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Assessment Of Knowledge And Awareness Of Primary School Teachers In Urban And Rural Areas Regarding Traumatic Dental Injuries And Its Management In Children- A Cross Sectional Study.

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ABSTRACT

AIM

To evaluate levels of knowledge and awareness in primary school teachers regarding traumatic dental injuries in children and its management among urban (Hyderabad) and rural (Vikarabad) schools.

METHODOLOGY

The present cross-sectional study will be conducted at primary schools of urban (Hyderabad) and rural (Vikarabad) areas to evaluate knowledge and awareness of teachers regarding traumatic dental injuries in children. A total of 300 school teachers in urban areas and 300 school teachers in rural areas from both public and private schools will be selected. After explaining the purpose of the study, questionnaires regarding the knowledge and awareness of traumatic dental injuries in children will be distributed to the teachers and would be asked to answer them. The collected data will be subjected to statistical analysis.

RESULTS

The collected data were subjected to statistical analysis. Overall knowledge regarding traumatic dental injuries among urban and school teachers was seen to be low, with a mean knowledge score of 39.66 ± 4.48 in urban and 37.52 ± 4.58 in rural.

CONCLUSION

Overall knowledge and awareness among primary school teachers regarding traumatic dental injuries in both urban and rural areas was found to be insufficient. However, urban school teachers had relatively more knowledge when compared to the rural teachers.

Key words: traumatic dental injuries, crown fracture, avulsion, storage media.

Introduction

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.¹ One of the greatest assets a person can have is a 'Smile' that shows beautiful, natural teeth. Children and teenagers are especially sensitive about missing anterior teeth and there is often a conscious effort to avoid smiling. The permanent anterior teeth are not only important for esthetics but are also essential for speech [phonetics], mastication, health of supporting tissues and psychological and mental health of children.²

Traumatic dental injuries (TDIs) are one of the main causes for morbidity and mortality of anterior teeth, which are highly prevalent from infancy to adolescence. Epidemiological studies have revealed that children aged 8–12 years often suffer from various forms of dental injuries that may vary from minor tooth fracture to extensive dento-alveolar damage involving supporting structures and tooth displacement or avulsion.³

TDIs are usually a combination of trauma to the peri-oral 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.⁴

Among the various tooth fractures, crown fracture is the most frequent type of injury, affecting 26–76% of injuries to the permanent dentition. Luxation injuries comprise 30–44% of all dental injuries. The complete detachment of tooth from the socket (avulsion) is the most complicated and serious, which comprises 1–16% of dental injuries with peak incidence record in the 7- to 11-year-old age group and the maxillary central incisors being the most affected. It is 75% more frequent in children under the age of 15.⁴

The etiology of TDIs includes oral factors (e.g. overjet), environmental factors (e.g. material deprivation) and human behavior (e.g. risk-taking), which can be further separated into unintentional and intentional TDIs. This progress shows the complexity of the etiological relationship between oral, environmental, human factors and traumatic dental injuries.⁵

The two most common locations where traumatic dental injuries occur are home and school. Children suffer accidental injuries due to their play activities such as running, skating, bike riding, etc. at home as well as in school.⁶

Over 16% of total dental injuries occur in the school environment, and 19% of the injuries occur due to falling. A teacher is a primary caretaker and mentor during this time. School-going children in India spend approximately 6 to 7 hours daily in school which is approximately one-fourth time of the day.⁴ For this reason, the participation of school teacher in the emergency situation including dental emergencies is important to provide care to the injured child. The quality of dental emergency management will directly affect the long-term prognosis of the tooth. Optimal emergency response for traumatized teeth is critical for ultimate treatment success. Therefore, it is critical to ascertain the knowledge and practice of school teacher in school who are in close contact with the young individual.⁵

In order to contribute to establishing effective education strategies regarding traumatic dental injuries, the present study was undertaken firstly to assess the knowledge and awareness of primary school teachers in emergency management of dental trauma and secondly to impart knowledge regarding the emergency management of dental trauma among primary school teachers in rural (Vikarabad) and urban (Hyderabad) areas.

Methodology

Study Area:

A cross-sectional survey was conducted among primary school teachers in public and private schools in Telangana's rural (Vikarabad) and urban (Hyderabad) areas.

Study & Sampling Procedure:

A total of 300 school teachers in urban areas and 300 teachers in rural areas from both public and private schools were selected. After explaining the purpose of the study, questionnaires regarding the knowledge and awareness of traumatic dental injuries in children were distributed to the teachers, who were then asked to complete them.

The validated English questionnaire was translated into Telugu by two bilingual individuals proficient in both English and Telugu, and then back-translated to English to ensure the meaning of the words remained consistent [Annexures-III, IV].

Sample Selection:

Inclusion Criteria:

- Schools whose permission was obtained.
- Teachers who have completed teacher training, a Bachelor's degree (B.Ed), or a Master's degree (M.Ed).
- Teachers present at the time of the study.

Exclusion Criteria:

- Teachers not available at the time of the study.

Ethical Clearance:

Ethical clearance was obtained from the Institutional Review Board of Sri Sai College of Dental Surgery, Vikarabad.

Study Objective:

The study aimed to assess the knowledge and awareness of primary school teachers regarding traumatic dental injuries in children in both rural (Vikarabad) and urban (Hyderabad) areas from public and private schools.

Methodology:

After obtaining ethical clearance from the Institutional Review Board of Sri Sai College of Dental Surgery, Vikarabad, a total of 600 school teachers (300 urban and 300 rural) were selected for the survey. The purpose of the study was explained to them, and questionnaires were distributed. The English questionnaire was validated and then translated into Telugu by two bilingual experts, followed by back-translation into English to ensure accuracy.

Statistical Analysis:

The data were analyzed using IBM SPSS Statistics 25.0. Descriptive statistics, Chi-square test, and Student’s t-test were performed. The confidence interval was set at 95%, and a p-value of <0.05 was considered statistically significant.

Table 1: Distribution of Designation of Teachers in Urban and Rural Areas

Designation	Urban n=300	Rural n=300
Teacher	252 (84.0%)	231 (77.0%)
Teacher Assistant	12 (4.0%)	21 (7.0%)
Head Master	36 (12.0%)	48 (16.0%)
Total	300 (100.0%)	300 (100.0%)

Table 1 shows that in the urban group, 84% (n=252) of participants were found to be teachers, 12% (n=36) were Headmasters, and the remaining 4% (n=12) were Teacher Assistants. In the rural group, 77% (n=231) of participants were teachers, 16% (n=48) were Headmasters, and 7% (n=21) were Teacher Assistants.

Comparison of Variables Between Urban and Rural Groups

Student's t-test was used for statistical analysis to compare various variables between urban and rural groups of school teachers.

Variables	Urban N	Urban Mean	Urban SD	Rural N	Rural Mean	Rural SD	T Value	P Value
Age	300	35.02	9.62	300	35.02	9.62	-1.086	0.278
No. of years of experience at your profession?	300	8.03	7.81	297	9.79	8.19	-2.690	0.007
If yes, how many children do you have?	214	1.71	0.94	241	1.80	0.74	-1.266	0.206
What are the ages of your children?	214	12.15	7.66	240	11.12	7.34	1.466	0.143
What are the ages of your children?	143	11.90	7.40	189	11.65	7.06	0.306	0.760
A broken/chipped tooth	300	3.97	0.70	300	3.89	0.69	1.530	0.127
A tooth that has moved from its original position	300	4.13	0.92	300	3.93	0.67	3.051	0.002
A tooth that has been knocked out of the mouth	300	4.02	0.63	300	3.82	0.69	3.769	0.000
I think that broken/chipped tooth can be saved	300	3.40	1.06	300	3.61	0.93	-2.573	0.010
I would look for broken/chipped tooth piece	300	2.04	1.09	300	2.13	1.15	0.912	0.362
For broken/chipped tooth, the child should get treatment	300	3.97	0.96	300	3.93	1.01	0.498	0.619
I would advise them to go to the dentist	300	4.59	0.71	300	4.35	0.88	3.778	0.000
I think knocked-out tooth can be saved	300	3.00	1.23	300	2.77	1.30	2.254	0.025
I would look for the knocked-out tooth	300	2.39	1.24	300	2.33	1.28	0.519	0.604

For knocked-out tooth, the child should get treatment	300	3.64	1.36	300	2.72	1.63	7.525	0.000
I would advise him to go to the dentist	300	4.49	0.55	299	4.06	1.03	6.356	0.000
Witnessed dental injury among children	37	1.05	0.23	21	1.24	0.89	-1.198	0.236
Helped with broken/chipped tooth	30	1.00	0.00a	14	1.00	0.00a	-1.198	0.236
Helped with knocked-out tooth	10	1.00	0.00a	5	1.00	0.00a	-1.198	0.236
Placing a knocked-out tooth in specialized storage liquid (HBSS)	300	2.56	1.13	300	3.11	1.07	-6.091	0.000
Placing a knocked-out tooth back into the socket	300	3.47	0.96	300	3.76	0.66	-4.222	0.000
Placing a knocked-out tooth in milk	300	2.92	0.94	300	3.27	0.97	-4.481	0.000
Placing a knocked-out tooth in water	300	2.58	1.35	300	2.84	1.38	-2.366	0.018
Knowledge Score	300	39.66	4.48	300	37.52	4.58	5.770	0.000

Observation from table 2, Experience: Rural teachers have significantly more experience than urban teachers ($p=0.007$ $p = 0.007$ $p=0.007$). **Knowledge on Dental Injuries:** Urban teachers scored higher on knowledge about traumatic dental injuries ($p=0.000$ $p = 0.000$ $p=0.000$). **Handling Dental Injuries:** Significant differences were found between urban and rural teachers in responses to handling dental injuries, such as placing a knocked-out tooth back into the socket, placing it in milk, or specialized storage liquid, with urban teachers generally performing better. **Recommendation to Visit Dentist:** Urban teachers were more likely to advise children to visit a dentist for dental injuries ($p=0.000$ $p = 0.000$ $p=0.000$).

Discussion

Dentoalveolar injuries are a common cause of morbidity and mortality in children aged 8-12 years. School and home are the most common places for dental trauma, with parents and teachers being primary caregivers. School teachers play a critical role in managing dental trauma and improving the prognosis of traumatized teeth. A cross-sectional survey was conducted among 300 primary school teachers in rural and urban areas to assess their knowledge and awareness of traumatic dental injuries in children. The study found that urban school teachers had a slightly higher overall knowledge of traumatic dental injuries, with a mean value of 39.66, compared to rural school teachers with a mean value of 37.52. Teachers from primary urban schools supervised children during breaks, lunch, and sports periods, while primary rural school teachers supervised children during breaks, lunch, and sports periods. This difference is in contrast to a study conducted by Blakytyn C et al (2001), which found that 74.5% of teachers supervised sports at school, 90.9% supervised children during breaks and over the lunch period, and only 2.9% did not supervise children during breaks or sports sessions.⁶

The study reveals that 37% of primary school teachers from rural regions have experienced traumatic dental injuries, while only 23.7% from urban areas have experienced such injuries. This could be due to the overprotective nature of urban parents, which indirectly reflects on traumatic dental injuries. The study also found that 88% of urban and 93% of rural teachers were not satisfied with their knowledge and were keen to receive more information on emergency management of dental injuries. For a broken/chipped tooth, 67% of rural school teachers would advise the child to go to the dentist, while only 52% of urban teachers accepted it. ⁷

The study also found that 72.7% of teachers agreed to consider a broken/chipped tooth as a traumatic dental injury, while 2.7% disagreed and 7.7% were uncertain among urban teachers. Additionally, 5.7% of teachers would never get treatment for a broken/chipped tooth, 1.7% would get treatment within 1 week, 58.7% would get treatment immediately, and 25.6% would not know about it among rural areas. Urban school teachers had comparatively greater knowledge about saving and searching fractured teeth, while rural teachers had a lower percentage of teachers believing that broken/chipped teeth can be saved.⁸

The study found that 71.3% of school teachers consider a knocked-out tooth as a traumatic dental injury, with 1% disagreeing and 9.7% uncertain. Urban teachers had a higher knowledge of this issue, with 55% of them referring children to a dentist for immediate treatment. However, only 18.1% of rural teachers agreed to refer the child to a dentist for knocked-out tooth treatment. ⁹

In terms of placing the tooth back into its original position, 14.3% of teachers felt comfortable doing so, while 85.7% disagreed. Rural teachers had 4.7% of the same opinion, while 95.3% disagreed. This finding is consistent with previous studies, which found that only 8.1% of teachers would like to send the child to a dentist for knocked-out tooth immediately.

In terms of transport media for carrying avulsed teeth to a dentist, 23% of urban teachers felt that a specialized storage liquid was required, 8.3% felt milk was best, and 36.3% felt water was best. However, a greater knowledge of proper storage media was found in urban teachers compared to rural teachers.

Overall, knowledge and awareness among primary school teachers regarding traumatic dental injuries in both urban and rural areas was found to be insufficient. However, urban school teachers had relatively more knowledge compared to rural teachers.

Conclusion

Based on the present study design, methodology, and results, it can be concluded that overall knowledge and awareness among primary school teachers regarding traumatic dental injuries is insufficient. However, urban school teachers demonstrated relatively more knowledge compared to rural teachers. Although knowledge regarding the reimplantation of an avulsed tooth was generally low, urban teachers were comparatively more knowledgeable. Similarly, average results were observed in the management of a fractured tooth piece, with urban teachers again being slightly more knowledgeable. Within the limitations of this study, due to the relatively insufficient knowledge in both urban and rural areas, there is a need for regular emergency health education programs and training for proper management. Despite urban teachers showing a relatively higher level of knowledge, further awareness through dental camps is necessary.

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