

Tunisian DREEM: Nursing Students' Perception of the Learning Environment

Rejeb Imen^{1,2} , Samet Amal^{1,2} , Ben Amor Mouna^{1,2} , Talbi Aziza^{1,2} , Denguir Hichem^{2,3} 

¹Emergency Department, University Hospital of Gabes, Gabes, Tunisia

²Faculty of Medicine, University of Sfax, Sfax, Tunisia

³Cardiology Department, University Hospital of Gabes, Gabes, Tunisia

Email: sametamal22@gmail.com

How to cite this paper: Imen, R., Amal, S., Mouna, B.A., Aziza, T. and Hichem, D. (2022) Tunisian DREEM: Nursing Students' Perception of the Learning Environment. *Open Journal of Nursing*, 12, 745-757.

<https://doi.org/10.4236/ojn.2022.1211052>

Received: September 4, 2022

Accepted: October 31, 2022

Published: November 3, 2022

Copyright © 2022 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Objectives: The evaluation of the learning environment has become critical to professional development and student success. This study aims to evaluate the viewpoints of nursing sciences students on the learning environment using the Dundee Ready Education Environment Measure (DREEM) at a Higher Institute of Nursing Sciences in Tunisia. **Methods:** A descriptive cross-sectional study was performed on 200 students at the Higher Institute of Nursing Sciences. The Dundee Ready Education Environment Measure was used as a worldwide tool. Descriptive statistics and one-way analysis of variance with a post hoc Tukey-Kramer multiple comparisons test were used for data analysis. **Results:** The total mean score on the 50-item DREEM inventory was 111.9 out of a maximum of 200. Students' perceptions of learning, their teachers, their academic self, and of the atmosphere were more positive than negative. Student social self-perception was negatively evaluated. Students were not satisfied with the support system in the institute. The DREEM score was significantly higher for the students in the first year of study ($P < 0.001$). The four items with low mean scores (less than two) on the DREEM questionnaire were identified in the domain of learning. **Conclusion:** This is the first study in Tunisia assessing the nursing learning environment; it showed a positive assessment. Therefore, improvements are required, especially in the learning and social domains of the educational environment.

Keywords

Perception, Learning Environment, Nursing Student, DREEM, Tunisia

1. Introduction

Recently, the educational environment has gained a lot of interest among health professionals. The learning environment (LE), or climate, as it is also often referred to, englobes everything surrounding students in the learning space. It includes not only the physical location but also the social and psychological contexts [1] [2]. It was also described as the physical, social, and intellectual stimuli and forces that influence students' learning outcomes [3]. Therefore, the learning environment can be considered as an interactive force between students, and teachers, in their learning and teaching activities, respectively.

In medical schools, many researchers focus on the learning environment to remediate the under-performance of their students. Because of their diversity, especially in personal motivations and emotions, the curriculum must provide a learning environment that supports all students so that they can deliver good quality health care for the best interest and safety of their patients [4] [5]. A high-quality learning environment is recognized as primary for health professions education. It influences knowledge, skills, and attitudes among future health providers [6].

Therefore, examining the climate in academic teaching in health care professional programs is very insightful. Since the program is student-centered, students' perceptions of the educational settings are the keys to the improvement process of the institution. Students' success and satisfaction are two indicators of the quality of the educational climate. Their assessment can guide schools and teachers to apply self-analysis and incorporate the best strategies to improve the learning environment [7].

To respond to new national and international requirements, the Tunisian nursing educational program has undergone a major reform, which started in 2006. The purpose is to align it with the Bologna process and to facilitate the recognition of Tunisian nursing diplomas by making the course content more visible. Furthermore, the student-centered teaching and learning approach [8] was the main objective of this reform.

The need for the evaluation of the educational environment is important for accreditation requirements, but above all, it is fundamental for each institution to highlight the strengths and weaknesses of its educational environment to make adequate changes in the curriculum to be more effective in ensuring the success and satisfaction of their students.

Therefore, this study aimed to assess the perceptions of nursing students concerning their educational environment at a Higher Institute of Nursing Sciences in Tunisia 10 years after the change. For this purpose, a variety of instruments have been developed to measure the educational environment at higher educational institutions [9] [10]. We chose the Dundee Ready Education Environment Measure (DREEM) instrument, which has proven high reliability for undergraduate health professionals [9] [11] [12] [13]. To the best of our knowledge, no previous research has used DREEM to assess the perceptions of nursing students

regarding an educational environment at a nursing institute in Tunisia.

2. Methods

2.1. Study Design and Participants

The survey of the educational environment was conducted at a Higher Institute of Nursing Sciences in Tunisia. It is a descriptive cross-sectional survey conducted using a self-report scale.

All first-year, second-year, and third-year students without any specific pre-selection criteria were invited to participate in the study through posters at their institute. The questionnaires were distributed to 235 students and collected in a box placed at the institute's main auditorium.

All students' were enrolled at the beginning of the second semester, between 04 January and 25 February. The number of participants was calculated by using a "sample size calculator" based on a 95-percent confidence interval.

Before directly administering the questionnaire, the importance and potential impacts of this study were explained to the students. Completion of the inventory was undertaken voluntarily, and none of the information collected was identifiable, thereby maintaining data anonymity.

No ethical issues were encountered during this study.

2.2. Instrument of Measurement

The Dundee Ready Education Environment Measure (DREEM) is a valid tool for referring to deficient areas in the learning process. It was developed by an international Delphi panel of more than 80 international medical and health profession educators and validated in administration to students in health areas in a wide range of countries [14]. In this study, and to collect data, the DREEM was used in the French version with accepted validity and reliability.

The instrument has shown consistently high reliability in a variety of settings. Internal consistency coefficient Alpha of the DREEM instrument computed from present data was 0.81.

The DREEM questionnaire consists of 50 items; each is scored 0 - 4 on a five-point Likert scale (4 = strongly agree, 3 = agree, 2 = unsure, 1 = disagree, and 0 = strongly disagree). However, nine out of the 50 items (numbers 4, 8, 9, 17, 25, 35, 39, 48, and 50) were negative statements and had to be scored in a reverse manner.

For each item, a mean score of ≥ 3.5 is a true positive point. The item with a mean score of ≤ 2 should be examined more closely since this indicates a problem area. Items with a mean of 2 - 3 are aspects that could be enhanced.

The statements are also subdivided into five major domains or subscales treating different aspects of the educational environment. These five domains include the perception of learning, SPL (twelve items), perception of the teacher, SPT (eleven items), academic self-perception, SASP (eight items), perception of atmosphere, SPA (12 items), and social self-perception, SSSP (seven items). The

base for the overall DREEM score is 200. DREEM overall scores were interpreted using the guide developed by McAleer and Roff, which defines a score of 0 - 50 as “very poor”, 51 - 100 as indicating “plenty of problems”, 101 - 150 as being “more positive than negative”, and 151 - 200 as “excellent” (**Table 1**).

3. Data Analysis

The DREEM items were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) program, version 20. Descriptive statistics were applied to get the total mean and the means of the five subscales (SPL, SPT, SASP, SPA, and SSSP) (**Table 1**). The continuous variables were summarized as mean and standard deviation (SD). A single sample t-test and one-way analysis of variance with a post hoc Tukey-Kramer multiple comparisons test were used to identify the significant differences between subgroups. Probability values of less than 0.05 were considered statistically significant for all statistical tests.

4. Results

The questionnaire was completed by 200 students (200/245, a rate response of 81.6%); comprising 84 males (42%) and 116 females (58%). The mean age was 20.4 ± 1.2 years, with a range from 18 to 26. Thirty-five point five percent of students were in the first year, 40.5% were in the second year, and 25% were in the third year of education (**Table 2**).

Table 1. 50-item questionnaire of the DREEM scores.

Domains	ITEMS
SPL	I am encouraged to participate in class.
	The teaching is often stimulating.
	The teaching is student-centered.
	The teaching is sufficiently concerned to develop my competence.
	The teaching is well-focused.
	The teaching helps to develop my confidence.
	The teaching time is put to good use.
	The teaching over-emphasizes factual learning.
	I am clear about the learning objectives of the course.
	The teaching encourages me to be an active learner.
SPT	Long-term learning is emphasized over short-term learning.
	The teaching is too teacher-centered.
	The teachers are knowledgeable.
	The teachers adopt a patient-centered approach to consulting.
	The teachers ridicule the students.
	The teachers are authoritarian.

Continued

	The teachers have good communications skills with patients.
	The teachers are good at providing feedback to students.
	The teachers provide constructive criticism here.
	The teachers give clear examples.
	The teachers get angry in teaching.
	The teachers are well prepared for their teaching sessions.
	The students irritate the teachers.
<hr/>	
	Learning strategies which worked for me before continue to work for me now.
	I am confident about my passing this year.
	I feel I am being well prepared for my profession.
SASP	Last year's work has been a good preparation for this year's work.
	I am able to memorize all I need.
	I have learned a lot about empathy in my profession.
	My problem solving skills are being well developed here.
	Much of what I have to learn seems relevant to a career in healthcare.
<hr/>	
	The atmosphere is relaxed during the ward teaching.
	This course is well time-tabled.
	Cheating is a problem in this course.
	The atmosphere is relaxed during lectures.
	There are opportunities for me to develop my interpersonal skills.
SPA	I feel comfortable in class socially.
	The atmosphere is relaxed during class/seminars/tutorials.
	I find the experience disappointing.
	I am able to concentrate well.
	The enjoyment outweighs the stress of the course.
	The atmosphere motivates me as a learner.
	I feel able to ask the questions I want.
	There is a good support system for students who get stressed.
	I'm too tired to enjoy the course.
	I am rarely bored during this course.
SSSP	I have good friends in this school.
	My social life is good.
	I seldom feel lonely.
	My accommodation is pleasant.

SPL: Students' perception of learning; SPT: Students' perception of teachers; SASP: Students' academic self-perception; SPA: Students' perception of atmosphere; SSSP: Students' social self-perception.

Table 2. Demographic data.

Demographic data	
Age	20.4 ± 1.2
Gender M/F	84/116
Region of birth in Gabes	66 (33%)
Received government allowance	85 (42.5%)
Current living arrangement with parents	75 (37.5%)
New living	82 (41%)
Year of study (1/2/3)	
First year	69 (34.5%)
Second year	81 (40.5%)
Third year	50 (25%)

The overall DREEM score for this study was 111.9/200. This score indicates that the learning environment in the institute is perceived by students as more positive than negative. The mean score of each domain with their interpretation is summarized in **Table 3**. Ten percent of the overall score in our population responds with “uncertain” or “don’t know”.

There was no significant difference between the genders in any of the educational environment subscales, nor the place of birth. A significant correlation was observed between age and the DREEM score ($p = 0.03$, $r = -0.146$), and the students’ perception of teaching ($p = 0.001$, $r = -0.244$).

A statistically significant difference in the students’ perception of the atmosphere regarding the current family living arrangement and funding ($p = 0.03$) with a higher mean score for those living with and supported by their families (26.4 ± 6.7 vs 24.4 ± 6).

Depending on their year of study, there is a significant difference in students’ appreciation of their learning environment. The overall mean DREEM scores were 121 ± 18.6 for the first year, 107 ± 21.5 for the second year, and 107.3 ± 18.6 for the third year of study. The DREEM score was significantly higher for the students in the first year of study ($p < 0.001$). **Table 4** shows the overall scores of DREEM and the domains, with mean scores according to the year of study. In comparison between the three groups, the mean scores in overall domains show higher scores in the first year of study. The students’ perception of teaching was lower for the student of the second ($p = 0.03$) and the third years of study ($p < 0.001$). The students’ perception of the atmosphere was lower for the second year, with $p < 0.001$.

Table 5 summarizes the mean scores of each item. Regarding the “student’s perception of learning”, the item “The teaching over-emphasizes factual learning” has a lower score of 1.49, and “The teaching is well focused” has a higher score of 2.59. Concerning students’ perception of teaching and suitability of academic preparation for real-life, all items have a mean score of more than 2.

The two outstanding items that scored the highest ranking with 2.74 points are “The teachers have good communication skills with patients” and “I feel I am being well prepared for my profession”.

In terms of students’ perception of the atmosphere, the item relating to the timetables has the worst score with 1.65.

For the domain of students’ social self-perception, the two items “There is a good support system for students who get stressed” and “I am rarely bored on this course” received a mean score of less than 2.

Table 3. The DREEM domains with individual scores and interpretations.

Domain	Mean	Standard deviation	Minimum	Maximum	Interpretation
SPL	25.6	5.8	6	42	Moving in the right direction
SPT	26.6	5.9	12	43	A more positive perception
SASP	19.4	5.2	2	32	Feeling more on the positive side
SPA	25.5	6.4	8	45	A more positive atmosphere
SSSP	14.7	3.9	3	25	Not a nice place

SPL: Students’ perception of learning; SPT: Students’ perception of teachers; SASP: Students’ academic self-perception; SPA: Students’ perception of atmosphere; SSSP: Students’ social self-perception.

Table 4. DREEM scores and domains, with mean scores by students’ year of study.

Year of study	DREEM	SPL	SPT	ASP	SPA	SPSSS
First year						
no (131)	107.1 ± 20.4	24.8 ± 6	24.8 ± 5.3	18.9 ± 5.3	24.4 ± 6.1	14.3 ± 4.3
yes (69)	121 ± 18.6	27.2 ± 5.2	29.9 ± 5.5	20.4 ± 6.1	27.7 ± 6.7	15.4 ± 3
	P < 0.001	P = 0.005	p < 0.001	P = 0.05	P = 0.01	P = 0.04
Second year						
no (119)	115.2 ± 19.7	26.1 ± 5.5	27.3 ± 6	19.4 ± 5.1	27 ± 6.2	15 ± 3.2
yes (81)	107 ± 21.5	25 ± 6.3	25.5 ± 5.6	19.3 ± 5.4	23.4 ± 6.3	14.2 ± 4.8
	P = 0.006	P = 0.19	P = 0.03	P = 0.86	P < 0.001	P = 0.19
Third year						
no (150)	113.4 ± 21.3	26 ± 5.9	27.5 ± 5.9	19.8 ± 5.1	25.4 ± 6.8	14.8 ± 4.1
yes (50)	107.3 ± 18.6	24.5 ± 5.5	23.8 ± 4.9	18.2 ± 5.3	26 ± 5.3	14.5 ± 3.4
	P = 0.07	P = 0.1	P < 0.001	P = 0.05	P = 0.5	P = 0.6

SPL: Students’ perception of learning; SPT: Students’ perception of teachers; SASP: Students’ academic self-perception; SPA: Students’ perception of atmosphere; SSSP: Students’ social self-perception.

Table 5. Overall Score according to “DREEM” items.

	Items	Moyenne	Médiane	Ecart-type
SPL	Q1-I am encouraged to participate in class.	2.09	2	1.25
	Q2-The teaching is often stimulating.	2.42	3	1.25
	Q3-The teaching is student-centered.	1.2	1	1.26
	Q4-The teaching is sufficiently concerned to develop my competence.	2.1	2	1.31
	Q5-The teaching is well focused.	2.23	2	1.16
	Q6-The teaching helps to develop my confidence.	2.48	3	1.02
	Q7-The teaching time is put to good use.	2.3	3	1.24
	Q8-The teaching over-emphasizes factual learning.	2.60	3	1.23
	Q9-I am clear about the learning objectives of the course.	2.28	2	1.32
	Q10-The teaching encourages me to be an active learner.	2.56	3	1.17
	Q11-Long-term learning is emphasized over short-term learning.	2.13	2	1.17
	Q12-The teaching is too teacher-centered.	1.65	1.5	1.3
SPT	Q13-The teachers are knowledgeable.	1.66	2	1.17
	Q14-The teachers adopt a patient-centred approach to consulting.	1.78	2	1.24
	Q15-The teachers ridicule the students.	2.65	3	1.32
	Q16-The teachers are authoritarian.	2.3	3	1.39
	Q17-The teachers have good communications skills with patients.	2.09	2	1.44
	Q18-The teachers are good at providing feedback to students.	2.74	3	1.16
	Q19-The teachers provide constructive criticism here.	2.77	3	1.23
	Q20-The teachers give clear examples.	2.59	3	1.15
	Q21-The teachers get angry in teaching.	2.73	3	1.16
	Q22-The teachers are well prepared for their teaching sessions.	2.42	2	1.17
	Q23-The students irritate the teachers.	2.06	2	1.16
SASP	Q24-Learning strategies which worked for me before continue to work for me now.	1.59	1	1.37
	Q25-I am confident about my passing this year.	1.49	1	1.18
	Q26-I fell I am being well prepared for my profession.	2.34	2	1.25
	Q27-Last year’s work has been a good preparation for this year’s work.	2.56	3	1.32
	Q28-I am able to memorize all I need.	2.1	2	1.33
	Q29-I have learned a lot about empathy in my profession.	2.62	3	1.22
SPA	Q30-My problem solving skills are being well developed here.	2.34	3	1.32
	Q31-Much of what I have to learn seems relevant to a career in healthcare.	2.56	3	1.15
	Q32-The atmosphere is relaxed during the ward teaching.	2.28	2	1.23
	Q33-This course is well time-tabled.	2.32	3	1.25
	Q34-Cheating is a problem in this course.	1.98	2	1.16
	Q35-The atmosphere is relaxed during lectures.	2.14	2	1.42
	Q36-There are opportunities for me to develop my interpersonal skills.	2.36	3	1.24

Continued

	Q37-I feel comfortable in class socially.	2.52	3	1.27
	Q38-The atmosphere is relaxed during class/seminars/tutorials.	2.4	3	1.27
	Q39-I find the experience disappointing.	2.2	2	1.4
	Q40-I am able to concentrate well.	2.36	3	1.31
	Q41-The enjoyment outweighs the stress of the course.	2.15	2	1.34
	Q42-The atmosphere motivates me as a learner.	2.11	2	1.19
	Q43-I feel able to ask the questions I want.	1.88	2	1.34
	Q44-There is a good support system for students who get stressed.	2.31	2	1.29
	Q45-I'm too tired to enjoy the course.	2.28	2	1.27
	Q46-I am rarely bored during this course.	2	2	1.33
SSSP	Q47-I have good friends in this school.	2.25	2	1.02
	Q48-My social life is good.	1.95	2	1.95
	Q49-I seldom feel lonely.	2.5	3	1.27
	Q50-My accommodation is pleasant.	2.11	2	1.35

SPL: Students' perception of learning; SPT: Students' perception of teachers; SASP: Students' academic self-perception; SPA: Students' perception of atmosphere; SSSP: Students' social self-perception.

5. Discussion

The general students' perception of the learning environment in the institute is positive. On the other hand, the students' perception of teaching and of the atmosphere was lower.

In 2006, Tunisia, like many European countries, committed itself to reforming the nursing programs and curricula according to the Bologna process. The real conversion began a few years later after efforts to change the environment of institutions, the adoption of common educational programs, and the application of university rules for teaching, evaluation, and internships.

These reforms aim to offer the best health services to patients but also to be accredited by international instances [8]. The students' perception of their educational environment, which is an important element of success in the learning process, was not evaluated. This study, to the best of our knowledge, is the first to evaluate the nursing learning environment in Tunisia.

Among a variety of instruments, the DREEM is the most commonly used worldwide in the evaluation of undergraduate learning environments. It allows highlighting, by each item, the strengths and weaknesses of the educational climate. It is widely used in health sciences for LE evaluation [6] [15] [16] [17] [18].

In our study, the response rate of our students was more than 80%, which reflects the interest that they have in the subject. The overall DREEM score for this study was 111.9/200. This score indicates that the learning environment at an Institute of Nursing Sciences is perceived by students as "more positive than negative". Bakhshialiabadet *et al.* related that in several studies, the overall scores

range between “101 and 150”. The best score was observed in nursing schools in the UK (score 142.91) [19], China (score 131.26) [20], and Malaysia (score 134.42) [21]. These scores reflect the institutions’ strategy-based student-centered educational programs while conventional curricula scores were less than 120/120. By comparing these three countries, the difference in terms of material, and probably human resources, explains the degree of satisfaction in each country. Indeed, despite the efforts made over ten years, our institute still lacks sufficient material resources, as well as teachers and supervisors.

The DREEM score also shows a difference between the years of study, with a much better score in the first year. Indeed, in the current study, DREEM scores in all domains in year 1 were higher, with a mean score of 121 ± 18.6 , compared to years 2 and 3, with a mean score of 107.1 ± 20.4 . This finding is similar to that of many studies [13] [22] [23] conducted in various nursing colleges. This positive perception among the new students may be explained by the motivation they feel when they first enter nursing school. However, in the following years, the students’ perception becomes more critical because they become more self-confident in addition to the lack of support, the stress, and the desire to leave school. These reasons may also explain the negative and weak correlation ($p = 0.03$, $r = -0.146$) we found between age and the DREEM scores. The difference between groups may also reflect the differences in their degree of experience in both the institution and the curriculum. There were no significant differences between other socio-demographic variables and learning perceptions.

According to the practical guide of McAleer and Roff [24], the evaluation of each of the five domains of DREEM in our population shows that the perception of learning “is moving in the right direction” and that “there is a more positive perception” for the perception of teaching and the academic atmosphere’s perception.

The evaluation of the students’ responses showed that their “perception of learning” was the highest subscale in the number of items that scored less than 2. These items were: item 13 (mean 1.66 ± 1.17), item 24 (mean 1.59 ± 1.37), item 25 (mean 1.49 ± 1.18), and item 48 (mean 1.95 ± 1.95). The students perceived their learning climate as more centered on teachers with factual learning [7] [25].

The structural changes in learning strategies have often provoked thought and dialogue among students and teachers. In fact, in 2011, the institute adopted the learning by clinical reasoning technique with the continuous support of students during their internships. The success of this technique depends on the adequacy of the teacher-student ratio, which was—and still is—not the case in this under-staffed institute; therefore, the overall satisfaction rate was not high.

These findings focus on the need to develop a focus group to understand and identify possible deficiencies. This is how we can initiate change in the curriculum and enhance the student-centered approach.

On the other hand, “the student social self-perception” revealed a negative perception, expressed by DREEM as “not a nice place”. This domain was scored negatively despite a good social life and the presence of friends. The item “There is a good support system for students who get stressed” recorded the lowest value with a mean score of 1.2 ± 1.2 , and no difference was observed between the different years of study. The main causes are overloaded programs and the lack of sports or leisure activities—even though the staff and faculty constantly encourage students to participate in cultural and extra-curricular activities. This reflects the need for an efficient support system for all students. More attention must be given to the students’ social environment [15] [26] [27].

Furthermore, no item received a mean score ≥ 3 . Nine items received a mean score between two and three. Five items [15] [18] [19] [20] and [21] were related to the teaching perception. The students appreciate the good relationship with teachers who explain and give good examples without criticism. These items are aspects of the educational environment that could be enhanced.

6. Conclusions

In conclusion, our study, which is the first in Tunisia, tried to highlight some issues related to the educational environment in a nursing school. The general students’ perception of the learning environment is more positive, but many shortcomings should be addressed. The two urgent axes of improvement should enhance; the learning curricula and the social support in the institution.

However, the study was not free from limitations. The first one is that it involved nursing students from a single institution, with a non-random sample, so we cannot extend its findings to other nursing schools. The second one is that the study data were collected using a self-report questionnaire that offers a subjective assessment of the learning environment with a bias of understanding and interpretation. There is a need to use more than one instrument or a qualitative tool, such as focus groups, to further explore the concept of the educational environment.

Further studies in other nursing schools are required to confirm the relationship between educational strategies and the learning environment.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Rukban, M.O.A., Khalil, M.S. and Al-Zalabani, A. (2010) Learning Environment in Medical Schools Adopting Different Educational Strategies, *5*, 126-129.
- [2] McAleer, S. (2001) What Is Educational Climate? *Medical Teacher*, **23**, 333-334. <https://doi.org/10.1080/01421590120063312>
- [3] Bloom, B.S. (1966) Stability and Change in Human Characteristics: Implications for School Reorganization. *Educational Administration Quarterly*, **2**, 35-49.

- <https://doi.org/10.1177/0013161X6600200103>
- [4] Cleland, J., Cilliers, F. and van Schalkwyk, S. (2018) The Learning Environment in Remediation: A Review. *The Clinical Teacher*, **15**, 13-18.
<https://doi.org/10.1111/tct.12739>
- [5] Genn, J.M. (2001) AMEE Medical Education Guide No. 23 (Part 1): Curriculum, Environment, Climate, Quality and Change in Medical Education—A Unifying Perspective. *Medical Teacher*, **23**, 337-344.
<https://doi.org/10.1080/01421590120063330>
- [6] Rusticus, S.A., Wilson, D., Jarus, T., O'Flynn-Magee, K. and Albon, S. (2022) Exploring Student Perceptions of the Learning Environment in Four Health Professions Education Programs. *Learning Environments Research*, **25**, 59-73.
<https://link.springer.com/10.1007/s10984-021-09349-y>
- [7] Bakhshialiabad, H., Bakhshi, M. and Hassanshahi, G. (2015) Students' Perceptions of the Academic Learning Environment in Seven Medical Sciences Courses Based on DREEM. *Advances in Medical Education and Practice*, **2015**, 195-203.
<http://www.dovepress.com/studentsrsquo-perceptions-of-the-academic-learning-environment-in-seve-peer-reviewed-article-AMEP>
- [8] Shili, H., Ben Hadj Hassen, S., Daoud, T. Denguir, H. and Ounalli, F. (2018) La profession infirmière en Tunisie. *La Tunisie Medicale*, **96**, 826-833.
- [9] Ostapczuk, M.S., Hugger, A., de Bruin, J., Ritz-Timme, S. and Rotthoff, T. (2012) DREEM on, Dentists! Students' Perceptions of the Educational Environment in a German Dental School as Measured by the Dundee Ready Education Environment Measure: Educational Environment of a German Dental School. *European Journal of Dental Education*, **16**, 67-77. <https://doi.org/10.1111/j.1600-0579.2011.00720.x>
- [10] Henzi, D., Davis, E., Jasinevicius, R., Hendricson, W., Cintron, L. and Isaacs, M. (2005) Appraisal of the Dental School Learning Environment: The Students' View. *Journal of Dental Education*, **69**, 1137-1147.
<https://doi.org/10.1002/j.0022-0337.2005.69.10.tb04015.x>
- [11] Roff, S., McAleer, S., Ifere, O.S. and Bhattacharya, S. (2001) A Global Diagnostic Tool for Measuring Educational Environment: Comparing Nigeria and Nepal. *Medical Teacher*, **23**, 378-382. <https://doi.org/10.1080/01421590120043080>
- [12] Ahmad, M., Al Shorman, H. and Mahrous, M. (2013) Assessment of the Educational Environment in a Newly Established Dental College. *Journal of Education and Ethics in Dentistry*, **3**, 6-13.
<http://www.jeed.in/text.asp?2013/3/1/6/126935>
- [13] Al Ayed, I.H. and Sheik, S.A. (2008) Assessment of the Educational Environment at the College of Medicine of King Saud University, Riyadh. *EMHJ—Eastern Mediterranean Health Journal*, **14**, 953-959.
<https://apps.who.int/iris/handle/10665/117514>
- [14] Roff, S. (2005) The Dundee Ready Educational Environment Measure (DREEM)—A Generic Instrument for Measuring Students' Perceptions of Undergraduate Health Professions Curricula. *Medical Teacher*, **27**, 322-325.
<https://doi.org/10.1080/01421590500151054>
- [15] Shrestha, E., Mehta, R.S., Mandal, G., Chaudhary, K. and Pradhan, N. (2019) Perception of the Learning Environment among the Students in a Nursing College in Eastern Nepal. *BMC Medical Education*, **19**, Article No. 382.
<https://bmcmmededuc.biomedcentral.com/articles/10.1186/s12909-019-1835-0>
- [16] Ahmed, Y., Taha, M.H., Al-Neel, S. and Gaffar, A.M. (2018) Students' Perception of the Learning Environment and Its Relation to Their Study Year and Performance in

- Sudan. *International Journal of Medical Education*, **9**, 145-150.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6129164/>
- [17] Ramsbotham, J., Dinh, H., Truong, H., Huong, N., Dang, T., Nguyen, C., et al. (2019) Evaluating the Learning Environment of Nursing Students: A Multisite Cross-Sectional Study. *Nurse Education Today*, **79**, 80-85.
<https://linkinghub.elsevier.com/retrieve/pii/S026069171830618X>
- [18] Rusticus, S.A., Wilson, D., Casiro, O. and Lovato, C. (2020) Evaluating the Quality of Health Professions Learning Environments: Development and Validation of the Health Education Learning Environment Survey (HELES). *Evaluation & the Health Professions*, **43**, 162-168.
<http://journals.sagepub.com/doi/10.1177/0163278719834339>
- [19] Edgren, G., Haffling, A.C., Jakobsson, U., McAleer, S. and Danielsen, N. (2010) Comparing the Educational Environment (as Measured by DREEM) at Two Different Stages of Curriculum Reform. *Medical Teacher*, **32**, e233-e238.
<https://doi.org/10.3109/01421591003706282>
- [20] Xueqin, G., Yan, H. and Zhen-Juan, Z. (2010) Influence of Education Environment on Humanistic Caring Ability of College Nursing Students. *Japan Journal of Nursing Science*, **14**, 195-203. (In Chinese)
- [21] Intan, I.D. (2007) A Study of Stressor and Coping Strategies among First Year Nursing Students in the College of Polytech Mara, Kota Bahru Kelantan. Master's Thesis. Universiti Sains Malaysia, Kubang Kerian.
- [22] Mohd Said, N., Rogayah, J. and Hafizah, A. (2009) A Study of Learning Environments in the Kulliyah (Faculty) of Nursing, International Islamic University Malaysia. *Malaysian Journal of Medical Sciences*, **16**, 15-24.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3216132/>
- [23] Bakshi, H., Abazari, F. and Bakhshialiabad, M. (2013) Nursing Students' perceptions of Their Educational Environment Based on DREEM Model in an Iranian University. *Malaysian Journal of Medical Sciences*, **20**, 56-63.
- [24] McAleer, S. and Roff, S. (2001) A Practical Guide to Using the Dundee Ready Education Environment Measure (DREEM). In Genn, J.M. Ed., *Curriculum, Environment, Climate, Quality and Change in Medical Education: A Unifying Perspective*. AMEE Education Guide No. 23. Association for Medical Education in Europe, Dundee, 29-33.
- [25] Tripathy, S. and Dudani, S. (2013) Students' Perception of the Learning Environment in a New Medical College by Means of the DREEM Inventory. *International Journal of Research in Medical Sciences*, **1**, 385-391.
<https://doi.org/10.5455/2320-6012.ijrms20131113>
- [26] Imanipour, M., Sadooghiasl, A., Ghiyasvandian, S. and Haghani, H. (2015) Evaluating the Educational Environment of a Nursing School by Using the DREEM Inventory. *Global Journal of Health Sciences*, **7**, 211-216.
- [27] Aghamolaei, T. and Fazel, I. (2010) Medical Students' Perceptions of the Educational Environment at an Iranian Medical Sciences University. *BMC Medical Education*, **10**, Article No. 87.
<https://bmcomeduc.biomedcentral.com/articles/10.1186/1472-6920-10-87>