

Perceptions of nursing students of educational environment at a private undergraduate School of Nursing in Karachi

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Abstract

Objective: To assess educational environment at a nursing school.

Methods: The cross-sectional survey was carried out from May to October 2016 at Aga Khan University School of Nursing and Midwifery, Karachi, using the Dundee Ready Educational Environment Measure tool. The scores were obtained by merging five sub-scales of the inventory. The average scores of the scale and sub-scales were compared in terms of age, year of study, and living status using Mann-Whitney U test, and among years of study by Kruskal Wallis test.

Results: Of the 442 students, 228(51.6%) had age below 20 years. Overall, 131(29.1%) subjects were in the first year, 152(33.8%) second year, 91(20.2%) third year and 76(16.9%) fourth year. The average Dundee Ready Educational Environment Measure score was 129.92 ± 19.97 with reliability of 88.9%. Students aged 20 years and less had more positive perceptions than students over 20 years ($p < 0.0001$). Students living in hostel secured higher scores ($p < 0.0001$). First year nursing students attained significant highest scores in all sub-scales compared to the rest ($p < 0.0001$).

Conclusion: Scores reveal better perception from younger nursing students, as well as those living in the hostel and those who were in their initial years of nursing education.

Keywords: Dundee ready education environment measure (DREEM), Learning environment, Nursing students. (JPMA 68: 216; 2018)

Introduction

Education Environment (EE) is recognised as an essential indicator for quality of education programme.¹ It has a crucial role in enhancing nursing student's growth, competency, critical thinking, independency, sense of mental wellbeing and self-confidence.²⁻⁴ EE develops essential skills among nursing students to address future challenges. Moreover, it leads to achievements, fun, and engagement in the students' during their learning journey. There is a recognised association between positive EE and development of learning capabilities of students, performance and their satisfaction.^{5,6} EE represents the climate within the classroom, department and even the institution. It includes: learner perspective regarding infrastructure, learning opportunities, faculty competency, faculty attitude, and their socialisation with peers.⁶⁻⁸

The EE of any medical or nursing school is assessed by the Dundee Ready Educational Environment Measure (DREEM) scoring system which takes into account perceptions of learning (PoL), perceptions of teachers (PoT), perception of atmosphere (PoA), academic self-perception (ASP) and social self-perception (SSP) of the educational institutes.⁹ This tool consists of 50 items, each scored 0-4 on a 5-point Likert Scale.

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It has a global maximum score of 200. There are nine negative stated items related to student's perceptions about different domains of EE. Sub-scale interpretation and scoring was done as per instruction given for DREEM questionnaire.^{10,11} Attaining high DREEM scores indicates EE a productive for the students' academic, emotional and intellectual wellness.^{5,12} The validity and reliability of the DREEM inventory has been well recognised in various Educational settings.^{7,13,14} Literature is replete with evidence that DREEM inventory has been translated into numerous languages and affirmed to measure the educational climate at several educational organisations.¹² Literature suggested that student-centred approaches need to be adopted to improve DREEM scores in nursing schools in order to strengthen student-teacher relationship and provide constructive feedback to them.^{3,4,6} Aga Khan University (AKU) is a private institution chartered in 1980 to deliver education and health programmes with an aim to raise the status and education of nursing in Pakistan. The Aga Khan University School of Nursing and Midwifery (AKUSONAM) is one of the pioneers to initiate Bachelors of Science in Nursing in the country. This programme was introduced in 1997. Since then the institution has graduated 744 students. The curriculum of AKUSONAM has served as a template for the first national nursing curriculum.¹⁵ The main aim of the programme is to provide the foundational knowledge, skills, and attitudes required to practice nursing and is dedicated to preparing clinically competent

professional nurses. Thus, the objective of this study was to assess the EE from the perspectives of nursing students in one of the private undergraduate schools of nursing in Karachi using DREEM tool.

Subjects and Methods

The cross-sectional study was conducted from May-October 2016 at Aga Khan University School of Nursing and Midwifery (AKUSONAM), Karachi. Sample size was calculated using the rule of factor analysis of 10 subjects

per items.¹⁶ Accordingly, a total of 500 samples were needed for 50 items in DREEM questionnaire. However, later universal sampling approach was employed to invite all BScN students enrolled at the time of the study after approval was taken from the institutional ethical review committee. After getting informed consent from the subjects, they were requested to complete the structured questionnaire (Annexure). The structured questionnaire had two parts: a) demographics, and b) DREEM inventory.

The details of content in the DREEM inventory are substantially defined in literature.^{2,3,14,17} This instrument has been validated in an earlier study on medical students in the same institution and reliability of the questionnaire from that study was 91.3%.² Student took an average of about 20 minutes to fill the questionnaire. Participants who refused to give consent or were absent on the given day were excluded from the study.

Frequencies with percentages were computed to describe socio-demographic characteristics of the students. Mean with standard deviation were computed to report scores of each items, sub-scales and scales of DREEM inventory. The internal consistency within the responses was measured by Cronbach's alpha. To check the assumption of normality for the scores, we performed Shapiro-Wilk's test. It was found that all scores (except PoT between age groups) were non-normal within each study factor. Therefore, t-test was used to compare PoT score between age groups, whereas, non-parametric analyses were performed to proceed for the rest of comparative analyses. The average scores of DREEM scales and sub-scales were compared between age group and living status using Mann-Whitney U test. For comparing average scores among 4 years of BScN, Kruskal Wallis test was run. Prior to running post-hoc test scores were ranked and homogeneity of the test was

ANNEXURE Questionnaire

Students' Perceptions of Educational Environment (EE) at Aga Khan University School of Nursing and Midwifery (AKUSONAM)

Study I.D number: Date:

Interviewer's name:

Interview status: Complete ☐ Incomplete ☐ Refusal ☐

Section 1: Socio-demographic characteristics		
Questions :	Coding categories	
01	Name of the respondent: (Optional)	
02	How old are you?	1. Age (Years) []
03	What are you currently living arrangements?	1. Live with parents 2. Renting (Alone) 3. Renting (with others) 4. Living at University Residence (hostel)
04	Marital Status?	1. Single 2. Engaged 3. Married 4. Separated 5. Divorced
05	Ethnicity?	1. Sindhi 2. Punjabi 3. Balochi 4. Pashtu 5. Urdu 6. Gujrati 7. Dari 8. Others Specify: _____
06	Last School attended?	1. Intermediate 2. A-Level /O Level 3. Graduation
07	How much time Spend for study other than classes?	Hours _____, Minutes _____

08	Currently studying?	1. BScN I year 2. BScN II year 3. BScN III year 4. BScN IV year
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KEY**SA=strongly agree****A= Agree****DA=Disagree****SDA= strongly disagree****Note: PUT '√' mark for the answer**

S#		SA	A	Uncertain	DA	SDA
STUDENTS' PERCEPTIONS OF LEARNING						
1	I am encouraged to participate in class					
2	The teaching is often stimulating/ motivating					
3	The teaching is student centered					
4	The teaching helps to develop my competence /learning capabilities					
5	The teaching is well focused					
6	The teaching helps to develop my confidence					
7	The teaching time is put to good use					
8	The teaching over-emphasizes factual learning					
9	I am clear about the learning objectives of the course					
10	The teaching encourages me to be an active learner					
11	Long term learning is emphasized over short term learning					
12	The teaching is too teacher-centered					
STUDENTS' PERCEPTIONS OF TEACHERS						
13	The teachers are knowledgeable					
14	The teachers are patient with patients /students					
15	The teachers ridicule the students					
16	The teachers are authoritarian					
17	The teachers have good communication skills with patients					
18	The teachers are good at providing feedback to students					
19	The teachers provide constructive criticism here					
20	The teachers give clear examples					
21	The teachers get angry in class					
22	The teachers are well prepared for their classes					
23	The students irritate the teachers					
STUDENTS' ACADEMIC SELF-PERCEPTION						
24	I apply same learning strategies which were applied before					
25	I am confident about my passing this year					
26	I feel I am being well prepared for my profession					
27	Last year's work has been a good preparation for this year's work					
28	I am able to memorize all I need					
29	I have learned a lot about empathy in my profession					
30	My problem solving skills are being well developed here					
31	Much of what I have to learn seems relevant to a career in healthcare					
STUDENTS' PERCEPTIONS OF ATMOSPHERE/ENVIRONMENT						
32	The atmosphere is relaxed during the ward /class teaching					
33	The schedule is well timetabled					

34	Cheating is a problem in this nursing program					
35	The environment is relaxed during lectures					
36	There are opportunities for me to develop interpersonal skills					
37	I feel comfortable in class socially					
38	The atmosphere is relaxed during seminars/tutorials/classes					
39	I find the experience disappointing					
40	I am able to concentrate well					
S#		SA	A	Uncertain	DA	SDA
41	The enjoyment outweighs the stress of the course					
42	The atmosphere motivates me as a learner					
43	I feel able to ask the questions I want					
STUDENTS' SOCIAL SELF-PERCEPTIONS						
44	There is a good support system for students who get stressed					
45	I am too tired to enjoy the nursing courses					
46	I am rarely bored on this nursing courses					
47	I have good friends in this school					
48	My social life is good					
49	I seldom feel lonely					
50	My accommodation (hostel/ home) is pleasant					

checked by Levene's test. Tukey's test was further used to observe pairwise comparison of scores in case of fulfilment of homogeneity of variance assumption. Only, DREEM overall score possessed heterogeneous variance across year of study, hence Games-Howell test was used as post-hoc test instead in this case.

Results

Out of the 551 invited students, 442(80.2%) participated. Among them, 228 (51.6%) students had age 20 years or below. Besides, 131(29.1%) were from the first year, 152(33.8%) second year, 91(20.2%) third year and 76(16.9%) from the fourth year. Intermediate education was the most common certificate that students had prior to enrolment in the BScN 418 (94.5%). Only a few had done 'A' level or graduation in the past.

The descriptive statistics were noted with 95% confidence interval (CI) of each item in the questionnaire (Table-1). Higher scores indicated encouraging opinions of students towards environment. We set an item score greater than 2.5 as indication of "good" opinion and an item score at-least 3 as an "excellent" opinion. It was observed that item "I am confident about my passing this year" received highest average score

(3.40±0.69) followed by "My accommodation is pleasant" (3.24±0.88) and "I have good friends in this school" (3.22±0.92). Other items that received score of more than 3.0 were respectively "I am encouraged to participate in class", "I feel comfortable in class socially", "I have learned a lot about empathy in my profession" and "The teachers have good communication skills with patients". The other 28 items had an average score of greater than 2.5. Seven items had an average score of less than 2.0 stipulating improvement should be considered in these areas. These items were "The teacher over-emphasises factual learning" (1.40±1.21), "The teachers are authoritarian" (1.44±1.01), "The teaching is too teacher-centred" (1.73±1.01), "The students irritate the teachers" (1.79±1.11), "I am too tired to enjoy the course" (1.87±1.15), "The schedule is well timetabled" (1.91±1.30) and "I am rarely bored on this course" (1.97±1.11). The other items scored between 2.0 to 2.5 and hence needed considerable changes to improve students' satisfaction.

The average score of overall DREEM scale by our students was 129.9±19.9 (Table-2). The reliability of the scale was measured to be 88.9% indicating excellent internal consistency within the responses by the students.

Table-1: Item Statistics.

	Mean	SD	95% Lower CI	95% Upper CI
1. I am encouraged to participate in class	3.09	.773	3.02	3.16
7. The teaching is often stimulating	2.75	.888	2.67	2.83
13. The teaching is student centred	2.68	.907	2.60	2.76
16. The teaching helps to develop my competence /learning capabilities	2.97	1.616	2.83	3.12
20. The teaching is well focused	2.79	.795	2.72	2.86
22. The teaching helps to develop my confidence	2.70	.925	2.62	2.79
24. The teaching time is put to good use	2.69	0.907	2.61	2.77
25. The teaching over-emphasizes factual learning*	1.40	1.209	1.29	1.51
38.I am clear about the learning objectives of the course	2.93	.761	2.86	2.99
44. The teaching encourages me to be an active learner	2.72	.943	2.63	2.80
47. Long term learning is emphasized over short term learning	2.52	0.991	2.43	2.61
48. The teaching is too teacher-centred*	1.73	1.006	1.64	1.82
2. The teachers are knowledgeable	2.86	.939	2.77	2.94
6. The teachers are patient with patients /students	2.69	.941	2.61	2.78
8. The teachers ridicule the students*	2.01	1.049	1.91	2.10
9. The teachers are authoritarian*	1.44	1.013	1.35	1.53
18. The teachers have good communication skills with patients	3.04	.722	2.97	3.10
29. The teachers are good at providing feedback to students	2.71	0.975	2.63	2.80
32. The teachers provide constructive criticism here	2.37	1.024	2.28	2.47
37. The teachers give clear examples	2.69	.976	2.61	2.78
39. The teachers get angry in class*	2.01	1.076	1.92	2.11
40. The teachers are well prepared for their classes	2.59	1.019	2.50	2.68
50. The students irritate the teachers*	1.79	1.118	1.69	1.89
5. Learning Strategies which worked for me before continue to work for me now	2.67	.937	2.58	2.75
10. I am confident about my passing this year	3.40	.689	3.33	3.46
21. I feel I am being well prepared for my profession	2.96	.893	2.87	3.04
26. Last year's work has been a good preparation for this year's work	2.69	.868	2.61	2.77
27. I am able to memorize all I need	2.69	1.016	2.60	2.78
31. I have learned a lot about empathy in my profession	3.07	.802	3.00	3.14
41. My problem solving skills are being well developed here	2.85	.909	2.77	2.93
45. Much of what I have to learn seems relevant to a career in healthcare	3.00	.851	2.92	3.08
11. The atmosphere is relaxed during the ward /class teaching	2.85	1.600	2.71	3.00
12. The schedule is well timetabled	1.91	1.296	1.79	2.02
17. Cheating is a problem in this school*	2.45	1.310	2.33	2.57
23. The atmosphere is relaxed during lectures	2.82	.892	2.74	2.90
30. There are opportunities for me to develop interpersonal skills	2.89	.929	2.81	2.98
33. I feel comfortable in class socially	3.08	.798	3.01	3.16
34. The atmosphere is relaxed during seminars/tutorials	2.98	.868	2.90	3.06
35. I find the experience disappointing*	2.48	1.021	2.39	2.57
36. I am able to concentrate well	2.73	.844	2.65	2.80
42. The enjoyment outweighs the stress of the course	2.41	1.141	2.31	2.52
43. The atmosphere motivates me as a learner	2.74	.928	2.66	2.82
49. I feel able to ask the questions I want	2.60	1.046	2.50	2.69
3. There is a good support system for students who get stressed	2.16	1.240	2.05	2.27
4. I am too tired to enjoy the course*	1.87	1.154	1.77	1.98
14. I am rarely bored on this course	1.97	1.106	1.87	2.07
15. I have good friends in this school	3.22	.919	3.14	3.30
19. My social life is good	2.89	1.066	2.79	2.99
28. I seldom feel lonely	2.13	1.170	2.02	2.24
46. My accommodation is pleasant	3.24	0.882	3.16	3.32

Table-2: Descriptive statistics of scores.

	Mean	SD	Sub-scale score interpretation	Alpha
PoL	30.97	5.985	A more positive approach	0.724
PoT	26.22	5.486	Moving in the right direction	0.705! #§
ASP	23.32	4.280	Feeling more on the positive side	0.76^
PoA	31.94	6.489	A more positive atmosphere	0.728&*
SSP	17.48	3.431	Not too bad	0.352+
Overall DREEM Score	129.92	19.977	More positive than negative	0.889 - ¥%**

PoL: Perceptions of learning. PoT: Perceptions of teachers. ASP: Academic self-perception. PoA: Perception of atmosphere. SSP: Social self-perception (SSP)

! Increases to 0.719 if The students irritate the teachers* is deleted

Increases to 0.716 if The teachers are authoritarian** is deleted

§ Increases to 0.712 if The teachers provide constructive criticism here is deleted

^ Increases to 0.796 if Learning Strategies which worked for me before continue to work for me now is deleted

& Increases to 0.764 if Cheating is a problem in this school* is deleted

* Increases to 0.735 if The atmosphere is relaxed during the ward /class teaching is deleted

+Increases to 0.414 if I am too tired to enjoy the course* is deleted

|| Increases to 0.407 if I seldom feel lonely is deleted

-Increases to 0.893 if Cheating is a problem in this school* and I seldom feel lonely are deleted

¥Increases to 0.892 if I am rarely bored on this course is deleted

%Increases to 0.891 if The teaching helps to develop my competence /learning capabilities*, The teachers are authoritarian* and The students irritate the teachers* are deleted

**Increases to 0.890 if Learning Strategies which worked for me before continue to work for me now is deleted.

Table-3: Comparison of DREEM Scale and Subscale scores among students with different characteristics.

		PoL	PoT	ASP	PoA	SSP	Overall DREEM Score
Age	Till 20	31.9±5.3	24.7±4.6	23.4±4.3	32.7±6.5	17.7±3.4	130.5±18.5
	Above 20	30.2±6.3	22.6±4.6	23.2±4.2	31.4±6.2	17.2±3.5	124.7±19.1
	P Value	0.002	<0.0001	0.373	0.019	0.255	<0.0001
Living in	Day Scholar	30.1±5.9	22.9±4.7	23.0±4.5	31.3±6.7	17.1±3.3	124.3±19.2
	Hostel	31.9±5.8	24.3±4.8	23.7±4.0	32.7±6.1	17.9±3.5	130.5±18.7
	P Value	<0.0001	0.002	0.075	0.015	0.006	<0.0001
Currently studying?	BScN I year	34.1±4.3	26.7±4.2	24.1±3.6	35.1±5.3	18.4±3.1	138.3±15.0
	BScN II year	29.4±6.5	21.9±4.8	22.8±4.9	30.0±6.5	17.0±3.9	121.2±20.5
	BScN III year	30.3±5.3	22.1±4.3	22.3±4.6	30.4±6.6	16.9±3.0	122.1±17.2
	BScN IV year	29.1±6.2	23.2±3.9	23.7±3.4	31.8±5.7	17.4±3.3	125.1±17.5
	P Value	<0.0001	<0.0001	0.105	<0.0001	0.010	<0.0001

PoL: Perceptions of learning. PoT: Perceptions of teachers. ASP: Academic self-perception. PoA: Perception of atmosphere. SSP: Social self-perception (SSP).

Nevertheless, this reliability could be improved if 7 items in the questionnaire would be deleted (Table-2). The reliability measures of the sub-scales PoL and PoA were quite high and interpreted as "more positive approach" corresponding to their mean values. PoT and ASP also indicated good consistency in the responses with the reliability statistics as 70.5% and 76% respectively. However, the value of Cronbach's alpha for the sub-scale SSP was quite low highlighting substantial heterogeneity in the responses of this sub-scale items by the students.

Comparisons of DREEM and sub-scales scores with respect to age, class year and living status revealed that the average DREEM score of students aged 20 years and below

was significantly more than the average DREEM scores of more than 20 years of age (130.5±18.5 v/s 124.7±19.1, $p < 0.0001$). Students with this age group also scored significantly higher in all sub-scales than students with age above 20 years ($p < 0.05$) except ASP and SSP were not significantly different in the two groups ($p > 0.05$).

Those students who lived in the hostel secured higher scores in overall DREEM score ($p < 0.0001$). SAP score from the day scholars was nearby significantly different as compared to their class mates living in the hostel ($p = 0.075$). In all other aspects, scores from hostel students were significantly higher compared to the day scholars ($p < 0.05$).

When comparing scores with respect to class year of BScN

it was found that 1st year nursing students attained the significant highest score in all aspects ($p < 0.05$) while the least scores were received by 3rd year students in DREEM scale and sub-scale except in perception towards learning environment (PoL). Scores of ASP were not observed significantly different among students of all 4 years ($p > 0.05$). Also, SSP of 1st and 3rd year student was significantly different ($p < 0.05$). Nevertheless, 2nd and 4th year students' social self-perception was not significantly different to 1st and 3rd year students ($p > 0.05$) (Table-3).

Discussion

The findings of the current study revealed that overall DREEM score was discovered to be 129.9/200(64.95%), indicating nursing students' perceptions to be highly positive. Past literature found that higher DREEM scores is linked with student centred, problem based learning and innovative curricula.¹⁷ Whereas, literature suggested that scoreless than 120 reflected teacher-centred and traditional curricula.^{3,18} It is remarkable to report that the study score (129.9) is the highest score obtained among all the private and public medical and nursing colleges of Pakistan.^{2,4,5,7,13,19} Whereas, various studies conducted in medical colleges at international levels have reported scores between 99-145.^{1,2,5,18,20,21} A plausible reason of the differences in scores of DREEM could be the variation of educational and cultural systems and facilities or may be the prevailing diversity in educational back ground of students.

In the present study, students aged 20 years and below perceived a more positive perception of learning, teacher and atmosphere as compared to student who were above 20 years of age. Plausible reason could be the minimal exposure of the curriculum and EE among younger students as compared to older students. However, Ali., et al, and Palmgren & Chandratilake did not find any association between age and DREEM scores.^{22,23}

The present study showed that first year nursing students had more positive perception about EE as compared to second, third and fourth years nursing students. Similar trends have been observed in past medical and nursing schools studies that DREEM score decline as the school years increased.^{3,14,19,23,24} Whereas, Patil & Chaudhari found contradictory finding as year of education increase DREEM score raised.¹⁷ However, the mean difference of DREEM score was not statically significant among junior and senior students in a study.²² The possible reason might be that first year nursing students were exposed to EE just few months at time of administrating the study questionnaire and not yet experienced the stressful clinical exposure. Clinical exposure within nursing is a challenging part of academia which requires critical thinking and

demands to integrate theoretical knowledge into clinical settings. Therefore, there is a great need to promote clinical learning environment positively for nursing students and modify teaching learning strategies at clinical settings.²⁵

One of the determinants of academic performance is healthier social life.^{4,7} It is vital for nursing institutions to address students' psychosocial and emotional needs. The current study illustrated that students living in hostel had better scores in the domain of perceptions of learning, perceptions of atmosphere and social self-perception as compared to day scholar students. The possible reason could be that students living in hostels perceive hostel life as more secure, nurturing, relaxing and recreational.

To improve EE, compelling view of nursing students regarding five essential components of DREEM inventory was critical. The first domain was student perception of learning nursing students recognised "learning was "positive" rated (30.97/48), student perceptions of teachers was second domain and students rated a scoring which reflects that their faculty are moving in right direction (26.22/44). The next domain was academic self- perception and students rated (23.32/32) which indicated that they acknowledge positively. Perception of atmosphere was the second last domain and students' perceived "positive perception of their environment (31.94/48). Students' social self- perception was the last domain in DREEM inventory based on score student believed "not too bad" about their social self-perception (17.48/28).

Overall, the topmost mean score was reported for an individual DREEM item on a question "I am confident about my passing this year" 3.4. Our findings complement with previous studies.^{1,17} Students also acknowledged that their accommodation was pleasant by marking a score of 3.24. In addition, they also appreciated their social life by rating a score of 3.22 in response to a question "I have good friends in this school". Our study findings are coherent with previous studies.^{6,7,26,27} Moreover, in response to questions like "I am encouraged to participant in class", "I feel comfortable in class socially", "the teachers have good communication skills with patient" and "I have learned a lot about empathy in my profession" students scored remarkably well. Similar findings were reported by previous studies.^{4,17} On the contrary, student highlighted that teachers were authoritarian and they over emphasised on factual learning. Similar findings were reported by past literature.^{14,17,26,28-30} Hence, instead of emphasising just on information retention, there is a dire need to improve teaching and assessment strategy in order to strengthen integration of knowledge and clinical competency.² Literature suggested that no learning environment is perfect. Therefore, policy makers and curriculum planners should ensure that student feedback is incorporated to

develop a holistic curriculum thereby preventing stagnation in the development of the learning environment.¹⁸

Current study was conducted in a single institute so findings cannot be generalised to similar setups. However, this is the first study that has been conducted in a nursing school in Karachi highlighting the strengths and areas of improvements of EE. The response rate and the reliability were high. This study may serve as a baseline for improvement in curriculum, teaching and learning.

Conclusion

Nursing students perceived that their learning environment was satisfactory. The study score is the highest reported from any medical and nursing college in Pakistan.

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