www.ajbrui.org

Afr. J. Biomed. Res. Vol. 24 (May, 2021); 225- 229

Research Article

Awareness, Knowledge and Attitude Towards Pre-Hospital Tooth Avulsion Care Among Primary School Teachers in Benin-City, Nigeria

***Okoro, N.N. and Edetanlen, B.E.**

Department of Oral and Maxillofacial Surgery, University of Benin Teaching Hospital, Benin City, Nigeria.

ABSTRACT

Traumatic tooth avulsion presents a challenge with regards to its prompt intervention as the ultimate outcome of an avulsed tooth that occurred in any child is dependent on appropriate emergency interventions. The aim of this study is to evaluate the awareness, level of knowledge and attitude towards pre-hospital tooth avulsion care among primary school teachers in Benin City, Edo state, Nigeria. A descriptive cross-sectional questionnaire-based study. Self-administered questionnaires were distributed among the teachers to assess their level of awareness of tooth avulsion, knowledge and attitude towards pre-hospital care of avulsed tooth. The data generated were analyzed using the SPSS for windows 23.0 (SPSS Inc. Chicago, USA). The responses were tabulated and expressed as frequency and percentages. Multivariate analysis was used to correct confounding variables. The level of significance was set $p< 0.05$. Three hundred and twenty four (324) teachers returned their answered questionnaires. Majority of the teachers were females (64.2%) and were between the ages of 41 – 50 years. Most (90.7%) of the teachers were not conversant with the dental terminology "tooth avulsion". Approximately forty-four percent (43.8%) of the teachers had experienced at least a case of tooth avulsion during their service period. Two hundred and sixty-six (82.1%) of teachers had never received any instruction on how to manage avulsed tooth. only 13 (4.0%) of the respondents were aware of a storage/transport media and how to preserve an avulsed tooth. On the attitude of teachers on pre-hospital care of an avulsed tooth; when asked what will they do in a case of tooth avulsion involving their pupil, one hundred and ninety (58.6%) erroneously reported they will do nothing, 33(10.2%) respondents said they will call the child's parents, none seeing the need to contact the nearest dental clinic. Majority of primary school teachers in Benin City, Nigeria has very inadequate knowledge regarding emergency management of tooth avulsion. They have limited knowledge regarding the basic tenets of first aid management of tooth avulsion whenever it occurs. Seminars and practical workshop on dental emergency should be organized for teachers and first aid training added to their curriculum.

Keywords: *Tooth avulsion, primary school teachers, awareness, knowledge, Benin City*

**Author for correspondence: Email: drokorondidi@gmail.com; Tel: +2348036019521*

Received: August, 2020; Accepted: February, 2021

Abstracted by:
Bioline International, African Journals online (AJOL), Index Copernicus, African Index Medicus (WHO), Excerpta medica (EMBASE), CAB Abstracts, SCOPUS, Global Health Abstracts, Asian Science Index, Index Veterinarius

INTRODUCTION

Tooth avulsion is the complete displacement of a tooth from its socket due to accidental or non- accidental injuries (Fujita *et al*, 2014). Tooth avulsion is the most frequent traumatic dental injury and about three times more frequent in boys than girls (Fujita *et al* 2014). Avulsion presents a challenge with regards to its prompt intervention as the ultimate end/prognosis of an avulsed tooth that occurred in any child is dependent on parents, neighbors and school teachers' knowledge of appropriate emergency interventions. (Flores MT *et al* 2007) Prevalence studies have shown that children within the age 8-12 years often suffers more dental injuries (Flores *et al* 2007, Olatosi *et al* 2013, Al-Zaidi *et al* 2017, Abdellatif *et al* 2011). Traumatic dental injuries varies from mild tooth fracture to often more extensive dento-alveolar damages that involves the tooth supporting structures leading to avulsion (Adekoya-Sofowora *et al* 2009). Anterior teeth are important not only for aesthetic reasons but are also important for mastication, phonetics, maintenance of the integrity of the oral supporting tissues, psychological as well as mental wellbeing of the child (Mustafa 2017). The anterior teeth are more frequently involved in dental trauma (Mustafa 2017). Dental trauma occurs frequently in our society mainly at schools, playground and may also occur at home. Schools are

common locations where traumatic dental injuries occur frequently. In the management of avulsed tooth, immediate re-implantation of the tooth into the socket is the recommended practice of choice. The viability of the remnant periodontal tissues left on the root surface of the tooth and prevention of desiccation via storage in an appropriate storage media during transportation are important factors in the prognosis of an avulsed tooth (Flores *et al* 2007, Adekoya-Sofowora *et al* (2009).

Multiple reports exist that have investigated the knowledge of school teachers on the emergency management of avulsed teeth and emergency management of dental trauma (Flores *et al* 2007, Olatosi *et al* 2013, Adekoya-Sofowora *et al* 2009. In a study conducted in Lagos, Nigeria, Olatosi *et al* 2013 reported that a significant proportion of school teachers had witnessed situations where a child's tooth was avulsed. Many of these teachers has received some form of training on first aid treatment while others have had training on traumatic dental injuries. They however concluded that majority of the school teachers has poor knowledge of the emergency management of avulsed teeth. This report is consistent with several previous studies from the same country where inadequate knowledge and poor attitude towards emergency management of dental trauma were reported (Abdellatif *et al* 2011, Chan *et al* 2001, Udoye 2006, Adekoya-Sofowora *et al* 2008) In a related study, Fujita *et al* (2014), Al-Zaidi *et al* (2017), and Abdulatif *et al* (2011), also concluded that the level of knowledge among school teachers is low and have recommended the necessity of learning methods of early intervention to enhance the prognosis of avulsed teeth in school children. Another study presented shortage of knowledge of teachers on tooth avulsion (Mori *et al* 2007). Similarly, in Jordan, the school health teacher's knowledge with regards to traumatic tooth avulsion was considered deficient (Al-Jundi *et al* 2005).

The aim of this study is to evaluate the awareness, level of knowledge and attitude towards Pre-hospital tooth avulsion care among primary school teachers in Benin City, Edo state, Nigeria.

MATERIALS AND METHODS

Ethical consideration: This study commenced with approval obtained from the Research and Ethics committee of the University of Benin Teaching Hospital, Benin City, Edo state, Nigeria.

Study design: This study was a descriptive cross-sectional questionnaire-based survey that was carried out among primary school teachers in Benin City Metropolis.

Location: Benin City is the Capital of Edo state. It comprises of three metropolitan local government areas of Oredo, Egor and Ikpoba-Okha.

Data Collection: A written and informed consent form was given to all participating teachers after confidentiality and voluntariness has been assured. Permission was also obtained from the head teachers to distribute the questionnaires.

A statistically derived sample size of 385 using n=2Z2 P/d2 for cross sectional study with the assumption that the proportion of teachers who has adequate knowledge about early management of avulsed teeth, margin of error, confidence interval, power, and expected non response rate to be 50%, 5%, 95%, 80%, and 7.5% respectively. A systematic random sampling technique was used to select the participating teachers. First the numbers and names of all registered primary schools (public and private) in Benin City was obtained from the Edo state universal basic education commission (UBEC) and listed with their corresponding numbers. Sampling frame was developed using the names of the head teachers to compute the list. Computer generated simple random sampling was then applied and ten (10) primary schools were selected from each of the local government area, giving a total of thirty (30) schools. The calculated sample size was then proportionately allocated to the selected schools giving the sample size of 13 teachers per school.

The questionnaire surveyed the teacher's demographic and educational background, level awareness of tooth avulsion, as well as teachers' self-assessed knowledge and attitude towards pre-hospital care of avulsed tooth. The questionnaire contained both open and closed ended questions. To help participants make quick decisions, they were given alternative choices which are like real situations of tooth avulsion.

Analysis of data: The data generated were coded, entered, and analyzed using the SPSS for windows 23.0.(SPSS Inc. Chicago, USA).The responses were tabulated and expressed as frequency and percentages. Chi-square was used to test the association between the knowledge of the primary school teachers regarding early intervention of an avulsed tooth and their socio-demographic variables. Multivariate analysis was used to correct confounding variables. The level of significance was set P> 0.05.

RESULTS

Socio-demographic characteristics: A total of 400 questionnaires were distributed among the primary school teachers in Benin City metropolis. 324 were returned answered giving a response rate of 81%.

There were 116 (35.8%) male teachers and 208 (64.2%) female teachers**.** Majority of the respondents 102 (31.5%) were between the ages of 41 – 50 years of age and they constitute the highest number among the age groups of the study population. Almost all the respondents had tertiary level of education except a few 7 (2.2%), with 184 (56.8%) possessing Bachelor's degree (B.Ed/BSc) and 124 (38.3%) possessing NCE (National Certificate in Education). Majority of the respondents 82 (25.3%) were basic science teachers while the minority were the language teachers. Most of the respondents 130 (40.1%) had between 1 – 10 years of teaching experience (Table 1).

Level of awareness of tooth avulsion among primary school teachers: Majority 294 (90.7%) were not conversant with the dental terminology "tooth avulsion". However, close to half of the respondents 138 (42.6%) affirmed to the fact that they have had pupils who had tooth injuries. A total of 279 (86.1%) recognized tooth injuries as an emergency dental condition requiring urgent attention (Table 2).

Table 1:
Socio-demographic characteristics of the teachers

Variables		Number (n)	Percentage (%)
Gender	Male	116	35.8
	Female	208	64.2
Age group (years)	21-30	37	11.4
	31-40	89	27.7
	41-50	102	31.5
	>50	96	29.7
Level of education	Secondary	7	2.1
	Tertiary	317	97.9
Qualification	WASC/SSCE/TCII	7	2.1
	NCE	124	38.3
	B.Ed/BSc	184	56.8
	Others	9	2.8
Area of Specialty	Arts	44	13.6
	Basic Science	82	25.3
	Physical & Health Ed.	38	11.7
	Home Economics	46	14.2
	Arithmetic	52	16.1
	English	23	7.1
	Others	39	12.0
Years of Experience	1-10	130	40.1
	11-20	92	28.4
	21-30	74	22.8
	>31	28	8.7

Table 2:
Awareness of tooth avulsion among primary school teachers

Variables		Number (n)	Percentage (%)
Do you know what tooth avulsion is?	Yes	30	9.3
	No	294	90.7
Pupil have had tooth avulsion?	Yes	138	42.6
	No	186	57.4

Knowledge and experience of management of avulsed tooth: 142 (43.8%) respondents have experienced at least a case of tooth avulsion during their service period. Majority of the teachers 266 (82.1%) and 284 (87.7%) had never received any instruction or training on how to manage avulsed tooth respectively. On the form of instruction and training they had received, 30 (9.3%) responded that they had received the information through the social media, dentists, physician and friends. When asked whether they are aware that an avulsed tooth can be re-implanted 209 (64.5%) teachers responded in the affirmative. (Table 3).

Attitude of teachers on pre-hospital care of an avulsed tooth: When asked what will they do in a case of tooth avulsion involving their pupil, majority of the respondents 190 (58.6%) erroneously reported they will do nothing, 33(10.2%) respondents said they will call the pupil's parents, with none seeing the need to contact the nearest dental clinic.

Table 3:
Teachers' knowledge and experience of management of avulsed tooth

Variables		Number (n)	Percentage (%)
Have you ever experienced any incidence of tooth avulsion?	Yes	142	43.8
	No	182	56.2
Ever received any advice/ instruction on how to manage Avulsed tooth?	Yes	58	17.9
	No	266	82.1
Do you think an avulsed tooth can be re-implanted?	Yes	209	64.5
	No	115	35.5
Have you seen an avulsed tooth re-implanted?	Yes	104	32.1
	No	220	67.9
Do you think it is urgent to seek care for an avulsed tooth?	Yes	252	77.8
	No	72	22.2
How urgent do you think it is to seek help for an avulsed tooth?	Immediately	239	73.8
	Within 30 minutes	31	9.6
	Within a few hours	31	9.6
	At least before the next day	59	18.2
	I don't know	49	15.1
Do you think that tetanus toxoid is necessary in the management of tooth avulsion?	Yes	248	76.5
	No	76	23.5
Do you think you have sufficient knowledge in emergency management of avulsed teeth?	Yes	52	16.0
	No	272	84.0
Do you think first aid training should include training on emergency management of tooth avulsion?	Yes	273	84.3
	No	51	15.7
Do you think training of teachers in emergency management of tooth avulsion in school pupils is necessary?	Yes	305	94.1
	No	19	5.9
Have you undergone any training on management of tooth avulsion?	Yes	40	12.35
	No	284	87.65
What Means of the training	Teachers' training college	0	0.00
	Through a dentist	6	1.85
	Through a physician	10	3.08
	Through social media	13	4.0
	Through workshop	3	0.97
	Through friends	8	2.45

Table 4
Attitude of teachers on pre-hospital management of an avulsed tooth

Variables	Response	Numbers (n)	Percentage (%)
Has any of your pupil had tooth avulsion?	Yes	125	38.6
	No	199	61.4
If yes to the above, what did you do?	Search for the tooth	13	4.01
	Contact the nearest dental clinic	0	0.00
	Reassure the child and wait till school closes	13	4.01
	Call the child's parents	15	4.63
	Did nothing	84	25.95
Have you seen an avulsed tooth re-implanted?	Yes	104	32.1
	No	220	67.9
Do you think an avulsed tooth can be re-implanted?	Yes	209	64.5
	No	115	35.5
If yes to above, will you replant a tooth that is avulsed	Yes	47	14.5
	No	162	50.0
Will you like to undergo training on pre-hospital care of an avulsed tooth?	Yes	206	63.6
	No	118	36.0

Table 5
Knowledge of teachers on the use of storage media

Variables		Number (n)	Percentage (%)
Do you know how to preserve an avulsed tooth	Yes	0	0
	No	324	100
Have you heard of transport media?	Yes	13	4.0
	No	311	96.0
If yes to the above, Which of the storage media?	The tooth socket	4	1.2
	The pupil's mouth	2	0.6
	Tap water	0	0
	Salt water	1	0.3
	Liquid milk	3	0.92
	Coconut water	0	0
	Soap water	3	0.92
	Save a tooth solution	0	0
	Antiseptic solution	0	0
If you want to handle an avulsed tooth, which part will you hold?	The crown	75	23.1
	The middle	0	0
	The root	0	0
	Anywhere	110	34.0
	Don't know	139	42.9

About two-thirds 209 (64.5%) of the respondents knew that an avulsed tooth can be re-implanted but only a few 74 (22.8%) were willing to replant the tooth themselves. On the need to have them trained on pre-hospital care of an avulsed tooth, majority of the respondents 206 (63.6%) agreed to have a formal training on pre-hospital care. 148 (45.7%) respondents believed that tetanus toxoid injection was necessary in the management of tooth avulsion (Table 4)

Knowledge of teachers on the use of storage/ transport media: Only 13 (4.0%) of the respondents were aware of a storage/transport media and how to preserve an avulsed tooth. Concerning the storage media they know, 6 (1.8%), 3 (0.9%) and 4 (1.2%) knew tooth socket, liquid milk and pupil's mouth as storage media respectively. None was aware of Save a Tooth Solution. Concerning where to handle an avulsed tooth, majority 110 (34.0%) erroneously responded anywhere.

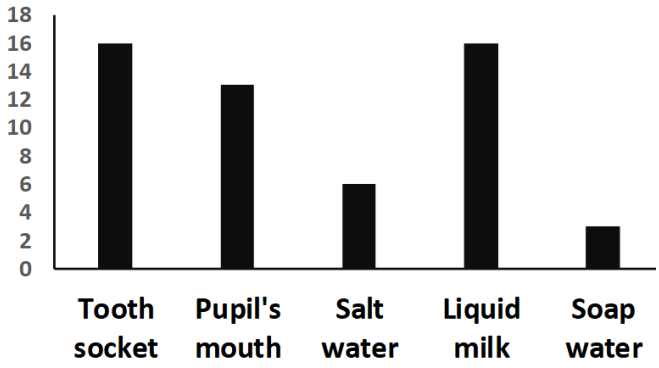

Figure 1
Storage media known by teachers

DISCUSSION

Appropriate and timely management is very much important for the future prognosis of an avulsed teeth especially in the school aged children; hence making teachers' knowledge of emergency management of avulsed teeth fundamental to the provision of correct care to the injured child (Young *et al* 2012). Traumatic tooth avulsion are of high prevalence and often occurs in the school playground, causing alterations in the child's facial development, psychological changes in the child's behavior as well as other complications. Teachers are the most likely contact to these children soon after the tooth avulsion. Their knowledge of emergency management is therefore critical in ensuring a better prognosis (Young *et al* 2012, Bayrak *et al* 2012, Manal *et al* 2017). In a study earlier done by Adekoya-Sofowora *et al* 2008, in Nigeria, tooth avulsion accounted for 20.8% of traumatic dental injuries seen in school playground.

The prevalence of tooth avulsion and management has been studied among the dental students1, the dentists (Mustafa 2017), accidents and emergency doctors (. Nasr *et al* 2013), school teachers (Olatosi *et al* 2013, Al-Zaidi *et al* 2017, Chan *et al* 2001, Udoye 2006, Al-Jundi *et al* 2005, Bayrak *et al* 2012), parents (Al-Zaidi *et al* 2017, Abdellatif *et al* 2011) and school professionals (Mori *et al* 2007) in several countries. All of these levels of personnel involved in the management of dental avulsion has exhibited insufficient knowledge for the correct decision making in the management of dental injuries

Our study population comprises of 64.2% females and 35.8% males. This is consistent with Olatosi *et al* 2013 who

reported 63.1% of female and 36.9% male teachers. Similar study from the UAE reported a much higher percentage (95%) of female teachers in their study (Manal *et al* 2017). In this study, majority of the teachers (31.5%) are within the age group of 41-50years.This is also consistent with Olatosi *et al* 2013 (40.9%). The predominance of female in the primary education sector probably reflect the recruitment pattern at the universal primary education commission.

Most of the teachers in this study (90.7%) are not conversant with the word 'tooth avulsion', but 42.6% had witness dental trauma. In a similar study, Granville-Garcia *et al* (Granville-Gracia *et al* 2007) in their research with physical education teachers in Caruaru-PE, showed that only 20.3% of teachers knew what avulsion was and 44% reported having seen playground accidents that caused tooth loss. It is of note that though only 42.6% had witnessed accidents involving tooth avulsion, a significant proportion 86.1% agrees for the need to urgently seek medical help for a child with tooth avulsion. This is also in agreement with Olatosi at al 2013 who reported 42.8% of teachers who had witnessed tooth avulsion and 89.7% of teachers who agrees that tooth avulsion requires urgent attention. It is also in agreement with similar studies by Young *et al* 2012 and Manal *et al* 2018 who reported low experience of teachers on tooth avulsion but however believed that tooth avulsion should be treated as an emergency. The result of this study reveals that significant proportion of teachers have very inadequate knowledge regarding emergency management of tooth avulsion. This is similar to other related studies (Olatosi *et al* 2013, Udoye 2006, Adekoya-Sofowora *et al* 2008, Young *et al* 2012 and Manal *et al* 2018).

It can be concluded that significant proportion of primary school teachers in Benin City Nigeria have very inadequate knowledge regarding emergency management of tooth avulsion. Primary school teachers in Benin City lack access to instruction and training in basic dental emergency care. They have limited knowledge regarding the basic tenets of first aid management of tooth avulsion whenever it occurs. This is similar to other local (Olatosi *et al* 2013, Adekoya-Sofowora *et al* 2009, Udoye 2006, Adekoya-Sofowora *et al* 2008) and international studies (Al-Zaidi *et al* 2017, Mori *et al* 2007, Young *et al* 2012, Bayrak *et al* 2012, Manal *et al* 2017, Bayrak *et al* 2012, Granville-Gracia *et al* 2007) where inadequate knowledge, poor awareness and lack of training dominated the literatures. The World Health Organization health promoting program suggest that finding solutions to dental trauma and emergencies is a public health problem. Therefore, policies in this regard will be helpful. Open seminars and practical workshop and dental trauma/emergency instructions should be organized for teachers and first aid training added to their curriculum.

REFERENCES

Adekoya-Sofowora CA, Adesina OA, Nasir WO, Oginni AO, Ugboko VI (2009). Prevalence and causes of fractured permanent incisor in 12-year-old suburban Nigerian school children. Dent Traumatol; 25: 314-317.

Abdellatif AM, Hagazy SA (2011). Knowledge of Emergency management of Avulsed teeth among a sample of Egyptian Parents. J Adv Res. ; 2(2):157-162.

Adekoya-Sofowora CA, Oziegbe E, Ugboko VI, Akinbade A (2008). Knowledge of first aid measures of avulsed and replantation of teeth in Nigerian School children. The Internet J Dent Sci; 7:1

Al-Jundi SH, Al-Waeili H, Khairalah K. (2005). Knowledge and attitude of Jordanian school health teachers with regards to emergency management of dental trauma. Dent Traumatol 2005; 21: 183-187.

Al-Zaidi AA, Al-asmari AA (2017). Knowledge of Teachers and Parents about Emergency Management of Dental Trauma in Qassim Province, Saudi Arabia. Int J Contemp Med Res.; 4(10):2131-2138.

Andersen L. (2013). Epidemiology of Traumatic Dental Injuries. J Endod; 39: 52-55

Bayrak S, Tunc ES, Sari E (2012): Evaluation of elementary school teacher's knowledge and attitudes about immediate emergency management of traumatic dental injuries. Oral Health Prev Dent. 10: 253-258.

Chan AW, Wong TK, Cheung GS (2001). Lay knowledge of physical health education teachers about the emergency management of dental trauma. Dent Traumatol; 17:7 7-85.

Flores MT, Anderson L, Andreasen JO, Bakland LK, Malmgren F, Barnett F *et al* (2007). Guidelines for the management of traumatic dental injuries. Avulsion of permanent teeth. Dent Traumatol; 23 (3):130-136.

Fujita Y, Shiono Y, Maki k (2014). Knowledge of emergency management of avulsed tooth among Japanese dental students BMC Oral health;14(1):34.

Granville-Gracia AF, Lima E, Santos PG, De Menezes VA. Avaliacoa Do Conhecimento Dos Professores De Educacao Fisica De Caruaru-Pe Sobre (2007). Avulsao-Reimplante.Pesq Bras Odontoped clin integr; 7(1):15-20

Manal AA, Al Hammadi E, Malalla M, Maklai Z, Tarig A, Al Ali B, Al Jameel A, El Batawi H (2017). Assessment of Elementary school teachers' level of knowledge and attitude regarding traumatic dental injuries in the United Arab Emirates. Int J Dent;10: doi.org/10.1155/2017/1025324

Manal O, Al Maiman S, Al Jumah, Alabadli M, Al Jefri B, Al Ajaji D, Wadi M, Al Tassan N, Ansari S.(2018). Knowledge and awareness of primary school teachers towards emergency management of dental trauma; A survey based study in schools of Riyadh, Kingdom of Saudi Arabia. Oral Health Dent Management; 17 (1)

Mori GG, Turcio KHL, Borro VPB, Muriusso AM (2007). Evaluation of the knowledge of tooth avulsion of school professionals from Adamantina, Sao Paulo. Brazil. Dent Traumatol; 23:2-3.

Mustafa M (2017). Awareness about management of tooth avulsion among General Dental Practitioners: A questionnaire based study. J Orthod.; 3 (1):2.

Nasr IH, Papineni McIntosh A, Mustafa S, Cronin A (2013). Professional knowledge of doctors on the management of dental injuries. Comm Dent Health; 30 (4):234-240

Olatosi OO, Iwuala SO, Isiekwe GI, Oredogba FA, Adenaike AS, Oluwo AO (2013). Knowledge and Attitude of Nigerian School Teachers on the Emergency Management of Avulsed Permanent Incisor. J West Afr coll Surg.; 3 (4):30-32.

Udoye CI (2006). Traumatic injuries to the anterior teeth of Nigerian urban public school children. J coll Med; 11: 88-91.

Young C, Wong KY, Cheung LK (2012). Emergency management of dental trauma: knowledge of Hong Kong primary and secondary school teachers. Hong Kong Med J; 18: 362