

Short communication



Evaluation of dental students' opinions in Kerman about presenting and teaching dental trauma courses and their self-assessment of treating trauma patients

Seyed Sadegh Mansouri¹ , Arash Shahravan^{1*} , Shaghayegh Ghadimi¹, Amir Hossein Nekouei² ¹Endodontology Research Center, Kerman University of Medical Sciences, Kerman, Iran²School of Public Health, Kerman University of Medical Sciences, Kerman, Iran

Abstract

Background: Dentists are always preoccupied with the fate of teeth affected by traumatic injuries. The present study aimed to evaluate the opinions of dental students in Kerman Faculty of Dentistry about the mechanisms involved in teaching dental trauma courses and their self-assessment of the treatments they provide for traumatized teeth.

Methods: The present qualitative study was conducted using face-to-face interviews with senior (last-year) dental students in Kerman Faculty of Dentistry. The interviews continued until adequate data were collected. The interviews were recorded, transcribed, coded, and categorized. The content analysis method was used for data analysis.

Results: Based on the results, the dental trauma credits provided in the faculty were adequate, but the students preferred collaborative teaching and suggested that a single department should manage the credits that professors from different departments teach to avoid overlap. The majority of the interviewees believed that theoretical lessons alone were not adequate, and practical encounters with trauma patients required practical courses in the phantom clinic, and clinical management of trauma patients was necessary.

Conclusion: Considering the students' pinions concerning the inadequacy of theoretical presentation of dental trauma courses, to practically encounter and deal with trauma patients, it is necessary to incorporate practical training in the phantom clinic and clinical treatment of such patients into the educational curriculum so that such patients would best benefit from the treatment services.

Keywords: Dental trauma, Education, Self-assessment

Citation: Mansouri SS, Shahravan A, Ghadimi S, Nekouei AH. Evaluation of dental students' opinions in Kerman about presenting and teaching dental trauma courses and their self-assessment of treating trauma patients. *J Oral Health Oral Epidemiol.* 2023;12(3):140-144. doi: 10.34172/johoe.2023.24

Received: May 21, 2022, **Accepted:** October 18, 2023, **ePublished:** September 29, 2023

Introduction

Dental traumatic injuries are one of the most important oral and dental health-related problems, and their treatment is one of the issues preoccupying dentists. According to the World Health Organization (WHO), dentoalveolar traumatic injuries result from traumas to teeth, tooth-supporting structures, gingivae, and oral mucosa. These traumas have varying severity, depending on the tissues affected; therefore, they require diverse treatments.¹

Incisor teeth are one of the first teeth to erupt in the oral cavity. Traumatic injuries occur when a child has maximum physical activity, and they might fall victim to different events, including accidents, falls, collapses, etc. Since incisors are very important from the viewpoints of esthetics, tearing food, correct pronunciation, speech, and the patients' emotional and psychological states, dentists should be familiar with the complications of traumas to these teeth and their treatment modalities. The highest annual prevalence of traumatic injuries is related to

primary teeth at 2-3 years of age (when the motor balance is developing and children begin to move around relying on their own abilities). Concerning permanent teeth, the highest frequency of traumatic dental injuries occurs in boys 9-10 years of age during sporting activities or high-activity games. Therefore, the prevalence of traumatic injuries is high in children and adolescents.

Navabzad and Farahani studied 1440 children 9-14 years of age living in Yazd Province, reporting a 27.56% prevalence of traumatic dental injuries in these children and adolescents, with a higher rate of traumas in boys than in girls.² In another study, Norallahian and Moghaddas reported an 11.8% prevalence of crown fractures of maxillary incisors in students in the schools in Zahedan.³ In addition, Petti et al in Rome evaluated 826 students concerning traumas caused by trauma to anterior teeth and the relationship between the severity of trauma and predisposing factors. The results showed a 20.26% prevalence for dental traumas in these students, with the highest prevalence (33.69%) in 9-year-old boys



*Corresponding Author: Arash Shahravan, Email: arashshahravan@gmail.com

and a boy-to-girl ratio of 1.64%.⁴

If traumatic dental injuries are not managed properly, complications might arise, including tooth malformation, loss of the pulpal health, and periapical and periodontal lesions. In addition, tooth displacement and, in some cases, tooth loss are possible.⁴ A prerequisite for proper and rational treatment is the correct diagnosis based on different examination protocols.² Traumatic dental injuries should be managed promptly because malocclusion might develop due to the loss of proximal and incisio-occlusal contacts with the other teeth shortly after the incident. Therefore, dentists should be ready to manage such injuries, which comprise a variety of dental emergencies, so that a correct decision can be made and treatment may be provided skillfully and with high self-confidence.⁵ Therefore, dentists' knowledge about managing traumatic injuries is a critical issue.

Raouf et al evaluated 151 physicians and 104 dentists concerning the proper management of patients with traumatic dental injuries. The results showed that 10.6% of physicians and 66.3% of dentists had very high knowledge about traumatic dental injuries. However, >50% of dentists and all the physicians were not satisfied with their knowledge in this respect and were interested in educational courses to improve their knowledge.⁶ Derakhshan et al evaluated the knowledge of dental students in Qazvin concerning the emergency management of avulsed teeth. The results showed that 57.9%, 36.8%, and 8.3% of the students had relatively good, moderate, and poor knowledge in this area, respectively. The knowledge level was directly correlated with higher educational levels and the number of courses on traumatic injuries.⁷ Akhavan et al studied the prevalence and follow-up of treatments for traumatic dental injuries in patients referring to Isfahan Faculty of Dentistry during a 5-year period. The results showed that of 207 teeth with traumatic injuries in 127 patients, trauma to maxillary permanent central incisors had the highest prevalence (69.6%). The most frequent injury was crown fracture (33.8%), and the most frequent incident was falls (44.8%). The mean number of visits after treating the patients was 2.38 times, and the most frequent times for referring to a dentist was 24 hours (20.3%) and one week (21.8%) after sustaining the trauma (21.8%).⁸

Dental students should become familiar with traumatic injuries and their management during their studies. The theoretical educational courses on dental traumas in dental schools in Iran are presented by maxillofacial surgery, endodontics, pediatric, and restorative departments. However, due to the multiplicity of the departments in charge, there are some discrepancies in the courses and teaching procedures. On the other hand, these courses are exclusively theoretical, with no practical training, leading to students' problems in learning how to manage patients with such problems.

Therefore, the present qualitative study was designed and carried out to evaluate the presentation of courses on traumatic dental injuries and also evaluate senior (last-year) dental students' opinions in Kerman Faculty of Dentistry about these courses and their self-assessment of their ability to manage patients with dental traumas.

Materials and Methods

The present qualitative study was carried out using the conventional content analysis method. The subjects were the senior dental students in Kerman Faculty of Dentistry, who participated in the study voluntarily after signing informed consent forms. The subject selection process continued until data saturation. The data were collected using semi-structured face-to-face interviews. First, questions were asked about the quality of teaching dental trauma courses in Kerman Faculty of Dentistry. Then follow-up questions were asked, including "Please provide further explanations on the subject." and "Did I understand you correctly?" to increase the depth of the responses. The duration of the interviews was adjusted to 30 minutes based on the respondents' interests and patience. The data were collected and analyzed based on the aims of the study. The interviews were recorded digitally and then transcribed word by word. In order to have complete knowledge about the data, each interview was played and listened to several times. Then the words, sentences, and paragraphs of the interviews that were deemed important were selected as meaning units and were coded. After re-evaluation of these units, similar codes were identified and integrated. Classification was carried out based on the similarity of the codes. Finally, the main classes of subjects and the overall main theme of the plan were extracted. In addition, to ensure the scientific trustworthiness of the findings, the chief researcher evaluating the codes needed to acquire prolonged engagement and knowledge on traumatic injuries. In addition, to ensure the acceptability of data, the main codes were re-checked by the participants.^{9,10} Two-step interviews were carried out in a 14-day period in April 2018.

Results

In the present study, in-depth, face-to-face interviews were carried out with 20 senior (last-year) dental students in Kerman Faculty of Dentistry, during which questions were asked about the quality of teaching in the provided dental trauma courses and the students' self-assessment of their ability to treat these patients. After coding important sentences in the interviews, 20 important opinions were classified into three main categories and 11 sub-categories (Tables 1 and 2).

Based on the results, most respondents (60%) were dissatisfied with the education they received in the dental trauma courses, with the majority of respondents

Table 1. The details of the main categories of dental students' opinions

Main categories		The definition of the main category	The number of subcategories
Title	Code		
Main category 1	S1	The mechanism of teaching the theoretical course on dental traumas	5
Main category 2	S2	The mechanism of practical training (using a head phantom or direct clinical work for a patient)	4
Main category 3	S3	Students' self-assessment of the theoretical and practical education mechanism and encounter with trauma patients	2

Table 2. The details of the sub-categories of each main category of dental students' opinions

Main category codes	Sub-category code	The title of the sub-category	Agree		Disagree	
			No.	%	No.	%
S1	S1C1	Satisfied with the courses on dental traumas	8	40	12	60
	S1C2	The adequacy of theoretical courses on dental traumas for treating the affected patients	10	50	9	45
	S1C3	The necessity of providing theoretical and practical courses on dental traumas to train undergraduate dental students	18	90	2	10
	S1C4	Collaborative teaching of how to treat patients with dental traumas (by professors from different departments under unified management)*	17	85	3	15
	S1C5	The overlap of teaching materials in collaborative teaching	19	95	1	5
S2	S2C1	Higher favorability of presenting the practical course in the head phantom unit	13	65	-	-
		Higher favorability of presenting the practical course in the clinic	7	35	-	-
	S2C2	Higher favorability of presenting the practical course in a combined manner (head phantom plus clinic)	11	55	9	45
	S2C3	Previous encounter with trauma patients	13	65	7	35
S3	S2C4	A history of treating trauma patients	0	0	20	100
	S3C1	The ability to provide primary treatment for trauma patients	8	140	12	60
	S3C2	A high number of traumatic events in patients referring to the university	6	30	14	70

*The respondents disagreeing with this item believed that non-collaborative teaching (by professors from one department) would be more effective.

believing that both the theoretical and practical presentation of these courses are necessary to better train dental students to manage dental traumas. In addition, 85% of the respondents believed that the dental trauma courses should be presented collaboratively (by professors from different departments) under the supervision of a single department. However, 15% of the respondents believed that these courses should be taught individually (by professors from one department). Also, 95% of the respondents believed that there was overlap in the subject matters taught collaboratively, and only one respondent had a completely different idea.

In the second main category, which focused on the practical training (in a head phantom or direct clinical work on the patient), the majority of the respondents believed that practical training using a head phantom was more favorable, and a lower proportion of the respondents (65% vs. 35%) believed that practical training in the clinic on the patients would yield better results. However, 55% of the respondents preferred combined training. Concerning the experience of encountering and treating traumatized patients, 13 respondents out of 20 respondents reported that they had encountered trauma patients, and 7 respondents did not report such an experience. These 13 respondents reported that they had not provided any treatment to these cases and had only referred the patients.

Concerning the third main category, which focused on the students' practical and theoretical self-assessment of the training and their encounter with trauma patients, only 40% of the interviewees believed that they could provide initial treatment to trauma patients, while 60% did not make such a claim. Finally, 30% of the participants believed that too many trauma cases were referred to Kerman University of Medical Sciences.

Discussion

Generally, the dental students in Kerman Faculty of Dentistry expressed good opinions about teaching theoretical courses on dental traumas. A unified management paradigm and prevention of overlap are the most important considerations mentioned in this respect. However, there was great concern among dental students about the provision of practical courses on dental traumas. Since general dental practitioners will treat the bulk of trauma patients in the future, it is expected that these students should become practically familiar with the mechanisms involved in the treatment of such cases during their studies. However, dental students have not been engaged in treating such patients in the faculty. It is suggested that the phantom dental trauma course (for example, assistance with the placement of splints, etc) be provided in dental faculties. In addition, it might be helpful to establish a dental trauma department and invite

patients from different parts of the city for treatment for better training of dental students.

Since no qualitative study has been carried out in dental schools in Iran on teaching trauma courses and data were not available on such courses in other countries, the present study results cannot be compared to other provinces and centers.

A study by Shahravan and Pahlavan Sharif showed that the quality of treatment of dental trauma patients in Kerman Province depended on which dentist (a general dental practitioner or a specialist) or center the patients refer to or are referred to for treatment; this also depends on the general population and patients' awareness and knowledge. In addition, in that study, the interviewees believed that the quality of treatment provided for dental trauma patients depended on the severity of the trauma and the time elapsed since the trauma. On the other hand, the study above showed that general dental practitioners preferred not to become involved in treating dental traumas and only referred them to others. High treatment cost was another factor mentioned in their study, which appears to be one of the reasons for patients not referring for treatment in a timely manner. Most interviewees believed that no round-the-clock trauma center was available with reasonable costs in Kerman Province to provide services for such patients. Therefore, they suggested that such a center should be established.¹¹

Shahabinejad¹² et al evaluated the dental students' opinions in Kerman about the presentation of endodontic preclinical courses in 2010–2011 to determine the weak and strong points of these courses. The results showed that the students believed the physical atmosphere and the basic equipment and educational aids available in the endodontics phantom clinic were not adequate, with 28.7% and 56.2% of the students rating the condition as moderate and poor/very poor, respectively. In addition, the results showed that 64.7% and 60.35 of students rated the educational quality of theoretical and practical courses as good and very good, respectively. However, concerning the quality of practical training, 17.7% of the students rated the quality as very poor.

Conclusion

Based on the opinions of most respondents, practical training in the phantom clinic in addition to clinical training on patients should be included in the educational curriculum of undergraduate dental students to enable them to manage dental trauma cases without any fear, instead of referring them to others. In addition, most interviewees believed that a unified management paradigm for the dental trauma courses under the supervision of a single department and the participation of professors from different departments would significantly help increase the abilities of general dental practitioners in this respect. On the other hand, based

on these opinions, in many cases, the overlap of courses will be prevented, improving the consistency between theoretical and practical lessons. Therefore, it is suggested that a trauma department be established and necessary modifications made in presenting these courses to dental students, followed by a similar study for re-evaluation.

Authors' Contribution

Conceptualization: Arash Shahravan.

Formal analysis: Seyed Sadegh Mansouri, Arash Shahravan.

Investigation: Seyed Sadegh Mansouri.

Methodology: Arash Shahravan.

Project administration: Seyed Sadegh Mansouri, Arash Shahravan.

Validation: Seyed Sadegh Mansouri, Arash Shahravan.

Visualization: Seyed Sadegh Mansouri, Arash Shahravan.

Writing—original draft: Seyed Sadegh Mansouri, Arash Shahravan, Shaghayegh Ghadimi, Amir Hossein Nekouei.

Writing—review & editing: Seyed Sadegh Mansouri, Arash Shahravan, Shaghayegh Ghadimi, Amir Hossein Nekouei.

Competing Interests

None.

Data Availability Statement

Data will be available by request to the corresponding author.

Ethical Approval

This study was approved by the Ethics Committee at Kerman University of Medical Sciences (Ethical code: IR.KMU.REC.1397.085).

Funding

The research reported in this manuscript was partially funded Kerman University of Medical Sciences and the grant number is 98000713.

References

1. Andreasen JO, Andreasen FM, Andersson L. Textbook and color atlas of traumatic injuries to the teeth. *Stoma Edu J.* 2019;6(4):279. doi: 10.25241/stomaedu.2019.6(4).bookreview.3.
2. Navabzaman A, Farahani SS. Prevalence of traumatic injuries to maxillary permanent teeth in 9- to 14-year-old school children in Yazd, Iran. *Dent Traumatol.* 2010;26(2):154-7. doi: 10.1111/j.1600-9657.2009.00861.x.
3. Nour Elahian H, Moghadas A. Prevalence of crown fracture of the permanent maxillary incisors in primary school pupils in Zahedan in 2003-2004. *Zahedan Journal Of Research In Medical Sciences (Tabib-E-Shargh).* 2006;8(3):187-193.
4. Petti S, Tarsitani G. Traumatic injuries to anterior teeth in Italian schoolchildren: prevalence and risk factors. *Endod Dent Traumatol.* 1996;12(6):294-297. doi:10.1111/j.1600-9657.1996.tb00530.x
5. Raof M, Zaherara F, Shokouhinejad N, Mohammadalizadeh S. Elementary school staff knowledge and attitude with regard to first-aid management of dental trauma in Iran: a basic premise for developing future intervention. *Dent Traumatol.* 2012;28(6):441-7. doi: 10.1111/j.1600-9657.2011.01085.x.
6. Raof M, Vakilian A, Kakoei S, Manochefrifar H, Mohammadalizadeh S. Should medical students be educated about dental trauma emergency management? A study of physicians and dentists in Kerman province, Iran. *J Dent Educ.* 2013;77(4):494-501.
7. Derakhshan B, Fattahi E. *Evaluation of the knowledge,*

- attitudes, and performance of general dental practitioners in Qazvin concerning dental traumas in Spring 2010*. Thesis General Dentistry, Qazvin University of Medical Sciences, 2010.
8. Akhavan, Ali; Nilchian, Firouzeh; Salehi, Ali. Traumatic dental injuries and their follow-up in patients attending Isfahan Dental School during a 5-year period (2005-2011). *Journal of Isfahan School of Dentistry*. 2014; 10 (1):53-66.[Persian]
 9. Nobahar M. Exploration nursing care process in intensive cardiac care unit: grounded theory. *J Qual Res Health Sci*. 2020;4(2):99-111. [Persian].
 10. Nobahar M. Care quality in critical cardiac units from nurses perspective: a content analysis. *J Qual Res Health Sci*. 2020;3(2):149-61. [Persian].
 11. Shahravan A, Pahlavan Sharif M. *Evaluation of the opinions of general dental practitioners and specialists about the quality of treatment services provided for dentoalveolar traumas in Kerman Province in 2016: A qualitative study*. [Thesis] General Dentistry, Kerman University Of Medical Sciences, 2016.
 12. Shahabinejad H, Asghari N, Naderi A. *Evaluation of the opinions of dental students in Kerman about the presentation of endodontics preclinical courses in the 2010-2011 Educational Year*. [Thesis], General Dentistry, Kerman University Of Medical Sciences, 2011.

© 2023 The Author(s); Published by Kerman University of Medical Sciences. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.