | 24.73 $\pm$ 5.94       | <0.001                   |
| Students' perception of                   | 19.79 $\pm$ 3.03  | 16.79 $\pm$ 5.50                                | 18.17 $\pm$ 4.73                                 | 19.41 $\pm$ 3.20                                | 18.50 $\pm$ 4.40       | 0.004                    |
| Students' academic self-perception (SASP) | 21.95 $\pm$ 2.92  | 18.63 $\pm$ 5.21                                | 21.48 $\pm$ 3.68                                 | 20.92 $\pm$ 3.97                                | 20.61 $\pm$ 4.29       | <0.001                   |
| Students' perception of atmosphere (SPA)  | 28.06 $\pm$ 4.85  | 21.40 $\pm$ 6.23                                | 27.51 $\pm$ 6.94                                 | 26.04 $\pm$ 4.99                                | 25.46 $\pm$ 6.31       | <0.001                   |
| Students' social self-perception          | 14.59 $\pm$ 1.75  | 14.44 $\pm$ 2.66                                | 15.51 $\pm$ 3.28                                 | 14.60 $\pm$ 2.62                                | 14.71 $\pm$ 2.57       | 0.322                    |
| Total (Global)DREEM score (200)           | 111.29 $\pm$ 9.68   | 92.91 $\pm$ 10.21                               | 109.67 $\pm$ 9.22                                | 105.45 $\pm$ 8.14                               | 104.83 $\pm$ 9.31      | <0.001                   |

a: Data are presented as mean  $\pm$  standard deviation (SD) b:  $p < 0.05$  was considered statistically significant

The results of the item analysis revealed that fourth-year students showed more strengths, while years 2 and 3 showed more weaknesses. There is much room for improvement, especially in Year 2, highlighting a difficult phase for students (Table 5).

| Domains   | 1 <sup>st</sup> year<br>(n=37)<br>Mean $\pm$ SD | 2 <sup>nd</sup> year<br>(n=39)<br>Mean $\pm$ SD | 3 <sup>rd</sup> year<br>(n=40)<br>Mean $\pm$ SD | 4 <sup>th</sup> year<br>(n=36)<br>Mean $\pm$ SD |
|---|---|---|---|---|
| <b>I)Students perception of learning</b>                            |   |   |   |   |
| Items:  |   |   |   |   |
| 1.I am encouraged to participate in class                           | 3.14 $\pm$ 0.59                                 | 2.63 $\pm$ 0.97                                 | 3.17 $\pm$ 0.53                                 | 2.90 $\pm$ 0.83                                 |
| 7.The teaching is often stimulating                                 | 2.70 $\pm$ 0.70                                 | 2.24 $\pm$ 0.87                                 | 2.52 $\pm$ 0.91                                 | 2.41 $\pm$ 0.70                                 |
| 13.The teaching is student-centred                                  | 2.48 $\pm$ 0.76                                 | 1.90 $\pm$ 1.04                                 | 2.48 $\pm$ 1.05                                 | 2.15 $\pm$ 1.01                                 |
| 16.The teaching is sufficiently concerned to develop my competence  | 2.70 $\pm$ 0.87                                 | 2.24 $\pm$ 0.87                                 | 2.59 $\pm$ 0.78                                 | 2.61 $\pm$ 0.83                                 |
| 20.The teaching is well focused                                     | 2.66 $\pm$ 0.77                                 | 1.98 $\pm$ 1.05                                 | 2.69 $\pm$ 0.85                                 | 2.41 $\pm$ 0.83                                 |
| 22. The teaching is sufficiently concerned to develop my confidence | 2.59 $\pm$ 0.97                                 | 2.12 $\pm$ 1.03                                 | 2.79 $\pm$ 1.04                                 | 2.27 $\pm$ 0.83                                 |
| 24. The teaching time is put to good use                            | 2.75 $\pm$ 0.78                                 | 1.88 $\pm$ 1.18                                 | 2.72 $\pm$ 0.92                                 | 2.88 $\pm$ 1.01                                 |
| 25 The teaching over-emphasizes factual learning                    | 2.61 $\pm$ 0.63                                 | 2.14 $\pm$ 0.97                                 | 2.69 $\pm$ 0.78                                 | 2.05 $\pm$ 0.83                                 |
| 38.I am clear about the learning objectives of the course           | 3.02 $\pm$ 0.82                                 | 2.41 $\pm$ 1.09                                 | 2.55 $\pm$ 1.02                                 | 2.93 $\pm$ 0.75                                 |
| 44. The teaching encourages me to be an active learner              | 2.36 $\pm$ 0.96                                 | 1.80 $\pm$ 0.88                                 | 2.83 $\pm$ 0.71                                 | 2.34 $\pm$ 0.91                                 |
| 47. Long-term learning is emphasized over short-term                | 2.50 $\pm$ 0.90                                 | 2.45 $\pm$ 0.95                                 | 2.66 $\pm$ 0.89                                 | 2.41 $\pm$ 0.70                                 |
| 48. The teaching is too teacher-centred                             | 2.54 $\pm$ 0.74                                 | 2.39 $\pm$ 0.87                                 | 2.69 $\pm$ 0.85                                 | 2.91 $\pm$ 0.85                                 |
| <b>II)Students' perception of teachers</b>                          |   |   |   |   |
| 2.The teachers are knowledgeable                                    | 3.30 $\pm$ 0.66                                 | 2.80 $\pm$ 0.88                                 | 2.97 $\pm$ 0.94                                 | 3.05 $\pm$ 0.66                                 |
| 6. The teachers are patient with patients                           | 2.98 $\pm$ 0.69                                 | 2.80 $\pm$ 1.00                                 | 2.76 $\pm$ 0.83                                 | 3.02 $\pm$ 0.65                                 |
| 8. The teachers ridicule the students                               | 2.75 $\pm$ 0.84                                 | 2.96 $\pm$ 0.52                                 | 2.83 $\pm$ 0.69                                 | 2.93 $\pm$ 0.86                                 |
| 9. The teachers are authoritarian                                   | 2.85 $\pm$ 0.65                                 | 2.79 $\pm$ 0.65                                 | 2.45 $\pm$ 0.55                                 | 2.91 $\pm$ 0.74                                 |
| 18. The teachers have good communications skills with patients      | 2.98 $\pm$ 0.69                                 | 2.59 $\pm$ 1.18                                 | 3.07 $\pm$ 0.59                                 | 3.00 $\pm$ 0.67                                 |
| 29. The teachers are good at providing feedback to students         | 2.55 $\pm$ 0.84                                 | 1.82 $\pm$ 1.09                                 | 2.28 $\pm$ 0.96                                 | 2.34 $\pm$ 0.82                                 |
| 32.The teachers provide constructive criticism here                 | 2.27 $\pm$ 0.84                                 | 2.24 $\pm$ 0.99                                 | 2.28 $\pm$ 0.99                                 | 2.66 $\pm$ 0.76                                 |



|   |           |           |           |           |
|---|-----------|-----------|-----------|-----------|
| 37. The teachers give clear examples  | 2.77±0.80 | 2.27±0.99 | 2.41±1.08 | 2.59±0.83 |
| 39. the teachers get angry in class   | 2.68±0.81 | 2.44±0.95 | 2.58±0.84 | 2.89±0.65 |
| 40. The teachers are well prepared for their class                            | 2.29±0.99 | 2.28±0.89 | 2.41±1.11 | 2.76±0.86 |
| 50. The students irritate the teachers  | 2.52±0.96 | 2.99±1.02 | 2.75±0.68 | 2.75±0.68 |
| <b>III) Students' academic self-perception</b>                                |           |           |           |           |
| 5. Learning strategies which worked for me before continue to work for me now | 2.57±1.02 | 2.97±0.94 | 2.12±1.03 | 2.97±0.94 |
| 10. I am confident about my passing this year                                 | 2.77±0.74 | 3.05±0.83 | 2.72±0.86 | 2.76±0.83 |
| 21. I feel I am being well prepared for my profession                         | 2.68±0.88 | 2.83±0.69 | 2.35±1.03 | 2.83±0.69 |
| 26. Last year's work has been a good preparation for this year's work         | 2.80±0.82 | 2.45±0.55 | 2.22±0.98 | 2.45±0.55 |
| 27. I am able to memorize all I need  | 2.68±0.70 | 3.12±0.69 | 2.12±1.03 | 2.79±1.04 |
| 31. I have learned a lot about empathy in my profession                       | 2.20±1.02 | 2.76±0.83 | 2.72±0.92 | 2.88±1.01 |
| 41. My problem-solving skills are being well developed here                   | 2.27±1.02 | 2.83±0.69 | 1.88±1.18 | 2.72±0.92 |
| 45. Much of what I have to learn seems relevant to a career in medicine       | 2.48±0.84 | 2.45±0.55 | 2.14±0.97 | 2.69±0.78 |
| <b>IV) Students' perception of atmosphere</b>                                 |           |           |           |           |
| 11. The atmosphere is relaxed during the ward teaching                        | 2.59±0.97 | 2.12±1.03 | 2.79±1.04 | 2.27±0.83 |
| 12. This school is well time-tabled   | 2.75±0.78 | 1.88±1.18 | 2.72±0.92 | 2.88±1.01 |
| 17. Cheating is a problem in this school                                      | 2.61±0.63 | 2.14±0.97 | 2.69±0.78 | 2.05±0.83 |
| 23. The atmosphere is relaxed during the lectures                             | 2.31±0.83 | 2.47±0.94 | 2.76±0.77 | 1.98±1.05 |
| 30. There are opportunities for me to develop inter-personal skills           | 2.77±0.83 | 2.66±0.83 | 2.87±0.97 | 2.12±1.03 |
| 33. I feel comfortable in class socially                                      | 2.68±1.01 | 2.53±0.69 | 2.54±0.78 | 1.88±1.18 |
| 34. The atmosphere is relaxed during seminars/tutorials                       | 2.15±0.83 | 2.55±0.55 | 2.66±0.63 | 2.14±0.97 |
| 35. I find the experience disappointing                                       | 2.43±0.75 | 2.78±0.69 | 2.45±0.82 | 2.41±1.09 |
| 36. I am able to concentrate well   | 2.34±0.91 | 2.46±0.83 | 2.36±0.96 | 1.80±0.88 |
| 42. The enjoyment outweighs the stress of studying medicine                   | 2.41±0.70 | 2.93±0.69 | 2.65±0.90 | 2.45±0.95 |
| 43. The atmosphere motivates me as a learner                                  | 2.91±0.85 | 2.45±0.55 | 2.54±0.74 | 2.39±0.87 |
| 49. I feel able to ask the questions I want                                   | 2.69±0.87 | 2.24±0.99 | 2.38±0.87 | 2.21±0.89 |



| V)Students' social self-perception                              |           |           |           |           |
|---|-----------|-----------|-----------|-----------|
| 3. There is a good support system for students who get stressed | 2.66±0.76 | 2.24±0.99 | 2.98±0.69 | 2.68±0.69 |
| 4. I am too tired to enjoy this course                          | 2.27±0.83 | 2.27±0.99 | 2.75±0.84 | 2.75±0.84 |
| 14. I am rarely bored on this course                            | 2.88±1.01 | 2.44±0.95 | 2.85±0.65 | 2.85±0.65 |
| 15. I have good friends in this school                          | 2.05±0.83 | 2.28±0.89 | 2.98±.69  | 2.88±0.69 |
| 19. My social life is good                                      | 1.98±1.05 | 2.99±1.02 | 2.55±0.84 | 2.45±0.84 |
| 28.I seldom feel lonely   | 2.12±1.03 | 2.97±0.94 | 2.27±0.84 | 2.77±0.84 |
| 46. My accommodation is pleasant                                | 1.88±1.18 | 2.76±0.83 | 2.77±0.80 | 2.65±0.78 |

**Table 5: Mean ± SD of DREEM item score with domain of nursing students across academic years**

a: Data are presented as mean ± standard deviation (SD)

Item 2: The “Teachers are knowledgeable” was found to be positive and the mean value was higher at all levels, especially in Years 1 and 4. This shows that students consider that their teachers are knowledgeable (Table 6).

**Table 6: Weakness, improvement and strength area based on mean scores of individual items**

| Category                          | Items  | Mean Range                 |
|-----------------------------------|--|----------------------------|
| Student's Perception of Learning  | 7, 13, 16, 20, 22, 24, 25, 38, 44, 47, 48      | 2.28–3.17*                 |
| Students Perception of Teachers   | 6, 8, 9, 18, 29, 32, 37, 39, 40, 50            | 2.15–3.30                  |
| Students Academic Self-Perception | 5, 10, 21, 26, 27, 31, 41, 45                  | 2.34–3.17                  |
| Students Perception of Atmosphere | 11, 12, 17, 23, 30, 33, 34, 35, 36, 42, 43, 49 | 1.88–3.05                  |
| Students Social Self-Perception   | 3, 4, 14, 15, 28                               | 1.88–2.59                  |
|                                   |  | Strength Area (Mean ≥ 3.5) |
|                                   | Item 2 (The teachers are knowledgeable)        |                            |

\*Weakness area (Mean = <2), Improvement areas (Mean=2-3), Strength area (Mean= ≥ 3)

Table 7 highlights the interpretations of the students, where the highest level of confidence was established for their academic self-perception (64.4%), suggesting a positive effect on their learning environment. However, they were least confident in their perception of teachers (42.0%), although this was in the right direction. The overall average DREEM score of 104.83/200 (52.4%) revealed that students perceived the educational environment as more positive than negative.

**Table 7: Total results of DREEM score with interpretation**

| Dream scores and subscales         | Maximum score of the subscales | Mean   | Percentage of maximum score | Interpretation [6]                      |
|------------------------------------|--------------------------------|--------|-----------------------------|---|
| Students Perception of Learning    | 48                             | 24.73  | 51.5%                       | A more positive perception              |
| Students' perception of teachers   | 44                             | 18.50  | 42.0%                       | Moving in the right direction           |
| Students' academic self-perception | 32                             | 20.61  | 64.4%                       | Feeling more on the positive side       |
| Students' perception of atmosphere | 48                             | 25.46  | 53.0%                       | A more positive attitude                |
| Student's social self-perception   | 28                             | 14.71  | 52.5%                       | Not too bad                             |
| Total DREEM score                  | 200                            | 104.83 | 52.4%                       | More positive than negative environment |

#### 4. Discussion

The findings of this study, as shown in Table 1, indicate that 80.9 percent of nursing students were females. The current study corresponds closely with a global pattern of nursing education in which most nursing students are female. Nursing, a profession traditionally associated with caregiving, is predominantly female-dominated. To the present day, nursing is still predominantly a female field in which the contribution of women overwhelmingly dominates [12, 13].

Table 1 also shows that the deep approach got the best score ( $24.50 \pm 4.32$ ) for how third-year students learned. This fits with what Biggs [14] said about the deep learning approach and what Zeegers [15] found about how it is used at higher levels of learning. According to Entwistle and McCune [16], overall, the first-year students scored the highest ( $22.86 \pm 4.62$ ), which decreased slightly in subsequent years, possibly due to the adjustment in learning strategy over time [17].

Table 2 shows a comparison of the study approaches used by male and female students in this study. There was no difference between the ways that male and female students learned, but the female participants were more likely to use a strategic

approach ( $p = 0.823$ ). This is in line with the findings by Siaw et al. [18], suggesting that gender differences in learning approaches are generally minimal.

Table 3 shows that third-year nursing students scored higher than second-year students on the subscale "interest in ideas." This means that they were more intellectually engaged in their studies, which is in line with what Zeegers [15] and Biggs [14] found. The other subscales did not show significant differences, but fourth-year students developed lower scores in "organized studying" and "fear of failure," indicating higher confidence and less stress as they neared graduation [19]. This result suggests that teaching practices should promote intellectual curiosity and reduce surface learning strategies, particularly in the latter years of nursing education.

Table 4 shows that the SPL, SPT, SASP, SPA and total DREEM scores were significantly different between study years ( $p < 0.001$  or  $0.004$ ). This suggests that nursing students' views on different parts of their education change as they go through school. It can be attributed to increased familiarity with curriculum and faculty, as well as the knowledge one acquires in learning and how to cope and build confidence as one continues with his studies [20]. Nevertheless, SSS ( $p = 0.322$ ) showed no significant change, indicating that the students' social self-esteem is relatively stable at every stage of their academic journey due to factors including social support and peer interactions [21]. The finding emphasizes that fostering positive student-teacher relationships and enriching academic self-perception is important in the nursing program

Table 5 highlights the importance of supporting students during their first year. Across all years, item 2 (the teachers are knowledgeable) contained a strong positive strength, with higher ratings from 1st and 4th-year students in particular. This means nursing students think their teachers are well-informed, and this is important to building trust and engagement in the learning process [22]. Students tend to regard teachers with much higher perceptions, as students with positive perceptions of teachers are also more motivated and perform better at the academic level [16, 23].

Table 7 confirmed that 64.4% of students had the highest level of confidence in their academic self-perception. Their positive perception of their academic abilities is associated with higher motivation and performance [24, 25]. However, their lowest perception of teachers (42.0%) indicates a need for stronger teacher-student interactions to increase engagement [23]. An overall DREEM score of 104.83/200 (52.4%) for the educational environment shows that people feel good about it in general and that it's getting better in some areas, which suggests that it could be used as a tool to find areas that need more work [9, 26].

## 5. Limitation

Since this is a cross-sectional study, only a snapshot of the nursing students' views about their learning approaches and perceptions of their educational environment at different academic levels is provided. By doing this, it doesn't capture changes over time nor the progression of experiences throughout their academic journey. Further, the study is based only upon one institution and one academic discipline and the findings cannot be generalized to other institutions or healthcare-related programs. Further longitudinal studies would clarify how nursing students' approaches to learning and perceptions develop throughout their entire educational experience, ensuring its continuity.

## 6. Conclusion

This study focuses on the relationship between nursing students' academic engagement and perceptions, as affected by the learning approaches and educational environment and across different years of study. Nursing students have positive academic self-perception and recognize that their teachers have knowledge but perceive teaching and the milieu overall as needing improvement. The relevance of promoting a supportive and actively learning environment, clear teacher-student communication and stress management is there by emphasized.

Continuous evaluation of the learning environment through the use of tools such as DREEM and effective planning can increase student engagement and improve learning outcomes in nursing programs.

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## Ethical approval

This study received approval from Kannur Medical College Institutional review board (Dated:15/12/2023, Number:11/2023) after which informed consent was taken from the participants.

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