



KNOWLEDGE AND ATTITUDE OF THE EMERGENCY MANAGEMENT OF TOOTH AVULSION IN CHILDREN: A COMPARISON BETWEEN FATHERS & MOTHERS IN MANGALORE SOUTH (RURAL & URBAN)

Dr. Onashri Ranjit*	Yenepoya Dental College, Yenepoya Deemed to be University *Corresponding Author
Dr. Sundeep Hegde K	Yenepoya Dental College, Yenepoya Deemed to be University
Dr. Sham S Bhat	Yenepoya Dental College, Yenepoya Deemed to be University

ABSTRACT Traumatic dental injuries are one of the commonly encountered dental emergencies. Missing anterior tooth in children due to any injury can be a source of considerable physical and psychological discomfort for the child. The prognosis of some dental injuries depends to a great extent on parents' knowledge of correct and prompt emergency measures. The aim of this study was to evaluate the knowledge and attitude of the fathers and mothers towards emergency management of dental trauma in children between 8-14 years in urban and rural areas of Southern Mangalore. A cross sectional survey was conducted in various schools in and around Mangalore South. A questionnaire was formulated to assess the knowledge and attitude of fathers and mothers from rural and urban areas of 8-14 years old children regarding the management of avulsed tooth. The results of the study revealed insufficient knowledge among rural fathers and mothers compared to urban fathers and mothers regarding emergency management of tooth avulsion. It was found that most of the urban parents would look for lost avulsed tooth which shows that they are aware that there is a possibility of replantation following the avulsion of tooth. However, both the groups showed positive attitude towards the emergency management. This study also showed the need to provide the rural population with information regarding the emergency management of avulsed tooth.

KEYWORDS : Traumatic dental injuries, Parental knowledge, Attitude, Tooth avulsion.

INTRODUCTION

One of the greatest assets a person can have is a 'Smile' that shows beautiful, natural teeth [1]. In the field of dental health, physical constraints may directly influence aspects of feeding, speech, social interaction and self-esteem, and psychology [2]. The permanent anterior teeth are not only important for aesthetics but are also essential for speech [phonetics], mastication, health of supporting tissues and psychological and mental health of children [1]. One of the most common injuries during the growing age of an individual is dento-alveolar injuries.

Although the oral region comprises 1% of total body area, the oral injuries account for as much as 5% of all body injuries, with an even higher proportion of oral injuries among children [3]. Traumatic dental injuries (TDI) are one of the most common causes of oral morbidity in children. The pain and suffering caused by an injury along with the psychological trauma of broken teeth have been documented as a cause of concern for both the father and the mother [4]. The most serious dental injury is avulsion of tooth [5]. The tooth most commonly involved in avulsion is both primaries as well as in permanent dentition is the maxillary central incisor. Avulsion injuries are three times more common in boys than girls because of their active participation in sports and games and occur most commonly at the age of 7-9 years when permanent incisors are erupting [6]. The most accepted treatment for an avulsed permanent tooth is immediate replantation. Furthermore, avulsed primary tooth should not be re-implanted as it can damage developing permanent tooth bud. Loss of anterior teeth can lead to an extreme psychological trauma in children, along with functional and aesthetic debilitation. Correct emergency intervention can greatly help in improving the prognosis of a traumatized tooth, ultimately helping us in preserving the smile of a child.

Prognosis of an avulsed tooth is largely determined by the viability of the periodontal ligament left on the root prior to replantation. This in turn is determined by the extra-oral dry time and the storage media. Most of the dental trauma accidents in children occur in or around home. The ultimate prognosis of an avulsed tooth occurring in a child may depend on knowledge of the correct emergency procedures by his/her parents [6]. Providing education to caretakers who supervise and parents who look after the children and would be in close proximity to the accident site of traumatic dental injury (TDI) has been widely advocated. These educational programs should explain the importance of prompt treatment for dental trauma, including ways of preventing these trauma and procedures for apt emergency

management to be instituted. Such educational programs for the general public in a region should be preceded by an analysis of background information on the incidence of oro-dental injuries in that community [2]. The study evaluates the knowledge and attitude of the fathers and mothers towards emergency management of dental trauma in children between 8-14 years in urban and rural areas of Southern Mangalore.

MATERIALS AND METHODS

A cross sectional study was conducted in the Department of Pedodontics and Preventive Dentistry of Yenepoya Dental College, Mangalore, Karnataka. This study was conducted among fathers and mothers of children between 8-14 years with dental trauma in urban and rural areas of Southern Mangalore for a duration of two months (August 2017 – September 2017). 520 parents (130 father's and 130 mother's in urban group and 130 father's and 130 mother's in rural group) were selected for the study with a level of significance = 5%, power = 80% and effect size = 0.5 which was computed using the statistical software G* Power 3.1.[7] The parent's signed an informed consent form after the study was fully explained to them in their vernacular language. The protocol was reviewed and approved by the Ethics Committee, Yenepoya University, Mangalore and adhered to the Declaration of Helsinki (2013) guidelines. [8] Before the data collection, the purpose and the methodology of the survey was explained to each of the subject, and informed consent was obtained. The questionnaires written both in Kannada and English language were personally distributed to the parents (both mother and father) assessing their knowledge and attitude towards emergency management of dental trauma in children. The questionnaire contained three sections eliciting demographic characteristics, parent's knowledge regarding emergency management of tooth avulsion and parents attitude towards emergency management of tooth avulsion. Demographic details included gender, age, residing level (urban or rural), education, employment status, number of children and the age of the youngest and oldest child. The questionnaire had 13 closed ended questions. Under the second section regarding parent's knowledge there were 10 questions and the next 3 questions under the third section regarding parent's attitude.

STATISTICAL ANALYSIS

Statistical tests were done using SPSS software (version 19; SPSS, Chicago, IL, USA). A p value <0.05 was considered statistically significant. Chi squared test was employed to compare the knowledge and attitude of the fathers and mothers towards emergency management of dental trauma in children with gender, age, education, employment and number of children.

Table 1: Demographic details

		Rural		Urban	
		N	%	N	%
Gender	Male	130	50.0%	130	50.0%
	Female	130	50.0%	130	50.0%
Age (years)	20-29	2	0.8%	104	40.0%
	30-39	200	76.9%	121	46.5%
	40-49	50	19.2%	31	11.9%
	>50	8	3.1%	4	1.5%
Education	Illiterate	8	3.1%	0	0.0%
	Elementary school education	70	26.9%	8	3.1%
	Higher school education	140	53.8%	170	65.4%
	Above secondary education	42	16.2%	82	31.5%
Employment status	Employed	143	55.0%	224	86.2%
	Unemployed	117	45%	36	13.8%
No. of children	1	32	12.3%	62	23.8%
	2	114	43.8%	135	51.9%
	3	114	43.8%	60	23.1%
	4	0	0.0%	3	1.2%

Table 2: Parent's knowledge and attitude regarding emergency management of tooth avulsion

		Rural		Urban	
		Father (%)	Mother (%)	Father (%)	Mother (%)
Knowledge					
Are you aware of an accident where a tooth was 'knocked out' (avulsed)	Yes	83.10	23.80	86.20	100.00
	No	16.90	70.80	13.85	0.00
	Don't know	0.00	5.40	0.00	0.00
If you come across a child with an avulsed tooth, what would you do?	Refer the child immediately to the dentist	37.70	48.50	25.40	100.00
	Put back the teeth back into the socket and rush to the dentist	30.80	26.20	18.50	0.00
	Wash the child's mouth with tap water and take the tooth in a wet cloth	31.50	23.80	56.20	0.00
	Don't know	0.00	1.50	0.00	0.00
If you notice bleeding and you control the bleeding will you search for the lost tooth?	Yes	27.70	30.00	100.00	100.00
	No	72.30	70.00	0.00	0.00
If the child does not have any pain, would you still go for a professional advice	Yes	30.80	31.00	87.70	92.30
	No	69.20	69.00	12.30	7.70
Would you replant (put back) the tooth into the socket?	Yes	2.30	9.00	95.40	90.00
	No	97.70	92	4.60	10.00
If you decide to replant a tooth a back into its socket but it has fallen onto the ground and is covered with dirt, what would you do?	Scrub the tooth gently with a toothbrush	0.00	0.00	0.00	41.50
	Rinse the tooth under tap water	0.00	20.80	56.90	58.50
	Put the tooth straight back into the socket without doing other things	0.00	0.00	0.00	0.00
	Do not know	90.80	61.50	3.80	0.00

What would you do if the 'knocked out' tooth was broken?	Others (antiseptic /alcohol)	9.20	17.70	39.20	0.00
	Still put back the tooth into the socket	0.00	0.00	0.00	41.50
	Take the broken tooth to the dentist	71.50	63.10	48.50	58.50
	Would not be concerned about the broken piece	3.80	3.80	0.00	0.00
How would you keep the tooth till you reach the dentist?	Do not know	24.60	33.10	51.50	0.00
	Ice	15.40	14.60	38.50	3.10
	Tap water	51.50	43.80	46.90	30.80
	Wet handkerchief	0.00	0.00	0.00	0.00
	Sterile saline	0.00	0.00	0.00	0.00
	Cotton pad	27.70	22.30	14.60	0.00
	Child's mouth	0.00	0.00	0.00	0.00
	Any aseptic solution	2.30	2.30	0.00	0.00
	Milk	0.00	13.90	0.00	43.80
	Coconut Water	0.00	0.00	0.00	0.00
	Others	3.10	3.10	0.00	0.00
	Have you been advised till now on what to do when a permanent tooth knocked out in an accident?	Yes	42.30	42.30	78.50
No		57.70	57.70	21.50	0.00
How would you like the mode of education to be?	Video presentations	68.50	68.50	36.00	20.00
	Short films	20.80	20.80	46.10	80.00
	Street plays	0.00	0.00	0.00	0.00
	Posters	10.80	10.80	17.70	0.00
Attitude					
Do you think it is necessary to save the knocked out tooth?	Yes	100.00	100.00	100.00	100.00
	No	0.00	0.00	0.00	0.00
Where will you take the child (First place of contact?)	Dental hospital	100.00	100.00	98.50	100.00
	General hospital	0.00	0.00	1.50	0.00
Do you think it is important to have an educational program in 'Management of tooth injury'?	Yes	31.50	31.50	96.90	100.00
	No	2.30	2.30	0.00	0.00
	Don't know	66.20	66.20	3.10	0.00

Table 3: Comparison between parent's knowledge and attitude regarding emergency management of tooth avulsion residing in rural and urban area (Chi-square test)

		p-value
Knowledge	Awareness about tooth avulsion	<0.001*
	If you come across a child with an avulsed tooth, what would you do?	0.025*
	Will you search for lost tooth?	<0.001*
	If the child does not have any pain, would you still go for a professional advice	0.002*
	Replantation of tooth into socket	0.019*
	Cleaning of contaminated avulsed tooth	0.001*
	Broken avulsed tooth	<0.001*
	Medium to carry the tooth to dentist	0.09
	Have you been advised till now on what to do when a permanent tooth knocked out in an accident?	0.072
	Preferred mode of education	0.002*
Attitude	Do you think it is necessary to save the knocked out tooth?	0.285
	First place of contact	0.087
	Importance of an educational program in 'Management of tooth injury'?	<0.001*

RESULTS

The study included 520 parents (130 fathers and 130 mothers in urban group and 130 father's and 130 mother's in rural group) who completed the questionnaire to evaluate their knowledge and attitude towards emergency management of dental trauma in children between 8-14 years in urban and rural areas of Southern Mangalore.

Table 1 shows the demographic details of the participants. There were 130 fathers and mothers residing in rural area and another pair of 130 fathers and mothers residing in urban area selected for the study. Most of the participants were under the age group of 30-39 yrs (76.9% in rural and 46.5% in urban area) with higher school education as their highest education (53.8% in rural and 63.4% in urban area). 55.0% parents from rural area and 86.2% parents from urban area are employed. In rural area, most of the parents had 2 or 3 children (43.8% each) and in urban area, most of the parents had 2 children (51.9%).

Table 2 shows the parent's knowledge and attitude regarding emergency management of tooth avulsion residing in rural and urban area.

Regarding knowledge in rural area, 83.10% father's were aware of an accident where a tooth was knocked out and 70.80% mother's were not aware. 37.70% fathers and 48.50% mothers said they would immediately refer the child to a dentist in case of an avulsed tooth. Most of the fathers and mothers said that they won't search for the lost tooth (72.30% and 70.00% respectively) and go for a professional advice, if the child does not have any pain (69.20% and 69.00% respectively). 57.70% and 57.70% fathers and mothers said that they were not advised till now on what to do when a permanent tooth knocked out in an accident and 68.50% fathers and mothers preferred video presentations as the mode of education.

In urban area, 86.20% father's and 100.00% mother's were aware of an accident where a tooth was knocked out. 100% mothers said they would immediately refer the child to a dentist in case of an avulsed tooth. 100% of the fathers and mothers said that they will search for the lost tooth and go for a professional advice, if the child does not have any pain (87.70% and 92.30% respectively). 78.50% and 100% fathers and mothers said that they were not advised till now on what to do when a permanent tooth knocked out in an accident and 46.10% and 80.00% fathers and mothers preferred video presentations as the mode of education.

Table 3 shows the comparison between parent's knowledge and attitude regarding emergency management of tooth avulsion residing in rural and urban area. Regarding parent's knowledge, there was a statistically significant difference between rural and urban parents with respect to awareness about tooth avulsion (<0.001), and reference of a child to dentist (0.025). Most of the rural parents said that they won't search for the lost tooth and wont replant it or go for professional advice if the child do not have pain which was statistically significant from urban parents who said that they would search for the tooth and would replant the tooth it or go for professional advice (<0.001 , 0.002, 0.019 respectively). Most of them in both groups told they would use tap water as the medium to carry the tooth to dentist and they didn't receive any advice till now on what to do when a permanent tooth knocked out which was statistically insignificant (0.09 and 0.072). most rural parents preferred video presentations as the mode of education whereas urban parents preferred short films which showed statistically significant difference (0.002).

Regarding parent's attitude, both the groups agreed that it is necessary to save avulsed tooth and the child will be taken to a dental hospital which was statically not significant whereas there was a significant difference between rural and urban parents regarding importance of education program in management of tooth injury (<0.001).

DISCUSSION

Parents have a major role management of traumatic dental injury. The shortest time elapsed between injury and dental care would give a favourable prognosis and higher chance of treatment success following dental trauma. Parents can be the first responders and the information they give the dentist can greatly alter the prognosis of the tooth.

In this study, most of the urban parents were aware about tooth

avulsion and would refer the child to a dentist whereas most rural parents were unaware. This result is in line with the study conducted by Shashikaran et al [1] who concluded that both urban and rural parents are lacking in knowledge regarding emergency management of avulsed permanent incisors in their children. Pani et al [9] concluded that knowledge of traumatic dental injuries among parents is less, and the fathers had a poorer knowledge when compared to mothers.

It was found that most of the urban parents would look for the lost avulsed tooth and are aware that there is a possibility of replantation following avulsion of tooth. This was in line with the study conducted by Namdev R et al. [5] and Loo T J et al. [10] This also shows that urban parents want to make sure that the child didn't accidentally swallow the tooth. On the contrary Murali et al. [11] and Hegde et al. [12] showed that only few parents were aware about possibility of re-implantation

Pain is the main reason for seeking professional advice. This study showed that majority of urban parents would seek professional advice even if the child doesn't complain of pain. This was contrary to the findings of Namdev et al. [5]

It was found that only few rural parents would attempt replantation of the avulsed tooth on their own. This might be due to lack of knowledge, confidence, fear of hurting the child and bleeding prevents them from taking prompt action. Similar results have been reported by Namdev R et al. [5] and Loo T J et al. [10]

Regarding cleaning of contaminated avulsed tooth, only a few parents knew the correct method to clean the tooth. Many rural parents chose use of antiseptic or alcohol and urban parents chose rinsing the tooth under tap water. Results studies conducted by Raphael SL et al [13], Namdev R et al [5] and Shashikaran et al [1] suggested that most of the parents knew the correct method of cleaning the contaminated tooth.

The storage of avulsed tooth in a medium compatible with cell viability till replantation is a critical step. Very few parents opted for milk as storage medium. Most of the rural and urban parents preferred tap water as storage medium. This was in accordance with findings of study by Loo et al. [10] Similarly, Murali et al. [11] reported that majority of the parents were unaware of proper storage medium.

Most of the urban parents realized the importance of an educational program on management of dental trauma which was in line with the study conducted by Loo et al., [10] who reported that most parents wanted to attend educational programs regarding management of dental trauma. Educational background of the parent has a great reflection on the attitude of parents regarding immediate management of dental trauma, but less reflection on their knowledge about dental trauma. Even among urban parents only a few had received some advice in case of avulsion of a tooth which is similar to results of other studies conducted by Shashikaran et al [1] and Loo et al. [10]

Most of the parents chose dental hospital as the first place of contact after dental trauma, which was in accordance with the study done by Loo et al. [10]

This study had a few limitations. Since the study has been conducted on institutional basis there are chances for the mother to fill up the questionnaire for both parents and a small number of participants were included in the study.

CONCLUSION

Most of the rural parents are unaware that avulsed permanent incisors can be replanted. These people, need advice and training regarding emergency management. Educational programs would be necessary to improve awareness of the immediate management of avulsed teeth. Further studies to assess and compare the knowledge and attitude among urban and rural parents in other areas other than Southern Mangalore regarding emergency management of avulsed teeth with more participants would give a broader perspective.

ACKNOWLEDGMENT

This paper is based on a short term project submitted by the Dr. Onashri Ranjit, to the faculty of Department of Paedodontics and Preventive Dentistry of Yenepoya dental college, Mangalore, Karnataka in partial fulfilment of requirements for receiving a degree in master of dental surgery.

REFERENCES

1. Shashikiran ND, Reddy VV, Nagaveni NB. Knowledge and attitude of 2,000 parents (urban and rural-1,000 each) with regard to avulsed permanent incisors and their emergency management, in and around Davangere. *Journal of Indian Society of Pedodontics and Preventive Dentistry*. 2006 Jul 1;24(3):116.
2. http://www.jaypeejournal.com/eJournals/ShowText.aspx?ID=11768&Type=FREE&TYP=TOP&IN=_eJournals/images/JPLGO.gif&IID=916&Value=5&isPDF=YES
3. Shamarao S, Jain J, Ajagannanavar SL, Haridas R, Tikare S, Kalappa AA. Knowledge and attitude regarding management of tooth avulsion injuries among school teachers in rural India. *Journal of International Society of Preventive & Community Dentistry*. 2014 Nov;4(Suppl 1):S44.
4. <http://www.imedpub.com/articles/awareness-of-the-emergency-management-of-dental-trauma-in-children-a-comparison-of-fathers-and-mothers-in-riyadh-city.pdf>
5. Namdev R, Jindal A, Bhargava S, Bakshi L, Verma R, Beniwal D. Awareness of emergency management of dental trauma. *Contemporary clinical dentistry*. 2014 Oct;5(4):507
6. Kaul R, Jain P, Angrish P, Saha S, Patra TK, Saha N, Mitra M. Knowledge, Awareness and Attitude towards Emergency Management of Dental Trauma among the Parents of Kolkata-An Institutional Study. *Journal of clinical and diagnostic research: JCDR*. 2016 Jul;10(7):ZC95.
7. G * Power 3.1 manual 2017. [cited 7 March 2017]. Available from: http://www.gpower.hhu.de/fileadmin/redaktion/Fakultaeten/Mathematisch-Naturwissenschaftliche_Fakultaet/Psychologie/AAP/gpower/GPowerManual.pdf
8. World Medical Association. World Medical Association Declaration of Helsinki, ethical principles for medical research involving human subjects. *JAMA* 2013;310:2191-2194.
9. Pani SC, Badea L, Mirza S, Elbaage N (2012) Differences in perceptions of early childhood oral health-related quality of life between fathers and mothers in Saudi Arabia. *Int J Paediatr Dent* 22: 244-249.
10. Loo TJ, Gurunathan D, Somasundaram S. Knowledge and attitude of parents [14] with regard to avulsed permanent tooth of their children and their emergency management-Chennai. *J Indian Soc Pedod Prev Dent*. 2014;32:97-107.
11. Murali K, Krishnan R, Kumar VS, Shanmugam S, Rajasundharam P. Knowledge, [15] attitude, and perception of mothers towards emergency management of dental trauma in Salem district, Tamil Nadu: A questionnaire study. *J Indian Soc Pedod Prev Dent*. 2014;32:202-06.
12. Hegde AM, Kumar KN, Varghese E. Knowledge of dental trauma among mothers [16] in Mangalore. *Dent Traumatol*. 2010;26:417-21.
13. Raphael SL, Gregory PJ. Parental awareness of the emergency management of [11] avulsed teeth in children. *Aust Dent J*. 1990;35:130-33.