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Evaluation of Knowledge Level and Awareness of Parents About Avulsion and Crown Fracture

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Abstract

Objective: The aim of this study was to evaluate the knowledge levels and awareness of avulsions and crown fractures of the parents. The study is important to understand how to improve parents' knowledge level related to dental treatment of avulsion and crown fracture.

Methods: The parents of pediatric patients who applied to Ordu University Faculty of Dentistry, Department of Pediatric Dentistry during April-June 2017 were the target group for this study. A questionnaire was formulated to evaluate the parents' knowledge levels and awareness of avulsions and crown fractures. Five hundred and seventy-five parents answered the questionnaire. The participation rate was 68.3%. Data were analyzed statistically.

Results: Approximately one-half of the parents in this study were in their thirties, and 61.9% of the parents were males. Only 29.9% of the parents were university graduates, and more than one-half had not attended a first aid course. The chi-squared test indicated that there was no statistically significant difference between the correct answer percentage and the age, gender, and affected by dental trauma ($P>0.05$). However, a statistically significant difference was found between the correct answer percentage and the educational level, first aid course attendance, see a dental trauma, and preferred institution for emergency dental treatment ($P<0.05$). The parents' level of knowledge and awareness of avulsions and crown fractures was 40.2% or "poor".

Conclusion: The parents' knowledge levels and awareness of avulsions and crown fractures should be increased through educational programs.

Key words: Dental trauma, knowledge level, parents, questionnaire

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Introduction

Traumatic dental injuries occur frequently in children and young adults, accounting for 5% of all injuries (1). Dental trauma is an important and prevalent oral health problem in children, and it can cause pain and distress (2). Epidemiological studies have indicated that dental trauma is a significant problem in young people, and that in the near future, the trauma incidence will exceed that of dental caries and periodontal disease in the young population (3). The general causes of these

dental injuries include falls, collision, fighting and pushing/shoving (4). Luxation injuries are the most common traumatic dental injuries seen in the primary dentition, whereas crown fractures are more commonly reported for the permanent teeth (1).

The majority of dental injuries occur in children between the ages of 8 and 11 years old (5). When considering the dentition periods that are affected by trauma, 30% of the primary dentition and 20% of the permanent dentition is affected (4). The primary and permanent anterior teeth are important not only for aesthetics, but also for phonetics, chewing, supporting tissues integrity, and the psychological and mental health of children (6). Therefore, the proper diagnosis, treatment planning, and follow up are important to assure a favorable outcome (1). International Association for Dental Traumatology has published dental trauma guidelines that include three sections about primary and permanent traumatic dental injuries, which also offer recommendations for their diagnosis and treatment. Prompt and pertinent emergency management is not only the responsibility of the dentist, but also of lay people, such as the parents and the teachers available at the site of accident (6). Most traumatic dental injuries occur at home, followed by school (7,8). So mothers play important roles in the appropriate decision-making (9). Most children with avulsed teeth present for treatment late due to lack of awareness and knowledge among parents, and this can result in an unfavorable long-term prognosis (10).

There have been many studies conducted to determine school teachers' knowledge levels of dental trauma (11-14). However, a literature review revealed that there have been only a few studies on the parents' knowledge levels of dental trauma (15,16). Moreover, there were no studies dedicated to evaluating the parents' knowledge levels and awareness of both avulsions and crown fractures. Therefore, the aim of this study was to evaluate the knowledge levels and awareness of avulsions and crown fractures of parents whose children were admitted to the Faculty of Dentistry, Department of Pediatric Dentistry, Ordu University in Turkey.

Methods

This study was approved by the Faculty of Medicine, Clinical Research Ethics Committee, Ordu University (2017-137). The parents of patients who applied to Faculty of Dentistry, Department of Pediatric Dentistry, Ordu University during April-June 2017 were the target group for this study. A questionnaire was formulated to evaluate the parents' knowledge levels and awareness of avulsions and crown fractures. The contents and aim of the study were explained verbally to the parents, and the confidentiality of those parents who were agreeing to participate in the questionnaire was ensured. Five hundred and seventy-five parents answered the questionnaire. The participation rate was 68.3%.

The questionnaires were distributed by the same person and collected on the same day. The questionnaire was made up of two parts, modifying the questionnaire used in the study of Mehrabkhani et al. (17) Part 1 "Personal and Professional Information," was created to obtain the participants' sociodemographic information. This section consisted of 7 questions about the basic demographic information, including the age, gender, educational level, attendance in a first aid course that included dental injuries, see any dental trauma, any past experiences with dental trauma, and the preferred institution in case of emergency dental treatment.

Part 2, "Knowledge," was created to determine the parents' knowledge levels and awareness of avulsions and crown fractures. This part was made up of 15 questions about two dental trauma types: fractured teeth and avulsed teeth. Some of the multiple-choice questions in this section had more than one correct answer (Table 1).

Every correct answer to a question in the questionnaire was assessed as 1 point, and the gradating of the knowledge level to the total score was as follows: poor = 0–5, moderate = 6–8, and good = 9–15. A chi-squared test was used to detect the relationship between the knowledge level and the age, gender, educational level, attended first aid training, experience with a dental trauma, and the preferred institution for dental treatment. The results were expressed as the number of participants and the correct response percentage. Correct answers were calculated to assess the parents' knowledge levels and awareness as follows: < 50% = bad, 50%–75% = moderate, and 75% = good.

Table 1. Part 2 of the study questionnaire: "Knowledge"

1- Can you distinguish whether a broken tooth is primary or permanent tooth?
- Yes
- No

2- Do you believe it is possible to glue a piece of a tooth back into place that was fractured due to a traumatic injury?
- Yes
- No

3- What is the best storage media for a fractured tooth prior to seeing a dentist?
- Dry
- Tap water
- Milk
- Saline
- Do not know

4- What is the first thing that you must do when your child has a broken tooth?
- After calming the child down, take him/her to the dentist without wasting time
- After calming the child down, search for the broken tooth part and take it to the dentist without delay
- Give the child sugar water to help him/her calm down
- Go to the dentist without wasting time
- Go to the nearest emergency service

5- Which type of trauma situation requires EMERGENCY dental treatment?
- If only the corner of the tooth is broken
- If 1/3 of the tooth is broken,
- If 1/2 of the tooth is broken,
- If the tooth has completely avulsed
- All of the above
- Do not know

6- If a tooth came completely out of the socket, could you distinguish whether it was a primary or permanent tooth?
- Yes
- No

7- When the permanent tooth is completely avulsed, would you replant the tooth (put it back) into the socket?
- Yes
- No

8-When the primary tooth is completely avulsed, would you replant the tooth (put it back) into the socket?
- Yes
- No

9- If you answered yes to the seventh question, when do you think professional treatment is needed?
- Immediately
- Within 30 minutes
- Within a few hours
- Within 1-2 days

10-If you decide to replant a tooth back into its socket, but it has fallen onto the ground and is covered with dirt, what would you do?
- Scrub the tooth gently with a toothbrush
- Rinse the tooth under tap water
- Put the tooth right back into the socket without doing anything else
- Do not know

11- As the time between the onset and the treatment of the tooth injury increases, the treatment success of this tooth .....
- Increases
- Diminish
- Fixed
- Do not know

12- What do you prefer if you must choose a liquid to transport an avulsed tooth to the dentist?
- Tap water
- Milk
- Child's saliva
- Alcohol
- Ice
- Juice
- Saline
- Antiseptic solution

13- If you want to clean a tooth, which part of the tooth do you hold?
- The portion of the tooth in the mouth.
- From the root
- Anywhere
- Do not know

14- If your child has contact with soil or a dirty floor after a tooth injury, what vaccination may be needed?
- Tetanus
- DPT (diphtheria, pertussis, and tetanus).
- Polio
- There is no need for vaccination

15- Which type of dentition is more important to you related to dental trauma?
- Primary teeth
- Permanent teeth
- Both of them
- Do not know

Statistical analysis

The questionnaire data was analyzed statistically using IBM SPSS Statistics for Windows version 19 (IBM Corp., Armonk, NY, USA). The findings were expressed as percentages and n values, and the significance level was set at 0.05.

Results

The distribution of the sociodemographic data of the participants and Participants' socio-demographic information distribution (Part 1: Personal and Professional Information) and statistically significant difference between the correct answer percentage is presented in Table 2.

No statistically significant difference was found between the correct answer percentage and the age, gender, and affected by dental trauma (P>0.05). However, a statistically significant difference was found between the correct answer percentage and the educational level, first aid course attendance, see a dental trauma, and preferred institution for emergency dental treatment (P<0.05).

As shown in Table 3, the demographic characteristics of the participating parents indicated that 219 (38.1%) were females and 356 (61.9%) were males. Of the total parents, 277 (48.1%) were 30–39 years old, and 172 (29.9%) had graduate and postgraduate degrees. When the relationship between the educational level and the correct answer percentage was examined, it is found that the contingency coefficient was 28%. In addition, when compared with the other educational levels, the correct answer percentage for the graduate and postgraduate degrees was the highest, in the "good" category (30.8%).

One hundred and ninety-two of the participants' (33.3%) had received first aid training, but only 28 (4.8%) reported that the training course included first aid for dental injuries. When the relationship between the first aid course attendance and the correct answer percentage was examined, it was determined that the contingency coefficient was 26%. It was found that the rate of responding to the first aid course involving dental injury intervention was the highest in the "good" category (50%).

When examining the relationship between the dental trauma experience and correct answer percentage, the contingency coefficient was 16%. The correct response percentage distribution of the participants with previous dental injury experiences was 25.8% in the "good" category, while 13% were in the "good" category in the correct response percentage distribution of the participants without dental injury experiences. Therefore, the correct response rate for those with dental injury experiences was approximately twice as high as that of those without dental injury experiences.

The rate of choosing a dental health center (45%) was higher than the rate of choosing the Faculty of Dentistry (26.7%). However, the "good" category percentage for the participants who preferred the Faculty of Dentistry was 22.7%, while the "good" category percentage was 11.2% for those who preferred dental health centers. When the relationship between the preferred institution and the correct answer percentage was examined, the contingency coefficient was 17%. Therefore, even though the Faculty of Dentistry preference rate was lower than that of the dental health center, when the accuracy distribution of the answers was examined, it was found that the patients who consulted the Faculty of Dentistry were more conscientious about the dental health center.

The parents' level of knowledge and awareness of avulsions and crown fractures was 40.2% or "poor." The distribution of the correct response percentage for Part 2 of the participants' questionnaire is shown in Table 3.

Discussion

Most dental trauma in children occurs when they are at home (18). When considering this situation, it becomes clear how important it is for parents to be informed about dental trauma and its treatment approaches. For this reason, this study was designed to assess the parents' knowledge levels and awareness of dental trauma. The results of present study showed that the knowledge levels and awareness of avulsions and crown fractures of parents was "poor" in Middle Black Sea Region, Turkey. This result was in accordance with two other studies of parental knowledge performed in Kuwait and Singapore (19,20). More than one-half of parents could not distinguish whether a traumatized tooth was a member of the permanent or primary dentition, suggesting that many parents do not discern the transition from primary dentition to exfoliation to permanent eruption. This rate was little higher than those reported in previous studies performed in Indian and the United Arab Emirates (21,22).

The gender and age of the parents did not affect their knowledge and awareness, and there

Table 2. Participants' socio-demographic information distribution (Part 1: Personal and Professional Information) and statistically significant difference between the correct answer percentage

Sociodemographic Information		N	%	P
Age (Year)	20-29	128	22.2	
	30-39	277	48.1	
	40-49	131	22.7	0.635
	50 and over	39	6.7	
Gender	Female	219	38	
	Male	356	61.9	0.195
Education level	Primary school	130	22.6	
	Secondary school	111	19.3	
	High school	161	28	**<0.001**
	University+	172	2.9	
First-aid course attendance	No	383	66.6	
	Yes, tooth injury does not involve intervention	164	28.5	**<0.001**
	Yes, it includes intervention for dental injuries	28	4.8	
See a dental trauma	Yes	151	26.2	
	No	424	73.7	**<0.001**
Affected by dental trauma	Yes	108	18.7	
	No	467	81.2	0.623
Preferred institution for emergency dental treatment	To any hospital's emergency department	77	13.3	
	To the dental health center	262	45.5	
	To the private dental examination office	60	10.4	**0.015**
	Health center	22	3.8	
	Dental medical faculty	154	26.7	
Total		575	100	

Table 3. Participants' distribution of percentage of responding correctly to survey questions (Part 2: Knowledge)

Question (Q) Number	**Correct Answer**	
	N	**%**
Q 1	268	46.6
Q 2	232	40.3
Q 3	154	26.8
Q 4	129	22.4
Q 5	268	46.6
Q 6	244	42.4
Q 7	131	22.8
Q 8	484	84.2
Q 9	164	28.5
Q 10	112	19.5
Q 11	334	58.1
Q 12	368	64
Q 13	160	27.8
Q 14	248	43.1
Q 15	171	29.7
Mean		**40.2**

was no significant difference regarding the dental trauma history according to our results. The lack of significance in the correct answers between those with and without such experience indicated that a dental trauma history did not seem to increase the parents' knowledge of the correct emergency procedures. These findings are in accordance with those of other parental studies (10,23). Additionally, witnessing someone having dental trauma increased the knowledge level and awareness a little bit. A high educational level reflected positively on the attitude and perceived importance of the immediate management of the dental trauma, and an increase in the parents' educational level increased their knowledge level of dental trauma management. Similar findings have been reported in a few previous studies (20,24).

In our study, the knowledge level among the parents participating in a first aid training course involving dental trauma management was higher than in those who did not attend such a course. This shows that participating in this type of course can improve the knowledge and skills needed to manage dental trauma. Most of the parents (83%) are aware of the necessity of going to the dentist after an emergency tooth injury, and the preferred dental institution was the dental health center (45.5%). However, the parents responded to the questionnaire correctly at a lower rate (11.2%), which showed that information provided by dentists in the dental health center is inadequate.

Most of the parents (40.3%) said that they would look for the lost tooth piece according to our results. 49.5% of the parents believed that it was possible to glue a piece of a tooth that was fractured due to a traumatic injury. These findings were in accordance with the study of Cosme-Silva et al. (18). This shows that many people are aware of the possibility of replacing the broken pieces, and the presence of the tooth part is more aesthetic and economical for restoration. However, the parents did not know much about the media in which they needed to carry their child's broken tooth piece.

According to Andreasen and Hjorting-Hansen teeth that are replanted within 30 min are exhibit a success rate of 90%, but there is only a 5% chance of long-term retention in those teeth replanted after 2 h (25). In our study, only 28.5% of the parents reported that they would intervene within 30 minutes in cases of avulsion. Most of the parents were not aware of the critical importance for success of replanting avulsed teeth “immediately” or “within half an hour.” The cause of this delay may be due to the parents caring for the primary bleeding and pain control. However, this lack of information can seriously affect the prognosis. Furthermore, 77.2% of the parents reported that it was not necessary for them to reimplantation an avulsed permanent tooth into the socket by themselves. Most avulsed teeth can be successfully replanted with a good prognosis by taking simple precautions. A lack of information, fear of harming the child, and intervention avoidance may have prevented the parents from permanent tooth replantation. Therefore, parents should be informed about the importance of an emergency intervention after a tooth trauma.

Dental trauma accompanied by bleeding and pain is an alarming situation for the parents. In addition, sterilization is very important, along with bleeding control, and 43.1% of the parents reported the need for a tetanus vaccination after contact with the soil or dirt after a tooth injury. Loh at al. (26) reported that only 26.8% of dental hygienists were correct in their choice of the need for a tetanus injection in cases of a replanted avulsed tooth. This low rate was accordance with our study. However, 73.5% of the parents reported the necessity of a tetanus vaccination in a similar study by Kaul et al. (21) The reason for this difference may have been the differences in their socioeconomic statuses and educational backgrounds, or the country’s vaccine awareness.

This study is considered to have some limitations. First, this study is a questionnaire study conducted in one institution. Therefore, the findings may not reflect the experiences of parents consulting other institutions and in other geographic areas. Second, the participation rate or questionnaire data range was low. This study population may not have covered the full range of perceptions and experiences of all parents in Ordu, Turkey. Finally, no dental trauma education was given to the parents. Additional research should be conducted to evaluate the parents' knowledge level related to dental treatment of avulsion and crown fracture.

Within the limitations of the present study, the parents were found to have a low knowledge levels and awareness regarding the procedures to follow in emergencies related to tooth avulsion and crown fractures. Educational campaigns must be organized to improve the emergency management of dental trauma among parents. The knowledge of emergency treatment methods for traumatized teeth should be increased by providing both educational and preventive programs.

Conclusion

The parents’ level of knowledge and awareness of avulsions and crown fractures was 40.2% or “poor.” The parents’ knowledge levels and awareness of avulsions and crown fractures could be increased through educational programs.

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