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KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING AVULSION AND ITS IMMEDIATE TREATMENT AMONG SCHOOL TEACHERS IN PATNA CITY, BIHAR

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ABSTRACT:

Introduction: Traumatic dental injuries (TDIs) are widespread in the population and are a serious dental public health problem among children. It may cause both functional and aesthetic problems, with possible impacts on the patient's quality of life. Primary and permanent anterior teeth are not only important for aesthetics but also are essential for phonetics, mastication, integrity of supporting tissues, as well as psychological and mental are usually a combination of trauma to the perioral soft tissues, teeth, and their supporting tissues

Aim: To assess the knowledge, attitude and practice regarding avulsion and its immediate treatment among school teachers in patna city, Bihar.

Materials and methods: A cross-sectional questionnaire study was conducted among the school teachers from march 2016 to april 2016 in patna. The sample size of 200 was selected through simple random sampling method. A self administered structure questionnaire was used to assess knowledge, attitude and practice .the response format was based on 3-point likerts scale. Analysis was done using spss 20. Level of significance ($p<0.05$) at 95% confidence level and ($p<0.01$) at 99% confidence level. Mann u whitney and kruskal wallis test were used for analysing the association between parameters.

Results: 100% school teachers have knowledge about the two types of dentition i.e. Deciduous and permanent teeth. But none of any school teachers has got any training on managing dental emergencies. Knowledge is nearly same in both the male and female teachers, while attitude and practices are more in female teachers as compared to male teachers.

Conclusion: Overall knowledge on avulsed tooth and its immediate treatment was better with 41-50 years of age group and with teaching experience of 21-30 year and higher the education, better the knowledge.

Keywords: teachers, traumatic dental injury, knowledge, attitude, practice.

INTRODUCTION:

Physical activity is a basic need for the growth and development of a child. World Health Organization (WHO) theme for the year 2002 says, Move for Health, which emphasizes on the role of physical activity in the healthy living of an individual. During these physical activities, injuries to the face are one of the risks associated with it. Trauma to both primary and permanent dentition continues as a frequent dental problem. As long as young children remains active, trauma to both primary and permanent

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dentition continuous to be a frequent dental problem. [1]

Traumatic dental injuries (TDIs) are widespread in the population and are a serious dental public health problem among children. It may cause both functional and aesthetic problems, with possible impacts on the patient's quality of life. Primary and permanent anterior teeth are not only important for aesthetics but also are essential for phonetics, mastication and integrity of supporting tissues, as well as psychological and mental well being. These are usually a combination of trauma to the perioral soft tissues, teeth, and their supporting tissues. Dental injuries can be classified into: Enamel fracture, crown fracture without pulp involvement, crown fracture with pulp involvement, root fracture, crown–root fracture, luxation, avulsion, and fracture of the alveolar process.

Among the different types of dental trauma, avulsion results in the greatest functional and aesthetic impairment due to its worse prognosis.[2] Dental avulsion has been defined as the complete displacement of a tooth from its alveolus. It is one of the most critical clinical conditions for children due to its great impact on quality of life. Accordingly, dental avulsion may lead to aesthetical complications, lower masticatory efficiency, difficulties in phonation, and even social and psychological problems.

The importance of anterior permanent teeth in aesthetics and function cannot be underestimated. Anterior permanent teeth have significant effect on an individual's facial profile. Lost teeth can have significant negative functional, aesthetic, and psychological effect on children. Epidemiological studies have revealed that children from 8 to 12 years are especially prone to dental injury. Traumatic tooth avulsion comprises 0.5%–16% of traumatic injuries in the permanent dentition and 7%–13% in the primary dentition.

The tooth most commonly avulsed in both the primary and the permanent dentition is the maxillary central incisor. The lower jaw is seldom affected. Tooth avulsion is more frequent in boys than in girls because of the active participation of the former in physical sports and games. [3]

The prognosis is related to the injury of the periodontal membrane during the time the tooth is out of its socket. Dry storage of the tooth will cause irreversible injury to the periodontal membrane, resulting in loss of the replanted tooth over time. However, storing the tooth in water is not recommended in that the osmolality is too low. Wrapping the tooth in plastic could prevent evaporation for at least 1 hr and the tooth can be stored in saline or balanced salt solution. Storing the tooth in the patient's saliva is another alternative for shorter periods. Milk has a favourable osmolality and composition for the viability of periodontal ligament

cells and has therefore been recommended for temporary storage of avulsed teeth before reimplantation. Although primary teeth may also be avulsed, they should not be replanted because this manipulation may result in injury to the underlying permanent teeth germ. [4]

Prompt and pertinent emergency management is not only the responsibility of the dentist but also of lay people, such as the parents and the school teachers available at the site of accident. School is one of the locations with the greatest prevalence of the occurrence of dental trauma in adolescents. Falls and collisions, followed by sports activities such as cycling and soccer, are the most prevalent etiological factors. Teachers are generally present at the time dental trauma occurs; as such accidents often take place during or after school activities. However, they have few/limited knowledge regarding the recommended course of action in such situations. It is therefore of fundamental importance for coaches, teachers, and undergraduate students in physical education to be duly informed with regard to the correct first aid measures. So, school teachers should have knowledge of basic dental physiology and the treatment protocol for such injuries.[2]

MATERIALS AND METHODS:

1)*Approval from authorities:* Official permission was obtained from, Heads/Concerned authority of the selected schools

2) *Ethical clearance:* The proposed study was reviewed by the Ethical committee of Buddha Institute of Dental Sciences and Hospital, Patna and clearance was obtained.

3)*Study design:* The study is a descriptive, cross sectional study design.

4)*Source of data:* Data was obtained from the school teachers in schools in Patna City.

5)*Study group:* All teachers who were present on the day of survey formed the study group.

6)*Sample size:* The sample comprised of all school teachers (200) present in the respective schools on the day of survey in Patna city.

7)*Prescheduling:* Prior to scheduled survey, the investigator visited the respective schools to obtain the permission from the principal of the school/ concerned authority of the selected school.

9)*Method of collection of data:* The sample frame consisted of middle schools (Government and Private) in Patna city. The list of schools was obtained from the District Education Office. The study sample was selected by a cluster sampling technique. For study purposes, map of Patna city was divided into four zones: North, South, East and West. As per the list obtained from the

state ministry of education /district education officer, there are 350 schools in Patna city In each zone, five schools were randomly selected in order to have equal representation from each zone.

The questionnaire consisted of consisted of two sections. First section consists of 5 questions regarding demographic information. Second section consists of 15 questions regarding knowledge, attitude and practice regarding avulsion and its immediate treatment among school teachers. A 3-point Likerts scale of, Agree, Neutral and Disagree was used to indicate their degree of agreement and involvement in immediate treatment of school children undergoing avulsion during any traumatic injury.

The feasibility and validity was tested by a pilot study. Questionnaires were circulated among the school teachers on their day of survey in Patna city. The time allocated for completion of the questionnaire was 30 min.

10) ***Inclusion criteria****:* Teachers present on the day of survey

11)*Exclusion criteria:* Teachers not willing/consent to fill the questionnaire.

12)*Statistical analysis:* Data was analyzed by using SPSS version 20 and the tests used in the study are Mann Whitney U-Test, Kruskal Wallis and chi square test. 'P' value of < 0.05 was taken to be statistically significant for the purpose of analysis.

RESUTS:

A total 200 school teachers participated in the present study. Out of Whom 137(68.5%) were males and 63(31.5%) were females. (Graph1).

Majority of Dentists, i.e. 64 (32.0 %) were in the age range of 41-50 years and the least 41 (20.5 %) were in the age range 31-40 years (Graph2)

17(8.5 %) teachers have got the teaching experience more than 30 years while 108 (54%) teachers have teaching experience of about 0-10 years (Graph:-3)

Knowledge is nearly same in both the male and female teachers, while attitude and practices are more in female teachers as compared to male teachers. Pvalue is not significant (table:-1) Knowledge is more on teachers having the teaching experience having 21-30 years. Attitude is more on teachers having teaching experience of 0-10 years. Practice is more on teachers having teaching experience of 11-20 years. Pvalue is not significant (TABLE:-2)

Knowledge is more on teachers having the educational degree as Med. Attitude is more on teachers having the educational degree as Med. Practice is more on teachers having the educational degree as Med. Pvalue is significant in Knowledge, While not significant both in attitude as well as practice. (Table:-3)

DISCUSSION:

Appropriate management is very much important for the future prognosis of teeth affected by Traumatic dental injury

(TDI), especially in young children. Those most likely to be involved at the site of a TDI are school children and school teachers. So, teachers knowledge of TDI emergency management is fundamental to the provision of correct care to an injured child.[2]

The sample population comprised of 68.5% males. Contrast to, study done by Hossein et al. comprised of 52% males. [14]

In terms of age, the majority of the respondents (32%) were between 41 and 50 years of age, which is in contrast to the study conducted by Bayrak et al.[25] in which 36.7% were between 31 and 40 years of age. It is similar in study done by Hossein et al. where it showed that majority of respondents were between 41 and 50 years of age. [14]

In this study, most respondents 34.1% had 0-10 years of teaching experience, which is similar to the study conducted by Chan et al. In contrast, majority of the respondents had 10-20 years of teaching experience in the study done by Hossein et al. [14]

In this study, 25% teachers held degrees other than the B.Ed. and M.Ed. degrees as their educational qualification, which is in contrast to Hossein et al. study. [14]

Perhaps the most disturbing finding of our study was 13% of teachers would not pick up the tooth after avulsion, which shows they are not aware of reimplantation. This has a tremendous impact on child's psychological state for tooth loss.

8.5% opined that tooth should be stored in storage medium, which reflects the fact that they are not aware of proper handling of tooth as it may damage the periodontal fibres. It has been proven that success of reimplantation depends on integrity and viability of fibers.

The crucial factors that play a role in good prognosis of reimplantation are least damage to the root, minimum extra- oral time, optimum storage media, which teachers should be made aware of. Present study suggests that their awareness is very low. Awareness about storage media for avulsed teeth among common people help in better prognosis of replanted teeth.

In this study, only 0.5% of subjects have the knowledge of fallen tooth that can be reimplanted which is very low.

This is not in accordance with the study conducted by Lin et al. in Hong Kong where it was 17.5%. Similar results were observed by Touré et al. in Morocco, who showed 15.8%. Zakirulla et al. stated that reimplantation while still at the accident site is preferable, but may be difficult due to fear, ignorance, pain, possible bleeding, soft tissue lacerations, and lacked sufficient expertise. [21]

Present study revealed that 93% would seek help immediately by taking the child immediately to hospital which is in contrast to the study conducted by Hamilton et al., who showed 38.6%.

Possible explanation expressed by authors could be that this group felt dentists can take the correct action than any other healthcare professionals. [21]

In this study 100 % of the respondents have not received any orientation regarding avulsion of tooth which is very pathetic. Similar findings are found in the study done by Pujita C et al 2013 which is 98.5%. This shows that campaigns are not included in their training curricula.

Many dentoalveolar injuries can be prevented by the use of well fitted properly constructed mouth guards, face cages, helmets in any sport in which there is a risk of sudden impact to the face. So it is the responsibility of physical education teachers and sports coaches to identify potentially dangerous sports in their area and recommend the use of safety equipment.

Dentists play a role in educating the public in the use of protective equipment for the prevention of orofacial injuries during sporting and recreational activities and to provide knowledge to parents and patients regarding prevention of orofacial injuries and can prescribe, fabricate, or provide referral for mouth guard protection for patients at increased risk for orofacial trauma.[2]

When the responses of the teachers to the questions regarding dental trauma were correlated with their teaching experiences, it was found that there was significant relationship between the practice conducted and the teaching experience, which is similar to a study done by Sae-lim, where teaching experience showed a direct correlation.

Among trained and untrained teachers there is significant difference regarding the knowledge of dental trauma management and the qualification, which is contrast to study done by chan. [1]

CONCLUSION:

- It can be concluded from present study that 100% of teachers have not received any training on dental accidents.
- 12.5% of the teachers believed that fallen tooth can be reimplanted.
- Overall knowledge on avulsed tooth and its immediate treatment was better with 41-50 years of age group and with teaching experience of 21-30 year and higher the education, better the knowledge.
- All this can be utilized to understand the situation better and recommend training programs on dental accidents in their teacher training programs.

RECOMMENDATION

- School teachers should ensure a safe environment during physical education lessons to identify the causal factors for the design of appropriate preventive measures to reduce incidents such as collisions, fights, and falls.
- Educational programs such as incorporation of emergency management of dental injuries in

the curriculum of physical education teachers should be considered.

- For teachers and parents, dental and medical institutional authorities in coordination with the school authorities should plan such educative programs so that they can educate the children.
- First aid management of dental trauma should include in the teacher training curriculum, would help the teachers act in a better way when faced with such situations.
- Dental camps should be held for school children every year, implementing such awareness lectures highlighting emergency management of dental traumatic injuries occurring in children for teachers and parents on a regular basis, would help in reinforcing their knowledge.
- Dental check up camps should be organized to identify high risk group, such as children with proclined teeth, and informing their parents about prevention and possible treatment options.
- Intervention program should be developed to target the parents to avoid unnecessary loss of permanent tooth due to avulsion injury so the tooth can be retained in function for life.
- Television and the Internet can be the source of information regarding TDIs for parents.

REFERENCES:

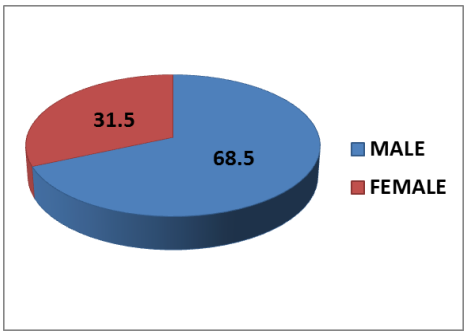
1. Mohandas U, Chandan GD. Knowledge, attitude and practice in emergency management of dental injury among physical education teachers: A survey in Bangalore urban schools. J indian soc pedod prevent dent 2009; 27(4):242-248.
2. Singh M, Ingle NA, Kaur N, Yadav P. Evaluation of knowledge and attitude of school teachers about emergency management of traumatic dental injury. J Int Soc Prevent Communit Dent 2015; 5(2):108-13.
3. Kaur H, Kaur S, Kaur H. Prehospital emergency management of avulsed permanent teeth: Knowledge and attitude of schoolteachers. Indian J Dent Res 2012; 23(4):556.
4. Al-Asfour1 A, Andersson1 L, Al-Jame. School teachers' knowledge of tooth avulsion and dental first aid before and after receiving information about avulsed teeth and replantation. Dent Traumat 2008; 24: 43–49.
5. Bhagwat SA, Parmar A, Mandke LP. Awareness, Attitude and Knowledge of Emergency Management of Avulsed Tooth in Urban India. Int J science Res 2016; 5(3):707-14.
6. Young C, Wong KY, Cheung LK. Emergency management of dental trauma: knowledge of Hong Kong primary and secondary school teachers. Hong Kong Med J 2012; 18:362-70.

7. Shamarao S et al. Knowledge and attitude regarding management of tooth avulsion injuries among school teachers in rural India. J Int Soc Prevent Communit Dent 2014; 4(1):S44-8.
8. De Lima Ludgero et al. Knowledge regarding emergency management of avulsed teeth among elementary school teachers in Jaboatão dos Guararapes, Pernambuco, Brazil. Ind Journ Dent Res 2012; 23(5):585-90.
9. Taranath M, Senaikarasi RM, Manchanda K. Assessment of knowledge and attitude before and after a health education program in East Madurai primary school teachers with regard to emergency management of avulsed teeth. J Indian Soc Pedod Prev Dent 2017; 35:63-7.
10. Arikan V, Sonmez H. Knowledge level of primary school teachers regarding traumatic dental injuries and their emergency management before and after receiving an informative leaflet. Dent traumat 2011; 28:101-07.
11. Sreelakshmi N et al. Assessment of Knowledge and Attitude among Public and Private School Teachers in Urban and Rural Areas towards Management of Traumatic Dental Injuries. Jour Int Oral Health 2016; 8(3):344-350.
12. Kane AW, et al. Attitude and knowledge of primary school teachers of initial management of dental trauma. Journ of Oral Health Res 2011; 2(2): 51-54.
13. Pithon MM, Lacerda-Santos R, Magalhães PHB, Coqueiro RS. Brazilian primary school teachers' knowledge about immediate management of dental trauma. Dental Press J Orthod. 2014 Sept-Oct;19(5):110-5.
14. Mesgarzadeha AH, Shahamfarb MR, Hefzollesanb A. Evaluating Knowledge and Attitudes of Elementary School Teachers on Emergency Management of Traumatic Dental Injuries: A Study in an Iranian Urban Area. Oral Health Prev Dent 2009; 7(3): 297–308.
15. Pacheco LF et al. Evaluation of the knowledge of the treatment of avulsions in elenmentary school teachers in Rio de Janeiro, Brazil. Dent Traumat. 2003; 19: 76-78.
16. Tzigkounakis V, Merglova V. Attitude of Pilsen primary school teachers in dental traumas. Dental Traumat 2008; 24: 528–531
17. Oliva Jorge KO et al. Knowledge of teachers and students in physical education's faculties regarding first-aid measures for tooth avulsion and replantation. Dental Traumat 2009; 25: 494–499.
18. Holan G, Cohenca N, Brin I, Sgan-Cohen H. An oral health promotion program for the prevention of complications following avulsion: the effect on knowledge of physical education teachers. Dental Traumatology 2006; 22:323-327.
19. Sharma R, Mallaiah P, Kadalur UG, Verma S. Knowledge and Attitude of School Teachers with regard to

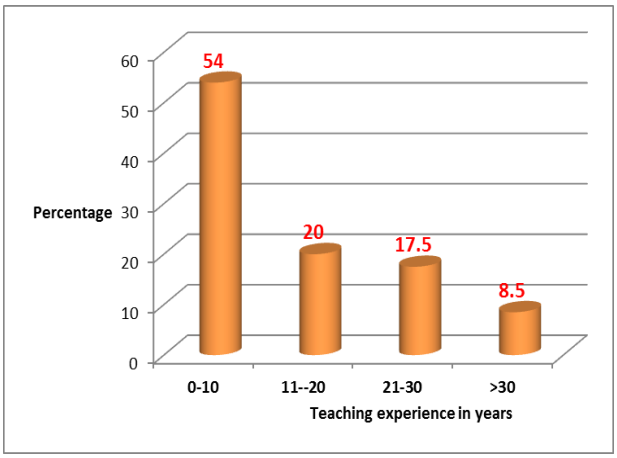
Emergency Management of Dental Trauma in Bangalore City. Int J Oral Health Med Res 2016;3(1):38-43.

20. Raoof M, Zaherara F, Shokouhinejad N, alizadeh SM. Elementary school staff knowledge and attitude with regard to first-aid management of dental trauma in Iran: a basic premise for developing future intervention. Dent Traumat 2012; 28: 441–447.
21. Prathyusha P et al. Knowledge and Awareness Regarding Avulsion and Its Immediate Treatment in School Teachers in Bangalore City (South). Journal of International Oral Health 2015; 7(8):93-97.
22. Haragushiku et al. Knowledge and Attitudes toward Dental Avulsion of Public and Private Elementary School teachers. J Dent Child 2010; 77:49-53.
23. Mori GG, Turcio KHL, Borro VPB, Mariusso, AM. Evaluation of the knowledge of tooth avulsion of school professionals from Adamantina, Sao Paulo, Brazil. Dent Traumat 2007; 23: 2–5.
24. Caglar E, Ferreira LP, Kargul B. Dental trauma management knowledge among a group of teachers in two south European cities. Dent Traumatol 2003; 21: 258-262
25. Bayraka S, Tunc ES, Sari E. Evaluation of Elementary School Teachers' Knowledge and Attitudes about Immediate Emergency Management of Traumatic Dental Injuries. Oral Health Prev Dent 2012;10: 253-258.

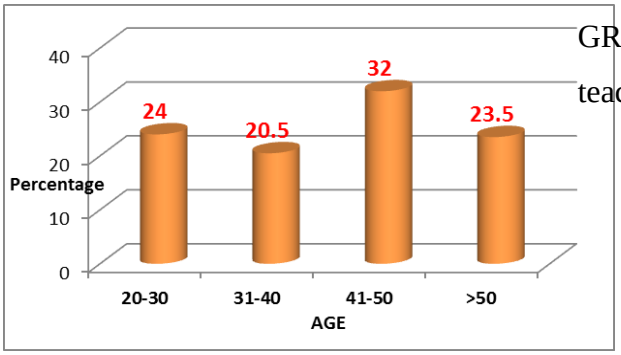
TABLES AND FIGURES



Graph 1: Distribution of teachers according to Gender



GRAPH:-3 shows the distribution of teachers according to teaching experience



Graph 2: Distribution of teachers according to age

	GENDER	N	Mean Rank	P value
Ktotal	Male	137	100.45	0.986
	female	63	100.60	
Atotal	Male	137	99.15	0.618
	female	63	1	
Ptotal	Male	137	96.24	0.115
	female	63	1	

Table:-1, Mann-Whitney U Test, Variable is Gender

TEACHING EXPERIENCE		N	Mean Rank	Pvalue
Ktotal	0-10	108	100.35	
	11-20	40	98.06	0.232
	21-30	35	113.79	
	>30	17	79.85	
Atotal	0-10	108	103.98	
	11-20	40	100.31	0.714
	21-30	35	95.41	
	>30	17	89.29	
Ptotal	0-10	108	101.91	
	11-20	40	104.18	
	21-30	35	94.73	0.854
	>30	17	94.79	

Table: - 2, Kruskal-Wallis Test, Variable is teaching experience

EDUCATIONAL STATUS		N	Mean Rank	Pvalue
Ktotal	Bed	146	97.65	
	Others	50	102.54	0.017
	Med	4	179.13	
Atotal	Bed	146	99.35	
	Others	50	102.55	
	Med	4	116.75	0.796
Ptotal	Bed	146	97.53	
	Others	50	105.45	0.170
	Med	4	147.13	

Table: - 3, Kruskal-Wallis Test, Variable is educational status