

The Knowledge Level of Families Living in Van About Dental Trauma And Its Treatment

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ABSTRACT

The aim of this study was to assess the awareness of Turkish family members living in Van about TDI management and treatment.

The questionnaires designed for our study consist of the answers of 762 random individuals who applied to Van Yuzuncu Yil University Faculty of Dentistry between February 2018 and November 2018. The questionnaire consists of 21 questions about TDI awareness and management.

Descriptive statistics for demographic data are illustrated using the mean. The Chi-Square test was used to assess the statistical significance between demographic data and TDI questions. Our study revealed that 48.5% of the participants were never informed about TDI before. 64.8% think that they are not competent enough to intervene in case of a TDI situation. The majority of Turkish family members knows little about the optimal storage medium. It was determined that the participants were not as well-informed about TDI management as they presumed to be.

Educational activities should be organized in order to raise the awareness of TDI among Turkish family members.

Key Words: Traumatic dental injuries, Turkish family members, Awareness

Introduction

Direct or indirect traumas occurring within the oral cavity due to factors such as falling, collisions with someone or an object, traffic accidents or sports activities are called traumatic dental injuries (TDI). Nowadays, the increase in the prevalence of TDI, the undeniable duration and cost of treatment procedures have to lead the experts to classify these injuries as a serious threat to public health (1,2). In their study, Andersson et al. emphasized that TDI makes up as much as 17% of all traumatic injuries (3). In another study, it was reported that TDI accounts for 40% of all dental surgeries being performed for the first time (4). On the other hand, Glendor et al. pointed out that TDI occurs among nearly one-quarter of school-age children (5). Similarly, Rajab et al. stated that TDI accounts for 25.6% of the patients who have been examined in the Pediatrics Department of Jordan University (6). Considering the results of the reports from many countries, it is presented in the literature that TDI occurs among one-third of pre-school children, one quarter of school-age children and one-fifth of adolescent children (7).

It is essential that emergency TDI management is performed as promptly and properly as possible (8). Dental traumatic injuries may result in major functional and aesthetic deformities in children if not managed and treated immediately (9). 16% of TDIs causes tooth loss and this may cause changes in the facial development of children along with triggering other complications such as psychosocial distress (10). In this case, the success of initial management depends on the level of knowledge of individuals at the scene of the incident. Previous studies have shown that most TDIs in primary and permanent dentition occur at home, 40% of which are under parental observation (7,11). Therefore, it can be agreed that family members are assigned great responsibility in the matter of TDI management. Although the reports published on this issue show differences among countries, they all conclude that parents and family members have limited knowledge about initial TDI management (12-15). Therefore, the researchers agree that the post-traumatic prognosis depends on the success of the TDI management performed by family members (5,14,16).

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The aim of this study was to assess the knowledge levels regarding the management and treatments of TDI among Turkish family members living in Van.

Materials and Methods

The questionnaires were conducted with volunteers between February 2018 and November 2018. A total of 762 individuals who applied to Van Yuzuncu Yil University Faculty of Dentistry were randomly assigned to fill out the questionnaire. 159 individuals refused to fill out the questionnaire, and 106 individuals were excluded from the study as they did not answer all the questions of the related questionnaire or due to inappropriate markings. The ethics committee approval of this study was obtained from Non-interventional Clinical Research Ethics Board of Van Yuzuncu Yil University, Faculty of Medicine (No: 006/ Date: 31/01/2018). The participants had been informed about the purpose of the study and that the consent form was obtained before the questionnaires were administered.

The appropriate sample size was determined as $n=497$ with a confidence interval of 95%. The questionnaire was devised based on the literature related to TDI and on the main discussions of researchers at the Faculty of Dentistry of Van Yuzuncu Yil University. The questions are related to the management of TDI in primary and permanent teeth in the current guidelines. In order to ensure the comprehensibility of the questions, 10 patients were randomly selected prior to filling the questionnaire and asked to read the questions advising the unclear ones. The questionnaire was then reshaped and finalized in accordance with the feedback.

The final questionnaire consists of 21 questions. The first five questions aim to obtain demographic data (age, education, number of children, profession and monthly income, etc.). While the first six of the 16 questions focus on discovering the participants' perspectives on TDI and how competent they feel about it, the last 10 questions focus on discovering how accurate their knowledge is about emergency TDI management. Inclusion criteria for the study included individuals. All participants who marked more than one option or left any questions blank were excluded from the study.

All statistical analyses were performed using SAS version 9.4 (SAS Institute, Cary, North Carolina, USA). Descriptive statistics for demographic data (age, education level, number of children,

profession and monthly income) are illustrated using the mean (Table 1). The Chi-Square test was used to assess the statistical significance between demographic data and TDI questions (Table 2). Statistical significance was accepted as $p < 0.05$. The effects of the demographic characteristics on the questions were evaluated by the variance analysis obtained by log-linear models.

Results

In our study, a total of 762 questionnaire items were completed by the participants. Although we used 497 questionnaire items, 265 of them were excluded from the study in accordance with the exclusion criteria. Demographic data revealing the characteristics of the participants are illustrated in Table 1.

In our study, in order to evaluate the knowledge and awareness of the participants about TDI, they were first asked whether they were previously informed about injuries around the mouth, teeth and surrounding tissues. While 51,50% of the participants answered yes, 48,5% answered no. The ratio test was used to compare the distribution of Yes/No responses for Question 1 in terms of age groups. The ratio of Yes was significantly higher in the age group of below 18 and 19-35 while the ratio of No-response was statistically significant in the age group of 36-53 ($p < 0.05$). Then, the individuals who opted for yes in the first question were asked by whom they received the information. 80.6% of the participants reported that the information was provided by a dentist, 7.6% by the family physician, 5% by other sources, 4.3% by the first aid course and 2.5% by the internet. The option of "informed by a dentist" is significantly high. The participants were asked whether they considered the injuries around the mouth, teeth and surrounding tissues as an emergency situation in order to find out their perspective on TDI. The Yes response in this question was found statistically significant. There was a statistically significant correlation between the level of education and income and the variance analysis obtained with log-linear models for Question 3 ($p < 0.01$). The main reason for this correlation is due to the fact that the Yes/No ratio is very low in the associate degree, undergraduates and graduates group whereas it is higher among the group with primary and secondary educational levels. In terms of income level, it is resulted due to the fact that the Yes/No ratio is very low in the 3000-5000 income group while it is higher among the 0-1500

Table 1. Demographic data revealing the characteristics of the participants

		Number	Percentage
Gender	Female	245	49,3
	Male	252	50,7
Age	Under 18 age	29	5,8
	19-35	264	53,2
	36-53	204	41
Education Level	Primary school	101	20,3
	Middle School	40	8
	High School	137	28
	Associate Degree	55	11
	Graduate Degree	133	26,8
	Master or PhD Degree	31	6,2
Monthly Income	0-1500 TL	281	56,5
	1500-3000 TL	116	23,2
	3000-5000 TL	67	13,5
	Higher than 5000	33	6,6
Number of Child	No child	237	47,7
	1	41	8,2
	2	69	13,9
	3	76	15,3
	4	33	6,6
	5	23	4,6
	More than 6	18	3,6

group. For the 4th question, the participants were asked to self-assess their level of knowledge regarding how they would manage in case of injuries around the mouth, teeth and surrounding tissues. The responses of the participants to this question were as follows: 174 (35.2%) opted for "sufficient", 193 (39.1%) opted for "inadequate" and 127 (25.7%) opted for "do not know". When the distributions were compared, it was found that the ratio of those who opted for "adequate" and "insufficient" was found to be significantly higher than those who opted for "do not know" ($p < 0.01$). In addition, the highest ratio of participants who considered themselves as insufficient was the ones with 1, 2 and 3 children, respectively, while the highest ratio of the option "do not know" was observed among participants with 6 and more children.

Afterwards, the participants were asked about their opinions regarding the importance of being informed about the mouth, teeth and surrounding tissues, and whether they would be interested in being educated on these issues. 55,93% of the participants stated that it was important to be knowledgeable and 83,09% said that they would like to be more educated on the issue.

In order to assess the level of knowledge about TDI managements, participants were asked whether they would reimplant the avulsed tooth

back in its place. 69,41% of the participants said no and the option no was found significantly higher ($p < 0.05$). Then, participants were asked to answer the question of "How would you clean away the dirt on the avulsed tooth before reimplanting it back in its place?" The most preferred option was "I brush the tooth" followed by "Do not know", "I wash it with tap water", "Other", "I will replant it without cleaning", respectively. On the 9th question, participants were asked where they would prefer to take their children in case of a TDI. While 54% opted for oral and dental health clinics, the least preferred option was private dental clinics. In order to assess the awareness of the participants regarding the initial management time, participants were asked when they would apply to a clinic or a dentist. Even though there was found no significant difference between the options, the most common answer was "30 minutes at most". When they were asked "How would you store the avulsed tooth on the way to the dental clinic?", the option to keep it in a dry handkerchief was found statistically significant ($p < 0.05$). The least preferred storage medium was found to be saliva. Then, they were asked "Do you think primary teeth should be reimplanted back in its place when they are knocked out?", 81.89% of the participants opted for no and there was found a statistical significance ($p < 0.01$). In the 13th question, we

Table 2. The Chi-Square test results between demographic data and TDI questions

	Demographical Variables (D.V)									
	Gender		Age		Education Level		Monthly Income		Number of Child	
V.S.	Chi-Square	P	Chi-Square	P	Chi-Square	P	Chi-Square	P	Chi-Square	P
D.V	0.1	0.7535	127.67	<.0001	119.04	<.0001	233.91	<.0001	327.68	<.0001
Have you been informed about TDI?	0.45	0.5011	0.45	0.5011	0.45	0.5011	0.45	0.5011	2.27	0.1319
LR	1.09	0.2974	21.13	<.0001	59.19	<.0001	7.61	0.0548	34.49	<.0001
D.V	0.1	0.7535	127.67	<.0001	119.04	<.0001	233.91	<.0001	366.63	<.0001
Do you think that TDI create an emergency?	167.8	<.0001	167.83	<.0001	167.83	<.0001	167.83	<.0001	167.83	<.0001
LR	0.01	0.932	4.58	0.1013	31.79	<.0001	10.81	0.0128	12.55	0.0507
D.V	0.03	0.8572	126.11	<.0001	116.52	<.0001	235.66	<.0001	334.04	<.0001
What is your level of knowledge to control the situation when you encounter TDI?	13.86	0.001	13.86	0.001	13.86	0.001	13.86	0.001	15.01	0.0005
LR	22.06	<.0001	30.03	<.0001	61.08	<.0001	69.66	<.0001	57.87	<.0001
D.V	0.1	0.7535	116.5	<.0001	112.06	<.0001	207.57	<.0001	369.24	<.0001
To be knowledgeable about oral, dental and environmental tissues;	240.6	<.0001	227.66	<.0001	167.16	<.0001	188.03	<.0001	152.93	<.0001
LR	17	0.0007	14.07	0.0071	51.16	<.0001	38	<.0001	52.04	<.0001
D.V	0.1	0.7535	104.85	<.0001	106.08	<.0001	233.91	<.0001	353.5	<.0001
Would you like to know more about this?	177.0	<.0001	159.2	<.0001	152.37	<.0001	177.05	<.0001	162.92	<.0001
LR	1.79	0.1804	5.59	0.0181	12.38	0.0147	6.57	0.0869	35.45	<.0001

D.V	0.1	0.7535	127.67	<.000 1	119.04	<.0001	233.91	<.0001	366.6 3	<.0 001
Can you reimplant avulsed tooth back?	70.9	<.0001	70.89	<.000 1	70.89	<.0001	70.89	<.0001	70.89	<.0 001
LR	1.82	0.1769	10.41	0.0055	22.77	0.0004	4.06	0.2553	2.12	0.9 088
D.V	0.01	0.9282	99.94	<.000 1	114.31	<.0001	227.04	<.0001	307.9 2	<.0 001
How would you clean away the dirt on the avulsed tooth before reimplanting it back in its place?	203.7	<.0001	191.7	<.000 1	154.04	<.0001	206.83	<.0001	166.0 3	<.0 001
LR	13.97	0.003	24.62	0.0002	42.99	<.0001	55.74	<.0001	85.2	<.0 001
D.V	0.1	0.7535	112.95	<.000 1	95.8	<.0001	211.49	<.0001	281.5 5	<.0 001
Where you would prefer to take their children in case of a TDI?	287.1 6	<.0001	248	<.000 1	247.21	<.0001	273.88	<.0001	202.7 3	<.0 001
LR	26.43	<.0001	14.5	0.0127	58.86	<.0001	61.72	<.0001	45.23	<.0 001
D.V	0.1	0.7535	110.18	<.000 1	89.3	<.0001	233.91	<.0001	295.5 4	<.0 001
When you would apply to a clinic or a dentist?	28.69	<.0001	24.75	<.000 1	32.16	<.0001	28.69	<.0001	20.26	0.0 004
LR	8.35	0.0797	50.74	<.000 1	96.59	<.0001	92.43	<.0001	149.2 8	<.0 001
D.V	0.03	0.8572	80.12	<.000 1	76.72	<.0001	156.35	<.0001	233.0 5	<.0 001
How would you store the avulsed tooth on the way to the dental clinic?	346.2	<.0001	296.01	<.000 1	158.91	<.0001	269.89	<.0001	188.6 1	<.0 001
LR	51	<.0001	62.65	<.000 1	88.6	<.0001	52.05	<.0001	114.6 1	<.0 001
D.V	0.1	0.7535	127.67	<.000 1	119.04	<.0001	233.91	<.0001	337.4 9	<.0 001
Do you think primary teeth should	167.8 3	<.0001	167.83	<.000 1	167.83	<.0001	167.83	<.0001	142.1 6	<.0 001

be reimplanted back in its place when they are knocked out?										
LR	33.87	<.0001	2.08	0.3537	27.47	<.0001	35.9	<.0001	14.35	0.0063
D.V	0.1	0.7535	127.67	<.0001	119.04	<.0001	233.91	<.0001	366.63	<.0001
Do you know what you should do if your child's tooth gets knocked out?										
LR	0	0.9642	0	0.9642	0	0.9642	0	0.9642	0	0.9642
D.V	0.1	0.7535	127.67	<.0001	119.04	<.0001	233.91	<.0001	366.63	<.0001
Do you think that broken teeth create an emergency?										
LR	1.06	0.3024	14.01	0.0009	53.93	<.0001	19.64	0.0002	65.25	<.0001
D.V	0.1	0.7535	127.67	<.0001	119.04	<.0001	233.91	<.0001	366.63	<.0001
Do you think that broken teeth create an emergency?										
LR	130.64	<.0001	130.64	<.0001	130.64	<.0001	130.64	<.0001	130.64	<.0001
D.V	0.13	0.7152	7.59	0.0225	42.16	<.0001	29.07	<.0001	28.02	<.0001
D.V	0.1	0.7535	127.67	<.0001	119.04	<.0001	233.91	<.0001	366.63	<.0001
Do you think it was important to find the broken pieces of the tooth of their child										
LR	16.47	<.0001	16.47	<.0001	16.47	<.0001	16.47	<.0001	16.47	<.0001
D.V.	46.68	<.0001	10.76	0.0046	22.56	0.0004	11.33	0.0101	21.57	0.0014
D.V.	0.1	0.7535	114.87	<.0001	66.86	<.0001	202.84	<.0001	308.44	<.0001
What would you do when your child tooth broken?										
LR	185.58	<.0001	177.73	<.0001	128.46	<.0001	132	<.0001	117.87	<.0001
D.V	16.34	0.0059	47.51	<.0001	125.29	<.0001	46.82	<.0001	101.72	<.0001

*D.V: Demographical Variables

*V.S: Variation Source

*L.R: Likelihood Ratio

asked: "Do you know what you should do if your child's tooth gets knocked out?". It was found that there was an almost equal distribution between the yes and no options and no statistically significant difference was found between these two options ($p>0.05$). The question of whether a fractured tooth is an emergency situation or not was answered yes by the participants with a significantly high rate ($p<0.05$). Then, we asked the participants if they thought it was important to find the broken pieces of the tooth of their child. Those who thought that it was not important to find the broken pieces of the avulsed tooth was 51.2%, while those who thought it was important was 48.8 %, indicating there is no statistically significant difference between these two options. ($p> 0.05$). Lastly, we asked the participants what they would do if their children knocked their tooth out. There was a significant difference among the 5 answers obtained ($p>0,05$). This arose due to the fact that 37,4% of the participants opted for "Oral and Dental Health Clinic" while only 1% opted for "no management needed". The option of oral and dental health clinic was followed by the faculty of dentistry, emergency service, private dental clinics, and a pediatrician, respectively.

Discussion

Results of this study were obtained by the participation of 497 Turkish family members living in Van. The first 6 questions in the questionnaire aimed the participants to self-evaluate their levels of knowledge. According to the data obtained in our study, 51.50% of the participants were informed about TDI, mostly by dentists. However, when the participants were asked whether they would be able to respond in the case of a TDI, 39.1% considered themselves to be inadequate. This reveals that the state of current knowledge does not match the presumptions of the Turkish family members regarding the management of TDI. The researchers reached the same findings in various studies carried out in different countries. In a study investigating the competence of Polish parents about TDI management, researchers found that parents who had previously encountered TDI were more well-informed than others; however, they stated that parents generally did not follow the literature and had insufficient knowledge about TDI (17). In the El Karmi et al. study, the parents were first asked whether their knowledge levels were sufficient and then their knowledge about TDI management was scored. It is noteworthy that 25% of the participants

had a low score, although 50% of the participants had stated that they considered themselves competent (18). In a study conducted in Warsaw, the rate of parents who found themselves sufficient was 32% while (19) this rate was reported as 51% in the Italian population (20). However, our study also reveals that these ratios do not reflect the reality regarding TDI management, which is in line with the consensus of other researchers.

The most important step in TDI management is the proper placement of the avulsed tooth. 69.41% of the participants declared that they could not replant a displaced tooth. Similarly, 90.7% of participants reported that they could not reimplant an avulsed tooth back in its place in another study carried out in Turkey (21). Similarly, our study results reveal that the majority of the participants are incompetent in this regard. However, the differences between ratios may have arisen as those studies were conducted with participants from different cities in Turkey. In addition, while researchers reported that 60% of participants in India were unable to replant an avulsed tooth (9) while only 19% of Polish participants reported that they considered themselves competent in this regard (17).

In our study, it was observed that Turkish family members were very knowledgeable about intervention time and the most preferred the first 30 minutes as the intervention time. Similarly, 56.8% of the Italian population is aware of the importance of early intervention (19) while, unfortunately, the average initial management time in case of TDI was 6.39 hours according to a retrospective study conducted in Poland (22). It is stated that the success of reimplantation depends on proper cleaning of the dirty avulsed tooth in many cases of avulsion (12, 23). The results of our study showed that the majority of the participants preferred brushing the avulsed tooth prior to replantation. However, our results also indicate that the level of knowledge about the initial management of TDI is not in line with the storage medium. The most preferred option is to store the avulsed tooth within a dry medium, ie a napkin. Similarly, 45% of the participants in the study carried out by Swiatkowska et al. in Poland (17) and 21.8% of the participants in the study of Ozer et al. in Turkey considered dry napkins as the optimal transport medium (21).

Displacement of a tooth due to trauma is considered an emergency situation by Turkish family members. However, teeth fracture due to trauma is also a very common phenomenon (24). In our study, it was determined that 77.26% of the participants considered teeth fracture due to trauma as an emergency situation. However, 81.89% of the

participants considered the case of avulsion as urgent. These results indicate that individuals consider teeth fracture as less important than avulsion.

Our study results revealed that 83% of participants wanted to be further informed about TDI. Similarly, Glendon et al. also reported that individuals would like to be educated on TDI and that this revealed the lack of public information (5). Namdev et al. emphasized that they obtained similar results in their studies and that it was necessary to organize related training to inform the public on this issue (14).

Based on the results of this study, it can be interpreted that Turkish family members do not have sufficient knowledge about TDI management and that more educative training is required. Dentists should bear great responsibility on this matter. In addition, it may be useful to organize special training programs for families, teachers, and physicians on TDI guidelines. However, it should be kept in mind that the scope of this study is limited only to the province of Van and there may be differences in other cities. It is necessary to conduct more studies evaluating individuals' awareness of TDI in more countries and cities so as to determine what should be done to educate people further about the matter.

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