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ORIGINAL ARTICLE

ASSESSMENT OF TRAFFIC POLICE PERSONNEL KNOWLEDGE AND ATTITUDES ABOUT IMMEDIATE EMERGENCY MANAGEMENT OF TRAUMATIC DENTAL INJURIES-A CROSS-SECTIONAL STUDY

Evaluación de los conocimientos y actitudes del personal de la policía de tránsito sobre el manejo inmediato de emergencias por lesiones dentales traumáticas: un estudio transversal

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ABSTRACT

Aim: The provision of prehospital emergency care in developing nations is limited due to resource limitations, such as a shortage of trained first aid staff, resulting in reliance on untrained individuals. To avoid potential consequences following dental trauma due to road traffic accidents, traffic police personnel play an important role for first aid management. Hence, the aim of this study is to investigate the level of knowledge and attitude about emergency management of traumatic dental injuries (TDI) among traffic police personnel during road traffic accidents.

Materials and Methods: A questionnaire-based cross-sectional study was conducted among 98 traffic police personnel from October 2022 to December 2022. A 15-item self-designed questionnaire was prepared using the standardized focus group discussion method. The survey gathered data on first aid training, and time and management of fractured, displaced, and avulsed teeth, followed by statistical analysis.

Results: Of a total score of 15, the mean knowledge score for traffic police personnel was 4.12±1.16. Almost 87.76% of respondents reported an injury during road traffic accidents. Only 27.55% have learned the management of dental injuries in first-aid training. 43.88% said that the fractured part of the tooth is useless, and 88.78% do not have sufficient knowledge to save the completely displaced tooth. 38.78% preferred a cloth piece to pick out knocked-out teeth. Only 34.70% considered milk as the storage medium for the avulsed teeth.

Conclusion: This study suggests that there needs to be better knowledge among the traffic police personnel regarding procedures to follow in an emergency related to TDIs, which indicates a high need for further training to improve the knowledge among them.

Keywords: Police; Tooth; Knowledge; Awareness; Surveys and Questionnaires; Education.

RESUMEN

Objetivo: La prestación de atención de emergencia prehospitalaria en los países en desarrollo es limitada debido a las limitaciones de recursos, como la escasez de personal capacitado en primeros auxilios, lo que da como resultado la dependencia de personas sin capacitación. Para evitar las posibles consecuencias posteriores a un traumatismo dental debido a accidentes de tránsito, el personal de la policía de tránsito desempeña un papel importante en la gestión de los primeros auxilios. Por lo tanto, el objetivo de este estudio es investigar el nivel de conocimiento y actitud sobre el manejo de emergencia de las lesiones dentales traumáticas entre el personal de la policía de tránsito durante los accidentes de tránsito.

Materiales y métodos: Se realizó un estudio transversal basado en cuestionarios entre 98 miembros del personal de la policía de tránsito desde octubre de 2022 hasta diciembre de 2022. Se preparó un cuestionario de diseño propio de 15 preguntas utilizando el método de discusión de grupos focales estandarizados. La encuesta recopiló datos sobre la capacitación en primeros auxilios y el tiempo y el manejo de los dientes fracturados, desplazados y avulsionados, seguido de un análisis estadístico.

Resultado: De una puntuación total de 15, la puntuación media de conocimiento para el personal de la policía de tránsito fue de 4,12 ± 1,16. Casi el 87,76% de los encuestados informó haber sufrido una lesión durante un accidente de tráfico. Solo el 27,55% ha aprendido a tratar las lesiones dentales en la formación de primeros auxilios. El 43,88% dijo que la parte fracturada del diente no sirve para nada y el 88,78% no tiene los conocimientos suficientes para salvar el diente completamente desplazado. El 38,78% prefirió un trozo de tela para sacar los dientes arrancados. Solo el 34,70% consideró la leche como medio de almacenamiento para los dientes avulsionados.

Conclusión: Este estudio sugiere que es necesario que exista un mejor conocimiento entre el personal de la policía de tránsito sobre los procedimientos a seguir en una emergencia relacionada con lesiones dentales traumáticas, lo que indica una gran necesidad de capacitación adicional para mejorar el conocimiento entre ellos.

Palabras Clave: Policía; Diente; Conocimiento; Concienciación; Encuestas y cuestionarios; Educación.

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INTRODUCTION

Traumatic dental injuries (TDIs) are widespread and severe dental public health problems among children.[1] Traumatic dental injury frequently results in significant pain and discomfort, as well as aesthetic, psychological, functional, and social problems that ultimately harm the person's quality of life, such as restriction in mastication, phonetics, and making one self-conscious about showing teeth.[2,3] Dental trauma is commonly encountered by falling, physical activities, sports, assaults, hitting hard objects, and traffic accidents. Falling is more prevalent in children due to their immature neuromuscular system.[4,5] TDIs range mainly from minor enamel chipping to extensive maxillofacial damage involving tooth-supporting structures with displacement and avulsion of the teeth.[6] The most severe dental trauma is avulsion. A key factor determining its prognosis is the viability of the periodontal ligament, which is high within 30 minutes after replanting the injured teeth.[2,7]

Traumatic dental injuries are primarily observed in children in the age group of 8–11 years.[8] Several studies reported that the prevalence of traumatic dental injuries in the primary dentition ranges from 5 to 29% and in the permanent dentition from 11 to 30%.[9] Dental trauma can cause delayed permanent tooth eruption, and finally, TDI treatment can require orthodontic treatment and prosthetic rehabilitation.[10] Educating people about dental first aid is one approach to expanding their understanding. Consider that parents and other professionals who are qualified to do so, such as instructors of physical education, doctors, coaches of sports teams, and traffic officers, are aware of the appropriate first aid techniques.

In that case, they can be essential in improving the prognosis of injured teeth. It is critical to gauge parents' and professionals' knowledge and attitudes toward emergency management of dental trauma before developing educational campaigns.[11]

An increase in knowledge enables them to promptly and properly manage an emergency case of dental trauma, leading to an improved prognosis and long-term success.

According to reports, there is a lack of knowledge among professionals about how to deal with trauma.[8] A better communication network and educational resources, such as posters and lectures, can increase the awareness of emergency management of traumatic dental injuries.[2,12] Although there are many studies evaluating the knowledge and attitudes of physical education teachers, school health teachers, school teachers, school staff, and teacher-students on the emergency management of TDI in different countries, due to the paucity of data on TDIs among traffic police personnel during road traffic accidents, the present study aimed to assess the level of knowledge and attitude about the emergency management of TDIs among traffic police personnel during road traffic accidents.

MATERIALS AND METHODS

The present descriptive cross-sectional study was conducted among traffic police personnel after obtaining the ethical clearance from the Institutional Ethics Committee. The entire district was divided into four zones and from the south zone all the traffic police working under south zone police station were included in the study. A total of 118 traffic police personnel were contacted to request their participation in this study over three months, starting from October 2022 to December 2022. An investigator who participated in the data collection process approached each participant individually and explained the nature and purpose of the study in the local language. Participants who have given the written informed consent were included in the study, whereas those who were not interested in participating in the study were excluded.

Development of a questionnaire

The questionnaire was accompanied by a detailed participant information sheet describing the study's scope and objectives.

The study questionnaire was created using a standardized process under five phases:

(a) Conceptual framework formulation;
(b) Structured development of questions;
(c) Improvement of the questions through focus group discussion;
(d) Pretesting; and (e) validity.

The essential components that explain and define dental trauma are part of a conceptual framework. Subsequently, an initial set of questions was created for each element using multiple strategies. The questions were written as whole sentences to avoid two-edged questions, double negatives, abbreviations, and slang. Later, using focus group discussions with participants and the researcher, every component question underwent a comprehensive refinement process.

The researcher assessed the questions for any ambiguity, misrepresentation, or lack of understanding of the words. Any necessary phrasing and terminology modifications were made in analyzing the par-ticipant responses. The questionnaire was tested with 10 participants to identify difficulties in understanding and improve precision.

Face-to-face interviews were used to collect data from respondents. The suggestions and feedback provided by the respondents regarding the clarity of the question formulations and their appropriateness were noted. After that, three subject experts (three pediatric dentists) independently reviewed the questionnaire for content validation. The group reviewed whether the question reflected what they intended to ask and assessed the viability of the possible answers. Each expert rated each question as inappropriate, appropriate, or needing modification. Any remarks or recommendations for each item were also recorded.

Finally, the 15-item questionnaire reflected all pertinent changes made by the study's participants and changes made by the subject experts. Test and retest reliability was done on 10 participants and the questionnaire was given twice to the same participants with a gap of one week to assess the internal consistency (0.81), test-retest reliability (0.88) respectively, indicating good reliability and consistency. The questionnaire was prepared in English and the regional language and distributed to 118 traffic police personnel. During the data collection, a few questions were asked so that it could be confirmed if they understood the questions in the questionnaire.

Two trained investigators were available while filling out the data to ensure clarity and clarify any doubts while answering the questionnaire. If any ambiguity was identified, it was immediately rectified. Strict confidentiality was ensured for all the participants in the study.

Statistical analysis

The collected data from the returned questionnaires were entered in the Microsoft Excel Spreadsheet 2013, and statistical analysis was performed for the data using Windows SPSS 23.0 (Chicago, IL, USA). Descriptive data were expressed as both numbers and percentages. The difference between the responses was analysed using the chi-square tests (goodness of fit) to check which option is mostly opted and whether there difference between the option is significant or not. The level of significance was set at 0.05.

RESULTS

A total of 118 filled questionnaires were collected; after excluding questionnaires with missing entries, 98 were evaluated for final analysis, (Table 1).

Of these respondents, 4.2% were female, and 95.8% were male; 53.33% were in the age range of 21 to

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40 years; and 46.66% were 41 to 60. 60% of traffic personnel have less than 15 years of experience, and 40% have less than 25 years of experience. Concerning the frequency of road traffic accidents, 36.74% stated that they encountered them frequently, and 42.86% of respondents had occasionally witnessed a dental injury during working hours.

Most people (72.45%) responded that they did not learn about dental injury treatment during their first aid program, and they (86.74%) did not consider dental trauma or trauma to dental tissues as an emergency to be attended for treatment by a professional. Very few of the traffic police (8.16%) reported that they would suggest the victim of "dental trauma or trauma to dental

Table 1.

Distribution of responses by participants for each question about knowledge on traumatic dental injuries.

Questions	Responses	N (%)	x^2value	*p*-value
How often do you come across road traffic accidents (RTA) during working hours?	a) Very frequently	18 (18.37)	23.1	<0.001*
	b) Frequently	36 (36.74)		
	c) Occasionally	23 (23.47)		
	d) Rare	9 (9.18)		
	e) Very rare	12 (12.24)		
How frequently do you come across dental injury in your experience?	a) Very frequently	11 (11.23)	42.5	<0.001*
	b) Frequently	23 (23.46)		
	c) Occasionally	42 (42.86)		
	d) Rare	18 (18.37)		
	e) Very rare	4 (4.08)		
Have you learnt about the management of dental injury during first aid training	a) Yes	27 (27.55)	19.8	<0.001*
	b) No	71 (72.45)		
Do you consider the dental trauma/trauma to dental tissue as an emergency	a) Yes	13 (13.26)	52.9	<0.001*
	b) No	85 (86.74)		
Where will you suggest the victim to go for treatment in case of "dental trauma/trauma to dental tissue"	a) General hospital	59 (60.21)	39.9	<0.001*
	b) Dental hospital	8 (8.16)		
	c) Call an ambulance to reach out an hospital	31 (31.63)		
Do you have any past experience in treating dental trauma / trauma to dental tissue	a) Yes	37 (37.75)	5.88	0.015*
	b) No	61 (62.25)		
How do you manage a fractured tooth in case of a road traffic accident	a) Ignore the displaced fractured part	43 (43.88)	41.3	<0.001*
	b) Try to find the fractured part, bring it for examination and treatment by preserving in a storage media	5 (5.10)		
	c) Try to find the fractured part, bring it for examination and treatment without any storage media	13 (13.26)		
	d) Didn't have the knowledge to save the displaced part	37 (37.76)		

Table 1 continues on the next page →

Questions	Responses	N (%)	x^2value	*p*-value
Do you have the knowledge to save the completely displaced tooth/ knocked-out tooth in a RTA?	a) Yes b) No	11 (11.22) 87 (88.78)	58.9	<0.001*
How do you manage a completely displaced tooth/knocked out tooth	a) Ignore the completely displaced tooth/ knocked out tooth b) Try to find the completely displaced tooth / knocked out tooth, bring it for examination and treatment by preserving in a storage media c) Try to find the completely displaced tooth / knocked out tooth, bring it for examination and treatment by without any storage media d) Try to put it back in the original position and ask the patient to carefully clench one's teeth if it is possible. e) Didn't have the knowledge to save the completely displaced tooth / knocked out tooth.	28 (28.58) 9 (9.18) 16 (16.32) 42 (42.86) 3 (3.06)	49.7	<0.001*
If you decide to replant (replace) the knocked -out tooth back into its socket but it had fallen onto the ground and was covered in dirt, what would you do?	a) Rinse it with under tap water b) Rinse it with milk, normal saline or patients own saliva c) Rinse it with antiseptic or alcohol solution d) Put the tooth straight back into socket without doing anything	43 (43.88) 32 (32.66) 17 (17.34) 6 (6.12)	32.5	<0.001*
How do you pick a knocked-out tooth	a) By picking it from the root part b) By picking it from the crown part c) Using a cloth d) None	7 (7.14) 11 (11.22) 38 (38.78) 42 (42.86)	39.9	<0.001*
Are you aware that the extra-oral time of a knocked-out tooth can affect the prognosis	a) Yes b) Partially yes c) No	9 (9.18) 12 (12.25) 77 (78.57)	90.4	<0.001*
What is the transport medium that is used to transfer the "knocked out tooth"	a) water b) Saline c) Milk d) Anti septic solution e) Saliva	13 (13.26) 9 (9.18) 34 (34.70) 19 (19.39) 23 (23.47)	31.4	<0.001*
Are you satisfied with your knowledge of management of dental trauma	a) Yes b) No	25 (25.52) 73 (74.48)	23.5	<0.001*
Do you think it is important to have an education program regarding management of dental trauma	a) Yes b) No	95 (96.94) 3 (3.06)	86.4	<0.001*

RTA: Road Traffic Accident; **x^2value:** Chi-Square Value; ***:** Significant

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tissue attend a dental hospital for the treatment, and 60.21% of the individuals answered that they would suggest a general hospital for the treatment, whereas the rest of them suggested that they would call an ambulance in case of dental injury. We received a mixed response to a question about their previous experience in treating dental trauma or trauma to dental tissue.

That is, 37.75% responded as having had experience, and the rest (62.25%) were without it. A few, *i.e.,* only 5.10% of the total respondents, were aware that to find the fractured part, bring it for examination and treatment by preserving it in a storage medium. The majority of the respondents reported that they ignored finding the displaced fractured part and did not have the knowledge to save the displaced part (43.88% and 37.76%, respectively). Thirteen people were concerned about the fractured part and brought it without any storage medium for the treatment. Only 11 (11.22%) of the total respondents stated that a completely displaced or knocked-out tooth in a road traffic accident should be saved. Meanwhile, 88.78% indicated that they did not know how to save the tooth.

When all participants were queried regarding managing a completely displaced or knocked tooth, only 9.18% said they tried to find it and bought it for further treatment by preserving it in a storage medium. Most individuals (n=42), reported putting it back in the original position and asking the patient to clench their teeth carefully if possible.

When the participants were questioned, *"What would you do if you decided to replant (replace) the knocked-out tooth back into its socket, but it had fallen onto the ground and was covered in dirt?"* The responses included rinsing the knocked-out tooth with tap water (43.88%), milk, normal saline or the patient's saliva (32.66%), antiseptic or alcohol solution (17.34%), and 6.12% reported that they put the tooth straight back into its socket without doing anything. While 38.78% of the individuals responded that they would pick up the knocked-out tooth with cloth, 11.22% and 7.14% of the traffic police reported that they would pick it up with the crown part and the root part, respectively, and the majority (42.86%) stated none.

Most of the traffic police (78.57%) were unaware that the extra-oral time would affect the prognosis of the knocked-out tooth. The respondents considered milk (34.70%), saliva (23.47%), antiseptic solution (19.39%), water (13.26%), and saline (9.18%) as storage media for the knocked-out tooth.

Finally, most individuals were not satisfied with their knowledge regarding the management of TDI, and they considered that they required an education program to manage dental trauma.

DISCUSSION

Traumatic dental injuries (TDIs) are one of the most common oral health problems, and they present a significant public health problem worldwide, with a prevalence that approximates caries in some countries. Still, the epidemiological overview is less satisfactory than for caries. They usually occur in adolescents and children and often cause irreversible damage to dental hard tissue, requiring expensive and complex treatment for the patient.[13,14]

Teenagers are mostly injured during sports activities, traffic accidents, and some forms of violence (*e.g.*, fights and assaults).[15] TDIs are among the most common injuries sustained during road traffic accidents (RTA). Skaare and Jacobsen reported that TDIs due to traffic accidents occurred in 10% of all injured individuals, especially adolescents in urban areas.[16] Gassner et al. stated that children in traffic accidents have more than twice the risk of facial bone fractures compared to other types of injuries.[17] Managing TDIs is complicated due to the numerous possible

types and natures of trauma-resulting injuries. Hence, traffic police personnel play an essential role in being the first respondents in most RTAs, and could not manage TDIs effectively without sufficient knowledge. This questionnaire-based study aimed to examine the first-aid knowledge of traffic personnel regarding TDI and confirm whether relevant first-aid training is necessary.

The knowledge and attitude of lay people, parents, school teachers, and traffic police (who are the first present at the site of the accident) on the prompt and appropriate treatment of traumatic dental injuries are the most important as it is interlinked with the prognosis of traumatized teeth before their initial contact with professionals.[18] The appropriate management includes primary and secondary prevention, *i.e.,* avoiding pathology development and early diagnosis and treating the pathology before a significant illness appears.

Healthcare workers, like physicians, nurses, dentists, and dental hygienists, play a significant role in the primary level of prevention of dental trauma, which comprises providing knowledge and motivation to parents, teachers, coaches, traffic police, and lay people, along with the promotion of preventive events such as mouth guards and face masks.[19,20] Similarly, in the case of secondary prevention, apt management of dental trauma by medics, paramedics, dental professionals, emergency physicians, teachers, coaches, corpsmen, and laypeople is essential for a favorable outcome and a long-term prognosis.[21] A study conducted by Wolfers *et al.,*[22] expressed participant preference for training, specifically in the form of hands-on courses or video demonstrations. Also corroborates the findings of previous research, where all participants emphasised the significance of this knowledge for first aid.

The clinical form of TDI depends on the following combination of causative factors:
(a) Shape of the impacting object;
(b) Resilience;
(c) Energy impact and;
(d) Angle of direction of impact force. To guarantee a favorable outcome for traumatized dental tissues, the traumatized individual must receive rapid emergency intervention and treatment at critical times in the healing phase.

After the initial examination of TDIs, they can be broadly classified into
(a) emergency management, such as treating the exposed pulp, maintaining the viability of the fractured or displaced tooth, splinting the displaced teeth;
(b) intermediate management, for example, pulpotomy, dental restoration and;
(c) permanent management, like crowning and root canal therapy;

TDIs are considered a dental emergency that should be appropriately managed at first.[23] Injury to the alveolar bone, avulsed tooth, root fractures, intrusion, extrusion, and lateral luxation injuries are real emergencies that must be managed within the first hours. On the contrary, fractures involving the tooth crown without pulp exposure, subluxation, and concussion injuries are not classified as emergencies. They can be post-poned and managed within the first 24 hours.

Luxation injuries are the most common dental injuries, with intrusive luxation being the most severe and concussion the least severe, which depends on the type and severity of the periodontal tissues. Avulsion of the tooth is the most extreme type of luxation injury, as it occurs when a tooth is entirely out of its bony socket.[24] Abundant studies have illustrated that avulsion (knocked-out tooth) is one of the most severe TDIs, whose prognosis is determined by

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the sequence of actions that happened at the accident site following the avulsion.[25,26]

Immediate replantation of the avulsed tooth, regardless of its root development at the site of the accident, by holding its crown part (rinsed for up to 10 sec. under saline or running tap water) is the best emergency treatment. Apart from this, medical concerns are often at the forefront of treatment and dental treatment must be postponed if the patient is clinically unstable. That is why it is even more important to know and carry the right storage medium.[27]

In case of any failure of such immediate replantation of the avulsed tooth, a storage medium such as Hank's balanced salt solution (HBSS), milk, saline, saliva, or water is considered to maintain the viability of the periodontal ligament (PDL) cells. The condition of the PDL cells depends on the extraoral dry time and type of storage medium used; PDL cells become nonviable if the extraoral dry time is longer than 30 minutes.[28]

In the present study, most individuals, *i.e.,* 42 individuals, reported putting it back in the original position and asking the patient to carefully clench their teeth if possible, which is the best option to save a tooth.

However, only a few, *i.e.,* 11 respondents, reported that they would pick the tooth with the crown part, and the majority stated that they needed to be made aware of how to hold and pick the knocked tooth. The long-term prognosis of replantation depends on how we store and preserve an avulsed tooth, preventing necrosis of periodontal ligament cells. As recommended in the IADT guidelines, Hanks' balanced salt solution is an ideal transport medium for avulsed teeth. It can preserve PDL cells longer than milk and saline, even though it may not be practical due to its high cost and lower accessibility at the place of the accident and in hospitals in suburban areas.[29,30] In the present study, most respondents reported that they would rinse the discarded teeth with tap water, milk, or saline due to their ease of availability in the environment where the incident occurred.

According to Adnan *et al.,*[29] milk is the best option regarding PDL cell viability, accessibility, and cost-effectiveness. They also reported that natural products are more effective in maintaining the viability of PDL cells than synthetic products. Among natural products other than milk, propolis, and coconut water were frequently recommended. Namdev *et al.,*[11] stated that management and prevention of TDIs should be determined as major public health concerns and adequate resources allocated for educational programs to boost knowledge and awareness among parents.

Subhashraj *et al.,*[31] reported that 90% of medical professionals believed that they did not know the management of dental trauma, and it is vital for physicians to possess adequate knowledge on the primary management of tooth avulsion because they get the chance to attend a case of dental trauma in their private practice or as an emergency. Tian *et al.,*[32] reported a gap in knowledge of TDI management in children among their parents and training coaches, especially with avulsion cases. However, the level of knowledge was similar between parents and coaches. It was also observed that parents and coaches admitted that they were deficient in knowledge of dental trauma and lacked the desire to further self-educate.

Yeng *et al.,*[33] suggested that introducing dental trauma into the medical prospectuses will enhance the knowledge and skills of medical doctors by reducing the gap, which is extensively reported in the literature. Thus, the primary dental trauma curriculum is necessary for complete medical education training and should

commence at the undergraduate level.[36] This questionnaire is unique, as it studied the knowledge and attitudes of traffic police per-sonnel exclusively.

The main strength of developing a new questionnaire is that the participants were traffic police personnel using a variety of constructs such as incidence, first aid management and a combination of various situations were used for each of these constructs to develop. Finally, although this questionnaire was primarily developed as a research tool, additional use of various situations can also be suggested. Our validation shows that this questionnaire can be considered as an adequate tool to obtain the necessary data to draw the conclusions related to our aims. Moreover, short questionnaires are also a more efficient way of data collection based on the premise that long questionnaires cannot be used in some research settings.

Similar to the study mentioned above, we suggest or request that the governments take a step ahead in educating the traffic police-man to manage the TDIs because road traffic accidents are considered one of the most common etiological factors for traumatic dental injuries.[35] The traffic police can also be the first attendant to help the victim at the accident site. Thus, educating the traffic police person regarding the management of TDIs is essential.

The *'Save a Tooth'* poster is an educational resource available at the IADT website: *http://www.iadt-dentaltrauma.org*. Since they were the ones who first attended the person at the occurrence that le-ads to TDIs, patients, attendants, traffic police, school physical trainers, and teachers can all benefit from the free IADT app called *"ToothSOS"* for mobile phones. It provides instructions on what to do in an emergency after a dental injury, including the avulsion of a permanent tooth.[36]

The strengths of the present study are the first for assessing the knowledge and attitudes of traffic police in managing TDIs, illustrating that the traffic police need to be educated regarding the emergency management of TDIs. The limitations of the present study are, only a small proportion of traffic police personnel took part in the study so the results cannot be generalised. The results are also susceptible to bias by the voluntary participation of police officers, potentially leading to an overestimation of the number of accurate responses and, in reality, the results may be even more unfavourable.

CONCLUSION

The present study suggests that there needs to be better knowledge among the traffic police personnel regarding procedures to follow in an emergency related to TDIs. This indicates a high need for further training to improve their knowledge.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest.

ETHICS APPROVAL

Ethical clearance from the Institutional Ethics Committee was obtained to conduct this study. Written informed consent was obtained from all participants.

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AUTHORS' CONTRIBUTIONS

Kanamarlapudi Venkata Saikiran: Research concept and design, Collection and/or assembly of data.

Deepa Gurunathan: Research concept and design.

Sainath Reddy Elicherla: Collection and/or assembly of data.

Niharika Reddy Elicherla: Data analysis and interpretation.

Karthik Anchala: Data analysis and interpretation

Sivakumar Nuvvula: Writing, critical revision of the article.

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REFERENCES

1. Born CD, Jackson TH, Koroluk LD, Divaris K. Traumatic dental injuries in preschool-age children: Prevalence and risk factors. Clin Exp Dent Res. 2019 Jan 30;5(2):151-159. doi: 10.1002/cre2.165. PMID: 31049218.

2. Razeghi S, Mohebbi SZ, Gholami M, Mashayekhi M, Maraghehpour B, Rahnama E. Effect of two educational interventions on primary school teachers' knowledge and self-reported practice regarding emergency management of traumatic dental injuries. BMC oral health 2019;19:130. doi: 10.1186/s12903-019-0823-4. PMID: 31248399; PMCID: PMC6598348.

3. Arhakis A, Athanasiadou E, Vlachou C. Social and Psychological Aspects of Dental Trauma, Behavior Management of Young Patients Who have Suffered Dental Trauma. Open Dent J. 2017 Jan 31;11:41-47. doi: 10.2174/1874210601711010041. PMID: 28567137.

4. Chandukutty D, Peedikayil FC, Premkumar CT, Narasimhan D, Jose D. Awareness of Dental Trauma Management among School Teachers of Kannur, Kerala, India. J Clin Diagn Res 2017;11:8-12. doi: 10.7860/JCDR/2017/19308.9252. Epub 2017 Feb 1. PMID: 28384971; PMCID: PMC5376819.

5. Saikiran KV, Gurunathan D, Nuvvula S, Jadadoddi RK, Kumar RH, Birapu UC. Prevalence of Dental Trauma and Their Relationship to Risk Factors among 8-15-Year-Old School Children. Int J Dent 2022;2022:3343827. doi: 10.1155/2022/3343827. PMID: 36589212; PMCID: PMC9800100.

6. Joybell CC, Kumar MK, Ramraj B. Knowledge, awareness, and attitude among the employees in emergency ambulance services towards traumatic dental injuries. J Family Med Prim Care 2019;8:1043-8. doi: 10.4103/jfmpc.jfmpc_343_18. PMID: 31041248; PMCID: PMC6482711.

7. 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;5:108-13. doi: 10.4103/2231-0762.155735. PMID: 25992335; PMCID: PMC4415328.

8. Kaul R, Jain P, Saha N, Goswami S, Mukhopadhyay S, Saha S, et al. Evaluation of knowledge, awareness, and attitude toward emergency dental trauma management among the school teachers of Kolkata. Indian J Dent Res 2017;28:595-603. doi: 10.4103/ijdr.IJDR_118_17. PMID: 29256454.

9. Petti S, Glendor U, Andersson L. World traumatic dental injury prevalence and incidence, a meta-analysis-One billion living people have had traumatic dental injuries. Dent Traumatol 2018;34:71-86. doi: 10.1111/edt.12389. PMID: 29455471.

10. Pandey A, Pandey B. Evaluation of knowledge and attitude of school teachers about emergency management of traumatic dental injuries: An original research. J Adv Med Dent Scie Res 2021;9:146-50. doi:10.21276/jamdsr

11. Namdev R, Jindal A, Bhargava S, Bakshi L, Verma R, Beniwal D. Awareness of emergency management of dental trauma. Contemp Clin Dent 2014;5:507-13. doi: 10.4103/0976-237X.142820. PMID: 25395768; PMCID: PMC4229761.

12. Khan S, Assiry A, Al Yami S, Makrami M, Milaq F, Hareth I, et al. Assessment of Knowledge and Attitudes of School Teachers Regarding Emergency Management of an Avulsed Permanent Tooth of Southern Region of Saudi Arabia. Int J Clin Pediatr Dent 2020;13:644–649. doi: 10.5005/jp-journals-10005-1851. PMID: 33976490; PMCID: PMC8060926.

13. Soares TR, Fidalgo TK, Quirino AS, Ferreira DM, Chianca TK, Risso PA, et al. Is caries a risk factor for dental trauma? A systematic review and meta-analysis. Dent Traumatol 2017;33:4-12. doi: 10.1111/edt.12295. Epub 2016 Jul 20. PMID: 27439566.

14. Glendor U. Epidemiology of traumatic dental injuries- a 12 year review of the literature. Dent Traumatol 2008;24:603-11. doi: 10.1111/j.1600-9657.2008.00696.x. PMID: 19021651.

15. Nagarajappa R, Ramesh G, Uthappa R, Kannan SPK, Shaikh S. Risk factors and patterns of traumatic dental injuries among Indian adolescents. J Dent Sci. 2020 Mar;15(1):96-103. doi: 10.1016/j.jds.2019.07.003. Epub 2019 Sep 24. PMID: 32257006; PMCID: PMC7109492

16. Skaare AB, Jacobsen I. Etiological factors related to dental injuries in Norwegians aged 7–18 years. Dent Traumatol 2003;19:304-8. doi: 10.1046/j.1600-9657.2003.00211.x. PMID: 15022997.

17. Gassner R, Tuli T, Hachl O, Moreira R, Ulmer H. Craniomaxillofacial trauma in children: a review of 3,385 cases with 6,060 injuries in 10 years. J Oral Maxillofac Surg 2004;62:399-407. doi: 10.1016/j.joms.2003.05.013. PMID: 15085503.

ISSN Print 0719-2460 - ISSN Online 0719-2479.

18. Andreasen JO. Challenges in clinical dental traumatology. Endod Dent Traumatol 1985;1:45-55. doi: 10.1111/j.1600-9657.1985.tb00560.x. PMID: 3861314.

19. Levin L, Friedlander LD, Geiger SB. Dental and oral trauma and mouthguard use during sport activities in Israel. Dent Traumatol 2003;19:237-42. doi: 10.1034/j.1600-9657.2003.00196.x. PMID: 14708646.

20. Zadik Y, Levin L. Does a free-of-charge distribution of boil-and-bite mouthguards to young adult amateur sportsmen affect oral and facial trauma? Dent Traumatol 2009;25:69-72. doi: 10.1111/j.1600-9657.2008.00708.x. PMID: 19208013.

21. Trope M. Avulsion of permanent teeth: theory to practice. Dent Traumatol 2011;27:281-94. doi: 10.1111/j.1600-9657.2011.01003.x. Epub 2011 Jun 3. PMID: 21635689.

22. Wolfers S, Mertens L, Hohenstein Ch, Kauffmann P. Knowledge And Skills Of Paramedics In Handling Patients With Traumatic Dental Injuries. Dtsch Zahnärztl Z Int 2022;4:149-57. doi:10.53180/dzz-int.2022.0018

23. Moule A, Cohenca N. Emergency assessment and treatment planning for traumatic dental injuries. Aust Dent J 2016;61:21-38. doi: 10.1111/adj.12396. PMID: 26923446.

24. Beech N, Tan-Gore E, Bohreh K, Nikolarakos D. Management of dental trauma by general practitioners. Aust Fam Physician 2015;44:915-8. PMID: 27054212.

25. Rouijel S, Bouchouk M, Zidane FE, Toure B. Awareness, Knowledge and Attitudes Toward Management of Avulsed Permanent Incisors Among Primary School Teachers. Clin Cosmet Investig Dent. 2024;16:267-272. doi: 10.2147/CCIDE.S456351.

26. Mickeviciene L, Ciruliene V, Greta L. Long Term Outcome of Avulsed Immature Mandibular Incisor with Progressive External Root Resorption: 9 Years Follow-Up. J Oral Maxillofac Res. 2023;14:5-12. doi: 10.5037/jomr.2023.14205. PMID: 37521324.

27. 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. doi: 10.1046/j.1365-263x.2003.00414.x. PMID: 12542619.

28. Marques-de Almeida M, Lopes-Delphino KL, da Silva VF, Souza FÁ, Magro-Filho O, Garcia-Júnior IR. Evaluation of calcium hydroxide mixed with propolis by ultrasonic activation as root canal dressing in delayed tooth replantation. J Clin Exp Dent. 2024;16:e350-57. doi: 10.4317/jced.61036. PMID: 38600932.

29. Adnan S, Lone MM, Khan FR, Hussain SM, Nagi SE. Which is the most recommended medium for the storage and transport of avulsed teeth? A systematic review. Dent Traumatol 2018;34:59-70. doi: 10.1111/edt.12382. Epub 2018 Feb 6. PMID: 29292570.

30. Osmanovic A, Halilovic S, Kurtovic-Kozaric A, Hadziabdic N. Evaluation of periodontal ligament cell viability in different storage media based on human PDL cell culture experiments-A systematic review. Dent Traumatol 2018;34:384-93. doi: 10.1111/edt.12437. Epub 2018 Oct 21. PMID: 30193009.

31. Subhashraj K. Awareness of management of dental trauma among medical professionals in Pondicherry, India. Dent Traumatol 2009;25:92-4. doi: 10.1111/j.1600-9657.2008.00714.x. PMID: 19208018.

32. Tian J, Lim JJ, Moh FK, Siddiqi A, Zachar J, Zafar S. Parental and training coaches' knowledge and attitude towards dental trauma management of children. Aust Dent J 2022;67:31-40. doi: 10.1111/adj.12913. PMID: 35510930; PMCID: PMC9790494.

33. Yeng T, O'Sullivan AJ, Shulruf B. Medical doctors' knowledge of dental trauma management: A review. Dent Traumatol 2020;36:100-7. doi: 10.1111/edt.12518. Epub 2019 Nov 7. PMID: 31609070.

34. Yeng T, O'Sullivan AJ, Shulruf B. A proposal to introduce dental trauma into medical education: An insight. Dent Traumatol 2020;36:390-2. doi: 10.1111/edt.12542. Epub 2020 Jan 20. PMID: 31905255.

35. Khan MK, Jindal MK. Assessment of the environmental risk factors associated with traumatic dental injuries among WHO index-aged children and adolescents. J Educ Health Promot. 2023;12:396-403. doi: 10.4103/jehp.jehp_1572_22. PMID: 38333168.

36. Fouad AF, Abbott PV, Tsilingaridis G, Cohenca N, Lauridsen E, Bourguignon C, O'Connell A, Flores MT, Day PF, Hicks L, Andreasen JO, Cehreli ZC, Harlamb S, Kahler B, Oginni A, Semper M, Levin L. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. Dent Traumatol. 2020 Aug;36(4):331-342. doi: 10.1111/edt.12573. Epub 2020 Jun 13. PMID: 32460393.