

School teachers' knowledge of management of tooth avulsion in children in Lagos, Nigeria

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ABSTRACT

Background: Dental trauma (traumatic dental injury TDI) is an impact injury to the teeth and/or other hard and soft tissues within and around the vicinity of the mouth and oral cavity. School is one of the most common places where dental injuries occur. Prompt and pertinent emergency management is required to considerably improve treatment outcome of such injuries. This is not only the responsibility of the dentist but of lay people, such as the parents and the school teachers available at the site of accident.

Methods: This was a 16-item self-administered questionnaire-based study carried out among six public and private school teachers in Lagos State. The questionnaire was divided into two parts. The first part contained questions on name (optional), gender, age, age group, educational level and how long they have been teaching. The second part of the questionnaire tested the teachers' knowledge on the emergency management of avulsed teeth. It contained both open and closed questions

Results: A total of 168 teachers filled the questionnaires. About 71.4% of the teachers have not received any formal or informal lecture on the management of tooth avulsion while only 28.9% had experienced tooth avulsion during their teaching career. A total of 27.4% of them had good knowledge of dental trauma. There was no statistically significant association between the knowledge of the school teachers and the socio demographic work characteristics.

Conclusion: This study shows that school teachers (private, public, primary and secondary) in this environment have poor knowledge of tooth avulsion with poor emergency actionable practices. Therefore, the dental community needs to continue tooth avulsion awareness campaign with more emphasis on improving the teachers' knowledge and practices.

Keywords: Dental trauma, Traumatic dental injuries, children, school teachers

INTRODUCTION

Dental trauma (traumatic dental injury TDI) is an impact injury to the teeth and/or other hard and soft tissues within and around the vicinity of the mouth and oral cavity. (Lam, 2016). It is usually sudden, circumstantial, unexpected, accidental and often requires emergency attention. It is not a disease but a consequence of several unavoidable risk factors in life. Increased overjet, incompetent lips as well as Class II malocclusion

are some risk factors for anterior tooth trauma. Majority of dental injuries, involve the anterior teeth especially the maxillary central incisors. It is reported at 5 years of age 31 to 40% of boys and 16 to 30% of girls, and at 12 years of age 12 to 33% of boys and 4 to 19% of girls will have suffered some dental trauma (Welbury, Duggal and Hoset, 2006).

There is perhaps no single dental disturbance that has greater psychological impact on both parent and the

child than the loss or fracture of a child's anterior teeth. (Pujita et al, 2013) Primary and permanent anterior teeth are not only important for aesthetics but also are essential for phonetics, mastication, integrity of supporting tissues, psychological and mental well-being of children. Sports account for 60% of TDIs (Stockwell, 1988) and schools are the place where one can find a noticeable risk of TDI (Raoof et al., 2012). Prompt and pertinent emergency management is required to considerably improve treatment outcome of such injuries. This is not only the responsibility of the dentist but of lay people, such as the parents and the school teachers available at the site of accident. From the available data, it is clear that a high percentage of the parents, school teachers, healthcare professionals, including general dentists have insufficient information on management of TDI (Chan, Wong and Cheung, 2001; Al-Jundi, Al-Waeili and Khairalah, 2005; McIntyre et al., 2008).

At present, TDI is considered a public health problem due to the growing rates of violence, automobile accidents, contact sports and injuries in the school environment (Marcenes, Zobot and Traebert, 2001; Faus-Damiá et al, 2011). Some studies assert that the number of cases with dental trauma will exceed cases with dental caries or periodontal problems (Al-Khateeb, Al-Nimri and Alhajja, 2005; Marchiori et al. 2013), and may result in high costs to Public Health Services (Bonini et al., 2009). TDI may range from slight to extensive maxillofacial damage (Al-Obaida, 2010). Facial trauma comprises 5% of all the traumatic injuries presented to hospitals (Razechi et al., 2019).

Post-traumatic complications including crown discoloration, cervical root fracture, ankylosis, root resorption and tooth loss may occur (Pohl and Kirchner; 2005). Among the different types of dental trauma, avulsion results in the greatest functional and aesthetic impairment due to its worse prognosis (Panzarini et al., 2005).

Emergency management of traumatic dental injuries is of key importance, as the prognosis of traumatized teeth, especially from avulsion, depends on prompt management (Andreasen et al, 2002). School is one of the most common places where dental injuries occur (Levin et al 2007; Fakhruddin et al 2008; Naidoo, Sheiham and Tsakos, 2009; Bendo et al, 2010). Teachers can help to improve the prognosis of these injuries if they know how to manage at the site of injury. However, many studies have revealed that teachers lack

this essential knowledge (Mesgarzadeh, Shahammfar and Hefzolllesan, 2009; Skeie, Audestad and Bardsen, 2010; Fux-Noy, Sarnat, Amir, 2011; Young, Wong and Cheung, 2012)

The objective of the present study was to assess private and public school teachers' knowledge of management of tooth avulsion in children

MATERIALS AND METHODS

Study was carried out among public and private school teachers in primary and secondary schools in Lagos state, Nigeria. Six public and private schools were selected from the Lagos State list of private and public schools.

A 16-item self-administered questionnaire containing both open and closed ended questions was distributed to the teachers in their classrooms. The questionnaire was divided into two parts. The first part contained questions on name (optional), gender, age, age group, educational level and how long they have been teaching.

The second part of the questionnaire tested the teachers' knowledge on the emergency management of avulsed teeth. It contained both open and closed questions.

The returned and completed questionnaires were coded and entered into the computer using IBM SPSS software, Version 21.0. The responses obtained were tabulated and expressed as frequency distributions and then computed in percentages. There were ten questions to test the knowledge of the teachers on the emergency management of avulsion. Each question was given a score of 1 for correct answer and 0 for incorrect answer and a response of 'don't know'. A total score was assigned to each respondent. A score >50% was described as good knowledge, while a score <50% was described as poor knowledge. Chi-square test was used to test the association of knowledge of the school teachers and socio-demographic variables. Multivariate analysis was used to adjust for confounding variables. The level of significance was set at $P \leq 0.05$.

RESULTS

A total of 168 teachers filled the questionnaires. There were 66(39.3%) males and 102(60.7%) females. Eighty (47.6%) teachers were in 41 to 50 years age group. Majority (64.9%) of the teachers had university education while 31.5% have taught for 16 to 20 years. A number of 103 (61.3%) of the teachers taught in Private

schools while 55 (32.7%) taught in Secondary schools. (Table 1)

Table 2 shows the knowledge, attitude and practice of some Nigerian school teachers to the management of an avulsed tooth. Most of the teachers 120(71.4%) had not received any formal or informal lecture on the management of tooth avulsion. Only 48(28.9%) of the teachers had experienced tooth avulsion during the course of their teaching career. A total number of 133 (79.2%) responded that emergency treatment was important after tooth avulsion. When the teachers were asked what would they do in case of tooth avulsion, 68(40.5%) responded that they would call the child's parents and 22(13.1%) of the teachers would look for a dentist. A number of 137(81.5%) of the teachers responded that they would not reinsert the avulsed

tooth back into its socket. 71(42.3%) responded that they would wash the avulsed tooth and gave various materials for washing the tooth ranging from mouthwash, salt and water, toothpaste and water. When the teachers were asked if they would maintain the avulsed tooth in a storage medium, 101(60.1%) of them responded that they would not. The respondents gave various agents like antiseptics, mouthwash, salt water and water as liquid storage medium when they were asked which liquid would they use to maintain the avulsed tooth. A number of 27.4% of the teachers had good knowledge of dental trauma (Table 3). There was no statistically significant association between the knowledge of the school teachers and the socio demographic work characteristics

Table 1: Demographic characteristics of the respondents

Characteristics	Frequency (n=168)	Percent (%)
Gender		
Female	102	60.7
Male	66	39.3
Age (years)		
≤30	18	10.7
31-40	49	29.2
41-50	80	47.6
51-60	21	12.5
Education		
Secondary	22	13.1
Teacher training college of education	29	17.3
Polytechnic	8	4.8
University	109	64.9
Duration of teaching		
<1	7	4.2
1-5	23	13.7
6-10	15	8.9
11-15	41	24.4
16-20	53	31.5
21 and above	29	17.3
Type of School		
Private	103	61.3
Public	65	38.7
Category of school		
Primary	113	67.3
Secondary	55	32.7

Table 2: Knowledge, attitude and practice of school teachers to the management of an avulsed tooth.

Variable	Frequency (n=168)	Percent (%)
Received any information, lecture or talk on management of tooth avulsion		
Yes	48	28.6
No	120	71.4
Sources of information on tooth avulsion (n=48)		
Church	1	2.1
Hospital	18	37.5
Media	8	16.7
School	17	35.4
Others	4	8.3
Experienced Tooth avulsion in a child		
Yes	50	29.8
No	118	70.2
Is emergency treatment important		
Yes	133	79.2
No	35	20.8
What to do with the child in case of tooth avulsion		
There is a dental clinic in/near my school	27	16.1
I will look for a dentist	22	13.1
I will contact a dental clinic	45	26.8
I will call the child's parents	68	40.5
I will not do anything	4	2.4
contact the dentist	1	0.6
contact the nurse in the school's clinic	1	0.6
Would you reinsert the avulsed tooth		
Yes	31	18.5
No	137	81.5
Would you wash the avulsed tooth		
Yes	71	42.3
No	97	57.7
Liquids chosen by the teachers to wash the tooth with (n=71)		
Mouth wash	35	49.3
Salt and warm water	20	28.2
Toothpaste	4	5.6
Water	12	16.9
Teachers' responses on maintaining the tooth before the patients presenting to the hospital		
Yes	67	39.9
No	101	60.1
Storage media for the avulsed tooth		
Antiseptics	3	1.8
Mouth wash	21	12.5
Salt water	11	6.5
Water	16	9.5

Table 3: Overall knowledge of school teacher about the management of an avulsed tooth

Knowledge	Frequency (n=168)	Percent (%)
Poor	122	72.6
Good	46	27.4

DISCUSSION

School teachers have been reported to have poor knowledge of TDIs all over the world. Quite a number of the studies carried in Nigeria reported poor knowledge of school teachers in the immediate care of the dentally traumatized child (Adekoya-Sofowora, Braimah, Ogunbodede, 2005; Sanu and Utomi 2005; Udoe 2006; Adekoya-Sofowora et al 2008; Adekoya-Sofowora et al 2009). Some of these referenced studies recommended training of school teachers on the immediate care of dentally traumatized pupils/students while one particular study suggested that dental trauma lecturers should be incorporated in First Aids training for school teachers (Olatosi et al., 2013). The rationale behind this present study was to assess the present knowledge of school teachers on tooth avulsion.

In this study, it was interesting to note that a limited proportion (28.9%) of the school teachers had experienced tooth avulsion. This was lower when compared to the study by Olatosi et al. (2013) that reported 42.8% of teachers witnessing situation of tooth avulsion. The lower reported proportion may be due to implementation of safer sporting arena measures in schools and absence of big playing fields in most private schools which limit the number of contact sports available to school students.

A significant number (71.4%) had not received any formal or informal training on the management of tooth avulsion. A Nigerian study (Olatosi et al., 2013) reported about 10% of teachers having received tooth avulsion training incorporated in First aids training. There is a better (though still low) percentage (28.6%) in our study of teachers receiving formal/informal training of tooth avulsion. This possibly explains the relatively good knowledge of this cohorts of teachers in this present study.

The result of this survey reflects that the majority of the school teachers had poor knowledge regarding the emergency management of tooth avulsion (72.6%); this is similar to the study by Olatosi et al. (2013) that reported 84% of teachers having poor knowledge of tooth avulsion. This present result still reflects that a lot of work needs to be done by the dental community to bring the importance of the immediate management of traumatic dental injuries to school administrators and teachers. There was no statistically significant association between the knowledge of the school teachers and the socio demographic work characteristics.

The appropriate first care intervention from the first responder at the sight/point of injury followed by proper clinical management will significantly improve the clinical outcome of the avulsed tooth. Ideally, replantation should be carried out between 30 minutes to 6 hours if the tooth is kept in an ideal storage medium (Sae-Lim and Yuen, 1997) The teachers in this study still displayed deficient actionable practices about management of tooth avulsion. A total percentage of 81.5% of them would not reinsert the tooth avulsed tooth back into its socket while 57.7% would not wash the tooth before reinserting it back into its socket. A number (60.1%) of them also reported that they would not maintain the tooth in any storage container or storage medium when they could not reinsert the tooth. These teachers' practices align with the practices in reported by Olatosi et al. (2013). They probably showed the poor practices because they are not clinicians and they have not been trained in the appropriate protocol in handling the avulsed tooth. It was recommended by The International Association of Dental Traumatology (IADT) that the tooth should be placed in a suitable medium e.g. a glass of milk or in saline. The tooth can also be transported in the mouth, keeping it between the molars and inside the cheek. Water is to be avoided (Andersson et al., 2012).

CONCLUSION

This study shows that school teachers (private, public, primary and secondary) in this environment have poor knowledge of tooth avulsion with deficient actionable practices. Therefore, the dental community needs to continue tooth avulsion awareness campaign. Emergency dental traumatic injuries first aid practices should be incorporated in Safety and First Aid training in schools.

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