

Assessment of Knowledge and Awareness Levels of Healthcare Professionals and Candidates on Dentoalveolar Injuries

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Abstract

Purpose: To evaluate the level of knowledge and awareness of healthcare professionals and candidates about traumatic dental injuries.

Material and Methods: A total of 160 people, consisting of 3rd, 4th, 5th year students (47) studying at Faculty of Medicine, 3rd and 4th year students (91) studying at School of Nursing, and emergency physicians, emergency and traumatology nurses, and otorhinolaryngologist and specialist nurses (22) attended. Participants were asked to answer the questionnaire forms sent in digital environment.

Results: 82.3% of the participants stated the percentage of teeth and jaws affected by trauma to the head and facial area as 40–60% or more. When asked about what to do when you encounter an avulsed tooth case, 50.9% of them stated that they will refer the patient to the dentist and 48.4% should be in the first half hour, 11.3% of them reimplanting the avulsed tooth. While 23.9% of the participants preferred sterile saline solution during the transportation of the avulsed tooth, 33.3% stated that they did not have any knowledge. 87.4% of the participants stated that it is important to participate in an educational program related to dental trauma and 85.5% of them want to participate in an educational program.

Conclusion: Within the limits of the study, it was concluded that training programs are necessary to improve the knowledge and awareness levels of non-dentist healthcare professionals and candidates about dentoalveolar traumas.

Key words: Dentoalveolar trauma; Healthcare Professionals; Knowledge Level

Introduction

Dental traumatic injuries, especially in children, are one of the most common problems after tooth decay. The prognosis in dental traumas may change according to the time spent after the trauma, where and how the trauma occurred, the type of trauma, the degree of displacement or mobility of the tooth, the fracture area, the condition of the root development and the age of patient.¹ It has been reported that most of the children are taken to the dentist between 1–6 months after trauma and there are very few children who are taken to the dentist within the first 24 hours. In addition, it was determined that only 15% of children had first intervention after oral-dental injury.^{2–4} Since traumas are usually among the situations that require urgent intervention, the first treatment with

the patients is performed by medical doctors in the emergency services.^{5,6} The priority in the emergency services is the treatment of conditions that threaten the general health of the patients, so the treatment of injuries of teeth and surrounding tissues can be ignored. Early treatment is of great importance in terms of prognosis in oral-tooth injuries.^{7,8} Dentofacial trauma is encountered more frequently in emergency departments of public hospitals, university hospitals and private hospitals. Emergency services, trauma knowledge and awareness for this group are important as full-time dentists are rarely available.⁹ Nurses play an important role in emergency preparedness. In the treatment of dentofacial trauma where timing is important, nurses who have functions such as preparing the patient, helping the physician, calling the emergency service are also important in coping with dentofacial trauma.¹⁰ After re-

viewing the literature, it is seen that the gap in the literature is the lack of information about dental trauma, where medical faculty, emergency physicians, and nurses are evaluated together. For this reason, the present study was conducted with emergency medicine physicians and candidates, nurses and candidates. The aim of this study is to evaluate the level of knowledge about the management of traumatic dental injuries of both emergency medicine doctors and nurses, including specialist health professionals in the traumatology department, and health worker candidates studying at the Faculty of Medicine, Faculty of Nursing. The null hypothesis of the study is that there is no difference between the groups when the questionnaire questions in dental trauma assessment are compared.

Methods

A total of 160 people, consisting of 3rd, 4th, 5th grade students (47) studying at Faculty of Medicine, 3rd and 4th grade students (91) studying at School of Nursing, and emergency physicians, emergency and traumatology nurses, and otorhinolaryngologist and specialist nurses (22) were included. Data collection forms were sent to the participants who accepted to participate in the study via digital platform called Google Forms. The data collection form was composed of 16 questions used in a similar study published previously^{5,9} in the literature which questioned the participants in terms of their level of knowledge and awareness in the emergency treatment of dental injuries Table 1. Each participant answered the questionnaire separately. The data obtained as a result of the answers given to the questionnaires were evaluated statistically by using the Chi-Square Test in the SPSS 24.0 package program. The sample size was determined as a minimum of 158 with a significance level of 0.05 and a power of 0.94 percent. Ethics approval was obtained through University A Research Ethics Committee (reference no.8057635405099/214).

Results

Demographic data, basic level of knowledge and education about dentofacial trauma as well as knowledge levels of crown fractures and emergency management of avulsion in primary and permanent teeth are shown in Table 2 and Table 3. When asked the question, "What do you think is the percentage of teeth and jaws affected in traumas to the head and face area?", 42.4% of the participants responded with a percentage of 62-80 (p=0.301). The question was, "Have you ever encountered an accident that caused a tooth to come out?". According to the result, 120 (75.5%) of the participants had not encountered a situation that caused the tooth to come out before. Following that, they were asked, "What will you do with the avulsed tooth?", about 11.3% reported that they answered in the following way: "I replace the tooth and immediately apply to the dentist". The 4th year students of the Faculty of Medicine gave the correct answer at the highest rate, 30.4%. There was a significant difference between answers (p=0.048). When they were asked the question, "What is the average time taken to seek the doctor in case of a "knocked out tooth?"", approximately 48.4% answered "within the first 30 minutes"; 15.7% answered "I don't know". There is a significant difference between the answers (p=0.002). Another question asked to the participants was, "What do you do if a dislocated tooth is broken?", 17.6% of the participants answered "I don't know"; about 3.8% answered "I will still replace the tooth" p= 0,767 and 66% of the participants said that it was important to find the broken part when the tooth was broken. No significant difference between the answers (p=0.077). When asked about the transport media for the avulsed tooth, 23.9% of the participants were realized to show a tendency to use distilled water, 8.8% preferred oral cavity and saliva while 33.3% showed preference in terms of milk. There

Table 1. Questions in the questionnaire form

Question 1	What do you think is the percentage of teeth and jaws affected in traumas on the head and face area?
Question 2	What will you do with the "avulsed tooth"?
Question 3	What do you do if a dislocated tooth is broken?
Question 4	Do you know what to do if a permanent tooth is dislocated as a result of an accident?
Question 5	Do you think it is important to have a training program regarding management of dental trauma?
Question 6	Do you think your level of knowledge about oral and dental injuries is sufficient?
Question 7	Would you like to attend a training program on management of dental trauma?
Question 8	Have you ever encountered an accident that caused a tooth to come out of place?
Question 9	Would you replace an avulsed permanent tooth?
Question 10	What is the material used to clean the "knocked out tooth"?
Question 11	Which part of the tooth should be kept while placing an avulsed tooth?
Question 12	What is the medium used to transfer the "knocked out tooth"?
Question 13	Would you replace an avulsed deciduous tooth?
Question 14	Do you think breaking a tooth is an emergency problem?
Question 15	What is the importance of finding the broken piece when the tooth is broken?
Question 16	What is the average time taken to seek the doctor in case of a "knocked out tooth"?

were significant differences between the answers given (p=0.000). More than 81.1% of the participants responded that they were not satisfied with their knowledge regarding traumatic dental injuries, and they felt that attending a dental education program would be of much benefit when they handle patients.

Table 2. Responses of the participants to the questions, their percentages and statistical comparison

	3rd year students at Faculty of Medicine		3rd year students at School of Nursing		4rd year students at Faculty of Medicine		4rd year students at School of Nursing		5th year students at Faculty of Medicine		Emergency Medicine Nurses		Otorhinolaryngology Nurses		Otorhinolaryngology specialist physician		traumatology department nurse		p
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Male	5	22,7	1	25,0	11	47,8	25	28,7	2	100,0	3	20,0	0	0,0	1	100,0	0	0,0	0,083
Female	17	77,3	3	75,0	12	52,2	62	71,3	0	0,0	12	80,0	1	100,0	0	0,0	4	100,0	
Question 1																			
1-20	1	4,5	0	0,0	0	0,0	4	4,6	0	0,0	2	13,3	0	0,0	0	0,0	0	0,0	0,301
21-40	3	13,6	0	0,0	3	13,0	9	10,3	2	100,0	2	13,3	0	0,0	1	100,0	2	50,0	
41-60	5	22,7	1	25,0	5	21,7	19	21,8	0	0,0	2	13,3	0	0,0	0	0,0	0	0,0	
61-80	11	50,0	2	50,0	10	43,5	37	42,5	0	0,0	4	26,7	1	100,0	0	0,0	2	50,0	
81-100	2	9,1	1	25,0	5	21,7	18	20,7	0	0,0	5	33,3	0	0,0	0	0,0	0	0,0	
Question 2																			
I immediately consulted the dentist.	14	63,6	3	75,0	4	17,4	49	56,3	0	0,0	7	46,7	1	100,0	1	100,0	2	50,0	0,048
I wash the child's mouth with tap water and put the tooth in a damp cloth.	7	31,8	1	25,0	12	52,2	29	33,3	2	100,0	8	53,3	0	0,0	0	0,0	1	25,0	
I replace the tooth and immediately apply to the dentist.	1	4,5	0	0,0	7	30,4	9	10,3	0	0,0	0	0,0	0	0,0	0	0,0	1	25,0	
Question 3																			
I don't know.	3	13,6	0	0,0	3	13,0	18	20,7	0	0,0	3	20,0	0	0,0	0	0,0	1	25,0	0,767
Other (specify)	2	9,1	0	0,0	0	0,0	0	0,0	0	0,0	1	6,7	0	0,0	0	0,0	0	0,0	
I go to the dentist with broken tooth.	16	72,7	4	100,0	18	78,3	56	64,4	2	100,0	8	53,3	1	100,0	1	100,0	3	75,0	
I don't care about the broken piece.	0	0,0	0	0,0	0	0,0	10	11,5	0	0,0	3	20,0	0	0,0	0	0,0	0	0,0	
I replace the tooth	1	4,5	0	0,0	2	8,7	3	3,4	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	
Question 4																			
Yes	4	18,2	1	25,0	6	26,1	17	19,5	0	0,0	3	20,0	0	0,0	0	0,0	0	0,0	0,478
I don't have an idea	5	22,7	2	50,0	6	26,1	28	32,2	0	0,0	5	33,3	0	0,0	0	0,0	4	100,0	
No	13	59,1	1	25,0	11	47,8	42	48,3	2	100,0	7	46,7	1	100,0	1	100,0	0	0,0	
Question 5																			
I don't know	0	0,0	0	0,0	1	4,3	8	9,2	0	0,0	2	13,3	0	0,0	0	0,0	0	0,0	0,477
Yes	21	95,5	4	100,0	19	82,6	75	86,2	1	50,0	13	86,7	1	100,0	1	100,0	4	100,0	
No	1	4,5	0	0,0	3	13,0	4	4,6	1	50,0	0	0,0	0	0,0	0	0,0	0	0,0	
Question 6																			
Yes	0	0,0	1	25,0	3	13,0	11	12,6	0	0,0	2	13,3	0	0,0	0	0,0	0	0,0	0,816
I don't have an idea	0	0,0	1	25,0	2	8,7	9	10,3	0	0,0	1	6,7	0	0,0	0	0,0	0	0,0	
No	22	100,0	2	50,0	18	78,3	67	77,0	2	100,0	12	80,0	1	100,0	1	100,0	4	100,0	
Question 7																			
Yes	18	81,8	4	100,0	17	73,9	77	88,5	1	50,0	13	86,7	1	100,0	1	100,0	4	100,0	0,041
I don't have an idea	4	18,2	0	0,0	0	0,0	4	4,6	0	0,0	2	13,3	0	0,0	0	0,0	0	0,0	
No	0	0,0	0	0,0	6	26,1	6	6,9	1	50,0	0	0,0	0	0,0	0	0,0	0	0,0	
Question 8																			
Yes	8	36,4	0	0,0	5	21,7	17	19,5	0	0,0	6	40,0	1	100,0	1	100,0	1	25,0	0,113
No	14	63,6	4	100,0	18	78,3	70	80,5	2	100,0	9	60,0	0	0,0	0	0,0	3	75,0	

Discussion

Traumatic dental injuries, in addition to psychosocial problems, which can cause pain and anxiety and result in negative results if mistakes are made in the emergency intervention and guidance stage continue to be one of the important oral-dental health problems where problems can develop.¹⁰ In recent years, the knowledge and awareness levels of dentists, dental hygienists and primary school teachers about dental trauma have been investigated in various countries.^{3,8} There is not enough information about the knowledge and awareness level of healthcare professionals and candidates in the management of dental traumas, especially in the treatment of avulsed teeth.^{1,3} In this study, the awareness of healthcare professionals and candidates who may encounter trauma cases about dental injuries was evaluated and their knowledge level about trauma was investigated by asking questions related to treatment protocols. According to the International Association of Dental Traumatology (IADT) guidelines, immediate replantation at the accident site is the best treatment for permanent teeth. The condition of the cells, storage conditions and the time spent outside the mouth affect the vitality of the tooth. Especially dry time is critical for the survival of periodontal ligament cells.² In the study conducted by Coskun et al.⁹, 11.2% of the physicians and 10.2% of the nurses reported that the avulsed tooth was placed immediately within 15–30 minutes, and most of the participants expressed the opinion that an avulsed tooth should be retained from the crown. In the current study, the students of the 4th grade Nursing Faculty reported that the dentist should be reached in the first 30 minutes with the highest percentage (54%) among the candidate groups, and 60% of the emergency nurses gave this answer. In the current study, most of the participants expressed their opinion that an avulsed tooth should be held from the crown. However, the correct response rates were low regarding in which media the tooth is to be stored. 8% of candidates of nurses, 30.3% of candidates of physicians and 26.7% of emergency nurses preferred saliva, milk or inside the mouth which is the most suitable storage mediums. Sterile saline solution, which is an alternative storage medium, was preferred by the nurse candidates at the highest rate, with a rate of 28.7%. Similar to the results of our study, it was determined that there was a lack of knowledge in studies evaluating the knowledge of medical and nursing students and emergency health workers on dentofacial trauma.^{4,5,10} According to the IADT directive, replantation is not recommended for avulsed primary teeth.² From this point of view, one of the most important questions of our survey study was “What will you do with the “avulsed tooth”? In the study by Çiftçi et al.⁷, this question was replied “I will replace 58.6 teeth and immediately apply to the dentist”. In our study, 83.6% of them stated that they would not replace the primary teeth and 70.4% stated similarly for permanent tooth, that is, giving the answer that I would replace 11.3% teeth and apply to the dentist immediately. In the study of Yunus et al.⁶, similar to our study, it was reported that there was a lack of knowledge about the storage environment and time management for avulsed teeth in nursing students. It leads to undesirable applications in the management of traumatic dental injuries. Incorporating dental trauma management into medical and nursing school curricula will provide students with a better understanding of the importance of early treatment for better patient outcomes. Medical doctors and nurses competent in managing emergency dental trauma procedures will be able to provide a higher standard of care for the patient that can prevent potentially lifelong negative repercussions. It is obvious that adding the trainings on dental trauma management to the emergency aid training will contribute. Our study also included nurses, doctors, emergency service workers and health worker candidates, and their level of knowledge was found to be less than expected. There were differences between the answers given in the study, and the null hypothesis was rejected.

Conclusion

The present study revealed that the level of knowledge and awareness of health staff was not as high as expected. Considering the results, it is important for health staff working in emergency departments to know the treatment protocols for traumatic dental injuries, especially avulsion injuries, in order to minimize complications. Taking the data of this study into consideration, another multi-centre study with a larger number of participants can be planned. Lecture notes on traumatic dental injuries can be added to the training curriculum, and educational and attractive brochures can be posted in the emergency services. Up-to-date training programs on the subject can be organized for other health care workers, especially emergency service workers, in order to improve their knowledge and awareness levels.

None

Author Contributions

T.A. and S.O. planned the study design.

S.O and F.O.C. prepared and performed survey form.

All authors evaluated the results, wrote the text and made the necessary corrections.

Conflict of Interest

Authors declare that they have no conflict of interest.

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