

# Student perception of the educational environment in regular and bridging nursing programs in Saudi Arabia using the Dundee Ready Educational Environment Measure

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**BACKGROUND:** Taibah University offers regular nursing (RNP) and nursing bridging (NBP) bachelor programs. We evaluated student perception of the learning environment as one means of quality assurance.

**OBJECTIVES:** To assess nursing student perception of their educational environment, to compare the perceptions of regular and bridging students, and to compare the perceptions of students in the old and new curricula.

**DESIGN:** Cross-sectional survey.

**SETTING:** College of Nursing at Taibah University, Madinah, Saudi Arabia.

**PATIENTS AND METHODS:** The Dundee Ready Educational Environment Measure (DREEM) instrument was distributed to over 714 nursing students to assess perception of the educational environment. Independent samples t test and Pearson's chi square were used to compare the programs and curricula.

**MAIN OUTCOME MEASURE:** The DREEM inventory score.

**RESULTS:** Of 714 students, 271 (38%) were RNP students and 443 (62%) were NBP students. The mean (standard deviation) DREEM score was 111 (25). No significant differences were observed between the programs except for the domain "academic self-perceptions" being higher in RNP students ( $P < .001$ ). Higher mean DREEM scores were observed among students studying the new curriculum in the RNP ( $P < .001$ ) and NBP ( $P > .05$ ).

**CONCLUSION:** Nursing students generally perceived their learning environment as more positive than negative. Regular students were more positive than bridging students. Students who experienced the new curriculum were more positive towards learning.

**LIMITATIONS:** The cross-sectional design and unequal gender and study level distributions may limit generalizability of the results. Longitudinal, large-scale studies with more even distributions of participant characteristics are needed.

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The learning journey of undergraduate nursing students is a long one. They start by preparing for university life—physically, mentally, socially and economically—and then identify the new skills necessary to continue.<sup>1</sup> During that time, nursing students go through various natural stressful encounters and, as a consequence, gain the emotional strength and integrity necessary to carry on and survive setbacks.<sup>1</sup> Graduation is accompanied by feelings of self-satisfaction and triumph. In an integrative review of the literature, Walker and co-

workers stated five main themes that contribute to the satisfaction of nursing students throughout their learning journey.<sup>2</sup> These include authentic learning, motivation, resilience, support and collaborative learning.<sup>2</sup> Essentially, these are what broadly constitute a good practice-learning environment and, among other aspects, are important to evaluate when assuring any given program's quality.<sup>3</sup> A number of tools have been used to assess the learning or educational environment in the health professions schools. Those that have shown to be the most suit-

able include the Dundee Ready Educational Environment Measure (DREEM) instrument, the Postgraduate Hospital Educational Environment Measure, the Clinical Learning Environment and Supervision and the Dental Student Learning Environment Survey.<sup>4</sup>

The DREEM inventory, a validated non-culturally specific tool, has been widely used in different settings and between health sciences to generate institutional profiles, compare student perceptions within and between programs or institutions, correlate perceptions with academic results, and to serve as a predictive tool for identifying students with different levels of achievements.<sup>5</sup> Interestingly, and despite the available literature reporting on the learning environment perception among nursing students,<sup>6-13</sup> there are no published reports comparing the perceptions of regular nursing and nursing bridging students.

The Bachelor of Nursing at Taibah University has undergone multiple successive curricular improvements within 3-4 years. Changes ranged from improving the assessment methodology of some courses, to more major changes involving all aspects of the curriculum. This resulted in multiple versions of the program running simultaneously during the transition phase. In addition, the Bachelor of Nursing is offered through a regular nursing program (RNP) and a nursing bridging program (NBP), both of which are delivered by the same teaching staff and clinical instructors. Both programs have the same curriculum but improvements were applied at different time points due to a later student intake process for the NBP. This naturally occurring difference in program and curricular change allows for an analytic assessment of the different phases and versions of the program, which would ultimately aid in future quality improvements. Thus, the objectives of this study were 1) to assess the student perception of the educational environment at Taibah University College of Nursing using the DREEM inventory, 2) to compare the educational environment perception of students in the RNP with those in the NBP, and 3) to compare the perception of students experiencing the old curriculum with those experiencing the new one. The null hypothesis was that no differences should be expected between students from the RNP and the NBP or between those who experienced the old and new curricula in terms of learning environment, since all learning conditions were virtually the same. However, demonstrating otherwise would aid in the quality assurance movement.

## PATIENTS AND METHODS

### *Study design and setting*

This was a cross-sectional, analytical survey carried out at

Taibah University College of Nursing during the period between February and March 2016. Taibah University is considered relatively new, having been established only in 2003 and comprising 28 different colleges over three campuses in the holy city of Madinah. The main program offered by the College of Nursing is the Bachelor of Nursing, which is studied over four years (8 levels) plus an internship year. Students may be enrolled in the program directly after graduating from high school (the RNP), or may join a bridging program after they have completed their diploma following an initial study in other health institutes or health colleges (the NBP). Those enrolled in the RNP should exceed a certain mark in their so-called "weighted score", (high school + achievement test + aptitude test), and obtain the required grade point average during the university preparatory year. Those accepted in the NBP, on the other hand, should score high in the International English Language Testing System, pass a specific entry exam and sit for a personal interview. In addition, accepted NBP students are required to study certain core courses during their program even if studied elsewhere to ensure a comparative level and quality of core knowledge between the NBP and RNP. Unlike the regular program, the bridging program starts daily after noon and continues until evening. The bridging program accepts both female and male students, however, only female students were applied directly from high school to the RNP up to the time of the survey, mainly for reasons of space and capacity.

A major change in the curriculum took place the first time in 2014. This change included a reduction of the total number of years from 5 years plus internship to 4 years plus internship. This was a part of a major reform across the university involving all bachelor programs, and it was reflected in the total credit hours. Teaching and assessment methods had also been modified. Objective structured methods of assessment were introduced, and simulation was more involved in both teaching and assessment. More use of hospital-based structured clinical teaching and assessment were adopted. New science courses were introduced in the preparatory semester, like introduction to calculus and introduction to physics. More weight was given in the new curriculum on the application of knowledge and gaining relevant skills rather than focusing on basic theoretical knowledge. This was applied initially in the RNP, then in the NBP 2 years later.

The College of Nursing has an approximate yearly student intake of 250 students. About 750 study at the college simultaneously. These are divided over the different programs, curricula, entry tracks and study levels. The rest do their internship in hospitals.

### Study tool and distribution

The survey was conducted during the spring semester, which is the 2nd, 4th, 6th and 8th (final) semester for the RNP students. This semester was also the entry semester for NBP students in addition to semesters three and five. For NBP at entry level, unlike the RNP students, this was the first batch to enroll in the new curriculum. Semesters three and five were still studying using the old curriculum.

The DREEM instrument selected for this study is a self-administered, structured questionnaire containing close-ended Likert-scale questions spread over five main domains (50 statements in total).<sup>14</sup> The domains are perception of learning, perception of course organizers, academic self-perception, perception of atmosphere and social self-perception. Responses from all domains are added to form a score, with a suggested interpretation for each domain score and the total DREEM score (**Table 1**).<sup>15</sup> A validated Arabic version of DREEM was used.<sup>16</sup> Questionnaires were handed in paper format to the academic team leaders on both the male and female campuses, who in turn gave them to the teachers/instructors of each class at the beginning of the session to distribute them among the students and collect them by the end of those sessions. Session teachers then returned the questionnaires in labeled envelopes to the team leaders.

### Ethical considerations

Students were informed about the objectives of the study and how it may help improve the quality of their educational experience. They were also told that participation was voluntary, and that no consequences would follow refusal to participate. No information related to their identities was disclosed or noted on the completed questionnaires.

### Data analysis

Descriptive statistics are presented as means, standard deviations and frequency distributions. To test for significance between the regular and bridging programs, and between the two curricula with regards to the DREEM scores, the independent samples t test was used. Pearson's chi-square was used when comparing the different DREEM categories in the programs. The significance level was set at  $P \leq .05$ . The IBM SPSS statistical software version 20.0 was used for the analysis (IBM, Armonk, New York, USA).

## RESULTS

Of 750 nursing students, 714 answered the questionnaire (response rate=95.2%) ; 271 (38%) were from the RNP and 443 (62%) were from the NBP. **Table 2** shows

the gender, entry track and curriculum of the participants. The mean (SD) DREEM score for the total sample was 111 (25) (**Table 3**). Among participants from the RNP, the mean (SD) DREEM score was 113 (23), compared to 110 (27) in the NBP ( $P > .05$ ) (**Table 3**). With regards to the five DREEM score domains, only "Academic Self Perception" was significantly higher in the RNP than in the NBP ( $P < .001$ ) (**Table 3**).

Sixty-seven percent of all students thought that the program was either excellent or was more positive than negative. More specifically, 73% of the RNP students and 63% of the NBP students had those opinions ( $P < .01$ ) (**Figure 1**). Overall, responses from the RNP students were significantly higher than those for NBP students in all DREEM domains and total DREEM score categories. The mean DREEM score within each program was lower

**Table 1.** Suggested interpretations of the different DREEM score ranges according to McAleer and Roff.<sup>15</sup>

DREEM Score Domain Score Range	Interpretation
<b>Domain #1: Perception of Learning</b> 0-12 12-24 24-36 36-48	Very poor Teaching is viewed negatively A more positive perception Teaching highly thought of
<b>Domain #2: Perception of Course Organizers</b> 0-11 11-22 22-33 33-44	Abysmal In need of some retraining Moving in the right direction Model course organizers
<b>Domain #3: Academic Self Perceptions</b> 0-8 8-16 16-24 24-32	Feeling of total failure Many negative aspects Feeling more on the positive side Confident
<b>Domain #4: Perception of Atmosphere</b> 0-12 12-24 24-36 36-48	A terrible environment There are many issues which need changing A more positive attitude A good feeling overall
<b>Domain #5: Social Self Perceptions</b> 0-7 7-14 14-21 21-28	Miserable Not a nice place Not too bad Very good socially
<b>Total DREEM Score</b> 0-50 50-100 100-150 150-200	Very poor Plenty of problems More positive and negative Excellent

**Table 2.** Background and educational characteristics of all nursing students and students within the Regular Nursing Program and the Nursing Bridging Program.

	All nursing students (N=714)	Regular Nursing Program (n=271)	Nursing Bridging Program (n=443)
<b>Gender</b>			
Female	538 (75)	271 (100)	267 (60)
Male	176 (25)	0 (0)	176 (40)
<b>Track</b>			
High School	271 (38)	271 (100)	0 (0)
Health Institutes	162 (23)	0 (0)	162 (37)
Health Colleges – Nursing	224 (31)	0 (0)	224 (51)
Health Colleges – Midwifery	57 (8)	0 (0)	57 (13)
<b>Level</b>			
1st	193 (27)	0 (0)	193 (44)
2nd	0 (0)	0 (0)	0 (0)
3rd	144 (20)	0 (0)	144 (32)
4th	62 (9)	62 (23)	0 (0)
5th	45 (6)	0 (0)	45 (10)
6th	101 (14)	101 (37)	0 (0)
7th	0 (0)	0 (0)	0 (0)
8th	43 (6)	43 (16)	0 (0)
Internship	126 (18)	65 (24)	61 (14)
<b>Curriculum</b>			
Old	391 (55)	141 (52)	250 (56)
New	323 (45)	130 (48)	193 (44)

Values are number (percentage).

**Table 3.** Differences in mean DREEM domain and total scores between students in the regular nursing and nursing bridging programs.

	All nursing students (n=714)	Regular Nursing Program (n=271)	Nursing Bridging Program (n=443)	P value
Domain #1: Perception of Learning	26 (6)	26 (6)	26 (6)	.21
Domain #2: Perception of Course Organizers	25 (7)	25 (7)	25 (7)	.95
Domain #3: Academic Self Perceptions	18 (6)	19 (5)	17 (6)	<.001
Domain #4: Perception of Atmosphere	26 (8)	26 (7)	26 (8)	.53
Domain #5: Social Self Perceptions	16 (4)	16 (4)	16 (4)	.51
<b>Total DREEM Score</b>	<b>111 (25)</b>	<b>113 (23)</b>	<b>110 (27)</b>	<b>.12</b>

Values are mean (standard deviation). Statistical analysis by independent samples t test.

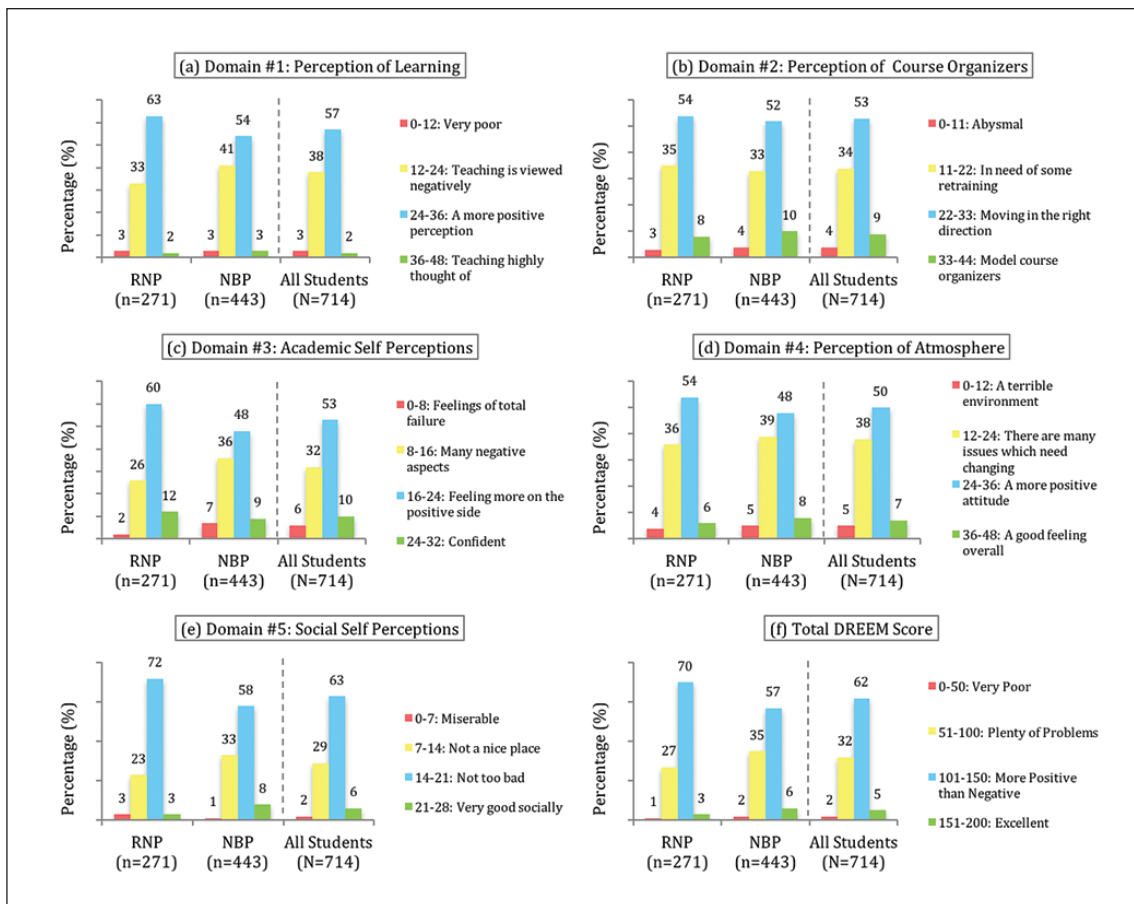
for those who studied according to the old curriculum than for those who studied according to the new one. The difference was statistically significant in the RNP ( $P<.001$ ) but not in the NBP ( $P>.05$ ) (Table 4). Similar trends were observed for the five DREEM score domains (Table 4).

## DISCUSSION

The main purpose of this cross-sectional study was to assess the nursing students' perception of the educational environment at Taibah University College of Nursing using the DREEM inventory. Out of a total score of 200, the mean DREEM score of the total sample of nursing students was 111 (25) (Table 3). This score fell within the "more positives than negatives" category (Table 1), and is in line with scores in studies from Iran,<sup>6,9</sup> India,<sup>13</sup> Indonesia,<sup>12</sup> Malaysia,<sup>10</sup> Chile,<sup>7</sup> and the United Kingdom,<sup>11</sup> which ranged between 104 and 138. Such scores indicate an acceptable learning environment that may benefit from some improvement for the sake of quality assurance. However, more than one third of the nursing students' responses fell within the "plenty of problems" to the "very poor" categories (Figure 1). This necessitates that serious attention should be given to areas of dissatisfaction that are underlined by the individual domain responses.

To our knowledge, this study is the first to compare the educational environment perception of students from a RNP with those from a NBP. Differences between the programs in total DREEM score and domain categories were statistically significant (Figure 1). A higher percentage of responses from the RNP students consistently fell more within the "more positive than negative" categories than those from the NBP students (Figure 1). Interestingly, no such differences in the total mean DREEM score or in the mean score for any of the five domains – except for "academic self perceptions" – were observed (Table 3). This may confirm the notion that presenting data as mean values may mask important information, and points to the wide variation in data presentation among DREEM studies.<sup>17</sup>

Differences between the two programs, especially in terms of academic self-perceptions, may have been owed to the inherited differences in the types of students enrolled in each program. RNP students have passed a standard set of requirements prior to their enrollment into the program, were within a younger confined age range, were solely females and were mostly single with no major family commitments and responsibilities. NBP students, on the other hand, who have completed approximately half their education in one of the various non-university based health colleges or institutes (e.g.



**Figure 1.** Bar charts showing the distribution (in percentage) of students in the Regular Nursing Program (RNP), the Nursing Bridging Program (NBP) and in the total sample according to the different categories of the five DREEM domains: (a) perception of learning, (b) perception of course organizers, (c) academic self-perceptions, (d) perception of atmosphere, (e) social self-perceptions, and (f) the total DREEM score. Differences between the programs in all DREEM domains and in total DREEM score categories were statistically significant at the 0.01 level using Pearson's chi-square test.

**Table 4.** Comparison of the old and new curricula within the regular nursing and nursing bridging programs on total DREEM score and the scores related to the five DREEM domains.

Program	Regular Nursing Program		P value	Nursing Bridging Program		P value
	Old (n=141)	New (n=130)		Old (n=250)	New (n=193)	
Domain #1: Perception of Learning	25 (6)	27(5)	.007	25 (7)	26 (6)	.22
Domain #2: Perception of Course Organizers	22 (6)	28 (6)	<.001	24 (8)	26 (6)	.008
Domain #3: Academic Self Perception	18 (5)	21 (4)	<.001	18 (6)	17 (5)	.02
Domain #4: Perception of Atmosphere	24 (7)	28 (6)	<.001	25 (9)	27 (7)	.008
Domain #5: Social Self Perception	15 (4)	17 (3)	<.001	16 (4)	16 (4)	.92
<b>Total DREEM Score</b>	<b>105 (23)</b>	<b>121 (20)</b>	<b>&lt;.001</b>	<b>108 (29)</b>	<b>112 (24)</b>	<b>.18</b>

Values are mean (standard deviation). Statistical analysis by independent samples t-test.

community-like colleges), were older, included males as well as females, and were mostly married with family responsibilities. Such factors have been associated with an increased risk of failure in other nursing programs and may explain the negative views towards the educational process.<sup>18</sup> Furthermore, NBP students may have faced some difficulties during their afternoon school time in terms of unavailability of administrative and supporting staff and access to student facilities such as the local library and cafeteria. These issues may have also influenced the NBP students' negative views towards their learning environment. The differences in the backgrounds of RNP and NBP students might be expected to have an impact on perceptions, but this was not the case. Differences in perception, although statistically significant, were somewhat small (**Figure 1**), probably due to successful management of the differences in backgrounds, including careful selection of students for enrollment in the NBP. The NBP in our school is a highly competitive program with an acceptance rate of only about 30%, and unlike the RNP, the applicants are from all over Saudi Arabia.

Participants who studied according to the new curriculum demonstrated higher mean total and domain DREEM scores than those who experienced the old curriculum (**Table 4**). This is in contrast to another study where virtually the opposite was demonstrated.<sup>19</sup> It is expected that curricular changes would ultimately consider shortcomings of previous versions of the curriculum and attempt to overcome them. In reality, however, it mainly depends on the type and magnitude of changes implemented that may influence students' perception of the learning environment and experience as a whole.

#### *Study limitations*

Gender distribution and distribution of students among different study levels were not even, mainly due to different intake and admission capacities between the female and male campuses, in addition to the different entry times between the regular and bridging programs. Although the uneven distribution may have had an influence on the results, the findings give important insights into the possible impact of the program type. Such

shortcomings can be accounted for in future research. A follow-up study on the same cohort of students would add a longitudinal view to the current results.

#### *Conclusion*

Within the limits of the study, it can be concluded that the majority of nursing students perceived the learning environment as being more positive than negative. More positive responses were observed among regular nursing students than by their nursing bridging counterparts. Students who experienced the new curriculum were more positive towards their learning environment than those who studied according to the old curriculum. As a result, the null hypothesis was rejected.

#### *Practical Implications and Recommendations*

These findings highlight the importance of addressing key issues facing nursing students that affect perception of their learning environment. Bridging students in particular apparently struggle to cope with the current high program pace. The initially implemented curricular change positively influenced the perception of their learning environment, inferring that efforts are running in the right direction. Universities and policymakers should pay attention to strategies to improve the educational environment of nursing students and that of students in general, as this plays a pivotal role in enhancing student performance and raises the quality of the final outcome.

#### **Disclosure**

*The authors report no conflict of interest. Both authors are employees at the university, which is a non-profit governmental organization. They will be using findings from the current report to improve the learning experience at the university.*

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