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# Medical students' perceptions of the educational environment in a private medical school in Southwest Nigeria

Oluwatosin O. Oguntoye

## Abstract:

**BACKGROUND:** The educational environment plays a very important role in determining the overall performance of students. The aim of this study is to determine the perceptions of undergraduate medical students about their educational environment in a Nigerian university.

**MATERIALS AND METHODS:** This was an observational, cross-sectional study conducted among final-year (600 level) undergraduate medical students. The Dundee Ready Education Environment Measure (DREEM) questionnaire was used for the study to assess the educational environment of the medical students.

**RESULTS:** A total number of 100 final-year (600 level) undergraduate medical students participated in the study, out of which 27 (27.0%) were males and 73 (73.0%) were females with a male-to-female ratio of 0.37 to 1. The age range of the respondents was 21–30 years with a mean ( $\pm$ SD) of 23.54 ( $\pm$ 1.403). The total mean DREEM score was 116.2/200. The total score of SPL domain was 30.2/48 (62.9%). The total score of SPT domain was 27.3/44 (62.0%), while that of SASP was 19.2/32 (60.0%). The total score of SPA domain was 26.6/48 (55.4%) and that of SSP was 13.1/28 (46.8%). For the SPL, SPT, SASP, and SPA domains, the score was above 50%. However, for the SSP domain the score was less than 50%.

**CONCLUSIONS:** The total mean DREEM score in this study was 116.2/200, more positives than negatives, with the students' social perspective having the least domain score. There is a need to provide adequate social support system for medical students in general and particularly for those who get stressed.

## Keywords:

Educational environment, measurement, medical students, Nigeria, perception

## Introduction

The educational environment plays a very important role in determining the overall performance of students.<sup>[1]</sup> Institutions therefore must pay adequate attention to their educational environment. Some of the indicators of a healthy educational environment include improved students' academic performance, increased motivation among students, positive institutional profile, higher staff morale, and higher quality teaching.<sup>[2]</sup>

The medical curriculum is quite wide and highly challenging to medical students as a large amount of information need to be learned, within a specified period, which thus puts an enormous academic burden on the students.<sup>[3]</sup> There is therefore a need for medical students to learn in a conducive educational environment that would enable them to adequately learn all that is required of them and ensure a good academic performance. Medical students' educational environment has a major implication on their quality of learning and academic success.<sup>[1]</sup>

Studies have been done in different parts of the world on measurement of the

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Department of Medicine,  
Afe Babalola University  
Ado-Ekiti, Nigeria

## Address for correspondence:

Dr. Oluwatosin O.  
Oguntoye,  
Department of Medicine,  
Afe Babalola University  
Ado-Ekiti, Nigeria.  
E-mail: [oguntoyeoo@abuad.edu.ng](mailto:oguntoyeoo@abuad.edu.ng)

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educational environment with varied reports, many of which had more positives than negatives.<sup>[4-9]</sup> There is however paucity of data on the assessment of the educational environment in Nigerian tertiary institutions, hence this study. The objective of this study is to determine the perceptions of undergraduate medical students about their educational environment in a Nigerian university.

## Materials and Methods

### Study design

This was an observational, cross-sectional study.

### Study participant and sampling

The study was conducted among the final-year (600 level) undergraduate medical students in a private medical school in southwestern Nigeria. The medical school is accredited by the Medical and Dental Council of Nigeria and the Nigerian University Commission. The number of undergraduate medical students in the final-year class (600 level) of the medical school is 104, and 100 of them consented to participate in the study giving a response rate of 96.1%.

### Data collection tool and technique

The Dundee Ready Education Environment Measure (DREEM) questionnaire was used in this study for the data collection. The DREEM questionnaire is a well-validated tool originally designed to measure the educational environment specifically for medical schools and other health professions (Roff *et al.* 1997).<sup>[10]</sup> The DREEM questionnaire contains 50 statements relating to a range of topics directly relevant to educational environment. DREEM has five subscales, namely Students' Perceptions of Learning (SPL), Students' Perceptions of Teachers (SPT), Students' Academic Self Perceptions (SASP), Students' Perceptions of Atmosphere (SPA), and Students' Social self-Perceptions (SSP).

### Scoring the DREEM Questionnaire

Scoring system of the DREEM questionnaire was the one suggested by McAleer and Roff.<sup>[11]</sup> Each of the 50 DREEM items was scored from 0 to 4. Assignment for the scores was 0 (strongly disagree—SD), 1 (disagree—D), 2 (uncertain—U), 3 (agree—A), and 4 (strongly agree—SA). However, 9 of the 50 items (numbers 4, 8, 9, 17, 25, 35, 39, 48, and 50) were negative statements and asked to be scored in the reverse manner (0 for SA, 1 for A, 2 for U, 3 for D, and 4 for SD). The maximum score obtainable is 200.

Scores in the range of 151–200 are viewed as excellent; 101–150 are viewed as more positive than negative; 51–100 indicate plenty of problems, while 0–50 indicate a very poor score [Table 1].

The subscales are as follows: Students' Perceptions of Learning (SPL)—containing 12 items with a maximum score of 48, Students' Perceptions of Teachers (SPT)—containing 11 items with a maximum score of 44, Students' Academic Self Perceptions (SASP)—containing 8 items with a maximum score of 32, Students' Perceptions of Atmosphere (SPA)—containing 12 items with a maximum score of 48, and Students' Social self-Perceptions (SSP)—containing 7 items with a maximum score of 28 [Table 2].

### Statistical analysis

The data obtained was analyzed using the Statistical Package for the Social Sciences (SPSS) version 22.0 computer software package for Windows® (SPSS Chicago Inc. IL, USA). Descriptive statistics used included frequency tables, means, and standard deviations. The standard scoring procedures for the DREEM questionnaire were used to determine the total mean score and the subscale/domain scores.

### Ethical consideration

The study was done in accordance with the Declaration of Helsinki version 2013. Informed consent was obtained

**Table 1: Guide for overall DREEM score interpretation**

Score	Interpretation
0-50	Very poor
51-100	Plenty of problems
101-150	More positive than negative
151-200	Excellent

**Table 2: Guide for DREEM domain score interpretation**

DREEM Domains	Possible Score range	Interpretation
SPL: Students' Perceptions of Learning	0-48	0-12 Very poor
		13-24 Teaching is viewed negatively
		25-36 A more positive approach
		37-48 Teaching highly thought of
SPT: Students' Perceptions of Teachers	0-44	0-11 Abysmal
		12-22 In need of some retraining
		23-33 Moving in the right direction
		34-44 Model teachers
SASP: Students' Academic Self Perceptions	0-32	0-8 Feeling of total failure
		9-16 Many negative aspects
		17-24 Feeling more on the positive side
		25-32 Confident
SPA: Students' Perceptions of Atmosphere	0-48	0-12 A terrible environment
		13-24 There are many issues that need changing
		25-36 A more positive atmosphere
		37-48 A good feeling overall
SSP: Students' Social self-Perceptions	0-28	0-7 Miserable
		8-14 Not a nice place
		15-21 Not too bad
		22-28 Very good socially

from the study participants, and the identity of the participants was not disclosed.

## Results

A total number of 100 final-year (600 level) undergraduate medical students participated in the study, out of which 27 (27.0%) were males and 73 (73.0%) were females with a male-to-female ratio of 0.37 to 1 [Table 3]. The age range of the respondents was 21–30 years with a mean ( $\pm$ SD) of 23.54 ( $\pm$ 1.403).

The total mean score of DREEM in this study was 116.2/200 (58.1%) [Table 4]. The total score of each of the five subscales of the DREEM questionnaire is as shown in Table 4.

The total score of SPL domain was 30.2/48 (62.9%). The total score of SPT domain was 27.3/44 (62.0%), while that of SASP was 19.2/32 (60.0%). The total score of SPA domain was 26.6/48 (55.4%) and that of SSP was 13.1/28 (46.8%). For SPL, SPT, SASP, and SPA domains, the score was above 50%. However, for SSP domain the score was below 50%.

The scores for each individual item in each domain are as shown in Table 5.

## Discussion

This study was conducted to determine medical students' perception of their educational environment at a private medical school in southwest Nigeria using the Dundee Ready Education Environment Measure (DREEM) instrument.<sup>[10]</sup>

**Table 3: Age and gender distribution of the final-year medical students**

Variable	Frequency (n=100)	Percentage
Age (in years)		
21-24	86	86.0
$\geq$ 25	14	14.0
Mean age $\pm$ SD	23.54 $\pm$ 1.403	
Age range (min - max)	21-30	
Gender		
Male	27	27.0
Female	73	73.0

**Table 4: Mean scores of the DREEM domains**

DREEM Domains	Number of questions	Possible range (min - max)	Obtained range (min - max)	Mean	SD	Percentage
SPL	12	0-48	6-45	30.2	6.7	62.9
SPT	11	0-44	10-38	27.3	5.9	62.0%
SASP	8	0-32	0-29	19.2	4.7	60.0%
SPA	12	0-48	10-41	26.6	6.4	55.4%
SSP	7	0-28	2-23	13.1	4.5	46.8%
Total DREEM score	50	0-200	35-174	116.2	22.3	58.1%

The response rate in this study was quite high (96.1%), and this gives validity to the results obtained from this study as being truly representative. In this study, the total number of females in the final-year class was significantly higher than that of males with a ratio of 1 to 0.37. This is in contrast to the finding in other Nigerian medical schools in which males were much more than females.<sup>[12,13]</sup>

The mean age of the final year medical students in this study is also much lesser than that of other studies.<sup>[12,13]</sup> This could be due to the fact that this study was conducted among students attending a private medical school where the academic calendar and curriculum is strictly followed without interruptions unlike public universities where students spend more years in their programs of study due to frequent disruptions in the academic program as a result of various reasons.

The total mean DREEM score and the individual mean domain scores recorded in this study are very good when compared with other similar studies both locally and internationally. In this study, the total mean DREEM score was 116.2/200, and it corresponds to “more positive than negative” perspective. This DREEM score is higher than what was reported in similar studies conducted by Thomas *et al.*<sup>[4]</sup> in India, Al-Qahtani<sup>[5]</sup> in Saudi Arabia, Hettie<sup>[6]</sup> in Canada, and Bassaw *et al.*<sup>[7]</sup> in West Indies. The DREEM score in this study is higher possibly due to the study being conducted in a private medical school as against government-owned public medical schools where the other studies were conducted. Government-owned public medical schools in Nigeria known to have various challenges however may not score as well. Nevertheless, the score of this study is less than that reported by Edgren *et al.*<sup>[8]</sup> in Sweden and Denz – Penhey *et al.*<sup>[9]</sup> in Australia.

In a study by Idon *et al.*<sup>[14]</sup> on the perceptions of dental students on the educational environment in a new dental school in Maiduguri, Nigeria, the total mean DREEM score was 138.2/200 which is higher than that of this study. This could be due to the fact that the dental school is still new with new functional facilities. Continuous optimal maintenance of facilities is still a challenge in Nigeria.

In a similar study by Aneela *et al.*<sup>[15]</sup> among medical and dental students in Pakistan, the total mean DREEM score

**Table 5: Mean scores of the items in each DREEM domain**

DREEM Domains	Statement	Mean	SD
SPL		30.2	6.7
1	I am encouraged to participate	2.66	1.12
7	The teaching is often stimulating	2.53	1.06
13	The teaching is student-centered	2.19	1.20
16	The teaching is helpful to develop my skills/competency	3.06	0.88
20	The teaching is well focused	2.79	0.90
21	I feel I am being well prepared for my career	2.88	0.99
24	The teaching time is put to good use	2.83	0.95
25	The teaching over-emphasizes factual learning	1.48	1.01
38	I am clear about the learning objectives of the course	2.58	1.04
44	The teaching encourages me to be an active learner	2.52	1.11
47	Long-term learning is emphasized over short-term learning	2.48	1.19
48	The teaching is too teacher-centered	2.16	1.19
SPT		27.3	5.9
2	The teachers are knowledgeable	3.53	0.92
6	The teachers deliver research-led teachings	2.59	1.07
8	The teachers ridicule the students	1.91	1.22
9	The teachers are authoritarian	2.07	1.19
18	The teachers help to develop my practical skills	2.95	0.98
29	The teachers are good at providing feedback to students	1.99	1.25
32	The teachers provide constructive criticism here	2.34	1.13
37	The teachers give clear examples	2.90	0.85
39	The teachers get angry in class	2.10	1.29
40	The teachers are well prepared for their classes	2.59	1.17
50	The students irritate the teachers	2.08	1.16
SASP		19.2	4.7
5	Learning strategies which work for me before, continue to work for me now	1.90	1.23
10	I am confident about passing this year	3.43	0.87
22	The teaching helps to develop my confidence	2.65	1.08
26	Last year's work has been a good preparation for this year's work	2.65	1.03
27	I am able to memorize all I need	1.83	1.22
31	I have learned a lot about the way scientific research is carried out	1.89	1.17
41	My problem-solving skills are well developed here	2.39	1.32
45	Much of what I have to learn seems relevant to my career in health care	2.49	1.19
SPA		26.6	6.4
11	The atmosphere was relaxed during ward teaching	2.18	1.24
12	The course is well timetabled	2.15	1.27
17	Cheating is a problem in this school	2.20	1.50
23	The atmosphere is relaxed during lectures	2.49	1.11
30	There are opportunities for me to develop interpersonal skills	2.07	1.34
33	I feel comfortable in class socially	2.34	1.08
34	The atmosphere is relaxed during seminars/tutorials	2.16	1.17
35	I found the experience disappointing	1.32	1.33
36	I am able to concentrate well	2.66	1.04
42	The enjoyment outweighs the stress of studying medicine	2.59	1.03
43	The atmosphere motivates me as a learner	2.31	1.16
49	I feel able to ask the questions I want	2.28	1.16
SSP		13.1	4.5
3	There is a good support system for students who get stressed	0.83	1.09
4	I am too tired to enjoy this course	1.93	1.24
14	I am rarely bored on this course	1.60	1.21
15	I have good friends in this school	2.87	1.11
19	My social life is good	2.02	1.26
28	I seldom feel lonely	2.00	1.35
46	My accommodation is pleasant	1.80	1.36

was 112/200 which is less than that of this study, and Noreen *et al.*<sup>[16]</sup> in another medical school in Pakistan reported even a much lesser mean DREEM score of 107.5/200. This shows that even within the same country, institutions can have DREEM scores that are widely apart. What is important is to identify the domains with low scores and address the factors responsible.

The DREEM tool which is well standardized and validated provides a true objective measurement of the educational environment regardless of the level of development of the nation in which it was deployed. The differences in the individual domain scores are responsible for the varied total mean scores reported by the various studies. Hence, specific measures can be deployed by institutions to improve the affected domains with low scores.

In this study, the Students' Social self-Perceptions (SSP) had the least mean domain score of less than 50%. This reduced score contributed largely to the average total mean score observed in this study. The score was reduced in virtually all the individual items that make up the SSP domain. These items are the social factors that define the social environment of the students. The inadequate social support identified by this study includes inadequate support system for students who get stressed, excessive fatigue which makes studying less enjoyable, boredom while going through the course, inadequate personal and interpersonal social life and loneliness during the course.

The Students' Perceptions of Atmosphere (SPA) scored less (55.4%) when compared to the other domains. This reduced score also contributed to the average total mean score observed in this study. The score was reduced in some of the items that make up the SPA domain. These items are the factors that define the learning atmosphere of the students. The inadequate learning atmosphere identified by this study include inadequate learning experience, tensed learning atmosphere during seminars, tutorials and ward teachings, improper course timetable, and inadequate opportunities to develop interpersonal skills.

The Students' Academic Self Perceptions (SASP) scored relatively well in this study. The factors responsible for the score in the SASP domain include inadequate knowledge of scientific research, reduced retentive memory, and improper learning strategies of the students.

The mean scores obtained in the SPL and SPT domains are relatively good when compared with other studies. Teachers' feedback to students and behavior of the teachers against the students are some of the factors responsible for the above average mean score observed

in the SPT domain. Teaching being less student-centered is one of the factors responsible for the above average mean score observed in the SPL domain.

Appropriate and specific measures must be taken in order to address all these identified factors that are responsible for the average mean score recorded in each of the domains in this study. This would resultantly improve on the overall total mean DREEM score as a measure of an improved educational environment of the medical school.

There is a need to regularly review the undergraduate medical curriculum and course timetables in an innovative manner that would not overburden the medical students with excessive course load which is responsible for the stress, fatigue and poor social life that were identified in this study. There is a need to have a social and welfare unit in the medical school that would be saddled with the responsibility of ensuring that the social and welfare needs of the students are taken care of. Such needs would include improvement on the available accommodation facilities and provision of adequate support system to students who get stressed.

A relaxing, friendly, and comfortable learning atmosphere should be made available to medical students during classroom teachings, seminars, tutorials, clinical or practical demonstrations, and during ward teachings. A tensed atmosphere should be avoided at all times. This would make the learning experience of the medical students much more enjoyable and has the potential to improve their leaning and academic performance.

Adequate study guidance should be provided for medical students throughout their medical school training; this would help the students to adopt an appropriate study style and learning approach which has the potential to improve learning, enhance memory, and improve academic performance. Medical students should also be exposed early to scientific research which will give them the necessary foundational knowledge upon which they would continue to build. Mentorship of medical students by senior faculty members should be encouraged.

Teachers should regularly have a continuous professional development training which will keep them updated and ensure that quality teaching is delivered. Appropriate official feedback mechanism should be instituted to facilitate communication between the students and the teachers. This would create an avenue for students with academic deficiencies to get the needed help. Avenues should also be created for students to lodge official complaints on any lecturer found wanting and vice versa. These checks and balances would improve the learning environment of the students.

This study has provided the much-needed information about the educational environment in a medical school in Nigeria. It has provided scientific data and needed information that can be utilized by medical school administrators, deans, student counselors, and lecturers/teachers on the educational environment of the medical school and specific measures that can be instituted to improve it. Implementation of such measures would ensure adequate learning and enhance better academic performance of the students. The findings in this study can help to stimulate further interest and research on this topic in medical schools across Nigeria.

### Conclusion

The total mean DREEM score in this study was 116.2/200, more positives than negatives, with the Students' Social self-Perceptions having the least mean domain score followed by the students' perceptions of atmosphere. There is a need therefore to provide adequate social and welfare support system for medical students in general and particularly for those who get stressed. A relaxing, non-tensed, friendly, and comfortable learning atmosphere should also be always made available to medical students during teachings. This would make the learning experience of the medical students much more enjoyable and has the potential to improve their leaning and academic performance.

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### Previous publication

The author confirms that the article is not under consideration for publication elsewhere.

### Ethical statement

A written informed consent was obtained from the study participants, and the identity of participants was not revealed at any stage of the study conducted in accordance with the declaration of Helsinki version 2013. An Ethical Approval was obtained from the Ethics and Research Committee of the institution.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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