

Original Research Article

Dental students' perspectives on the educational environment of pediatric dentistry

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Abstract: Educational environment is very essential for the students' effective learning and assessing the dentistry clinical educational environments is very complex and challenging. The aim of this study was the evaluation of Kerman's dental students' perspective of the educational environment at the department of pediatric dentistry. This cross-sectional descriptive analytic study was performed on 86 dental students studying at the school of dentistry of Kerman University of medical science. A questionnaire was used to collect the data. The questionnaire consisted of two parts. The first section of the included the demographic information (gender, years of education, the score obtained for the pediatric dentistry courses, and their total grade-point average (GPA). the second section included 19 questions about educational environment at the department of pediatric dentistry. The data were statistically analyzed with Spss 18 software, independent T test, ANOVA, post hoc and Pearson correlation coefficient. The significance level was 5%. Of the 86 dental students, who participated in this study, 68.6% of the participants were female and the rest were male. 58.1% of the participants were sixth year, and 41.9% of them were fifth year students. The results of this study showed that the dental students with a GPA under 14 had a significantly lower perspective score compared to the students with a GPA of 14-16.99 ($P = 0.013$). 50.7% of the participants have reported that demonstration on patient by teachers is more efficient for increases the readiness of dental students. 54.7% of the dental students described the physical environment to be favorable, while 41.8% reported the units to be unfavorable and very unfavorable regarding their performance and state. Based on the results of this study the perspective of the Kerman dental students in towards the educational environment of pediatric dentistry was favorable. The quality of the units in the department was the only factor reported as low.

Keywords: educational environment, dental students, perspective

INTRODUCTION

The importance of dental educational environment in dentistry schools has been evaluated worldwide [1, 2]. Such evaluations provide an ideal opportunity for students to reflect more on their learning experience and helps evaluate the quality of education. In addition, collecting structured feedbacks from the students can be a very effective aid for curriculum planners [3].

Assessing the dentistry clinical educational environments is a very complex and challenging task, which includes assessing a wide range of factors involved in training and educating dentistry students, such as clinical setting equipment and materials, professor's training and evaluation method, social interactions between students and educational staff. Therefore, an evaluation tool for educational environments should include all the issues that might

affect the educational experience of dentistry students [4].

Educational environment is very essential for the students' effective learning. It has been shown that educational environment significantly affects students' attitude and leads to their professional and social developments [5]. Three of the most common critical factors that affect the education of dentistry students include the patient factor (the challenges of clinical treatment, dental anxiety in patients), the underlying factors (the status of clinic's equipment, educational policies and regulations), personal factors (such as method of communication with the patients, professors, and dental assistants). Evaluation of students' attitude towards education can decrease the effects of these critical factors [6].

Clinical performance is not only known as an important part of dental education but also as an

approach that largely increases dental students' performance quality and their ability to practice dentistry [7]. The sense of being professionally prepared in dentistry students who must act as an independent dentist is very important [8]. Dentistry students' views on the content, structure and quality of education are essential parts of the curriculum evaluation and are also an important source of information for educational policymaking [9].

Dental science develop constantly and the students must become familiar with these developments on a regular basis, and the dental system educators are faced with the challenges of providing satisfaction of the education system for the learners [10]. Bertolami believes that when the content and form of dental education do not support each other, it leads to insufficient educational experience and dissatisfaction [11]. Henzi *et al.*; studied the dental students' understanding of educational experience and their clinical competency, and showed that the majority of the students reported the interactions with the clinical professors to be favorable [12]. Ali *et al.*; research on the students' attitude towards educational environment showed that the students' main concerns were educational methodology, teachers' way of thinking and their approach [3].

Evaluation of an educational program is important for validation of that program and since the educational programs are always changing, it is necessary to constantly control their quality to improve these programs [13]. Jain *et al.*; evaluated dentistry students' attitude towards educational environment at clinics in India. They discovered in this study that the students viewed the relationships between the students as the most favorable at the university while the most important disadvantage of the university was considered lack of comfort at the university [14]. In another study conducted by Cardall *et al.*; on the attitude of students in America towards dental education, it was discovered that students' mentality is different at various levels of their academic education. The poor relationship between students and their professors is the main cause of demoralization of the students. Also, the students reported learning the practical skills as the most important aspect of their education [15]. Polyzois *et al.*; assessed the quality of operative dentistry education and the consensus among students and professors about the effectiveness of the education at the Dublin University. The results showed that there was little consensus about the effectiveness of operative dentistry education between professors and students [16].

Given the importance of evaluating dental education systems in order to improve the quality of dental education at the school of dentistry, also, a large volume of general dentistry graduates' clinical practice is allocated to pediatric dentistry, the current study aims to evaluate Kerman's dentistry students' perspective

of the educational environment at the department of pediatric dentistry, in order to use the results to identify the advantages and disadvantages of the pediatric dentistry program.

METHOD

A total of 86 dentistry students studying at the Kerman school of dentistry participated in this descriptive- analytical- cross sectional study. The inclusion criteria for this study included the students who were in their 5th or 6th year of study (interns) and had passed pediatric dentistry courses. The data used for this study was collected using a questionnaire. The questionnaire was designed by the researcher, consisting two sections and three areas. The first section of the questionnaire included the demographic information (gender, years of education, the score obtained for the pediatric dentistry courses, and their total grade-point average (GPA)) the second section included 19 questions and the questions covered three areas as; equipment and materials, clinical training method, the methods used to test and evaluate the students. There were also some questions regarding the students' perspectives of the types of clinical and pre-clinical trainings, student evaluation method, their levels of stress in pediatric dentistry department, and availability of an assistant and radiography equipment. The questionnaire was given to 10 pediatric dentistry and medical education specialists in order to evaluate its reliability, and changes were applied to the questionnaire based on their comments and a content validity index of 0.78 was obtained. The questionnaire was then given to 20 students in order to evaluate its validity, and an average Cronbach's alpha coefficient of 0.83 was calculated for the questionnaire. The questionnaire was scored based on a Likert Scale as follows:

1= very unfavorable 2= unfavorable 3= moderately unfavorable 4= favorable 5= very favorable

The obtained data were statistically analyzed with Spss18 software, independent T test, ANOVA, post hoc and Pearson correlation coefficient. The significance level was 5%.

RESULTS

The participants in this study were 86 in total, 68.6% of the participants were female and the rest were male. 58.1% of the participants were sixth year students, and 41.9% of the participants were fifth year students. Most of the participants in the study (69.8%) had a GPA between 14- 16.99 (table 1). The results of this study showed that the students with a GPA under 14 had a significantly lower perspective score compared to the students with a GPA of 14-16.99 (P = 0.013) (Table 2).

Table 1: Relative and absolute distribution of the participant based on the demographic variables.

	Variables	Number	Percentile
Gender	Male	27	31.4
	Female	59	68.6
Years of education in the school of dentistry	Sixth Year	50	58.1
	Fifth Year	36	41.9
Total grade-point average	>=17	4	4.7
	14-16.99	60	69.8
	<14	22	25.5
The score obtained for the Pediatric Dentistry course	>=17	14	16.3
	14-16.99	33	38.4
	<14	39	45.3

Table 2: The relationship between the demographic variables and the scores obtained by the questionnaire

Variable	Number	Mean	Standard Deviation	P.value
Gender	Male	27	56.13	0.5
	Female	59	54.52	
Years of education in the school of dentistry	sixth year	50	55.47	0.9
	Fifth year	36	55.45	
Total grade-point average	>=17	4	50.50	0.013
	14-16.99	60	56.3	
	<14	22	36	
The score obtained for the Pediatric Dentistry course	>=17	14	53.84	0.85
	14-16.99	33	54	
	<14	39	55.71	

Table 3: The frequency of distribution of responses to the questions in the questionnaire

Questions	Very favorable		favorable		Moderately favorable		un favorable		very unfavorable	
	Number	percentile	Number	Percentile	Number	Percentile	Number	Percentile	Number	Percentile
Physical environment of the department	3	3.5	47	54.7	25	29.1	9	10.5	2	2.3
Conditioning of the department	4	4.7	36	41.9	32	37.2	13	15.1	1	1.2
The Number of units in the department	0	0	26	30.2	30	34.9	22	25.6	8	9.3
the state and performance of the units in the department	0	0	11	12.8	39	45.3	23	26.7	13	15.1
The number of light-cure equipment	1	1.2	21	24.4	40	46.5	21	24.4	3	3.5
The number of available sets	4	4.7	45	52.3	31	36.0	5	5.8	1	1.2
The number of restorative instruments	6	7.0	52	60.5	22	25.6	5	5.8	1	1.2
The quantity of the materials used in the department	4	4.7	46	53.5	33	38.4	3	3.5	0	0
The quality of the materials used in the department	1	1.2	41	47.7	40	46.5	4	4.7	0	0
The quality of practical training in the department	5	5.8	41	47.7	32	37.2	7	8.1	1	1.2
The quality of pre-clinical training in the department	2	2.4	26	30.2	29	33.7	22	25.6	7	8.1
Student/ professor ratio in the department	9	10.5	51	59.3	21	24.4	5	5.8	0	0
How the professors respond to the students questions	12	14	51	59.3	20	23.3	2	2.3	1	1.2
The compatibility of the practical work with the course	5	5.8	40	46.5	32	37.2	9	10.5	0	0
Sufficiency of the requirements for the practical pediatric dentistry credits	7	8.2	46	53.5	27	31.4	5	5.8	1	1.2
Sufficiency of the number of patients in ratio with the number of students	6	7	38	44.2	23	26.7	14	16.3	5	5.8
The impact of residents' medical education on the education of general dentistry students	7	8.2	33	38.4	19	22.1	17	19.8	10	11.6
Methods of evaluation the students' work	4	4.7	29	33.7	36	41.9	12	14.0	5	5.8
Infection control in the pediatric dentistry department	3	3.5	56	65.1	16	18.6	7	8.1	4	4.7

More than half of the participants (50.7%) have reported that demonstration on patient by teachers is more efficient for increases the readiness of dental students. Most of the students (60%) reported the best

method of teaching in their pre-clinic as working on mounted natural teeth. 34.4% of the participants reported text books as the best source for teaching and evaluating the students. Only 8.2% of the participants

stated that they endure high levels of stress in pediatric dentistry department, a majority of them reported their level of stress as low (34.1%) to moderate (37.6%). More than half of the participants (54.1%) stated the availability of an assistant by the students during clinical practice in pediatric dentistry department as necessary. Also, 35.3% of the students stated that availability of radiography and processing equipment is necessary in the pediatric department. Table 3 shows the distribution of answers to the questionnaire.

DISCUSSION

Dentistry students play a marginal role in selection of the courses and the subjects that are taught in school [17]. While students' feedbacks on their learning experiences in dentistry school can be an important source of information for evaluating the curriculum [18]. It has been shown that evaluation of students' experiences in pediatric dentistry may help the professors in training and educating better graduates for treating children [19].

In the present study that aims to assess the students' feedbacks regarding the educational environment of pediatric dentistry, 54.7% described the physical environment to be favorable and 41.9% described the air conditioning of the department to be favorable. In the recent years the physical environment of the pediatric dentistry department has been improved, proper placement of the units and optimizing the department had helped develop the department, which luckily had met the expectations of more than half of the students. 30.2% of the students reported the number of units to be favorable, while 41.8% of the students reported the units to be unfavorable and very unfavorable regarding their performance and state. This indicates lack of maintenance or improper maintenance for the units. Given that the school of dentistry is an educational environment and depreciation of the units in more, therefore regular maintenance, repairing and servicing the dental units is necessary.

The unfavorable state of the units regarding their performance can be a stressor for the dentistry students. As shown in a study conducted on the stressors among the students of Kerman school of dentistry, depreciation of the equipment was one of the important stressors [20]. The clinical environment of pediatric dentistry can be stressful for the students because of managing uncooperative children and the sensitive technical nature of pediatric clinical practice. Therefore, the authorities should put more effort in providing equipment and tool support services.

In the current study most of the participants reported the equipment in the pediatric department to be favorable and very favorable. This is the strength point of the department that managed to increase the number of equipment and improve the quality of the materials

in recent years despite the increase in the number of students.

Some of the questions in this study addressed the quality of education. 69.8% of the participants reported the student/professor ratio to be favorable and very favorable. 73.3% of the participants reported the way the professors answer and address their questions to be favorable and very favorable. The results of the study by Fitzgerald on students in Ireland showed that the relationship between the students and the professors is very important for clinical learning and teaching [21].

In current study, only 19.8% of the participants reported testing methods and practical work evaluations to be unfavorable and very unfavorable, which can be a result of weaker students' anxiety and stress result of possibility of failing the course. The fear of failing clinical exams was reported as one of the most important stressors among Chilean and Argentinean students [22]. In a study by Shahravan *et al.*; the main concerns were dental environment, exams and fear of failing the exams or failing the cycle [23]. An important part of educational process is evaluating the students' educational achievement or rate of learning. Therefore, it must be ensured during the evaluation that the evaluation methods proportionate and compatible with the specific learning objectives [22].

In the present study, 50.7% of the participants reported the demonstration on patients to be more effective in increasing preparedness for practicing pediatric dentistry compared to watching videos and using software. The reason behind this can be that this method of teaching is more realistic and the instructor is closer to the learner. The relationships between the students and their professors and the interactions between them lead to very positive results such as acquiring cognitive skills, positive changes in students' behavior and attitude. The interaction between professor and student leads to assimilation of the students with their professors as their role models [24].

In the current study 60% of the participants reported working on mounted natural teeth in pre-clinic cycle more effective compared to working on plaster and acrylic teeth in order to become more prepared to work on patients, the reason might be the resemblance of the mounted natural teeth to the patients' teeth that they should later work on. Also, most of the students have the pre-clinic experience of working on plaster and acrylic teeth in other departments such as operative dentistry, which leads to better understanding of the learning rate of working on a variety of teeth. The stress level of the students in pediatric dentistry department was reported low and moderate in 71.7% of the participants. As previously mentioned above, the availability of the professors, the student/ professor ratio in the department is favorable. Therefore it can be

stated that this can also lower the students' stress in the department.

In response to the question that how necessary is the availability of an assistant and radiography in the department, most of the participants reported this as necessary and very necessary. Since pulp therapy in children requires radiography, the availability of radiography equipment in the department prevents unnecessary travel of the children and their exhaustion, which causes them to be less cooperative, and helps improve the quality of the work done on their teeth. In addition, more than half of the participants reported that availability of an assistant by the students while working in pediatric dentistry department to hand them the equipment and materials is very essential. A wide range of dental treatments are done in pediatric dentistry department and given that working on children and controlling them is very difficult an assistant can help improve the quality and decrease children's exhaustion.

The results of this study showed that there is a significant statistical relationship between students' GPA and the score obtained from the questionnaire. As the students with lower GPAs had poorer attitude towards the pediatric dentistry's learning environment. This factor can be related to their unpleasant experiences and more stress in the clinical department, which in turn led to their negative attitude towards educational environment. There was no significant statistical difference between the students' gender and the average score obtained. The results were compatible with the study conducted by Haghani *et al.* on Assessment of the Opinion of Kerman Dentistry Students, about Training Method and Equipment in the Dental Radiology Department [25].

CONCLUSION

Based on the results of this study the perspective of the dentistry students in Kerman towards the educational environment of pediatric dentistry was favorable. The quality of the units in the department was the only factor reported as low. Therefore, repairing the dental units and providing regular services for them is recommended.

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