

TEACHERS' KNOWLEDGE ABOUT DENTAL TRAUMA AND ITS MANAGEMENT IN PRIMARY SCHOOLS IN JAKARTA, INDONESIA

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Abstract. Traumatic dental injuries often occur in children aged 7-12 years during school hours. However, most teachers are not aware of first aid for traumatic dental injuries. There are 2 types of elementary schools, namely public elementary schools and private elementary schools. This study aims to explain the difference in knowledge about traumatic dental injury and its first aid management between public and private school teachers. Analytical research was conducted using a cross sectional approach and the sampling method was carried out using purposive sampling. Questionnaires in the form of Google Forms were used to collect data. Data were statistically analysed using Chi-square test for any correlation. Based on the results of the study that there is no significant difference in knowledge between public and private school teachers. The highest p-value is 0.752 and the lowest p-value is 0.102 ($p > 0.05$). So it can be concluded that this study did not find a significant difference in knowledge about first aid for traumatic dental injuries between public and private school teachers.

Keywords: public primary school teachers; private primary school teachers; traumatic dental injuries.

INTRODUCTION

Dental trauma is an injury that affects the hard tissues of the teeth and periodontal tissue due to the impact of a hard object ([Dewi, Jeddy, & Badruzzaman, 2021](#)). One of the most common dental injuries is the avulsion or removal of the entire tooth out of the socket and often occurs in children aged 7-12 years usually affecting the lips, gingiva, tongue, jaw and should be treated quickly. If not, the tooth can become infected and caused the forming of abscess which causes pulp death ([Chandukutty, Peedikayil, Premkumar, Narasimhan, & Jose, 2017](#)); ([Nirwan, Syed, Chaturvedi, Goenka, & Sharma, 2016](#)); ([Al-Zaidi & Al-Asmari, 2017](#)).

The World Health Organization (WHO) declared the prevalence of dental trauma varies depending on the country ([Al-Zaidi & Al-Asmari, 2017](#)); ([Santos et al., 2010](#)). Reported the prevalence of dental trauma in Brazil is around 16.5%. Study conducted by ([Wardhana et al., 2017](#)); ([Louis et al., 2016](#)) reported the prevalence of dental trauma in Indonesia is around 11.4%.

Traumatic dental injuries in children occur most often in school, thus, this is the place with the greatest prevalence of traumatic dental injuries ([Zaleckiene, Peciuliene, Brukiene, & Drukteinis, 2014](#)); ([Balkhair, Al-Maghrabi, & Baakdah, 2020](#)). Common causes of traumatic tooth injuries that often occur at school are falls, bumping into friends, fighting or pushing between friends. Therefore, teachers have an important role in handling traumatic tooth injuries first aid in children ([Chandukutty et al., 2017](#)); ([Sreelakshmi et](#)

[al., 2016](#)). In general, public and private school teachers receive P3K (First Aid) training in their curriculum. First aid for accidents at public schools is managed by the health centre and provided with guidance for teachers, while first aid for accidents in private schools is managed by the foundation.

Based on the results of a study conducted by Bayram M et al. in 2017 reported the knowledge of traumatic tooth injury first aid between public and private teachers is unsatisfactory. Therefore, first aid training should be carried out to increase the knowledge of public and private teachers about first aid for traumatic dental injuries ([Bayram, Koruyucu, & Seymen, 2017](#)). First aid is an immediate assistance to people who are sick or injured who need basic medical treatment before getting help from a medical professional. The main purpose of first aid is to prevent infection, prevent more severe conditions and prevent death ([Qureshi, Khalid, Nigah-e-Mumtaz, Assad, & Noreen, 2018](#)); ([Anggraini et al., 2018](#)).

Based on the background explanation above, there is a lot of study about comparing teacher's knowledge but there's no study that using the real case picture to assess the differences in teacher's knowledge about it between public and private school in Jakarta. The purpose of this study is to explain the differences in knowledge about dental trauma and its management between public and private school teachers.

METHODS

We conducted analytical study for this study. Questionnaires were personally handed to 40 teachers from 1 public school and 1 private school in Jakarta. The study sample is part of the teacher population who met the inclusion criteria and were at the school when data collection was held. The inclusion criteria are teachers who teach at public school and private school in Jakarta and are willing to fill out a questionnaire in the Google Forms. Whilst the exclusion criteria are teachers who sign the informed consent in the Google Forms, but they are not at the school when filling out the questionnaire in the Google Forms and do not complete the questionnaire in the Google Forms.

Ethical clearance

Ethical approval was obtained from the Scientific Research Commission of the Faculty of Dentistry, Prof. Dr. Moestopo (Beragama) with No. 021/KIP/FGUPDMB/VIII/2020.

RESULTS AND DISCUSSION

This study was conducted to determine differences in knowledge about traumatic tooth injury first aid between public and private school teachers. The study was conducted on twenty public primary school teachers and twenty private primary school teachers. The questionnaire was divided

into two parts, namely the frequency distribution presented in eight questions and the teacher's knowledge about first aid dental injuries presented in nine questions.

Table 1 shows 16% of female teachers and 10% of male teachers in the public schools, while private schools have 35% female teachers and 15% male teachers. Based on teaching experience, 25% of teachers in public schools have teaching experience of more than 30 years and 45% of teachers in private schools have 10-20 years of teaching experience. 47.5% of public and private school teachers teach in the academic section and only 2.5% teach in the physical education section.

Based on having attended the first aid training, 37.5% of public school teachers have attended first aid training and 50% of private school teachers have attended first aid training. 20% of public school teachers participated in first aid training including material on the management of traumatic tooth injuries and 25% of private school teachers attended first aid training including material on traumatic dental injuries.

On average, 40% of public school teachers have never experienced traumatic tooth injuries, while 30% of private school teachers have experienced traumatic tooth injuries. Based on the experience of seeing the traumatic tooth injury, on average 25% of public teachers have seen it first hand and 27.5% of private teachers have never seen traumatic dental injury.

Table 1. Frequency Distribution of Respondents (N = 40)

	Public School	Private School (%)
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	(%)	
Gender		
Male	10	15
Female	16	35
Teaching Experiences		
10-20 years	12.5	45
20-30 years	12.5	2.5
> 30 years	25	2.5
Subject taught		
Academic	47.5	47.5
Physical Education	2.5	2.5
Have attended first aid training		
Yes	37.5	50
No	12.5	0
Have had first aid training including material on the management of traumatic dental injuries		
Yes	20	25
No	12	25
Have had a traumatic tooth injury		
Yes	10	30
No	40	20
Have seen a traumatic tooth injury first-hand		
Yes	25	22.5
No	25	27.5

Table 2 shows that on average 22.5% of public teachers sought for dentist's treatment first and 17.5% of private teachers contacted the school dental clinic first if their students had traumatic tooth injuries. Based on the results of the study, table 3 shows that on average there is no difference in knowledge about first aid traumatic dental injuries between public and private school teachers.

Table 2. Frequency Distribution Based on First Contacted to Get the Treatment (N =40)

First Contacted to Get the Treatment	Public School (%)	Private School (%)
Medical doctor	2.5	2.5
Dentist	22.5	12.5
General Hospital	7.5	7.5
Dental Hospital	0	2.5
School dental clinic	12.5	17.5
Giving care on site	2.5	5
Others	2.5	2.5

Table 2 shows that on average 22.5% of public teachers sought dentist's treatment first and 17.5% of private teachers contacted the school dental clinic first if their students had traumatic tooth injuries. 2.5% public teachers contacted the public health centre and 2.5% of private teachers contacted the School Health Service (UKS) to be checked and referred to the nearest hospital.

Based on the results of the study, table 3 shows that the highest p-value of 0.752 ($p > 0.05$) means that there is no difference in knowledge about traumatic dental injury first aid between public and private school teachers and the lowest p-value is 0.102 ($p > 0.05$) means that there is no difference in knowledge about first aid for traumatic tooth injuries between public and private school teachers.

Table 3. The Differences in Knowledge about The First Aid Management of Traumatic Tooth Injury Between Public and Private School Teachers

Question	Public School		Private School		P value
	Correct	Incorrect	Correct	Incorrect	
Case A1 Correct Answer: Finding the part of the tooth that is cracked to be sent immediately to the school nurse or dentist	9 (45%)	11 (55%)	10 (50%)	10 (50%)	0.752
Case A2 Correct Answer: Yes	5 (25%)	15 (75%)	10 (50%)	10 (50%)	0.102
Case B1	7	13	9	11	0.519

Correct Answer:	(35%)	(65%)	(45%)	(55%)	
I will tell them to go to the dentist if they experience pain later					
Case C1	17	3	14	6	0.256
Correct Answer:	(85%)	(15%)	(70%)	(30%)	
I will move the teeth with my fingers and take them immediately to the dentist					
Case D1	2	18	5	15	0.212
Correct Answer:	(10%)	(90%)	(25%)	(75%)	
Ask them to bite a handkerchief to control the bleeding					
Case D2	1	19	2	18	0.548
Correct Answer:	(5%)	(95%)	(10%)	(90%)	
Immediately					
Case D3	10	10	17	3	0.110
Correct Answer:	(50%)	(50%)	(85%)	(15%)	
Rinse the tooth with tap water					
Case D4	12	8	5	15	0.519
Correct Answer:	(60%)	(40%)	(25%)	(75%)	
The tooth is placed in the liquid					
Case D5	2	18	0	20	0.147
Correct Answer:	(10%)	(90%)		(100%)	
Milk					
TOTAL	65	115	72	108	2.807

Based on the gender in public schools and the private schools, the percentage of female teachers who are the samples of the study is more compared to the male teachers. Based on the data of teachers in DKI Jakarta Kemendikbud 2020, the number of female teachers was 46,972 people and the number of male teachers was 23,727.

Most of the samples in this study have had teaching experience for 10-20 years.

This is in line with the source of the 2003 labour law which describes the working period of teachers up to the age of 60 years . Based on the subjects taught, the teachers who teach in the academic section were higher than teachers who teach in the physical education section, both in public and private primary schools.

In this study, it was found that most of the teachers in both schools had attended first aid training, even all of the private

teachers had attended this training. Based on Law no. 23 of 1992, concerning Health states that the School Health Service (UKS) is compulsory to be held in schools. On average, only UKS teachers are required to follow first aid training because they can do first aid if students have an accident. The prevalence of traumatic tooth injury cases in Indonesia is quite large, namely around 11.4% at primary school age. This is different from the study conducted by Mergany NN et al. in 2016, the results of the study showed that teachers in Sudan had attended less first aid training compared to teachers who had never attended first aid training ([Mergany, Ibrahim, & Abuaffan, 2016](#)).

Meanwhile, the results also show that the first aid training that was followed by the study sample mostly included material management of traumatic dental injuries. According to the study conducted by Sharma R et al. in 2016 teachers in Bangalore City stated that only 5.7% of teachers who received material about the management of traumatic dental injuries were included in the first aid training materials they attended ([Sharma, Mallaiah, Kadalur, Verma, & Mallaiah, 2016](#)). The reason is that teeth are part of the body as a whole and the number of emergency cases injures the tooth and the mouth is quite high, as many as 37.5% of children aged 7-12 years.

The results show that fewer teachers had experienced a traumatic tooth injury such as a broken tooth or a tooth protruding from the gum compared to teachers who had never experienced a traumatic tooth injury. Meanwhile, the number of teachers who had directly

witnessed the occurrence of traumatic dental injuries was higher than the number of teachers who had never directly witnessed traumatic dental injuries. Teachers who have seen first-hand the occurrence of traumatic tooth injuries have the experience. Traumatic dental injury cases often occur in schools because most teachers have seen first-hand the occurrence of traumatic tooth injuries.

Based on this study, most of the study samples stated that the first contact to seek treatment when students had dental injuries was the dentist. The results obtained are consistent with the study conducted by Bayram M et al. in 2017 which stated that public and private primary school teachers would first contact a dentist if students suffered traumatic tooth injuries ([Prathyusha et al., 2015](#)). According to a study conducted by Islam F et al. in 2017 stated that dentists can take the right action in dealing with injured students teeth compared to other health personnel.

In this study, when a male student broke his upper front tooth due to being hit by a ball from the baseball, what the teacher did dominantly was to give warm drinks and immediately contact his parents. This is different from the study conducted by Baharin F et al. in 2019 which stated that the teacher would contact his parents and ask them to take him to the dentist ([Baharin, Osman, & Adnan, 2019](#)).

Based on the results of this study, most of the teachers believed that a broken tooth could not heal by being reattached. This is in line with a study conducted by Anand A et al. in 2016 which stated that teachers argued that a broken tooth could

not be reconnected. This reflects the lack of knowledge of teachers about first aid dental injuries.

In this study, it is stated that when a female student's tooth hit a chair, there was not much damage but slightly had mobility on the tooth and a little bleeding in the gums of the upper front teeth, most of the teachers immediately sent these students to the dentists, both public and private primary school teachers. According to the study by Tzimpoulas N et al. in 2019, the highest results were obtained, namely, teachers did not take any action and immediately sent students to the dentist, then some teachers controlled the bleeding before sending students to the dentist. Controlling the bleeding is important to avoid large amounts of blood loss because if you lose large amounts of blood, it can cause the body to become limp.

The results show that when students hit their friends while running and the teacher realized that their upper left front teeth were detached from the palate, most of the teachers thought that they should not touch their teeth and took them to the dentist immediately. This is different from the results of the study conducted by Krishnan R et al. in 2018 which declared that the teacher of public and private schools believe that teachers will replant the tooth which has fallen out of the socket. According to the study of Alamsyah RM et al. in 2018 showed the correct action, namely moving the tooth that is separated from the socket with the fingers but only holding the crown because holding the tooth at the root can damage the fibres of the periodontal ligament.

In this study, the majority of the

teachers asked their students to bite a handkerchief to control the bleeding when the upper front tooth lost and bleeding because the student fell from the stairs. This is in line with the study of Attarzadeh H et al. in 2017 which stated that the highest result was the teachers asked their students to bite a handkerchief to stop bleeding.

The results of this study indicate that the teachers think that they will immediately see a dentist after the tooth is removed from the socket where the tooth is embedded and some teachers also think that it will take 30 minutes to see a dentist. According to the study by Halawany HS et al. in 2014, the highest results were obtained, namely, the teacher immediately went to the dentist after the tooth fell out of the socket. The tooth must be inserted back into the socket within the minimum time possible, which is less than 30 minutes after the tooth has fallen out of the socket.

Based on the results of the data, if the loose tooth was dirty and the teachers decided to put it back in the tooth socket, most of the teachers rinsed the tooth with water. This is consistent with study conducted by Francisco SS et al. in 2015 which showed the highest results that were obtained, namely the teacher rinsing the teeth using tap water if the loose tooth is dirty and they decide to put it back in the tooth socket.

The study conducted by Reynard E et al. in 2016 stated that the right thing for teachers to do is to clean teeth using running water if the loose tooth is dirty before being put back in the socket. According to the guidelines of the International Association of Dental

Traumatology (IADT), the tooth that falls out of the socket in a dirty state must be rinsed for 10 seconds using running water without brushing the teeth so that they do not cause infection due to germs that stick to the teeth.

In this study, the highest results were obtained, namely tissue paper as a container to bring the tooth to the dentist and if the teacher could not return the tooth to the socket and the liquid to bring the tooth to the dentist is tap water. This is in line with the study of Baharin F et al. 2019 which showed that most of the teachers think of tissue paper as a container for carrying teeth to the dentist and the liquid used to bring teeth to the dentist is tap water.

This is different from the study of Reynard E et al. in 2016 which reported the correct answer is the tooth is placed in the liquid and the liquid used is milk. Milk is the best storage medium because it has a neutral pH to maintain the vitality of the periodontal ligament.

According to study conducted by Alamsyah RM et al. in 2018, there was a

CONCLUSIONS

Based on the results of this study, it can be concluded that there is no difference in knowledge between public and private elementary school teachers. This is due to various reasons, including the ineffectiveness of the emergency health

service system in schools. The UKS or UKGS in schools is not sufficient to provide first aid for traumatic tooth injuries. Also, not all teachers have received first aid training materials for traumatic tooth injuries, so the teachers do not have sufficient knowledge in dealing with traumatic tooth injuries.

significant difference between the knowledge of public and private primary school teachers because teachers in public elementary schools went through a test before being accepted to work in public schools so that the quality of their teachers was better than that of private schools.

A study by Shamarao S et al. in 2014 stated that there was no significant difference in knowledge about first aid traumatic tooth injuries between public and private primary school teachers. Therefore, it is necessary to include training materials on first aid for traumatic tooth injuries in the school curriculum and the procurement of dental care facilities in public and private primary schools.

In this study, it was found that private primary school teachers answered more correctly than public primary school teachers. Meanwhile, more public primary school teachers answered incorrectly than private primary school teachers. This proves that there is no difference in knowledge about first aid for traumatic tooth injury between public and private school teachers.

service system in schools. The UKS or UKGS in schools is not sufficient to provide first aid for traumatic tooth injuries. Also, not all teachers have received first aid training materials for traumatic tooth injuries, so the teachers do not have sufficient knowledge in dealing with traumatic tooth injuries.

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