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# Knowledge of dental trauma among mothers in Mangalore

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Abstract – Aim: The aim of this study was to assess the knowledge of Mangalore mothers regarding dental trauma. Methods: A questionnaire inquiring about mother's knowledge on dental trauma was distributed to 500 working and nonworking mothers via their children attending two primary schools in the Mangalore city. Results: Around 68.5% of the mothers were aware of the management of dental trauma. Of the working mothers, 72% were aware of the management of dental trauma while 65% of the non-working mothers were aware. When asked about saving the avulsed tooth, 36% of mothers said that the avulsed tooth can be saved. Regarding mouth guards, 54.5% of the mothers said that they aware of the use of mouth guards to prevent traumatic injuries to the teeth. Of the working mothers 72% knew that mouth guards are useful in the prevention of dental trauma while 37% of the non-working mothers have this knowledge; 68% of the mothers would take the child to the dentist following tooth injury whereas 17% of the mothers would use an emergency kit. Chisquare test and logistic regression analysis indicated a significant difference between the responses of working and the non-working mothers with regard to mouth guard knowledge and recommendation (P-value 0.001). Conclusion: Most of the mothers were graduates and were aware of the emergency management of dental trauma. The working mothers had better knowledge and awareness regarding mouth guards (72%) when compared with non-working mothers (37%).

Dental trauma remains one of the important oral health problems in childhood, and can cause much pain and distress. It is important to provide immediate first class emergency care to reduce such outcomes (1). Children suffer many accidents in their usual activities, such as running, skating and cycle riding. Many studies showed that accidents are very common among children, and the permanent dentition revealed signs of dental trauma in over 20% of children (2, 3).

The prognosis of some of the dental injuries like avulsion highly depends on prompt and appropriate emergency management, which often relies on knowledge of non-professional people, who usually are present at the site of accident, prior to the initial professional dental care (2, 4).

Dental traumatic injuries results in major functional and aesthetic disturbances in children if prompt treatment and emergency care is not taken (5). Approximately 16% of dental injuries led to tooth loss, causing alterations in the child's facial development as well as psychological changes, among other complications (6).

For a child, it is the mother who is the primary and first source of information. The healthy growth of the child depends on the sound knowledge of the mother. The number of working women is increasing in India every year marking a transition from non-working mothers to working mothers to meet the rising expenditure and demands of the family. Present day mothers are considerably more educated and highly aware of dental problems and emergencies, but are unable to meet the health care needs of their children because of the lack of time as they are overburdened with daily chores of life.

As 41% of dental injuries occur at home (7), mothers are frequently required to provide prompt and appropriate action (8). Therefore, the aim of this study was to assess, by use of a structured questionnaire, the knowledge of mothers in Mangalore city regarding dental trauma.

# Materials and methods

A total of 500 children between the age group of 6 to 12 years from two randomly selected primary schools in the Mangalore city were included in the study. Children of 6-12 years were selected, as children of this age group are more prone to trauma. The schools were located in the heart of the city where 40% of the population reside and the accessibility to the working mothers was easier. Before conducting the survey, permission was obtained from the head of the respective institutions. A closedended questionnaire containing objective questions (Table 1) was provided to the children and was requested to be passed on to the mother. Instructions to fill the questionnaire included:

Questionnaires should be filled by their mothers only.
 Only one option per question should be ticked.

Table 1. Questionnaire

<ul><li>A) Are you a</li><li>1. Working mother</li><li>2. Non-working mother</li></ul>
<ul><li>B) Mothers education</li><li>1. Graduate</li><li>2. Higher secondary schooling</li><li>3. Illiterate</li></ul>
<ul><li>C) Do you know about the first aid measures to be taken when there is dental trauma?</li><li>1. Yes</li><li>2. No</li></ul>
<ul><li>D) Have you heard of mouth guards used to prevent traumatic injuries to the teeth?</li><li>1. Yes</li><li>2. No</li></ul>
<ul><li>E) Do you recommend your child/children to wear mouth guards while playing games?</li><li>1. Yes</li><li>2. No</li></ul>
<ul><li>F) Do you know whether the avulsed tooth (tooth out of the mouth after trauma) can be saved?</li><li>1. Yes</li><li>2. No</li></ul>
<ul><li>G) If your child has a tooth injury while playing what do you do?</li><li>1. Visit a dentist</li><li>2. Visit a physician</li><li>3. Manage with an emergency kit</li></ul>
<ul><li>H) At the time of trauma if the tooth is completely out of the mouth what do you do?</li><li>1. Replace it back or carry the tooth in a solution to the dentist immediately</li><li>2. Arrest the bleeding and discard the avulsed tooth</li><li>3. Not sure what to do</li></ul>
<ol> <li>In case you are carrying a tooth to a dentist how would you do it?</li> <li>Handkerchief</li> <li>Cold milk</li> <li>Water</li> <li>Saline</li> </ol>

**3** All the questions given in the questionnaire are to be answered.

**4** Not to take help from any other sources to answer.

The filled questionnaires were to be submitted to the class teachers the next day, which were then collected. Chi-square test and logistic regression analysis were used to test the influence of working nature on the knowledge of the participants. The level of significance was set at P = 0.05.

#### Results

The number of participants in this survey included 500 mothers, of which 202 (40%) were working mothers and 298 (60%) non-working mothers. Amongst the working mothers, 64% (129) were graduates, 34% (69) had their schooling till higher secondary, and 2% (4) were illiterate and among the non-working mothers the proportions were 48% (143), 50% (149) and 2% (6) respectively. There was a statistically significant difference in the educational level of working and non-working mothers (*P*-Value: 0.002) (Table 2).

*Table 2.* Comparison of level of education between working and non-working mothers

	Education		
	Working nature		
	Working Mother	Non-working mother	Total
Graduate			
Count (%)	129 (63.9)	143 (48.0)	272 (54.4)
Higher Second	ary		
Count (%)	69 (34.2)	149 (50.0)	218 (43.6)
Illiterate			
Count (%)	4 (2.0)	6 (2.0)	10 (2.0)
Total			
Count (%)	202 (100.0)	298 (100.0)	500 (100.0)
0			

 $\chi^2$  = 12.507 P = 0.002 highly significant



Fig. 1. Knowledge about mouth guards.

Approximately 68.5% of the mothers were aware of the emergency management of dental trauma. Of the working mothers, 72% were aware of the management of dental trauma while 65% of the non-working mothers were aware. No statistical difference was seen between the working and the non-working mothers (*P*-Value: 0.091).

Of all the mothers, 54.5% supported the role of mouth guards in the prevention of traumatic injuries to the teeth. Of the working mothers 72% knew that mouth guards are useful in the prevention of dental trauma while 37% of the non-working mothers have this knowledge (Fig. 1) and the difference was found to be statistically highly significant (*P* -Value: 0.001). Therefore, the working mothers had better knowledge regarding mouth guards (Table 3).

Fifty-four percentage of the mothers agreed to recommend the wear of mouth guards while playing, of whom 68% were working and 40% of them were non-working mothers (Table 4). Statistical analysis showed a very high significant difference (*P* -Value: 0.001).

Thirty-six percentage of the mothers (40% working and 32% non-working) believed that the avulsed tooth could be saved. The difference was found to be statistically significant (*P*-Value: 0.038) (Table 5).

*Table 3.* Comparison of mouth guard knowledge between working and non-working mothers

	Mouth guard knowledge				
	Working nature				
	Working Mother	Non-working mother	Total		
Yes					
Count (%)	146 (72.3)	110 (36.9)	256 (51.2)		
No					
Count (%)	56 (27.7)	188 (63.1)	244 (48.8)		
Total					
Count (%)	202 (100.0)	298 (100.0)	500 (100.0)		
$\chi^2$ = 60.262 <i>P</i> < 0.001 very highly significant					

*Table 4.* Comparison of mouth guard recommendation between working and non-working mothers

	Mouth guard reco				
	Working nature				
	Working Mother	Non-working mother	Total		
Yes					
Count (%)	138 (68.3)	120 (40.3)	258 (51.6)		
No					
Count %	64 (31.7)	178 (59.7)	242 (48.4)		
Total					
Count (%)	202 (100.0)	298 (100.0)	500 (100.0)		
$\chi^2$ = 37.924 $P < 0.001$ very highly significant					

Sixty-eight percentage of the mothers would take the child to the dentist following tooth injury of whom the working and non-working mothers were 72% and 64% respectively. Only 17% of the mothers would use an emergency kit. There was no statistically significant difference found between the working and non-working mothers (P-Value: 0.165).

At the time of injury, if the tooth was to be completely out of the mouth, 66.5% of the mothers would replace the tooth back in its place or carry it in a solution and get the child to the dentist immediately; 36% of the mothers mentioned that they would use a handkerchief to carry the tooth to the dentist, whereas 38% of the mothers said that they would use water (Table 6). There was a statistically significant difference in the number of correct responses between working and non-working mothers (*P* -Value: 0.009).

Multivariate analysis was performed using logistic regression and the results showed a statistically significant difference between the working and the nonworking mothers with respect to level of education, means of carrying an avulsed tooth, mouth guard knowledge and recommendation (Table 7).

#### Discussion

This survey was conducted in Mangalore as this area is more commercialized and people are more educated. This survey included 500 working and non-working mothers of children from two primary schools in the Mangalore city. The schools were located in the heart of

Table 5. Response to saving an avulsed tooth between working and non-working mothers

	Saving avulsed to			
	Working nature			
	Working Mother	Non-working mother	Total	
Yes				
Count (%)	82 (40.6)	94 (31.5)	176 (35.2)	
No				
Count (%)	120 (59.4)	204 (68.5)	324 (64.8)	
Total				
Count (%)	202 (100.0)	298 (100.0)	500 (100.0)	
$\chi^2$ = 4.323 <i>P</i> = 0.038 significant				

Table 6. Response to means of carrying an avulsed tooth between working and non-working mothers

	Means of carrying			
	Working nature			
	Working Mother	Non-working mother	Total	
Hand Kerchief				
Count (%)	68 (33.7)	111 (37.2)	179 (35.8)	
Cold Milk				
Count (%)	34 (16.8)	22 (7.4)	56 (11.2)	
Water				
Count (%)	76 (37.6)	117 (39.3)	193 (38.6)	
Saline				
Count (%)	24 (11.9)	48 (16.1)	72 (14.4)	
Total				
Count (%)	202 (100.0)	298 (100.0)	500 (100.0)	
$\chi^2$ = 11.607 <i>P</i> = 0.009 highly significant				

the city, where 40% of the population reside and access to working mothers were easier which made them a suitable target for the current survey. It was interesting to note that 64% of the working mothers were graduates while in case of non-working mothers it was only 48%.

The questionnaire used was short with simple, direct and closed-end questions. Similar studies in the literature have surveyed the knowledge of mothers and teachers concerning the management of dental trauma (9–11).

Most of the mothers knew about emergency management of dental trauma (68.5%) and the first aid measures to be taken when there is trauma. More than half of the working (60%) and non-working mothers (68%) did not know that the avulsed tooth could be saved. This indicates the lack of knowledge in both working and non-working mothers about saving an avulsed tooth. Therefore, the mothers need to be educated more in this aspect.

Mouth guards are used to prevent traumatic injuries to the teeth while playing. When asked about mouth guards, most of the mothers said that they knew about the mouth guards to prevent traumatic injuries to the teeth. It was interesting to note that most of the working mothers (72%) and a few non-working mothers (37%) were aware of mouth guards. The knowledge and acceptance for using mouth guards was more with

Table 7. Multivariate	analysis	using	logistic	regression
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	Logistic regression results			95.0% C.I.for OR			
	В	SE	Wald	Р	OR	Lower	Upper
EDUCATIO			10.384	0.006 hs			
EDUCATIO(I)	-0.776	0.785	0.978	0.323	0.460	0.099	2.142
EDUCATIO(2)	-0.061	0.790	0.006	0.939	0.941	0.200	4.422
MOUTH_GU(1)	-3.023	0.367	67.826	0.001 vhs	0.049	0.024	0.100
MOUTH_1(1)	-0.958	0.221	18.748	0.001 vhs	0.384	0.249	0.592
SAVING_A(1)	-0.143	0.228	0.395	0.530	0.867	0.555	1.354
MEANS_OF			43.382	0.001 vhs			
MEANS_OF(1)	1.978	0.456	18.815	0.001 vhs	7.227	2.957	17.665
MEANS_OF(2)	-1.137	0.458	6.176	0.013 sig	0.321	0.131	0.786
MEANS_OF(3)	-0.124	0.359	0.120	0.729	0.883	0.437	1.784
Constant	2.440	0.851	8.215	0.004	11.474		

working mothers than with non-working mothers. This might be attributed to more number of graduates present in the working compared with the non-working mothers. Although more of the working mothers knew about mouth guards the percentage of mothers recommending the use of mouth guard was small. This indicates the lack of practice based application of mouth guards.

It is crucial to manage avulsed teeth immediately to ensure the best long-term prognosis. The ideal treatment for avulsed teeth is immediate replantation, as the promptness of providing such treatment will have a direct bearing on the outcome. In this study, most of the mothers (66.5%) responded by placing the tooth back in its socket or carrying the tooth in a solution and getting the child to the dentist immediately. The percentage of mothers responding appropriately was more when compared with other studies where it was 39% (5) and <1% (8). In an Australian Survey by Raphael and Gregory reported that two-thirds of the parents would attempt replantation (10), and half in another study (9).

More mothers (64%) from our survey would take their children to a dentist after tooth injury when compared with 36% reported among Jordanian mothers by Al-Jundi (8). Therefore, the mothers had the basic knowledge to take their child to the dentist immediately after trauma.

It is well established that the best storage medium is the tooth's own alveolus. When immediate replantation is not performed, tooth must be kept in milk or saline and carried to the dentist. Milk is easy to obtain and saline can be easily purchased from the drug stores. In the present survey, mothers preferred to use handkerchief or water rather than milk or saline. This is indicative of a lack of knowledge regarding the transport of an avulsed tooth in both working and non-working mothers. When came to using cold milk and saline for carrying avulsed tooth, working mothers preferred cold milk whereas non-working mothers preferred saline. Other authors also reported the use of inadequate storage medium, revealing that 97% of teachers (12) and 95% of dental therapists (13) demonstrated a lack of knowledge on this issue.

Educational campaigns and preventive programmes on dental trauma can be organized to educate the mothers in emergency knowledge and management of dental trauma.

Instead of sending the questionnaire to the mothers via their children, a direct interview with the mothers would be deemed better. The mothers might have received assistance in filling the questionnaire from their relatives/friends or would have cited some references. Recruiting of a larger sample size and open-ended questionnaire would have made this survey more interesting.

#### Conclusion

The knowledge of both working and non-working mothers regarding dental trauma is inadequate. However, when it came to the preventive aspect of dental trauma, though the mothers were aware of it but the practical based application was lacking. Working mothers had better knowledge and awareness regarding mouth guards (72%) when compared with the non-working mothers (37%).

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