ORIGINAL ARTICLE

Comparing male and female dental students' perceptions regarding their learning environment at a dental college in Northwest, Saudi Arabia

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ABSTRACT

Introduction: Male and female students often have different expectations and requirements regarding learning institutions. Taibah Dental College has separate male and female sections, and it is essential to determine the students' perceptions regarding the dental college. **Methods:** All male and female dental students who were in the 3rd, 4th, and 5th year of study during the 2014/2015 academic year were asked to participate. The Dundee Ready Educational Environment Measure, which is a self-administered questionnaire, was used to obtain the necessary data. It consists of fifty items categorized into five domains. For each item, students chose one option that best described their perceptions using a Likert-type scale. A higher score indicated higher levels of satisfaction and vice versa. **Results:** The 4th year female students reported the lowest scores. Overall the scores were relatively low and indicated that students were generally dissatisfied. Common areas of dissatisfaction included poor learning experiences, poor teaching experiences, and type of learning atmosphere. The 3rd year females reported significantly higher scores for their teaching experience compared to their male counterparts. There were significant differences for each domain between the years of study with the 4th year having lowest scores. **Conclusion:** In general, the student's perception was low but within the range of other similar studies. The females tended to be much more dissatisfied compared to males and the 4th year seemed to have the most problems.

Key words
Dundee Ready Educational Environment Measure, student's perception, teachers

INTRODUCTION

The perceptions of students regarding their learning institution have regularly been used as an evaluation and/or comparison tool.[1] As a result, assessment tools have been developed to evaluate the perception of students regarding their attitudes and expectations of their learning institutions. The Dundee Ready Education Environment Measure (DREEM), has been designed for this purpose and has proven to be valid and reliable.[2-4] It has been successfully implemented in many countries and translated into different languages.[2-7] In addition, a systematic review of studies that utilized the DREEM as a tool to evaluate the students' perceptions concluded that it was useful and applicable.[8]

The Taibah University College of Dentistry (TUCoD) is located in Medina, Saudi Arabia and was established in 2007. It consists of two sections one male and one female. Each section has its own lecturers, clinics, patients, and teaching facilities. It is essential to ensure that both

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facilities are on par with each other in order for the dental graduates to be both competent and confident once they have qualified from TUCoD. It is also crucial to provide both sections with the same high standard of teaching and dental facilities. To achieve this goal, the students' perception regarding their learning environment needs to be obtained. These results will help identify possible problem areas that are either specific to one section or prevalent in both male and female sections, help in planning for future facilities and help in standardizing the two sections. This would ensure that TUCoD provides the best educational and environmental facility that would ensure students graduate with the highest standards.

TUCoD is relatively new having the first intake of male and female dental students in 2008 and 2010, respectively. The dental degree extends over 7 years; a preparatory year followed by 5 years of dental training and 1 year of internship. This study is unique as it is the first to compare the perceptions of male and female students at a dental school that is completely segregated according to gender. The curriculums, timetables, and clinical quotas are the same. However, although the content and assessment are the same, males deliver the lectures to the male students and vice versa. This results in different teacher providing the same lecture to the different genders. In addition, the clinics are separate, and hence the facility and structure differs between the two sections. It is, therefore, essential to evaluate he two sections and ensure that they are both similar in terms of infrastructure, quality of lecturers, teaching environment, and student perceptions.

The aim was to determine the students' assessment on the learning environment of the TUCoD and to compare between the different years of study and the gender.

METHODS

This was a cross-sectional study consisting of 3rd, 4th, and 5th year dental students registered in 2014/2015 at TUCoD. The study sought to obtain the perceptions of clinical and theoretical aspects of the learning environment and hence included only those who had been exposed to and started working in the clinics. The 1st and 2nd year students were excluded, as they had not yet started clinical sessions. Students who were in the clinical years (3rd–5th year) and who had failed previously were also included in the study.

Data collection tool

The DREEM was used to obtain the necessary data. The DREEM is a self-administered questionnaire that consists of fifty items categorized into five domains. For each item, students chose one option that best described their perceptions using a Likert-type scale. They selected one of the following options; "strongly disagree," "disagree," "not sure," "agree," and "strongly agree." These options correspond to scores of 0, 1, 2, 3, and 4, respectively. The scores from each item were added together to obtain the domain scores, and the domain scores were added to obtain the total DREEM scores [Table 1]. The maximum score is 200, and higher score indicates higher levels of satisfaction.

Ethics was obtained from the Taibah Dental Ethical Committee. Before completing the questionnaire, students were informed about the study objectives and those not willing to participate were excluded. All data were anonymous and confidential. The investigators distributed the questionnaires and collected them once the students had completed filling them in.

Data were captured and analyzed using the Statistical Package for the Social Sciences, version 21 (IBM). The responses to nine negative items were reverse coded to analyze the results appropriately.[2] The mean item, domain, and total DREEM scores were calculated and compared using the Student's *t*-test for the genders and the one-way analysis of variance for the differences between the years of study.

RESULTS

There were 110 students who responded out of 121 students. Among male out of 65 students 58 responded and among female out of 62 students 52 responded. Total response rate was 91%. Their breakdown according to gender and year of study is shown in Table 2.

When comparing the students' perceptions regarding their learning experiences, a significant number of females ($P < 0.01$) were dissatisfied compared to the males. There were no differences among the 5th year while in the 3rd year, the females felt they were more encouraged to participate compared to the males [Table 3].

The students' perception of teachers varied across all 5 years with the females having significantly higher scores in the 3rd year and lower scores in 4th and 5th year [Table 4].

Table 1: A breakdown of the domains, number of items, and maximum scores

Name of domain	Number of items	Maximum score
SPL	12	48
SPT	11	44
SASP	8	32
SPA	12	48
SSSP	7	28
Total DREEM score	50	200

DREEM – Dundee Ready Educational Environment Measure, SSSP – Students' social self-perception, SPA – Student's perception of atmosphere, SASP – Students' academic self-perception, SPT – Students' perceptions of teachers, SPL – Student's perception of learning

There were no significant differences for the students' academic self-perception items between the genders and years of study except for one item. The females had a significantly (P = 0.01) higher mean score (2.53) compared to males (1.59) feeling that much of what they learnt was relevant to a career in dentistry.

Similar to the responses obtained with other domains, the students' perception of their atmosphere varied across the 5 years of study with the females having significantly higher scores in the 3rd year and lower scores in 4th and 5th year [Table 5].

There were no significant differences for the students' social self-perception items between the genders and years of study except for one item in the 4th year. The males had a significantly (P = 0.04) higher mean score (0.92) compared to females (0.12) stating that there was good support system for students who get stressed.

Table 2: Distribution of students according to gender and year of study (*n*=110)

Gender	Year of study (%)			
	3rd year	4th year	5th year	Total
Male	16 (47)	25 (59)	17 (50)	58 (53)
Female	18 (53)	17 (41)	17 (50)	52 (47)
Total	34 (100)	42 (100)	34 (100)	110

Table 3: Comparison of the mean student's perception of learning scores (*n*=110)

Items	Mean (SD)		*P**
3rd year	Males (*n*=16)	Females (*n*=18)	
I am encouraged to participate in the class	1.38 (1.20)	2.33 (0.84)	0.01
4th year	**Males (*n*=25)**	**Females (*n*=17)**	
I am encouraged to participate in the class	1.48 (0.77)	0.65 (0.86)	<0.01
The teaching is often stimulating	1.56 (0.87)	0.65 (0.86)	<0.01
The teaching is student centered	2.52 (1.30)	0.76 (0.90)	<0.01
The teaching helps to develop my competence	1.44 (0.96)	0.24 (0.56)	<0.01
The teaching is well focused	1.64 (1.08)	0.76 (0.90)	<0.01
The teaching helps to develop my confidence	1.48 (0.92)	0.59 (0.80)	<0.01
The teaching time is put to good use	1.48 (1.12)	0.53 (0.72)	<0.01
Teaching encourages me to be an active learner	1.40 (0.96)	0.71 (0.92)	0.02
Long-term learning is emphasized over short term	1.52 (1.00)	0.71 (0.92)	0.01
The teaching is too teacher-centered#	1.20 (0.96)	1.94 (1.30)	0.04
Total mean score	20.48 (6.20)	12.18 (4.32)	<0.01

*Using Student's *t*-test, #Reverse coded for analysis. SD – Standard deviation

The mean domain and total scores for each year of study are shown in Table 6. The overall score of

Table 4: Comparison of the mean students' perception of teachers scores (*n*=110)

Items	Mean (SD)		*P**
3rd year	Males (*n*=16)	Females (*n*=18)	
The teachers ridicule the students#	1.25 (1.13)	2.17 (1.10)	0.02
The teachers are authoritarian#	0.88 (0.81)	2.17 (0.92)	0.00
The students irritate the teachers#	1.94 (1.06)	2.78 (0.65)	0.01
Total mean score	18.69 (6.94)	24.94 (5.72)	0.01
4th year	**Males (*n*=25)**	**Females (*n*=17)**	
The teachers provide good student feedback	1.76 (0.97)	1.06 (1.14)	0.04
The teachers provide constructive criticism	1.60 (1.04)	0.82 (0.95)	0.02
The teachers give clear example	1.72 (1.02)	0.53 (0.72)	0.00
The students irritate the teachers#	1.88 (0.73)	2.76 (1.15)	0.00
5th year	**Males (*n*=17)**	**Females (*n*=17)**	
The students irritate the teachers#	3.41 (0.62)	2.35 (0.10)	0.00

*Using Student's *t*-test, #Reverse coded for analysis. SD – Standard deviation

Table 5: Comparison of the mean students' perception of atmosphere

Items	Mean (SD)		*P**
3rd year	Males (*n*=16)	Females (18)	
Environment is relaxed during clinical teaching	1.13 (0.89)	1.72 (1.13)	0.01
Atmosphere is relaxed during lectures	1.19 (1.05)	1.94 (0.87)	0.03
This college is well time-tabled	0.88 (0.89)	1.56 (0.86)	0.03
Cheating is a problem in this college#	1.81 (1.80)	2.94 (1.26)	0.04
The enjoyment outweighs stress of studying dentistry	0.56 (0.73)	1.44 (1.30)	0.02
Total	18.44 (8.06)	24.22 (5.89)	0.02
4th year	**Males (25)**	**Females (17)**	
Environment is relaxed during clinical teaching	1.76 (0.83)	0.35 (0.79)	0.00
The atmosphere is relaxed during the lectures	1.84 (0.10)	0.71 (0.99)	0.00
This college is well time-tabled	1.16 (1.03)	0.41 (0.87)	0.02
There are opportunities to develop inter-personal skills	2.08 (0.86)	1.18 (0.95)	0.00
I feel comfortable in class socially	1.76 (0.97)	0.53 (0.62)	0.00
Atmosphere is relaxed during seminars/tutorials	1.80 (0.82)	0.76 (1.09)	0.00
I find the experience disappointing#	2.24 (0.97)	0.71 (1.16)	0.00
The enjoyment outweighs stress of studying dentistry	1.08 (0.95)	0.24 (0.56)	0.00
The atmosphere motivates me as a learner	1.52 (0.92)	0.41 (0.62)	0.00
Total	20.96 (5.75)	11.18 (7.27)	0.00
5th year	**Males (17)**	**Females (17)**	
I find the experience disappointing#	1.94 (1.48)	0.82 (1.43)	0.03

*Using Student's *t*-test, #Reverse coded for analysis. SD – Standard deviation

45% was relatively low with all except one of the domains having a significant difference between the years of study. The 3rd year students had the highest total mean score (49%) whereas the 4th year had the lowest (42%).

There were no significant differences between the genders for either the mean domain scores or for the total DREEM scores [Table 7].

DISCUSSION

The response rate was 91%, and this was relatively high. Possible reason could be the fact that the investigators handed out the questionnaires after lectures and waited for the students to complete them. It also demonstrated the keenness of students to participate in the study and to evaluate their dental college.

Table 6: The association between the mean domain scores for each year of study (*n*=110)

Year of study	*n*	Mean (SD)	*P**
Total SPL			
3	34	21.71 (6.63)	0.02
4	42	17.12 (6.84)	
5	34	19.85 (8.23)	
Total	110	19.38 (7.43)/48.00	
Total SPT			
3	34	22.00 (6.99)	0.02
4	42	18.21 (6.90)	
5	34	18.24 (5.78)	
Total	110	19.39 (6.77)/44.00	
Total SASP			
3	34	17.97 (5.45)	0.52
4	42	16.48 (5.62)	
5	34	17.15 (5.77)	
Total	110	17.15 (5.60)/32.00	
Total SPA			
3	34	21.50 (7.48)	0.02
4	42	17.00 (7.97)	
5	34	16.88 (7.61)	
Total	110	18.35 (7.93)/48.00	
Total SSSP			
3	34	14.76 (3.36)	0.01
4	42	14.40 (3.53)	
5	34	12.20 (4.28)	
Total	110	13.8 (3.85)/28.00	
Total DREEM score			
3	34	97.94 (24.43)	0.02
4	42	83.21 (22.07)	
5	34	84.41 (26.14)	
Total	110	88.14 (24.78)/200.00	

*Using ANOVA test. DREEM – Dundee Ready Educational Environment Measure, SSSP – Students' social self-perception, SPA – Student's perception of atmosphere, SASP – Students' academic self-perception, SPT – Students' perceptions of teachers, SPL – Student's perception of learning, SD – Standard deviation, ANOVA – Analysis of variance

Student's perception of learning

Among the 3rd year, more females felt they were allowed to participate in class compared to males and in the 4th year, the females had significantly lower scores for almost all of the items. This was unusual as most of the lectures are delivered by the same lecturers across the years of study and for one group of students to feel so strongly about these issues is of serious concern. Although the format of teaching and the examples given are similar across the genders and years of study, the females in the 4th year had really low perceptions of their learning environment. It is possible that the 4th year females have additional pressure due to clinical requirements and allocation of patients. The female dental college is still new, and there may be a shortage of patients for different procedures.[9] This could cause the poor scores obtained for this group of students. More studies will be done to examine the issues affecting this cohort of students and measures will be put in place to try and rectify these concerns. In addition, to improve these scores, the teaching strategy needs to shift to a more problem-based learning teaching style rather than the didactic style. This would cause the teaching toward a

Table 7: Differences in mean scores between the genders for the total Dundee Ready Educational Environment Measure score and for each domain (*n*=110)

Gender	*n*	Mean (SD)	*P**
Total SPL			
Male	58	20.03 (7.49)	0.33
Female	52	18.65 (7.36)	
Total	110	19.38 (7.43)/48.00	
Total SPT			
Male	58	19.17 (6.71)	0.72
Female	52	19.63 (6.89)	
Total	110	19.39 (6.77)/44.00	
Total SASP			
Male	58	16.62 (5.27)	0.30
Female	52	17.73 (5.94)	
Total	110	17.15 (5.60)/32.00	
Total SPA			
Male	58	19.33 (7.23)	0.18
Female	52	17.27 (8.54)	
Total	110	18.35 (7.93)/48.00	
Total SSSP			
Male	58	13.97 (3.79)	0.77
Female	52	13.75 (3.94)	
Total	110	13.8 (3.85)/28.00	
Total DREEM score			
Male	58	89.12 (25.48)	0.66
Female	52	87.04 (24.19)	
Total	110	88.14 (24.78)/200.00	

*Using Students *t*-test. DREEM – Dundee Ready Educational Environment Measure, SSSP – Students' social self-perception, SPA – Student's perception of atmosphere, SASP – Students' academic self-perception, SPT – Students' perceptions of teachers, SPL – Student's perception of learning, SD – Standard deviation

more self-directed approach. However, this would require staff to be trained to ensure that it becomes effective and productive.[10] This recommendation will be raised with the staff training committee and monitored over time.

Students' perceptions of teachers

Males generally had lower perceptions regarding their teachers compared to females. In addition, the scores for the teachers were low compared to previous studies and could be due to the fact that most female teachers were newly recruited.[9] The female college is recently opened and hence the teaching staff is relatively new. They are still getting used to the environment and the teaching style that students are accustomed to at TUCoD. In addition, the TUCoD has orientation programs for new staff, and once the female teachers have attended these courses, it may align their teaching strategies with that of TUCoD.

Students' academic self-perception

There were not as many significant differences between the genders and the years of the study compared to the other domains. This meant that generally the students perceived the academic workload and curriculum content favorably between the two colleges. This was not surprising as the content and curriculum is exactly the same within the two colleges. It could imply that the students felt that the curriculum was appropriate and prepared them adequately for their profession.

Student's perception of atmosphere

There were many significant differences related to the college atmosphere both between the genders and across the years of study. These significant differences highlight the gap between the male and female dental college in terms of the overall feeling, cheating in the college, social life, and the timetabling to name a few. The low scores are similar to other studies in which students felt that the atmosphere was not conducive to learning.[11,12] The female section is still under renovation and as a result, the classrooms are small and do not have many facilities such as air conditioners and smart boards. These factors make it difficult for both staff and students to teach and learn appropriately. A review on stress among dental students revealed that females were more stressed as a result of academic competition and trying to obtain perfection.[13] If the facilities and environment were inadequate, it is possible that the females would be more upset and disappointed which could explain the low scores obtained in this domain. Concern is the fact that males in both 4th and 5th year felt the experience more disappointing compared to females. Reasons for this will be investigated and appropriate interventions will be put in place.

Students' social self-perception

There was only one significant difference relating to their social self-perception, and that was that males felt that there were good coping mechanisms to deal with stress. Many authors reported that female students were more stressed than males.[13] As a result, it is possible that there were inadequate facilities for the large number of females that required mechanisms to deal with the increased stress. This could have resulted in their low score in relation to the stress coping mechanisms.

Overall Dundee Ready Education Environment Measure score

The mean total DREEM score (45%) was within the range of other local and international studies.[3,10,11] It was also similar to the results obtained from previous studies done at the TUCoD.[4,9] However, both these studies were conducted on males only, and the current study is the first to report on the perceptions of female dental students. The current trend seems that females were generally more disappointed compared to males and in particular, the 4th year females were dissatisfied with almost all domains in the DREEM survey. This is of concern, and the senior staff members have been made aware of these results. Future research is planned to identify specific issues within this cohort and to try and put in place mechanism to address their concerns. The 3rd year students had the highest scores, and this was similar to other studies, which reported senior studies tending to have lower scores compared to junior years.[14,15] A follow-up study is intended to evaluate the effects of these interventions.

CONCLUSION

In general, the student's perception was low but within the range of other similar studies. The females tended to be much more dissatisfied compared to males and the 4th year seemed to have the most problems.

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Conflicts of interest

There are no conflicts of interest.

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