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Radiography students' satisfaction during their practical and clinical training sessions at King Khalid University, Saudi Arabia: A cross-sectional study.

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Abstract

Academic and professional work integrated learning is an integral part of tertiary education around the world. This article arises from a research project evaluating radiography students' satisfaction during their practical and clinical training sessions. The major aim of this study was to determine the extent at which perceived academic and organizational support influences the commitment of radiographers to their learning in practical and clinical hospital settings. 162 students from various levels (junior and senior) were evaluated on the questionnaire for their satisfaction in radiography practical sessions at the university level and clinical training in hospitals. A positive relationship was found between practical and clinical training sessions. Our data strongly suggest that the current management strategies in education play an important role in creating positive learning and potential working environment for radiographers to perform their tasks.

Keywords: King Khalid University, Radiography students.

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Introduction

Medical imaging or radiological technology profession has an important role in the health care system. To become a medical imaging professional there are various degrees are available from diploma to doctoral level. The most common basic level of education is the bachelor level, which is typically four years program. In these four years the student will have three years of classroom teaching at university and one year of internship in hospitals. During the bachelor program the students need to study university courses, college specific courses and core radiology courses [1]. To provide the hands on experience, in the second year onwards the radiography students will be exposed to practical sessions with related equipment in their university under the supervision of teaching faculties and clinical trainings in hospitals under the guidance of medical imaging specialists. This type of hands on experience is very crucial for the students to gain the confidence required to handle the practical situations after their graduation [1,2].

Current educational systems are focusing on an important concept called student satisfaction. By knowing satisfaction levels of the students towards their education and learning many transformations can be achieved, which will further improve their capacity of understanding and learning. The majority of the top ranked universities have a system of obtaining student satisfaction surveys after the completion of the program. These surveys are majorly targeting the overall experience of the students in the whole program rather than pinpointing accurate problems facing students in each level. Therefore, the new educational trends are aiming to identifying the issues in each level and in various contexts like classroom teaching, practical sessions and clinical postings [3-6] in this study, we intended to obtain radiography students' satisfaction in their practice sessions at university and in the clinical training sessions at the hospitals.

Methodology

Institutional research board approval was obtained before the initiation of the study. Total 162 students in five levels (semesters) of the Radiology program at the King Khalid University had participated in this study. In this cross sectional study we designed the questionnaire to evaluate the student satisfaction during the practical and clinical sessions. The basis for this medical imaging students' questionnaire was previously published [7]. The questionnaire was divided into two parts; Part A contained the demographic data while part B involved information related to student's satisfaction. Part B was divided into two sections; section one assessing the satisfaction of practical sessions in the University and section two assessing the satisfaction of clinical session in the hospital. Details of the questionnaire are provided in Appendix-1 [8].

Table 1: *Level-wise Comparison of Satisfaction from practical session, clinical posting and overall satisfaction*

Level and Total number of students	Satisfaction level from practical session	Satisfaction level from clinical posting	Overall Satisfaction
Level 3			
24	2.83 ± 0.82	3.01 ± 1.00	2.92 ± 0.85
Level 4			
24	3.36 ± 1.07	2.99 ± 1.21	3.17 ± 1.06
Level 6			
18	3.18 ± 1.13	3.10 ± 1.14	3.14 ± 1.12
Level 7			
60	2.99 ± 0.89	3.12 ± 0.93	3.05 ± 0.83
Level 8			
36	2.96 ± 1.02	2.62 ± 0.92	2.79 ± 0.87
Total			
162	3.03 ± 0.97	2.97 ± 1.01	3.00 ± 0.91

After explaining the details of the study to the students and obtaining their voluntarily consent form that was attached to the questioner, Adequate period of time was given and student to give their true opinion. To decrease the psychological pressure and fear, the forms were collected by unknown faculties who are not related to their specialty and they were instructed that no further investigation or discussion will be opened about their opinions. SPSS version 15 was used for data analysis. To check the Normality of data PP and QQ plots were used. Descriptive statistics were performed to find the mean, standard deviations of each question as well as the total scores. Cronbachs alpha was used for reliability testing. The scores of section one and two were compared by unpaired t test. The correlations between the two sections and the correlation between each section to total scores were done using Pearson correlation coefficiency. ANOVA was applied to find the satisfaction differences between all the levels of students. p value less than 0.05 was considered as significantly different.

Results

In this study, we aimed to evaluate the satisfaction of medical imaging students during their practical and clinical sessions. The minimum possible score for each question was one while the maximum was five. The questionnaire reliability which was checked with Cronbachs alpha gave a value of 0.906, indicating excellent reliability. All the total 162 students' questionnaire mean ± standard deviation was 3.00 ± 0.91 and their practical session satisfaction mean ± standard deviation was 3.03 ± 0.97. All the 162 students clinical session satisfaction mean ± standard deviation was 2.97 ± 1.01. For levels 3, 4, 6, 7 and 8 total questionnaire mean ± standard deviation scores were 2.92 ± 0.85, 3.17 ± 1.06, 3.14 ± 1.12, 3.05 ± 0.83 and 2.79 ± 0.87, respectively. Each level total score, sections score, the 162 students' total and sections' score mean ± standard deviation are shown in Table 1. All the students' practical session sections mean ± standard deviation values for question 1,2,3,4 and 5 were 2.9 ± 1.3, 3.0 ± 1.1, 3.1 ± 1.2, 3.1 ± 1.2 and 3.1 ± 1.1, respectively. All the students' clinical session sections mean ± standard deviation values for question 1,2,3,4 and 5 were 2.7 ± 1.2, 3.2 ± 1.3, 2.9 ± 1.1, 2.9 ± 1.3 and 2.9 ± 1.2, respectively. Overall and each level student's individual question mean ± standard deviation values are shown in Table 2.

Table 2: *All the students and individual level students' sections score and individual question score mean ± standard deviation.*

Level	Number of Students	Q1	Q2	Q3	Q4	Q5
3	24	2.2 ± 1.3	2.9 ± 1.1	2.7 ± 1.1	3.1 ± 1.2	3.1 ± 1.1
4	24	3.2 ± 1.4	3.3 ± 1.1	3.2 ± 1.2	3.4 ± 1.3	3.5 ± 1.1
6	18	3.1 ± 1.4	3.2 ± 1.2	3.1 ± 1.1	3.2 ± 1.3	3.1 ± 1.3
7	60	2.9 ± 1.1	2.9 ± 1.1	3.1 ± 1.1	3.1 ± 1.1	2.9 ± 1.1
8	36	2.9 ± 1.2	3 ± 1.1	3.1 ± 1.3	2.8 ± 1.2	2.9 ± 1.1
All Levels	162	2.9 ± 1.3	3 ± 1.1	3.1 ± 1.2	3.1 ± 1.2	3.1 ± 1.1
Level	**Number of Students**	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**

3	24	2.7 ± 1.3	3.1 ± 1.3	2.9 ± 1.3	3.2 ± 1.2	3 ± 1.2
4	24	2.8 ± 1.4	3.1 ± 1.5	3.2 ± 1.1	2.7 ± 1.7	3 ± 1.2
6	18	2.9± 1.3	2.8 ± 1.4	3.2 ± 1.3	3.1 ± 1.2	3.3 ± 1.4
7	60	2.8 ± 1.2	3.5 ± 1.1	3.1 ± 1.1	3.1 ± 1.1	2.9 ± 1.1
8	36	2.3 ± 1.2	3 ± 1.4	2.5 ± 1.1	2.6 ± 1.3	2.5 ± 1.0
All Levels	162	2.7 ± 1.2	3.2 ± 1 .3	2.9 ± 1.1	2.9 ± 1.3	2.9 ± 1.2

Comparison between scores of section one (University practical sessions) and section two (Hospital clinical sessions) was performed using unpaired t test (Table 3). The results demonstrate a significant relationship between the two section scores (p value <0.001; Table 3), indicating that the students have almost same kind of satisfaction levels for both practical and clinical sessions.

Table 3: *Unpaired t test values for comparison between sections (one University practical sessions) and section two (Hospital clinical sessions).*

Groups	N	Mean	Std. Deviation	Std. Error Mean	p value
Practical session	162	3.03	0.97	0.076	
Clinical posting session	162	2.97	1.01	0.079	<0.001

Table 4: *ANOVA results for satisfaction differences between various levels.*

Groups	Comparison	Sum of Squares	Mean Square	F	Sig.
Satisfaction from Practical Sessions	Between Groups	4.32	1.08	1.15	0.335
	Within Groups	147.73	0.94		
	Total	152.06			
Satisfaction from Clinical Postings	Between Groups	5.99	1.49	1.461	0.217
	Within Groups	160.87	1.02		
	Total	166.86			
Overall Satisfaction	Between Groups	2.94	0.73	0.87	0.484
	Within Groups	132.9	0.84		
	Total	135.85			

Correlation between sections one and two scores was performed with Pearson correlation co-efficiency. The obtained correlation r value of 0.7 indicates that there is a positive relationship between both sections. The correlation between sections one and two scores, and the total scores was also done by Pearson correlation co-efficiency. The r values for these two sections relative to total scores were 0.91 and 0.92 respectively. These also indicate that there is a positive correlation between the section scores with the total scores. Variance analysis was used to test the differences between satisfactions of various level students. Our results show that there are no statistical significant differences among the levels with respect to their satisfaction for practical and clinical sessions. The values of ANOVA test are shown in Table 4.

Discussion

Studies related to students' attitude towards their overall education programs [9,10] or to one specific subject [11] are commonly performed. However, studies aiming to evaluate students experience in their practical and clinical training are rarely conducted. In this work, we have evaluated the satisfaction of radiography students at the King Khalid University in their curriculum practical and clinical training sessions in hospitals. The overall questionnaire mean ± standard deviation for the 162 participants was 3.00 ± 0.91 out of the maximum score of 5. This indicates reasonable positive responses and shows that most of our students are satisfied with their practical and clinical sessions. A systematic previous study in the United Kingdom have shown that exposing students to integrated various types of practical sessions at early stages of their study program plays a critical role in improving student interests towards a socially responsive career [9]. In our radiography study field at the King Khalid University we also tend to apply the same strategy through exposing the students to both curriculum-based practical in the teaching laboratories and training sessions in hospital at early stages of the program.

Usually the studies related to students attitude towards their overall education [10] or attitude towards one specific subjects [11] are common but towards their practical and clinical experience are rarely studied. Our study has this rare specialty to find the student satisfaction in practical and clinical sessions. Importantly, among the overall scores, we have noticed that level 8 shows the least mean ± standard deviation, while level 4 gives the maximum mean ± standard deviation score (Table 1). The lower scores in level 8 may be attributed to lack of students' confidence in the clinical settings after completion [12]. The results for section one indicate that level 3 has the least mean ± standard deviation, while level 4 gained the maximum mean ± standard deviation score. The lower scores in level 3 may be due to the students' fresh enrolment in their program and clinical postings.

Comparison between the overall section two scores shows that level 8 scored the least mean ± standard deviation, while level

7 has the maximum mean ± standard deviation. Least scores in level 8 may be due to lack of confidence among students in handling patients independently after completing the training sessions. A previous study conducted on dental students' perspective about their clinical education showed lower ratings for clinical learning opportunities (mean=4.26 on a 6.00 scale). This was mainly attributed to the students concerns about the efficiency of dental clinic environment and lack of practicing opportunity to treat patients independently in training clinics [13]. However, our current objective manner study showed very good satisfactory levels among the radiography students in our university and hospital settings. The questionnaire developed for our study has shown good reliability. In addition, the correlations between the two sections are also satisfactory indicating that the students have similar opinions towards both practical sessions and clinical trainings. The limitations in this study include Lack of availability of one level students' data, the relatively small number of total participants and the absence of female students' data. We recommend conducting similar studies involving larger number of students from multicentre. Gender, age and levels of specific attitudes may be more beneficial to understand the precise students' perspectives throughout the country of Saudi Arabia, and is part of our future work.

Conclusion

The results of this study indicate that the radiography students at the King Khalid University are satisfied with their practical and in clinical training sessions in hospitals. The questionnaire used in this work could be utilized as a benchmark standard to assess student's satisfactions in radiography programs.

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