Original Research Article

Perceived Education Environment of the Undergraduate Health Profession Programs in Saudi Arabia

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Abstract

The educational environment is the general atmosphere of a learning space. A safe valued, participatory education environment supports autonomy and influences learning, achievement, and satisfaction. Education institutions aspire to provide a positive educational environment and quite often, seek feedback from learners to assess the quality of the education environment. Gender segregation is a norm in the Saudi Arabian education system. Educational institutions in Saudi Arabia do make efforts to establish a similar education environment across male and female campuses. Using a cross-sectional survey approach, learners' perceptions of the educational environment at one of the public Universities in the Asir region in Saudi Arabia were assessed with a purpose to generate a profile of the institution's strengths and limitations. Dundee Ready Educational Environment Measure (DREEM), a generic tool was administered to learners enrolled in twelve undergraduate health professional programs, in the year 2017-2018. A total of 646 learners responded to the survey. The majority of the learners perceived the education environment as 'more positive than negative'. None of the items had a mean score of 3.5 and above, indicating 'no strengths'. Fourteen 'problem areas' were identified. Gender differences in the perceived education environment were noted in the Emergency Medical Services (EMS), Physiotherapy, and Doctor of Pharmacy programs. Male learners perceived the educational environment across programs alike. However, female learners did not. DREEM was useful to identify the priorities in planning appropriate measures to improve the education environment.
Keywords: DREEM, Educational Environment, Gender, Health Professional programs, Saudi Arabia, Undergraduate.

INTRODUCTION

Educational environment refers to the academic and social environment within the institution that determines the nature of the educational experience [1]. A safe, valued, participatory, and supportive educational environment influences greater interaction [2]. An educational environment that respects the choice and voice of learners, and focuses on all students' learning, promotes greater engagement in teaching-learning activities [3]. Facilities and activities that reinforce positive beliefs and support autonomy motivate learners to adopt a deeper approach to learning. Achievement of learning outcomes is an effect of the interaction between the learner and the educational environment. Thus, the educational environment is a determinant of the quality of learning and the achievement of the learners.

Several factors influence the nature of the educational environment. The curriculum is the most important determinant [4]. Course content, teaching-learning - assessment methods, and the intended learning outcomes outlined by the overt curriculum generally provide directions to shaping the educational environment. Selection of faculty and students, faculty-student ratio, the physical infrastructure, mode of instruction, official working hours, and class schedules, are curriculum-driven. However, the curriculum is not the sole determinant of the nature of the educational environment. The institution's vision and mission to a greater extent articulate the nature of support to the

learner. Effective communication, collaboration, and relationship with every stakeholder are the hallmarks of a valued educational environment. Openness to the advances in the education, technology, and the human resource sectors, as well as, clarity on the roles and responsibilities of students, faculty, and the heads of the institutions facilitate the establishment and maintenance of a participatory educational environment. Thus, it is not the mere collection of human and material resources that determine the nature of the educational environment, but the mutual understanding of the expectations and effective use of resources, evolve a positive educational environment.

The education environment across programs reflect the culture of the region and thus would be unique. The Kingdom of Saudi Arabia upholds the values of Islam [5] and gendered public places are a moral tradition. Arabic is the official language and gender segregation in educational institutions after the junior primary level is the norm [6]. Arabic language skills and Islamic studies courses are mandatory even in higher education programs in Saudi Arabia. Direct contact of female learners with the male faculty is reluctantly permitted (if necessary) in health professional education [7]. Closed-circuit television or video conferencing is preferred over the face to face communication with the faculty of the opposite gender [8]. In this article, we present the perceptions of Saudi learners on the education environment of a Saudi public university offering undergraduate health professional programs. The gender-wise comparison of the perceived education environment within and between programs is highlighted. The purpose of this evaluation was to generate a profile of the institution's strengths and limitations in both male and female campuses, thereby identify areas of priority in planning improvement.

REVIEW OF LITERATURE

Saudi's vision 2030 articulates the employment of local manpower to provide culturally sensitive care to its citizens. The government is supporting efforts to widen the health care professional education infrastructure. Of the 28 Government universities and nine private universities in Saudi Arabia [9], twenty government and five private Universities, offer undergraduate health professional programs [10]. Learners of professional education programs in Saudi are supported through a stipend and scholarship programs [11].

According to Genn [12], the environment as perceived is designated as the climate. The school climate is the general atmosphere of a learning space that incorporates multiple dimensions of organizational, social, emotional, structural, and linguistic elements [13]. It has an impact on the learner and the teacher. Positive perceptions of the physical environment of the school influenced learner's self-esteem, engagement with school, and approach to learning [14]. A positive education environment was associated with: a sense of self-efficacy, self-motivation [15], satisfaction and success [12]; academic progression, knowledge, skill, professionalism, empathy, a sense of well-being [16]; achievement, quality of life, resilience, less psychological distress, positive attitude, mindfulness, and preparedness for practice [17]. The positive educational environment also influenced the teaching performance of faculty [18].

Efforts have been made to measure the educational environment in primary, secondary, and tertiary levels of education including health professional education [19]. Soemantri et al. [20] suggested Dundee Ready Education Environment Measure (DREEM) is the most suitable tool for the assessment of the education environment of the undergraduate medical program. However, a review on the instruments used to measure the educational environment in undergraduate health professions curricula informs that DREEM has been used worldwide to evaluate the educational environment of institutions offering, Medicine, Nursing, Dental Technology, Radiology [19], Dentistry (21-22), Anesthesiology [23], Pharmacy, Physiotherapy [24], Public Health [25], Laboratory Sciences [26] and Osteopathy [27] programs. Roff [19] justifies that DREEM is a generic, non-culture specific tool to measure the educational environment of undergraduate health professional curricula. Denz-Penhey and Murdoch [28], on comparison of the data obtained from the qualitative interviews and the DREEM questionnaire, concluded that DREEM is quite effective to measure the educational environment, as it picked up qualitative data with ease, speed, and at a less cost. DREEM is a reliable tool and is available in over nine languages including Arabic. Reliability (Cronbach's coefficient alpha) of the Arabic version of DREEM in Saudi Arabia ranged between was 0.75 and 0.91, and of subscales, between 0.46 to 0.82 [29].

DREEM has been used to compare the educational environment within and between institutions as well as within or between countries [30], generate a profile of an institution's strengths and weaknesses [19], predict academic achievers and non-achievers [31], identify changes over time within an institution [32], elicit information on the ideal educational environment [33], examine the relationship between approaches to studying and academic achievement [34] and to evaluate the effectiveness of interventions undertaken to improve the educational environment [35]. It is also used to compare the perceived educational environment of institutions with different curriculums [30, 36], educational strategies [37-39] and campuses [40].

The majority of the published studies in Saudi Arabia are performed on medical students. The perceived educational environment was more positive

than negative in the majority of the studies held in Saudi Arabia [29, 38,, 41-43] Gender [30, 44] and year of study [29, 43] were not associated with a consistent pattern of the perception of the educational environment. The major concerns of the learners in these studies were in the areas of 'support system for the students who get stressed', 'constructive feedback from teachers', 'teacher-centered education,' 'authoritarian teachers',' ridiculing learners', 'encouragement for participation in learning', 'non-stimulating teaching', 'Emphasis on factual learning' and the 'time schedules'. Statistically significant differences were also found between male and female learners in a few of these areas [30].

MATERIAL AND METHODS
The setting, Sampling, and the Sample
This cross-sectional study was undertaken at a public university, in the Asir region of Saudi Arabia. This university offered twelve undergraduate health professional programs, on five campuses (two male and three female). Except for a very few clinical courses in Medicine, Dentistry, and Doctor of Pharmacy programs, the same gendered faculty (Saudi/Expatriate) were involved in teaching-learning activities. In addition to the teaching responsibilities, each faculty functioned as an 'academic advisor' to a group of students.

Learners at this university in Asir are Saudi citizens. The medium of instruction is English. Curriculum implementation, by and large, is teacher-centric. Student admission to health profession programs was based on the general secondary school grades, the national aptitude test, and an achievement test. Each year of study was divided into two semesters. Summer courses were available. The first year of study was referred to as foundation courses (included English, Islamic culture, Arabic language skills, Basic Biostatistics, Chemistry, Biology, and Physics). The courses specific to the chosen health profession program commenced from the second year, for all health professional programs. The student gained entry to the second year of the chosen program upon securing the pre-specified cumulative average (varies per program) in the foundation courses. The undergraduate medical and dental programs were of six years duration with one year internship; the allied health programs were of four years duration with one year internship; the Bachelor of Pharmacy program was of five years duration followed by 15 weeks of internship and the Doctor of Pharmacy program was of 6 years (the internship was embedded within the sixth year of training). Learners had the opportunity to switch campuses (if the program was offered on the other gender-specific campus) at the beginning of the semester. The exposure to the clinical area began in the fourth semester for allied health programs and the sixth, the seventh, and the ninth in the dental, medical, and pharmacy programs respectively.

Learners with exposure to clinical teaching during the training period (excludes interns) were the sample. There were a total of 3,478 learners meeting the inclusion criteria in the year 2017. To estimate the sample size, each program was treated as a 'strata'. Assuming an effect size of 0.25, at a 5% level of significance with 80% power, a minimum sample size of 30 per program was required to compare the mean perception score. Anticipating an attrition rate of 15% per strata, 35 learners per strata were selected through convenience sampling. Two of the female medical students came forward willingly to participate in the study and were included. A total of 646 learners participated in the study.

The Questionnaire
The items of DREEM are classified into five subscales namely, Students' Perception of Learning (12 items), Students' Perception of Teachers (11 items), Students' Academic Self-Perceptions (8 items), Students' Perception of Atmosphere (12 items) and Students' Social Self- Perceptions (7 items). Each item is rated as strongly agree (4), agree (3), uncertain (2), disagree (1), and strongly disagree (0). Nine negative items were for reverse scoring. A global score of 200 indicated an ideal environment. Items with a mean score of 3.5 and above were the real positive aspects, two or less were the problem areas, and between two and three were the aspects to be improved. The total DREEM scores in the range of 0-50, 51-100, 101-150, and 151-200 were described as very poor, plenty of problems, more positive than negative, and excellent respectively. Guidelines to interpret the DREEM scores are outlined by McAleer & Roff [45], and are reproduced in a few articles [1, 27, 41, 46].

In the questionnaire used in this study, each item was printed in both English and Arabic languages, similar to the one used by Al-Ayed and Sheik [47]. The questionnaire was tested among ten bilingual students of the university for cross-language equivalence. The responses to the English and the Arabic versions were the same and thus were considered equivalent. The reliability (Cronbach's alpha) of the DREEM in this study was 0.93 and of the subscales was 0.564, 0.733, 0.77, 0.78, and 0.82 of the Social Self Perception, Academic Self Perception, Perception of Atmosphere, Perception of Teachers and Perception of Learning respectively.

Data collection process and analysis
This study was approved by the Research Ethics Committee of the University in Asir. Permission to use the tool was obtained from the authors of English and Arabic versions of DREEM. Data were collected from December 2017 to April 2018 in person. Participation was voluntary, the confidentiality of data was assured and informed consent was obtained. Data were analyzed using Statistical Packages for Social Sciences software. Inferential statistics (Independent t-

test and One-way ANOVA) was used to compare the mean. Cohen's d and Eta squared (η^2) the most popular measures were used to estimate the effect size.

RESULTS

A total of 247 (38.2%) learners were male and 399 (61.8%) were female. Male learners were between 19 and 29 years (Mean= 21.82, SD=1.45) of age and females were between 18 and 27 years (Mean = 22.03, SD = 1.40). A majority (55.28%) of the learners were between 22-23 years of age. There was no statistically significant difference in the mean age of male and female learners (P=0.125).

Table-1 presents the range of scores in each category of a subscale of DREEM and gender-wise perceived education environment. About 48.1% of the female and 43.9% of the male learners perceived social self as, either 'not a nice place' or 'miserable'. A difference of more than ten percentage points was observed between the male and female learners only in the subscale of learning.

For the description and comparison of the perceived education environment, 508 learners, who filled every item of the DREEM, formed the sample. The majority (57.5%) described the perceived educational environment as 'more positive than negative', 9.6% as 'excellent', and 31.7% as 'plenty of problems'.

Perceived education environment at the University
Table-1: Perception of the education environment - subscale-wise

Subscales	Range of score	Male (%)	Female (%)
1. Students' Perception of Learning		n=227	n=374
Very poor	0-12	4.0	7.8
Teaching is viewed negatively	13-24	26.4	37.2
A more positive perception	25-36	56.4	47.8
Teaching highly thought of	37-48	13.2	7.2
2. Students' Perception of Teachers		n=226	n=367
Abysmal	0-11	1.8	2.5
In need of some retraining	12-22	25.7	28.1
Moving in the right direction	23-33	53.0	48.2
Model teachers	34-44	19.5	21.2
3. Students' Academic-Self Perceptions		n=236	n=387
A feeling of total failure	0-8	3.0	5.2
Many negative aspects	9-16	24.6	26.1
Feeling more on the positive side	17-24	52.5	47.8
Confident	25-32	19.9	20.9
4. Students' Perception of Atmosphere		n=222	n=374
A terrible environment	0-12	3.6	5.9
There are many issues which need changing	13-24	34.2	33.7
A more positive atmosphere	25-36	50.5	49.2
A good feeling overall	37-48	11.7	11.2
5. Students' Social-Self Perceptions		n=228	n=374
Miserable	0-7	5.3	7.0
Not a nice place	8-14	38.6	41.1
Not too bad	15-21	44.7	47.1
Very good socially	22-28	11.4	4.8

Table-2: Gender-wise comparison of mean DREEM score in each program

Program	Male			Female			t-value	P-value
	n	Mean	SD	n	Mean	SD		
Doctor of Pharmacy	20	109.20	32.47	31	85.32	23.52	3.044*	0.004
Physiotherapy	20	122.75	35.91	29	99.03	27.8	2.604*	0.012
Public Health	20	113.65	26.94	21	118.33	26.43	0.6562	0.578
Radiology	25	121.36	32.25	29	124.93	26.63	0.446	0.66
Nursing	32	119.63	24.95	56	126.98	23.72	1.37	0.173
EMS	22	108.23	23.37	29	135.38	19.09	4.566*	<0.001
Anesthesia Technology#	25	128.92	25.21					
Dental Technology#	24	109.83	30.04					
Dentistry##				28	104.82	55.63		
Laboratory Sciences##				28	125.17	28.52		
Medicine##				37	105.24	28.22		
Bachelor of pharmacy##				33	91.09	25.42		
*P<0.05; # Program not offered to females; ##Data could not be collected in the male campus								

Item analysis revealed that none of the items had a mean score of 3.5 and above among male and female learners. The items with a mean score of two or less in the total sample were: There is a good support system for students who get stressed (1.15); I am too tired to enjoy this course (1.37); I am rarely bored on this course (1.4); The teaching is too teacher-centered (1.52); The atmosphere motivates me as a learner (1.61); The enjoyment outweighs the stress of studying this course (1.63); The teaching over-emphasizes factual learning (1.74); The teachers are good at providing feedback to students (1.82); I am able to memorize all I need (1.85); The teaching is often stimulating (1.91); The teaching encourages me to be an active learner (1.93); Teaching is student-centered (1.95); The atmosphere is relaxed during the lectures (1.96), and this school is well time-tabled (1.97). In all the above 14 items, the mean score of female and male learners was less than two, except for the item, "This school is well time-tabled", where the mean score of male learners was 1.88 and of females was 2.03.

Comparison of the overall DREEM score

The mean of the overall DREEM score of male (117, SD =29.19, n=188) learners was higher compared to the mean of female learners (112.22, SD = 29.87, n=320). However this difference was statistically not significant (t $_{(506)}$ = 1.790, P=0.074, Cohen's d=0.11).

Comparison of education environment within a program

Table-2 presents the mean scores of the perceived education environment of male and female learners program-wise. The mean score of the perceived educational environment was higher among female learners compared to the male, except for Physiotherapy and Doctor of Pharmacy programs. A comparison of the mean overall DREEM scores of male and female learners, of EMS, Public Health, Nursing, Radiology, Physiotherapy and Doctor of Pharmacy programs, revealed statistically significant difference in EMS (t $_{(49)}$ = 4.566, P <0.001; Cohen's d= 1.15), Physiotherapy (t $_{(47)}$ = 2.604, P=0.012; Cohen's d = 0.75) and Doctor of Pharmacy (t $_{(49)}$ = 3.044, p=0.004; Cohen's d = 0.84) programs. Gender-wise comparison was not possible for a few programs as the overall DREEM score was available for only one gender.

Comparison of perceived education environment between programs

Considering the gender difference in the mean scores in some of the programs, a gender-wise comparison between programs was done separately. One-way ANOVA indicated no significant difference in the mean score of male learners across different programs (F $_{(7, 180)}$ = 1.59, P=0.141, η^2 = 0.058), but a significant difference did exist among female learners (F (9, 310) = 14.178, P=<.001, η^2 = 0.292). Post-hoc Tukey HSD analysis (Table-3) revealed that the mean DREEM scores of Dentistry, Physiotherapy, Medicine, Doctor of Pharmacy, and Bachelor of Pharmacy programs differed significantly with the EMS and the Nursing programs.

Table-3: Comparison of mean DREEM score of female learners (Post hoc Tukey HSD)

(I) Program	(J) Program	Mean diff (I-J)	Std. Error	P-Value	95% CI	
					Lower	Upper
EMS	Public health	17.05	7.31	0.326	-5.78	39.87
	Nursing	8.39	5.83	0.882	-9.83	26.62
	Laboratory Sciences	10.20	6.75	0.850	-10.90	31.30
	Radiology	10.45	6.69	0.825	-10.47	31.36
	Physiotherapy	36.34*	6.69	<0.0001	15.43	57.26
	Dentistry	30.56*	6.76	<0.0001	9.45	51.66
	Medicine	30.14*	6.32	<0.0001	10.38	49.89
	Bachelor of Pharmacy	44.29*	6.54	<0.0001	23.44	65.13
	Doctor of Pharmacy	50.06*	6.59	<0.0001	29.06	71.06
Public health	Nursing	-8.65	6.52	0.923	-29.03	11.73
	Laboratory Sciences	-6.85	7.36	0.991	-29.84	16.15
	Radiology	-6.59	7.31	0.993	-29.42	16.23
	Physiotherapy	19.29	7.31	0.174	-3.52	42.12
	Dentistry	13.51	7.36	0.658	-9.48	36.51
	Medicine	13.09	6.97	0.629	-8.67	34.85
	Bachelor of Pharmacy	27.24*	7.16	0.007	4.41	50.07
	Doctor of Pharmacy	33.01*	7.21	<0.0001	10.04	55.98
Nursing	Laboratory Sciences	1.80	5.90	1.000	-16.63	20.24
	Radiology	2.05	5.83	1.000	-16.17	20.27
	Physiotherapy	27.95*	5.83	<0.0001	9.72	46.17
	Dentistry	22.16*	5.90	0.006	3.72	40.59
	Medicine	21.73*	5.40	0.002	4.86	38.61
	Bachelor of Pharmacy	35.88*	5.65	<0.0001	17.87	53.90
	Doctor of Pharmacy	41.65*	5.71	<0.0001	23.46	59.86

Laboratory Sciences	Radiology	0.25	6.75	1.000	-20.86	21.35
	Physiotherapy	26.14*	6.75	0.004	5.04	47.25
	Dentistry	20.36	6.81	0.073	-0.93	41.64
	Medicine	19.93	6.38	0.050	-0.02	39.88
	Bachelor of Pharmacy	34.08*	6.60	<0.0001	13.04	55.12
	Doctor of Pharmacy	39.85*	6.65	<0.0001	18.66	61.05
Radiology	Physiotherapy	25.89*	6.69	0.004	4.97	46.81
	Dentistry	20.11	6.75	0.076	-0.99	41.21
	Medicine	19.69	6.32	0.052	-0.06	39.44
	Bachelor of Pharmacy	33.84*	6.54	<0.0001	12.99	54.67
	Doctor of Pharmacy	39.61*	6.58	<0.0001	18.61	60.61
Physiotherapy	Dentistry	-5.79	6.75	0.995	-26.89	15.31
	Medicine	-6.21	6.32	0.987	-25.96	13.55
	Bachelor of Pharmacy	7.94	6.54	0.970	-12.90	28.78
	Doctor of Pharmacy	13.71	6.59	0.542	-7.28	34.71
Dentistry	Medicine	-.42	6.38	1.000	-20.37	19.53
	Bachelor of Pharmacy	13.72	6.60	0.546	-7.31	34.76
	Doctor of Pharmacy	19.49	6.65	0.101	-1.69	40.69
Medicine	Bachelor of Pharmacy	14.15	6.16	0.393	-5.47	33.77
	Doctor of Pharmacy	19.92*	6.21	0.047	0.13	39.71
Bachelor of Pharmacy	Doctor of Pharmacy	5.77	6.43	0.996	-14.71	26.25
*P<0.05						

DISCUSSION

The perceived education environment in the present study was 'more positive than negative', a finding similar to other studies in the Kingdom [29, 37, 38, 41, 46, 48, 49]. None of the items of DREEM had a mean score of 3.5 and above in the present study as well as in other Saudi studies, irrespective of the type of curriculum implemented. The majority of the problem areas identified in the present study were also noted in the other Saudi public universities where a teacher-centered curriculum was implemented. However, the education environment in a Saudi university which implemented the problem-based teaching-learning strategy [37] was superior to that of the universities which used conventional teacher-centered strategies, except in the area of 'good support system for learners who get stressed' (mean of 1.5). This informs that a shift to a problem-based teaching-learning strategy at the public university in Asir would be a better alternative.

In the present study, learners were dissatisfied with the 'schedule' and expressed 'too tired to enjoy the course'. Time is certainly a major constraint for learners of professional programs in Saudi Arabia. Traditional curriculums are disintegrated and have large course content [50]. The time available for course implementation is four months in a semester (inclusive of final examinations). Further, learners with a quest for early graduation enroll for four to six courses (minimum of 12 credits) in a semester [51]. Too much to study in less time, amidst the language barrier and expectation of higher grades possibly adds to the stress of learning [52].

The lower mean score for the items 'Teachers are good at providing feedback to students' and 'presence of good support system for those who get stressed', implies that either faculty at the university do not find enough time to provide feedback to learners, or are incapable to guide appropriately in a culture-sensitive manner, or it could also be a reflection of the dissatisfaction with the role played by the faculty in the context of academic advising. Establishing counseling centers and orientation programs would be beneficial [32]. An academic advising unit with qualified professionals fluent in the Arabic language, having substantial knowledge of the curriculum of the program(s) run in the institution, would be a better strategy in this university than endorsing 'academic advising' as an additional responsibility to the faculty.

Studies using DREEM often described the perceived education environment in each subscale in terms of mean scores however in the present study the percentage of participants in each category of the subscale is described. The purpose of such a description was to identify the area in which the gender difference existed and its magnitude. A difference of more than ten percentage points was observed between the male and female learners only in the subscale of Students Perception of Learning. The majority of the male learners (69.6%) perceived learning positively than the female (55%). As learner characteristics and cultural influence on learning were not explored in this study, this knowledge gap in the University of Asir should be bridged through a systematic inquiry.

The major area in which both male and female learners were dissatisfied was the Students Social Self-perception. About 48.1% of the female and 43.9% of the male learners perceived social self as, either 'not a nice place' or 'miserable'. This informs the need for promoting an interactive educational environment with greater opportunities for meaningful socialization. Establishment of sufficient, user-friendly, accessible

physical infrastructure, effective means of communication between faculty and students, the involvement of learners in academic committees, organization of relevant co-curricular activities and appropriate in-campus recreational infrastructure might improve learners' perception of the educational environment.

Gender differences in the perceived education environment were not consistent in the studies reported from Saudi Arabian Universities [30, 38, 43, 49]. In the present study, though male learners perceived the education environment better than the females, the difference was not statistically significant. Statistically, significant gender differences were observed within the three programs, which invite a closer look at the mean scores of each item between male and female learners of these programs.

The observed significant gender difference in the Doctor of Pharmacy and Physiotherapy programs with lower DREEM scores among the females implies that the university must invest in improving the educational environment of the female campus of these programs. The mean overall DREEM score of the female learners in the Bachelor of Pharmacy program was also low. Though very few male faculties were involved in teaching the Doctor and Bachelor of Pharmacy, Medicine, and Dentistry programs, the effect of which on the perception of the female learners in the Saudi Arabian context cannot be underestimated. The non-significant difference in the mean scores of these programs among female learners does not mean that this might not be a factor responsible for the lower mean scores in these programs. A thought must also be given towards the recruitment of same-gendered faculty or to arrange office hours for the male faculty in the female campus. The availability of the faculty on campus is an advantage, for learners can approach them in person for guidance. However, the non-significant difference in the mean overall DREEM scores between Doctor of Pharmacy and Bachelor of pharmacy programs of female learners in the same campus should also be interpreted in the context that clinical exposure in the Bachelor of Pharmacy program is very minimal compared to the Doctor of Pharmacy program at the university of Asir.

The overall mean DREEM score in a study conducted in the same university among 100 female medical students of pre-clinical and clinical courses was 112.95, which was similar to the mean overall DREEM score of all-female learners (112.22) in the present study but was higher compared to the mean DREEM score of the learners of the Medicine program (105.24, n=37). The majority of the items with a low mean score observed in 2012 were also noted in the current study [29]. The observations imply that the university must re-invent appropriate measures to improve the educational environment of the Medicine program.

Hasan, Ibrahim, and Ali [53] recommend suitable policy models and training of human resources to improve the education environment in Saudi universities. Core content mapping, positive interdependence and mutual accountability in teaching and learning, the establishment of appropriate infrastructure, designing an innovative/integrated curriculum, careful selection of the faculty and faculty development programs are a few other strategies suggested in Saudi studies [32, 38, 54, 55]. These measures may improve the education environment in the university of Asir as well.

The strategies and policy models in Saudi universities must be drafted in light of the characteristics of the Saudi learners and the fact that the majority of the teaching faculty was trained outside Saudi Arabia. Language (English) barrier, low levels of motivation, scheduling issues, being lost in the world of imagination during lectures, un-timeliness or absenteeism, lack of interest in learning, low curiosity level, minimal effort in studies, short attention span, and low self-efficacy are reported in Saudi learners studying in the Kingdom [51, 56-58]. Saudi learners' tendency to read the printed text in English is often low [59]. They spend less time in studies or study just before the examination [51, 60]. They expect early graduation, focus on short-term success, and are unable to apply learned knowledge [50, 58]. They expect teachers to be helpful and adopt a supportive and directive leadership style in teaching-learning situations [52]. Thus, the curriculum implementation in Saudi universities must be structured to the Saudi learner characteristics. The faculty should be oriented to the characteristics of the learners. The curriculum and the course content should be designed, delivered, and assessed in such a way that the learner remains motivated throughout the educational process to attain the core competencies of the program and the professional standards. Measures to improve their English language (beyond the English course in the first year) and study skills are necessary.

While the findings of the present study are generalizable to the learners with exposure to clinical training in the public university of the Asir region, the findings on programs namely Pharmaceutical Sciences, Physiotherapy, Medicine, and Dentistry are to be interpreted with caution for two reasons. 1) The data collection period of these programs was quite close to the commencement of the final examinations. 2) The majority of the participants in the present study of Medicine (94.4%), Pharmaceutical science (86.1%), Dentistry (75.8%), and Physiotherapy (38.7%) programs were in the final year of study. It was noticed by Bennett, Kelly, and O'Flynn [61] that the total scores of perceptions of the education environment declined over time in a course, in a single academic year. Braten and Olaussen [62] observed adaptive motivation declined and learners lost enthusiasm and

engagement, over the course. The low mean scores of the perceived education environment in the aforementioned programs in this study might be an indication of decreased enthusiasm and the stress of forthcoming examinations. Thus it is essential that the timing of data collection in studies of this kind is given careful thought.

CONCLUSION

The provision of a positive educational environment in health professional programs can be a realistic goal. Positive learning environments promote knowledge, skills, professionalism, motivation, and a sense of well-being among the learners and teachers. The learners with exposure to the clinical area at the public university in Asir region perceived the educational environment more positive than negative. The university at Asir requires a focus on the improvement of the education environment of Pharmaceutical and physiotherapy programs, especially in the female campus. Strategies to establish a positive educational environment in the Saudi universities must take into account the knowledge of Saudi learner characteristics and the limitations in the education environment as expressed by the Saudi learners. Adoption of innovative, integrated, or problem-based strategies may be an effective measure to improve the education environment.

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