

Perceptions of Students toward the Educational Environment Based on the DREEM Tool in a New Nursing Scholl in Iran

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ARTICLE INFO	ABSTRACT
<p>Article type: Original article</p> <hr/> <p>Article History: Received: 13-Mar-2018 Accepted: 5-Feb-2020</p> <hr/> <p>Key words: Educational environment, Educational perception, Nursing Student</p>	<p>Introduction: Educational environment has a critical effect on the students' learning, performance and innovations. The aim of this study was to evaluate the perception to problem identification among nursing students in a newly-founded Nursing school in Torbat, Iran.</p> <p>Materials and Methods: This cross-sectional study was conducted in a newly-founded Nursing School in Torbat. 120 students completed the questionnaire. The Dundee Ready Education Environment Measure (DREEM) was used to evaluate the educational environment.</p> <p>Results: Mean age of the study population was 20.81 ± 1.55, with a female/male ratio of 1.22. The mean total score of the DREEM scale was 115.67 ± 12.4 out of 200. The mean score of all subscales of the DREEM questionnaire were "positive perception" except for the students' self-perception domain that had many negative aspects.</p> <p>Conclusion: In this study the students' self-perception was not favorable according to the DREEM scale and was identified as "need to be changed and improved" in our newly-founded nursing school. Having a schedule to train nursing students and providing friendly, supportive and comfortable atmosphere can improve the educational environment.</p>
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Introduction

Educational environment (EE) is an indicator for the evaluation of medical education programs (Hammond et al., 2012)(Imanipour et al., 2015). On the other hand, the educational environment has a critical effect on the level of students' success (Till, 2005). It consists of different aspects of educational, physical, psychosocial, emotional, cognitive, cultural and motivational factors and is a key element in the educational curriculum

(Tokuda et al., 2010)(Soemantri, Herrera and Riquelme, 2010). Having a valid and reliable instrument for the evaluation of the learning environment improves the achievements of a better learning environment (Soemantri, Herrera and Riquelme, 2010). The DREEM questionnaire was developed in 1997 by Susan Roff et al. (Roff, 2005) and was approved as a reliable and valid instrument for the evaluation of the educational environment status and its priorities (Yusoff, 2012). DREEM has five main domains including students'

perceptions of learning (SPoL), students' perception of teachers (SPoT), students perception of atmosphere (SPoA), students academic self-perception (SASP) and students social self-perception (SSSP). It gives a maximum total score of 200. The validity and reliability of this questionnaire in the Iranian educational environment was previously established by Koochpayehzadeh et al. (Koochpayehzadeh et al., 2014). This questionnaire has been used in the medical schools of different countries (Al-Ayed and Sheik, 2008)(Rotthoff et al., 2011)(Varma, Tiyagi and Gupta, 2005)(Jakobsson, Danielsen and Edgren, 2011). Despite the great value of DREEM for educational environment evaluation, it has not yet been used for nursing students in Iran. The authors designed this study in a newly-founded teaching department to evaluate the perception of the educational climate in the nursing department of Torbat University of Medical Sciences, Iran.

Materials and Methods

Study population

This cross-sectional study was conducted in 2015 and the study protocol was approved by the Ethics Committee of Mashhad University of Medical Sciences. This study was planned to enroll all students affiliated to Torbat Nursing School.

This School was established in 2010 and nursing and medical emergency assistance students are currently admitted to the bachelor and master courses. All of 130 students were enrolled in this study after giving a written informed consent. The questionnaires were anonymous with respect to the importance of voluntary participation. The patients' demographic data including age, gender and academic year of entrance were collected and questionnaires with incomplete responses were excluded from the analyses.

DREEM questionnaire

The DREEM questionnaire consists of 50 items divided into five domains including students perception of learning (SPL: 12 questions), students perception of teachers (SPT: 11 questions), students' perceptions of the atmosphere (SPA: 12 questions), students academic self-perception (SAP: 8 questions) and students social self-

perception (SSP: 7 questions). Each item was scored on a five-point Likert-type scale as 4= strongly agree, 3= agree, 2= unsure, 1= disagree and 0= strongly disagree. The total score ranges from 0 to 200. The overall score for educational environment can be interpreted as very poor (0- 50), has plenty of problems (51-100), more positive than negative (101-150) and excellent (151-200).

Statistical analysis

Data were analyzed using SPSS ver. 16(IBM SPSS, Chicago, IL). Normal distribution of data was assessed by the Kolmogorov-Smirnov test. The Student t-test and Mann-Whitney U test were used to compare variables between the two groups regarding their normal distribution. Chi-square test was used to compare the categorical variables between the two groups. For all statistical analysis, $P < 0.05$ was considered as statistically significant.

Results

In total, 130 students were included in this study. The response rate was 120 (92.3%). Among the study population, 88 (73%) were "nursing" students and the remaining 32 were "medical emergency assistance" students. Mean age of the study population was 20.81 ± 1.55 yrs with a female/male ratio of 1.22 (Table1).

Table1: Sociodemographic characteristics of the students of Torbat Nursing School (n=120)

Variable	Mean \pm sd/number (%)
Age (yrs)	20.81 \pm 1.55
Sex (female)	55 (55.6%)
Educational category (nursing)	88 (73%)

There was no significant difference between the nursing and medical emergency students in terms of age (20.78 ± 1.54 vs 21.01 ± 1.67 ; $P = 0.69$). The mean total score of the DREEM scale was 115.67 ± 12.4 out of 200. It shows a more positive rather than negative perception in the students from their educational environment according to McAleer and Roff Fore scoring interpretation (Roff and McAleer, 2001).

The mean SPL score was 27.65 ± 4.46 that shows a more positive perception in this domain. The mean SPT score was 25.60 ± 3.37 which means moving in the right direction for this item. The mean SAP score was 17.74 ± 3.65 indicating a more positive perception among the study population. The mean SPA score was 29.33 ± 3.65 showing a more positive atmosphere in this item and the mean SSP score was 15.32 ± 2.59 which shows a "not too bad" atmosphere

(Table 2). We observed no significant difference in the mean score of none of the DREEM domains in terms of sex. The mean total DREEM score was not significantly different in terms of gender (116.05 ± 11.13 in males vs. 115.36 ± 13.43 in females; $P=0.78$) (Table 3, Figure 1). There was no significant difference between the type of students in different domains of the DREEM scales ($P>0.05$ for all domains and the total score).

Table 2: Mean scores of educational environment based on the domains of the DREEM questionnaire (n=120)

DREEM subsets	Mean (sd)	Interpretation
Students perception of learning (SPL)	25.51±5.08	A more positive perception (25-36)
Students perception of teachers (SPT)	26.21±3.84	Moving in the right direction (23-33)
Students academic self-perception (SAP)	16.30±2.16	Many negative aspects (9-17)
Students perception of atmosphere (SPA)	27.40±3.67	A more positive atmosphere (25-36)
Students social self- perception (SSP)	15.52±3.14	Not too bad (15-21)
Total score of educational environment	110.96±12.14	More positive than negative (76-150)

Table 3: Mean scores of educational environment according to the domains of the DREEM questionnaire based on sex

Domain	Mean (SD)		P value
	Male(N=54)	Female(N=66)	
Students perception of learning (SPL)	26.29±4.55	24.89±5.42	0.16
Students perception of teachers (SPT)	26.77±2.32	25.76±3.55	0.19
Students academic self perception (SAP)	15.93±2.93	16.60±1.99	0.12
Students perception of atmosphere (SPA)	27.20±3.49	27.56±3.81	0.63
Students social self - perception (SSP)	15.09±3.48	15.87±2.82	0.22
Total score	111.30±12.27	110.69±12.12	0.78

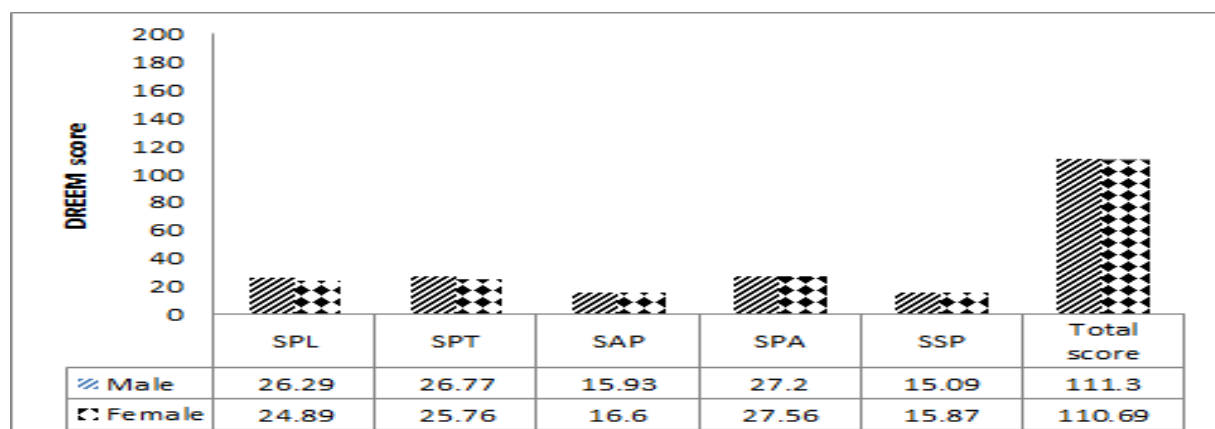


Figure 1: Mean scores of educational environment according to different domains of the DREEM questionnaire based on sex groups. **SAP:** students academic self-perception, **SPA:** students perception of atmosphere, **SPL:** students perception of learning, **SPT:** students perception of teachers, **SSP:** students social self - perception

Discussion

The students' self-perception in our newly-founded nursing school according to the DREEM scale was not favourable, identified as "need to be changed and improved", which was not associated to the students' gender. The total DREEM score in our study was 115.67 ± 12.4 (out of 200) which indicates a more positive rather than negative environment, according to Mac Aleer and Roff interpretation (Roff and McAleer, 2001). These findings are similar to several other studies conducted in Iran (Aghamolaei and Fazel, 2010)(Imanipour et al., 2015)(Farahmand et al., 2014)(Koochpayehzadeh et al., 2009). In developed nations such as Sweden and England, the total score results were 145 and 139, respectively (Edgren et al., 2010)(Varma, Tiyagi and Gupta, 2005). A mean score of 120 and higher implies to "acceptable" for medical school education (Roff, 2005)

In brief, the different domains of the DREEM scale in this study were as follows: in Learning there is "a more positive perception"; teachers are "moving in the right direction"; academic self-perception has "many negative aspects"; atmosphere is "more positive" and Social self-perception is "Not too bad". This means that all domains of DREEM questionnaire received the third rank out of the four ranking scale (from worst to best).

In the "students' perception of learning" domain, our score was 27.65 ± 4.46 (out of 48); it means a more positive perception of learning ability (Roff, 2005). The score in eight of the 12 questions in this domain was greater than 2, except for questions of "I am encouraged to participate during teaching sessions" with 1.88 ± 0.97 , "the teaching is often stimulating" with a score of 1.95 ± 0.86 , "long term learning is emphasized over short term learning" with 1.96 ± 0.90 and "teaching encourages me to be an active learner" with 1.93 ± 0.94 .

Student-centered rather than teacher-centered education is one of the strategies for long lasting and motivational learning (Chang, 2013). In Farahmand (Farahmand et al., 2014) and Al-Naggar (Al-Naggar et al., 2014) studies the mean EE reported score

was 30.75 and 30.6 among medical students in the Emergency and Internal Medicine settings, respectively; they are similar to our finding implying a more positive perception (25 to 36 score). However, in other studies conducted in nursing and pediatric settings, the mean students perception score of learning was 23.11 and 18.4, showing a negative perception for teaching (Imanipour et al., 2015)(Andalib et al., 2015)

In the "students perception of teachers" our score was 25.60 ± 3.37 (out of 44); it means moving in the right direction. All questions of this domain scored higher than two scores. Our findings are similar to the medical interns study in Tehran reporting a score of 31.83 (Farahmand et al., 2014).

In the "academic self-perception" domain our score was 16.30 ± 2.16 (out of 32) that is indicative of many negative aspects. This result demonstrates that the students did not believe in the correlation of their study course to their future careers. This domain needs further intervention strategies to be implemented to improve the academic self-perception. Our results were similar to another nursing school in Tehran (Imanipour et al., 2015). Nevertheless, problem solving skills are one of the key aims of student-centered learning; these skills help students to assess critical thinking and logically formulated interventions. In these two leading domains we did not have a mean score below 2 for any question.

In the "atmosphere perception domain", our score was 27.40 ± 3.67 (out off 48). The "atmosphere is relaxed during lectures" and "this course is well time-tabled" were items scoring less than two, 1.51 ± 0.96 and 1.74 ± 1.02 , respectively. Accordingly, we must consider timely and regular courses along with contemporary learning techniques in the lectures.

In the social perception domain, our score was 15.52 ± 3.14 (out off 28). The "I have good friends on this course" and "real support system for students who get stressed" achieved the lowest scores, as 1.74 ± 1.02 and 1.50 ± 0.96 , respectively.

It is already accepted that universities are responsible for providing a supportive educational environment so that the students experience a friendly and

respectful atmosphere (Broadbent et al., 2014)

This result is similar to studies carried out in Iran, Sweden, Turkey and Kuwait as 1104.39, 133.72, 145, 117.63 and 119, respectively (Imanipour et al., 2015), (Farahmand et al., 2014), (Edgren et al., 2010), (Demirören et al., 2008) (Bouhaimed, Thalib and Doi, 2009)

The findings of the current study demonstrated no significant difference in the EE perception between the two genders, similar to the study conducted on medical interns working in the Emergency setting. However, our results were in contrast to other studies performed in other countries (Bhosale, 2015) (Al-Naggar et al., 2014)

Conclusion

In this study the students' self-perception was not favorable in the newly-founded nursing school. Our findings can be further applied in the planning and policy making for the educational environments.

Limitations and strengths

Our study had a cross-sectional design; thereby the students' perception was assessed at one time point. The response rate in this study was 90% in a representative sample of a newly-founded nursing college in Iran. In previous studies the response rate was reported between 36% to 82.8% (Mayya and Roff, 2004) (Thomas et al., 2009) (Abraham et al., 2008)

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References

1. Abraham, R. et al. (2008) "Students' perceptions of learning environment in an Indian medical school.," *BMC medical education*, 8, p. 20. doi: 10.1186/1472-6920-8-20.
2. Aghamolaei, T. and Fazel, I. (2010) "Medical students' perceptions of the educational environment at an Iranian Medical Sciences University.," *BMC medical education*, 10, p. 87. doi: 10.1186/1472-6920-10-87.
3. Al-Ayed, I. H. and Sheik, S. A. (2008) "Assessment of the educational environment at the College of Medicine of King Saud University,

Riyadh.," *Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sihhiyah li-sharq al-mutawassit*, 14(4), pp. 953-959. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/19166179> (Accessed: August 1, 2008).

3. Al-Naggar, R. A. et al. (2014) "The Malaysia DREEM: perceptions of medical students about the learning environment in a medical school in Malaysia.," *Advances in medical education and practice*, 5, pp. 177-184. doi: 10.2147/AMEP.S61805.

4. Andalib, M. M. et al. (2015) "Evaluation of Educational Environment for Medical Students of a Tertiary Pediatric Hospital in Tehran, Using DREEM Questionnaire.," *Iranian journal of pediatrics*, 25(5), p.e2362. doi:10.5812/ijp.2362.

5. Bhosale, U. (2015) "Medical Students' Perception about the Educational Environment in Western Maharashtra in Medical College using DREEM Scale.," *Journal of clinical and diagnostic research: JCDR*, 9(11), pp. JC01-JC04. doi: 10.7860/JCDR/2015/15094.6809.

6. Bouhaimed, M., Thalib, L. and Doi, S. A. R. (2009) "Perception of the educational environment by medical students undergoing a curricular transition in Kuwait.," *Medical principles and practice: international journal of the Kuwait University, Health Science Centre*, 18(3), pp. 204-208. doi: 10.1159/000204351.

7. Broadbent, M. et al. (2014) "Supporting bachelor of nursing students within the clinical environment: perspectives of preceptors.," *Nurse education in practice*, 14(4), pp. 403-409. doi: 10.1016/j.nepr.2013.12.003.

8. Chang, S.-F. (2013) "Constructing and validating a global student-centered nursing curriculum learning efficacy scale: a confirmatory factor analysis.," *Nurse education today*, 33(10), pp. 1173-1178. doi: 10.1016/j.nedt.2012.11.012.

9. Demirören, M. et al. (2008) "Perceptions of students in different phases of medical education of educational environment: ankara university faculty of medicine.," *Medical education online*, 13, p. 8. doi: 10.3885/meo.2008.Res00267.

10. Edgren, G. et al. (2010) "Comparing the educational environment (as measured by DREEM) at two different stages of curriculum reform.," *Medical teacher*, 32(6), pp. e233-e238. doi: 10.3109/01421591003706282.

11. Farahmand, S. et al. (2014) "Evaluating the quality of the educational environment for medical interns in an emergency department using the DREEM inventory.," *Acta medica Iranica*, 52(8), pp. 631-637. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/25149888> (Accessed: 2014).

12. Hammond, S. M. et al. (2012) "A psychometric

- appraisal of the DREEM,” *BMC medical education*, 12,p.2. doi: 10.1186/1472-6920-12-2.
13. Imanipour, M. et al. (2015) “Evaluating the Educational Environment of a Nursing School by Using the DREEM Inventory.,” *Global journal of health science*, 7(4), pp. 211–216. doi: 10.5539/gjhs.v7n4p211.
14. Jakobsson, U., Danielsen, N. and Edgren, G. (2011) “Psychometric evaluation of the Dundee Ready Educational Environment Measure: Swedish version.,” *Medical teacher*, 33(5), pp. e267–274. doi:10.3109/0142159X.2011.558540.
15. Koohpayehzadeh, J. et al. (2009) “O487 Investigation of educational climate in obstetrics & gynecology wards in Iran University of Medical Sciences (IUMS) based on DREEM model,” *International Journal of Gynecology & Obstetrics*, 107. doi: 10.1016/S0020-7292(09)60860-2.
16. Koohpayehzadeh, J. et al. (2014) “Assessing validity and reliability of Dundee ready educational environment measure (DREEM) in Iran.,” *Medical journal of the Islamic Republic of Iran*, 28, p. 60. Available at: [http:// www.ncbi.nlm.nih.gov/pubmed/25405126](http://www.ncbi.nlm.nih.gov/pubmed/25405126) (Accessed: July 14, 2014).
17. Mayya, S. and Roff, S. (2004) “Students’ perceptions of educational environment: a comparison of academic achievers and under-achievers at kasturba medical college, India.,” *Education for health (Abingdon, England)*, 17(3), pp.280–291. doi:10.1080/13576280400002445.
18. 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(4), pp. 322–325. doi: 10.1080/01421590500151054.
19. Roff, S. and McAleer, S. (2001) “What is educational climate?,” *Medical teacher*, 23(4), pp. 333–334. doi: 10.1080/01421590120063312.
20. Rotthoff, T. et al. (2011) “Assessing the learning environment of a faculty: psychometric validation of the German version of the Dundee Ready Education Environment Measure with students and teachers.,” *Medical teacher*, 33(11), pp. e624–e636. doi: 10.3109/ 0142159X.2011.610841.
21. Soemantri, D., Herrera, C. and Riquelme, A. (2010) “Measuring the educational environment in health professions studies: a systematic review.,” *Medical teacher*, 32(12), pp. 947–952. doi: 10.3109/01421591003686229.
22. Thomas, B. S. et al. (2009) “Students’ perceptions regarding educational environment in an Indian dental school.,” *Medical teacher*, 31(5), pp. e185–e186. doi: 10.1080/01421590802516749.
23. Till, H. (2005) “Climate studies: can students’ perceptions of the ideal educational environment be of use for institutional planning and resource utilization?,” *Medical teacher*, 27(4), pp. 332–337. doi: 10.1080/01421590400029723.
24. Tokuda, Y. et al. (2010) “Undergraduate educational environment, perceived preparedness for postgraduate clinical training, and pass rate on the National Medical Licensure Examination in Japan.,” *BMC medical education*, 10, p. 35. doi: 10.1186/1472-6920-10-35.
25. Varma, R., Tiyagi, E. and Gupta, J. K. (2005) “Determining the quality of educational climate across multiple undergraduate teaching sites using the DREEM inventory.,” *BMC medical education*, 5(1), p.8. doi:10.1186/1472-6920-5-8.
26. Yusoff, M. S. B. (2012) “Stability of DREEM in a Sample of Medical Students: A Prospective Study,” *Education Research International*, 2012. doi: 10.1155/2012/509638.