

Awareness and Knowledge Created by Issuing Dental Avulsion Pamphlets to Parents of Primary School Children in Chennai

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Abstract

Background: Dental avulsion is defined as the complete displacement of tooth out of socket along with severed periodontal ligament with or without fracture of the alveolar bone. Reimplantation of the avulsed tooth is considered as a best treatment modality due to its biological and psychological advantages. **Aim:** The aims of this study were to evaluate knowledge level among parents regarding tooth avulsion and replantation and to evaluate a simple leaflet as an information tool to enhance this knowledge. **Materials and Methods:** One Hundred and fifty parents in Chennai city participated in the study. Half of the parents received a leaflet with basic first aid message regarding what to do in case of tooth avulsion. One week after reading the leaflet, the parents who had received the leaflet were evaluated by using a questionnaire. The other half of the parents who had not seen the leaflet served as control. The level of knowledge was measured in the following categories: General knowledge of tooth avulsion, knowledge of replantation and knowledge of storage methods and storage media. By scoring the knowledge, the level of knowledge was calculated. **Results:** The results showed that knowledge level was low among Chennai parents. Improvement was seen in all categories of knowledge as a result of reading the leaflet. **Conclusion:** A simple leaflet can be a valuable tool to convey important basic information and enhance knowledge of tooth avulsion and how parents should act in such a situation, although there are limitations in conveying the message for a complete understanding. Measuring the knowledge by scoring can give valuable feedback in developing various educational tools.

Keywords: Avulsion, awareness, knowledge, parents

INTRODUCTION

Dental avulsion is the complete displacement of tooth out of socket along with severe periodontal ligament with or without fracture of the alveolar bone. It is observed that avulsion accounts for 0.5–3% all permanent tooth injuries.^[1,2]

Dental avulsion instills esthetic, functional, and psychological consequences, both on the child as well as the parents. The permanent anterior teeth play an important role in good psychological development of the children and teenagers.^[3,4] When esthetics is affected by dental avulsion, there is often a consciousness, of the children and teenagers to avoid smiling. As the cost of dental treatment following trauma is high, dental avulsion causes a burden to the society's economy.^[5,6]

Dental avulsion can be managed by various treatment modalities, such as prosthetic replacement of the avulsed tooth, treatment by minor orthodontic movements, and immediate

reimplantation of the avulsed tooth, followed by endodontic treatment. Although dental avulsion can be managed by other treatment modalities, the role of immediate reimplantation plays a very important role as it offers psychological benefits than any other treatment modalities.^[2-4]

The prognosis of a reimplanted tooth is determined by the status of periodontal ligament cell on the root surface before the reimplantation.^[4,5] The combination of delayed reimplantation or unphysiological storage then there can be low survival rate of the reimplanted tooth. Prolonged extraalveolar duration leads to an uncertain prognosis for most reimplanted teeth.^[5,6] Functional healing was observed in teeth reimplanted within 1 h after the injury. It has been found that in a situation where immediate

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reimplantation of the avulsed tooth is not possible, limited storage of the avulsed tooth in isotonic solution before reimplantation gave better healing results compared with immediate reimplantation.^[7,8]

Since the majority of dental injuries occur in the home environment, the knowledge of parents regarding important steps to be taken immediately after dental avulsion is considered essential to achieve more successful outcome of the treatment.^[3,4] Several studies show that the majority of population, as well as the many professionals who may be involved in the management of dentoalveolar injuries, have little knowledge concerning this subject. In a recent study carried out in Cairo, Egypt, it was shown that the level of knowledge is markedly low in parents regardless of their educational level.^[9,10] As no previous study has been conducted in Tamil Nadu to evaluate the knowledge of parents about emergency procedures for tooth avulsion after provision of pamphlets, the present study aims to investigate the level of parental awareness concerning emergency management of avulsed anterior permanent tooth in Chennai. The study also evaluated the most preferred source of information through which further knowledge can be imparted to the population.^[7,8]

MATERIALS AND METHODS

The study population consisted of 150 parents of children studying in schools in Chennai, 75 parents of school children were randomly selected (Group B) and were given an informative leaflet about tooth avulsion and immediate and appropriate steps in dental first aid with regard to tooth avulsion and replantation [Figure 1]. The leaflet was prepared and written in simple English language with colorful schematic demonstrations and drawings on the leaflet. One week after reading the leaflet, the parents were asked to fill in a questionnaire written in a simple style.^[5] The questionnaire aimed at assessing the knowledge level of dental first aid with particular focus on the following four categories:

1. General knowledge of tooth avulsion
2. Knowledge of replantation and primary/permanent teeth
3. Knowledge of how to clean an avulsed tooth
4. Knowledge of storage methods and media.

Another group of 75 randomly selected parents (Group A) who had not been given the leaflet served as control and were given the same questionnaire, and the same scoring criteria were used.

The participants were asked to complete a 13-stemmed questionnaire. The participants were asked to complete a 13-stemmed questionnaire used in a study done in Australia.^[5] The questionnaire was provided in simple English. The questionnaire was essentially comprised two parts: first part contained the general demographic data and the second part includes closed questions which assessed the knowledge, attitude and previous experience of the participant toward the first-aid management of avulsed

permanent tooth. Each question was provided with options which may be correct or incorrect answers. The participants were requested to mark the option which they perceive as the most appropriate answer.

A collection of completed questionnaire was done on the same day, immediately after the parents had completed the questionnaire. This was followed by distribution of information leaflets and health education regarding proper first-aid measures of avulsed young permanent teeth to the participants.

The data obtained from 150 questionnaires were tabulated, and statistical analysis was done using SPSS version 20 (SPSS Inc., Chicago III, USA). While $P \leq 0.05$ was considered to be statistically significant, the Chi-square test was applied to investigate the association between the results and the genders, educational level, and geographical status of the respondents.

RESULTS

A total of 150 parents of children studying in schools in Chennai were randomly selected and were surveyed to ascertain the knowledge, attitude, and practice of parents regarding emergency management of avulsed tooth. Male respondents constituted to 52% (39) and 49.3% (37) of the surveyed Groups A and B respectively while female respondents were 48% (36) in Group A and 50.7% (38) in Group B. Around two-third of the respondents were reported to be coming from urban in Group A and rural in Group B background. While more than half respondents from Group A, i.e. 73.3% and 83.3% respondents from Group B have received an education of minimum higher secondary level.

Knowledge about reimplantation

When enquired about the knowledge of reimplantation as an emergency management of an avulsed tooth, almost half of the parents from Group B believed in the possibility (86.7%) believed in the possibility of reimplanting the avulsed tooth as part of the first-aid treatment modality [Figure 2]. Only 30.7% of the Group A respondents think that reimplantation should be done immediately [Figure 3]. Whereas 72% of the Group B respondents said reimplantation could be done immediately [Figure 3] while only a quarter (26.7%) of parents from Group A and (14.7%) of parents from Group B had shown a tendency in reimplanting the avulsed tooth into socket by themselves [Figure 4]. A total of 77.3% of the parents from Group A and 88% of the parents from Group B would consult dentists rather than doctors or local hospitals when the accident took place [Figure 5].

Cleaning media and transporting media

Majority of the respondents have selected salt water (38.7%) from Group A which is an inappropriate medium for cleaning and transporting the avulsed tooth. While Group B respondents have selected milk (77.3%) as an appropriate medium for cleaning and transport [Figure 6]. Ice water (28%) and milk (66.7%) were perceived as the



Figure 1: Pamphlet given to parents regarding emergency management of avulsed tooth.

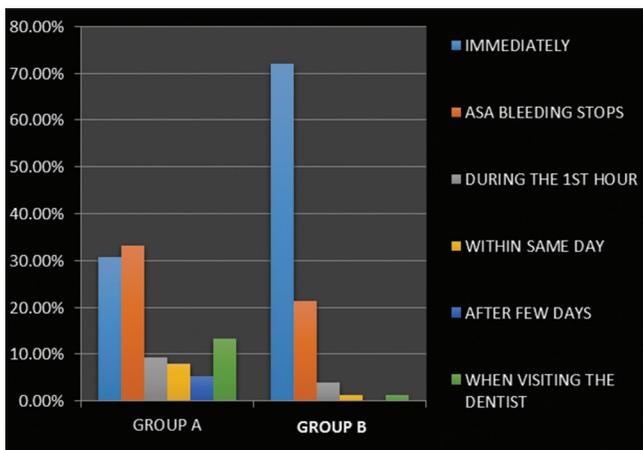


Figure 3: Timing for reimplantation.

best medium to be used for transporting the avulsed tooth by most of the respondents of Group A and Group B, respectively [Figure 7].

Previous knowledge about dental avulsion

Data had also revealed that 50% and 70.7% of the respondents of Group A and Group B had received advice regarding

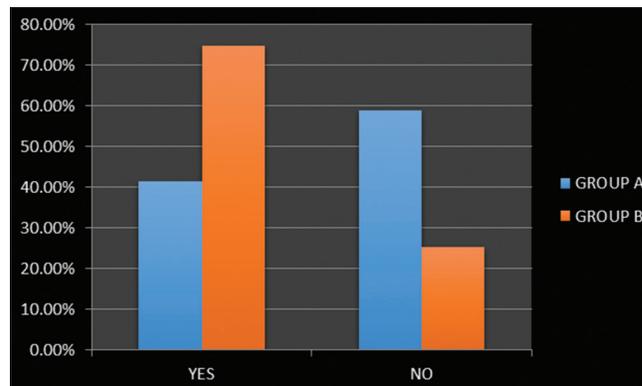


Figure 2: Possibility of reimplantation.

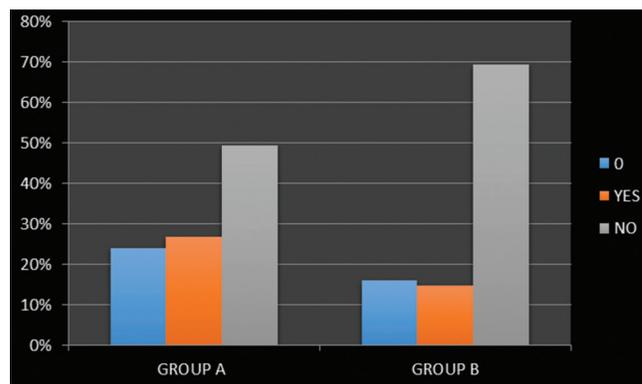


Figure 4: Attempt for self-reimplantation.

emergency management of avulsed permanent tooth before [Figure 8]. Among those who had received previous advice on the same, the two main sources were from the newspaper (33.3%) and others (64.2%) of Group A and Group B respondents, respectively [Figure 9].

Attitude of parents

As per our survey, the majority (93.3%) of parents from Group B agreed with the importance of saving an avulsed permanent tooth. High fractions (94.7%) of the respondents of Group B have shown interest in receiving more information about the emergency management of avulsed permanent tooth [Figure 10].

Previous experience with dental avulsion

Among 34 parents (14.6%) from Group A who have reported with previous experience of dental trauma to their child, 18 (40%) of them had suffered from dental avulsion [Figure 10]. However 15 (57.7%) of the parents had brought their child to the dentist immediately.

Whereas, among 56 parents (74.5%) from Group B who have reported with previous experience of dental trauma to their child, 21 (33.9%) of them had suffered from dental avulsion [Figures 11]. However, only 13 (65%) of the parents had brought their children to dentist immediately for treatment.

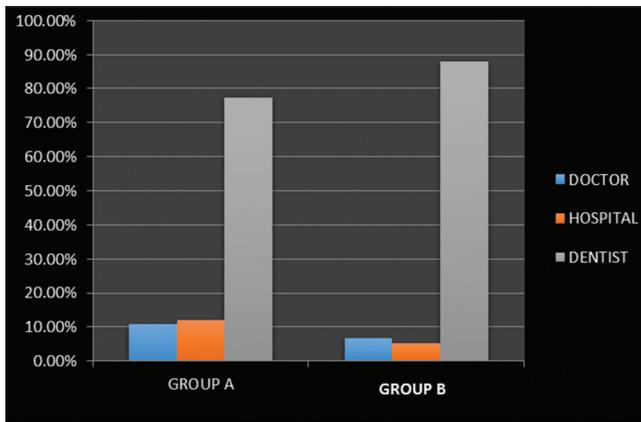


Figure 5: First place of contact.

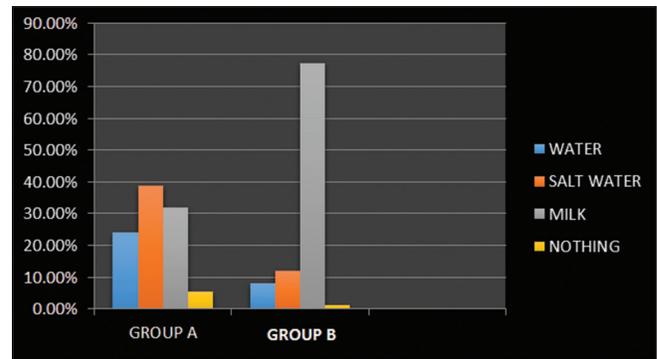


Figure 6: Cleaning media.

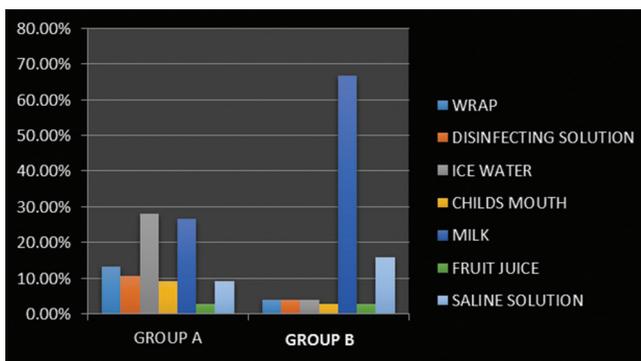


Figure 7: Transporting medium.

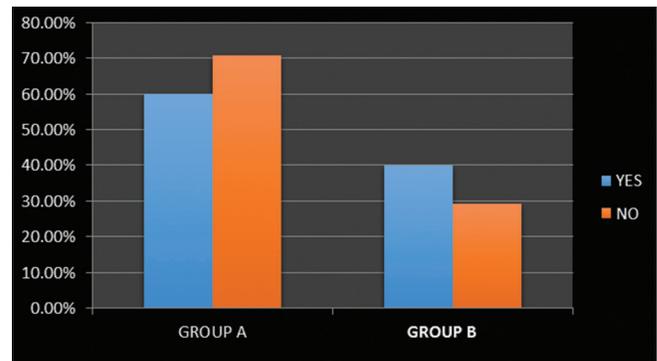


Figure 8: Previous information.

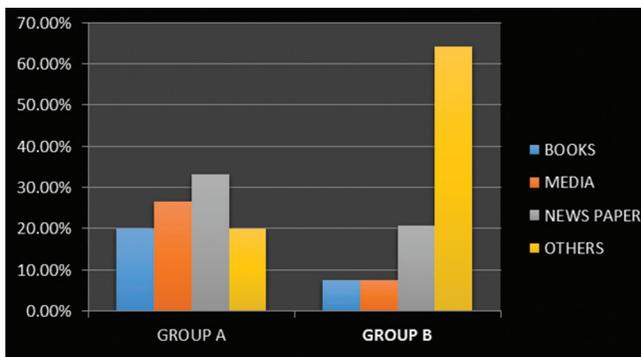


Figure 9: Source of information.

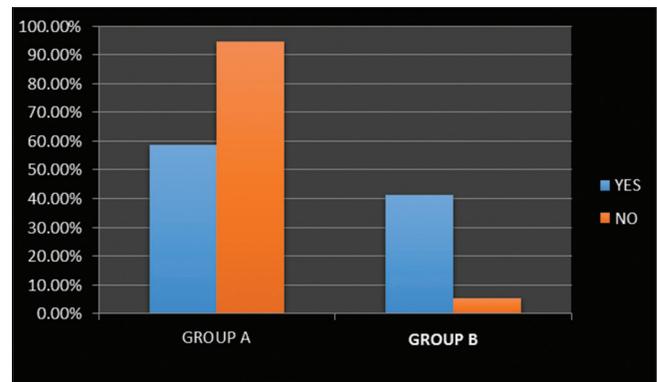


Figure 10: Interest to know about management of avulsion.

DISCUSSION

Dental avulsion is most severe form of dental trauma. Dental avulsion is characterized by complete severance of the periodontal apparatus and neurovascular bundles of the tooth, leading to the loss of pulp vitality. However, the replacement of avulsed tooth by implant due to accidents which has occurred in aged people are not recommended.^[11,12] Endodontic treatment is the only recommended procedure to be proceeded after the reimplantation of avulsed tooth for better prognosis which prevents the economical burden on the parent.^[13-19]

The prognosis of a reimplanted tooth is directly correlated to the amount of viable periodontal membrane.^[17,12] Minimal

extraalveolar dry time, adequate storage, and transport medium, along with minimal damage to the root surface, and periodontal ligaments are considered by majority authors as the triad of factors which contributes to a desirable prognosis.^[18,20-22]

According to the study conducted by Andreasen and Hjorting-Hansen,^[16] teeth that were reimplanted within 30 min gave a success rate of 90%, while only 5% chances of retention to those that were reimplanted after 2 h.^[8] Andersson and Bodin^[17] have further stated that the prognosis of reimplanted tooth is largely determined in the first 15 min after avulsion. This states that immediate reimplantation is a necessity to achieve a better prognosis on reimplanted tooth.

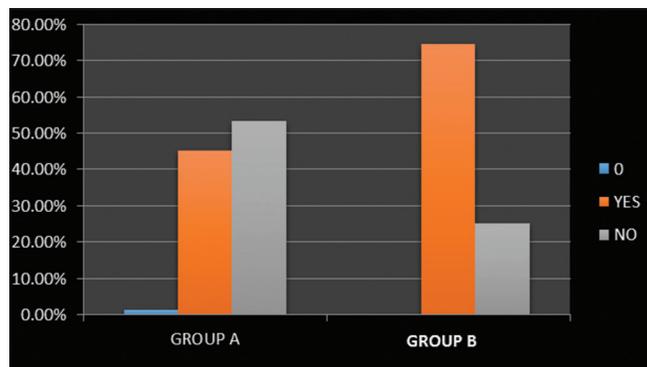


Figure 11: Previous experience of dental avulsion.

Considering predominance of dental injuries transpires in home environment where professional assistance is not acquirable readily; it is, therefore, cardinal that parents should have adequate knowledge of an emergency management of avulsed permanent tooth so that prompt and appropriate action can be taken to save the tooth.

When questioned about the possibility of reimplanting an avulsed tooth, the respondents were split into two almost equal groups. Only a quarter of the parents had shown a tendency in reimplanting the avulsed tooth into the socket by themselves. Lack of knowledge, and also their fear on their children resisted the parents from reimplanting the avulsed tooth.^[11,12,22]

On the comparison between the respondents of Group A and Group B based on the cleaning media and transport media, majority of the respondents from Group A have selected salt water which is an inappropriate medium. Whereas the respondents from Group B have selected the milk which is considered to be the suitable media for cleaning and transportation of avulsed tooth.

Wherein, data had also revealed that nearly half of the respondents from Group A and three-fourth of the respondents from Group B had already received advice about management of avulsed tooth. As per our survey, the majority of parents from Group B agreed with the importance of saving the avulsed permanent tooth. This shows that high fractions of respondents of Group B have shown interest in receiving information on emergency management on dental avulsion.

In a similar study in Kuwait Al-asfour and Andresson, 2008 a leaflet was used as an informative tool.^[23] The leaflet improved all the categories of knowledge (47–74%); however, in the present study, the improvement was higher (70.7–89.3%).

Despite the fact that nearly half of the participants doubted on the possibility of reimplanting an avulsed tooth, significant amount of parents agreed with the necessity to save an avulsed permanent tooth. This showed that the participating parents demonstrated a positive attitude toward the saving an avulsed tooth in spite of having a low level of awareness on how to save it.

Among 34 parents, whose children had experienced dental trauma, avulsion injury was observed in 18 (9.1%) child.

Parents should be made understand that it is important to retrieve the avulsed tooth not only for reimplanting the tooth but also to be certain of the tooth not being swallowed or aspirated by the child during the accident.^[24] Only 18 parents have brought their child to a dentist immediately. This finding has proved that most of the parents were not aware of the “time factor” which is the most crucial factor in determining a successful prognosis.

Intervention program should be developed for parents so that unnecessary loss of a permanent tooth due to avulsion injury can be avoided and the tooth be retained in function for life. Television was the preferred source of information. On the other hand, the younger generation and population with higher educational level preferred the Internet as their source of information.

CONCLUSION

Knowledge level is low among parents in Chennai on managing an avulsed tooth. Awareness through informative leaflets and a better understanding of its contents through the assistance of a knowledgeable operator can considerably raise the knowledge level of the parents.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Al-Jame Q, Andersson L, Al-Asfour A. Kuwaiti parents' knowledge of first-aid measures of avulsion and replantation of teeth. *Med Princ Pract* 2007;16:274-9.
2. Cvek M, Granath LE, Hollender L. Treatment of non-vital permanent incisors with calcium hydroxide 3. Variation of occurrence of ankylosis of reimplanted teeth with duration of extra-alveolar period and storage environment. *Odontol Revy* 1974;25:43-56.
3. Kinoshita S, Kojima R, Taguchi Y, Noda T. Tooth replantation after traumatic avulsion: A report of ten cases. *Dent Traumatol* 2002;18:153-6.
4. Santos ME, Habecost AP, Gomes FV, Weber JB, de Oliveira MG. Parent and caretaker knowledge about avulsion of permanent teeth. *Dent Traumatol* 2009;25:203-8.
5. Raphael SL, Gregory PJ. Parental awareness of the emergency management of avulsed teeth in children. *Aust Dent J* 1990;35:130-3.
6. Sane J. Comparison of maxillofacial and dental injuries in four contact team sports: American football, bandy, basketball, and handball. *Am J Sports Med* 1988;16:647-51.
7. Hamilton FA, Hill FJ, Mackie IC. Investigation of lay knowledge of the management of avulsed permanent incisors. *Endod Dent Traumatol* 1997;13:19-23.
8. Holan G, Shmueli Y. Knowledge of physicians in hospital emergency rooms in Israel on their role in cases of avulsion of permanent incisors. *Int J Paediatr Dent* 2003;13:13-9.
9. Stokes AN, Anderson HK, Cowan TM. Lay and professional knowledge of methods for emergency management of avulsed teeth. *Endod Dent Traumatol* 1992;8:160-2.
10. Sanu OO, Utomi IL. Parental awareness of emergency management of avulsion of permanent teeth of children in Lagos, Nigeria. *Niger Postgrad Med J* 2005;12:115-20.
11. Caglar E, Ferreira LP, Kargul B. Dental trauma management knowledge among a group of teachers in two south European cities. *Dent Traumatol* 2005;21:258-62.

12. Sae-Lim V, Lim LP. Dental trauma management awareness of Singapore pre-school teachers. *Dent Traumatol* 2001;17:71-6.
13. Lee JY, Divaris K. Hidden consequences of dental trauma: The social and psychological effects. *Pediatr Dent* 2009;31:96-101.
14. Boyd DH, Kinirons MJ, Gregg TA. A prospective study of factors affecting survival of replanted permanent incisors in children. *Int J Paediatr Dent* 2000;10:200-5.
15. Panzarini SR, Pedrini D, Brandini DA, Poi WR, Santos MF, Correa JP, et al. Physical education undergraduates and dental trauma knowledge. *Dent Traumatol* 2005;21:324-8.
16. Andreasen JO, HjortingHansen E. Replantation of teeth. II. Histological study of 22 replanted anterior teeth in humans. *Acta Odontol Scand* 1966;24:287-306.
17. Andersson L, Bodin I. Avulsed human teeth replanted within 15 minutes – a longterm clinical followup study. *Endod Dent Traumatol* 1990;6:37-42.
18. Ayodele A, Elizabeth O, Vincent U, Akinwale A. Knowledge of first aid measures of avulsion and replantation of teeth in Nigerian school children. *Internet J Dent Sci* 2009;7.
19. Hammarström L, Pierce A, Blomlöf L, Feiglin B, Lindskog S. Tooth avulsion replantation – a review. *Endod Dent Traumatol* 1986;2:1-8.
20. Ozer S, Yilmaz EI, Bayrak S, Tunc ES. Parental knowledge and attitudes regarding the emergency treatment of avulsed permanent teeth. *Eur J Dent* 2012;6:370-5.
21. Al-Jundi SH. Knowledge of Jordanian mothers with regards to emergency management of dental trauma. *Dent Traumatol* 2006;22:291-5.
22. Sae-Lim V, Chulaluk K, Lim LP. Patient and parental awareness of the importance of immediate management of traumatised teeth. *Endod Dent Traumatol* 1999;15:37-41.
23. Al-Asfour A, Andersson L. The effect of a leaflet given to parents for first aid measures after tooth avulsion. *Dent Traumatol* 2008;24:515-21.
24. Hammer H. Reimplantation and implantation of teeth. *Int Dent J* 1955;5:439-57.

Questionnaire^[5]

Demographic Data

I.D no: _____

Name of the patient:

Age: __ __

Gender: Male __ Female __

Educational Qualification:

1. Illiterate __
2. Elementary school education __
3. Higher secondary education __
4. Above Higher secondary education __

Address: Rural __ Urban __

Occupation:

Number of Children:

Male / Female:

Age of child/Children:

About Trauma

Knowledge:

1. If a tooth is knocked out by accident, do you think it can be put back so that child can chew and smile with it.
1) Yes __ 2) No __
2. Can fractured avulsed tooth be replaced?
1) Yes __ 2) No __
3. If YES then will you do it by yourself?
1) Yes __ 2) No __
4. When should the tooth be put back, if it had been knocked out of the mouth?
1) Immediately __
2) As soon as the bleeding has stopped __
3) During the first hour __
4) Within the same day __
5) After few days __
6) When visiting the dentist __

5. How to clean the tooth before replantation?

- 1) Water __
- 2) Salt water __
- 3) Milk __
- 4) Nothing __

6. If not able to replant, how to carry to dentist?

- 1) Wrap the tooth in paper / Handkerchief __
- 2) Disinfecting solution __
- 3) Ice water __
- 4) Child's mouth __
- 5) Milk __
- 6) Fruit Juice __
- 7) Saline Solution __

7. Any previous knowledge regarding management of avulsed tooth?

- 1) Yes __
- 2) No __

If YES,

- 1) Books __
- 2) Media __
- 3) News Paper __
- 4) Others __

Attitude

1. Do you think it is necessary to save avulsed permanent tooth?

- 1) Yes __
- 2) No __

2. To whom will you take the child first to?

- 1) Doctor __
- 2) Hospital __
- 3) Dentist __

3. Are you interested in knowing the emergency management of avulsed tooth?

- 1) Yes __
- 2) No __

Practice

1. Has your child ever damaged a tooth so badly that it become loose?

- 1) Yes __
- 2) No __

2. Was the tooth avulsed?

- 1) Yes __
- 2) No __

If YES,

3. What did you do to the avulsed tooth?

- 1) Threw it away/Did not look for it. __
- 2) Took the tooth to the dentist immediately. __
- 3) Took the tooth in moist conditions. __