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Original Article

Evaluation of School Educators' Knowledge of Dental Injuries in Children in Riyadh City: A Survey-Based Study

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ABSTRACT

The loss or displacement of teeth negatively affects children's psychological well-being, functionality, and appearance. Around 25% of children experience dental injuries while at school. Males are more likely to be injured than females, and the upper central incisors are the most frequently affected. The primary causes of traumatic dental injuries (TDIs) include falls, sports, cycling, and car accidents. Children with class II division 1 malocclusion, increased overjet, and inadequate lip coverage, which fails to protect the upper front teeth, are at higher risk of trauma. Previous studies have shown that school teachers generally lack sufficient knowledge in managing TDIs. This study aimed to investigate the influence of factors such as gender, marital status, nationality, type of school, age group, location, educational background, and years of experience on teachers' awareness. This cross-sectional study was conducted using paper-based and online surveys with school teachers in Riyadh. Although the sample size calculation suggested 377 responses, 433 responses were collected to increase the accuracy of the results. The findings indicated that participants lacked appropriate training and knowledge in dental trauma management. Most of the respondents had not attended any dental trauma training courses and expressed a lack of confidence in managing oral injuries if they occurred. However, there was a strong desire to learn, as most respondents expressed interest in further education on dental trauma care.

Keywords: Awareness, Knowledge, Dental trauma, School teachers

Introduction

Facial injuries are commonly associated with dental trauma, with tooth avulsion occurring in 1–16% of such incidents. The prognosis for an avulsed tooth largely depends on the immediate treatment and the care provided during the first hours following the injury [1]. Around 25% of children suffer dental injuries while at school. Boys are more likely to sustain these injuries than girls, with the upper central incisors being the most commonly affected teeth. The primary causes of traumatic dental injuries (TDIs) include falls, sports, cycling, and car accidents. Children with insufficient lip coverage, excessive overjet, and class II division 1 malocclusion are more prone to such injuries.

Previous studies have shown that schoolteachers typically lack the necessary knowledge to manage TDIs effectively [2]. The success of tooth reimplantation is largely dependent on preserving the vitality of the periodontal ligament (PDL) cells. While replantation is the preferred treatment, it cannot always be performed immediately [3]. Few studies have documented the occurrence of such injuries, but those that do indicate that most permanent tooth injuries occur at school. By the age of fourteen, about 25% of children have already experienced damage to one or more permanent teeth [4].

In addition to oral and environmental factors, several human behavioral aspects, such as engaging in risky recreational activities, intense sports participation without precautions, or experiencing emotional stress,

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contribute to the higher incidence of TDIs in children [5, 6]. A study conducted in Jeddah revealed that children aged 9-11 years were the most frequently affected by dental injuries. Research indicates that 33% of Saudi schoolboys and 31.4% of Saudi schoolgirls have experienced dental trauma. Prompt intervention at the scene of the injury is critical for improving the long-term prognosis of affected teeth [7].

Research conducted across various countries, including India, Brazil, the United Arab Emirates, and China, has shown that elementary school teachers are generally ill-prepared to manage dental injuries, especially tooth avulsion [8]. A study in Saudi Arabia found that 66.3% of school staff lacked basic knowledge about the importance of preserving the fractured portion of a tooth and identifying the tooth affected by trauma [9]. Another investigation at a Saudi primary school revealed that most teachers didn't have information about the correct methods for storing avulsed permanent teeth. These findings suggested that many elementary school teachers in Riyadh lack an understanding of how to manage a child with dental trauma [10].

The time elapsed after the tooth is displaced from the mouth and the type of storage medium used are critical factors influencing the success of replantation [11]. While previous studies in Saudi Arabia mainly focused on tooth avulsion, our research aimed to evaluate teachers' awareness of various types of dental trauma in primary teeth. Specifically, we sought to assess their knowledge of common dental injuries such as concussion, displacement fracture, subluxation, and avulsion, expanding on previous studies that primarily addressed tooth avulsion in children.

The purpose of this study

Objectives of the study

1. Assess the level of understanding primary school educators have regarding traumatic dental injuries and their management.
2. Examine how various factors, including gender, nationality, marital status, school type, location, age, education, and experience, influence teachers' knowledge.

Aim

To assess elementary school educators' awareness of traumatic dental injuries and their management.

Objectives

1. To examine the potential impact of factors such as gender, marital status, nationality, school type, location, age group, education level, and years of experience on teachers' knowledge.
2. To evaluate teachers' knowledge regarding the treatment of different types of dental trauma.

Study rationale

Since children spend a significant portion of their day at school, and younger children are more prone to injuries due to increased physical activity, teachers are often the first to provide necessary immediate care. Thus, they must have the proper knowledge to manage such situations effectively.

Materials and Methods

Material and study design

This cross-sectional research was carried out among schoolteachers in Riyadh, utilizing both paper-based and online surveys. Approval was obtained from the Institutional Review Board of Riyadh Elm University, and informed consent was secured from all participants. The surveys were distributed, and all collected data were handled with strict confidentiality.

Study sample

While the calculated sample size was 377, a total of 433 responses were collected to enhance the precision of the findings.

- The margin of error: 5%
- Confidence level: 95%
- Population size: 20,000
- Response distribution: 50%

– Minimum required sample size: 377

Study instrument

The online survey included inquiries about demographic details such as gender, marital status, nationality, type of school, location, education level, age group, and years of teaching experience. Additionally, the survey contained questions regarding the management of concussion, subluxation, avulsion, and fracture.

Instrument reliability and validity

A pilot test of the survey was conducted with 20 participants, and the data was analyzed using SPSS version 22 to assess reliability through Cronbach's coefficient alpha. The validity of the questionnaire was confirmed by distributing it to experienced researchers at REU, and adjustments were made based on their feedback and recommendations.

Statistical analysis

The data gathered was processed using SPSS version 22, applying both descriptive and inferential statistical methods. The T-test and chi-square test were utilized for comparison purposes, with statistical significance set at a P-value < 0.05.

All data will be handled with strict confidentiality following the principles outlined in the Declaration of Helsinki.

Results and Discussion

Table 1. Demographics

Gender	Male: 49% Female: 51%
Nationality	Saudi: 71% Non-Saudi: 21%
Marital	Single: 24.0% Married: 65.4% Divorced: 8.1% Widow: 2.1%
School type	Private: 46% Government: 53%
Location	North: 46.2% West: 13.4% South: 12% East: 28.4%
Age group	20-30 years old: 30.7% 31-40 years old: 32.1% 41-50 years old: 26.8% > 50 years: 10.4%
Education	Undergraduate: 7.2% Graduate: 77.6% Postgraduate: 15.2%
Experience	< 10 years: 45% > 10 years: 55%

Table 1 outlines the demographic profile of the survey participants, detailing their gender, marital status, nationality, school type, age group, location, educational background, and work experience.

Table 1 indicates that females make up a slightly higher proportion of the respondents (51%) compared to males (49%). A majority of the participants (71%) are Saudi nationals, with 21% identifying as non-Saudi. In terms of marital status, most participants are married (65.4%), followed by single individuals (24%), divorced (8.1%), and widowed (2.1%).

Regarding age distribution, the largest group of respondents (32.1%) are in the 31-40 years age range, with 30.7% in the 20-30 years age group, 26.8% in the 41-50 years range, and 10.4% aged 50 years or older. Concerning educational qualifications, the majority of respondents (77.6%) hold graduate degrees, 15.2% possess postgraduate degrees, and 7.2% have only undergraduate qualifications.

Table 2. Survey responses

Questions	Responses
Have you ever encountered a case of dental injury before?	Yes: 68.8% No: 31.2%
Have you participated in any training program focused on dental trauma?	Yes: 21.2% No: 78.8%
Have you been provided with any information regarding dental trauma previously?	Yes: 52.2% No: 47.8%
If so, where did you obtain the information from?	Dentist: 30.7% Physician: 4.6% Friend: 8.8% Internet: 22.9% Other: 33%
What would you do if bleeding occurs from the gum following trauma?	Nothing asks him to rinse: 40.1% Take the child to the dentist: 47.4% I don't know: 12.5%
What steps would you take if there is tooth mobility right after the trauma?	.00: .3% Nothing Just observe the child: 22.3% Take the child to the dentist immediately: 68.3% I don't know: 9.1%
What would you do if the tooth is displaced from its original position?	Try to fix it with your finger: 14.6% Take the child to the dentist: 71.8% I don't know: 13.6%
Is it important to preserve the broken fragment of the tooth?	Yes: 38.8% No: 29.8% I don't know: 31.4%
What steps will you take right away?	Replant the tooth: 9.0% Store the tooth: 20.6% Stop bleeding: 42.0% Not sure: 28.4%
What is the appropriate medium for preserving an avulsed tooth?	Tap water: 8.8% antiseptic solution: 25.4% milk: 53.1% tissue paper: 12.7%
If a 9-year-old child falls and fractures their upper front tooth, what type of tooth is it most likely to be?	A baby tooth: 42.7% A permanent tooth: 39.5% I don't know: 17.8%
Do you feel equipped to handle dental trauma if it occurs?	Yes: 31.4% No: 68.6%
Are you interested in receiving information about dental trauma?	Yes: 82.2% No: 17.8%

Table 2 presents the results of a survey regarding dental trauma. The first question, which asked whether the respondent had witnessed dental trauma in the past, showed that 68.8% answered yes, while 31.2% answered no. The second question, which inquired if the respondent had ever attended a dental trauma training course, revealed that only 21.2% responded positively, whereas 78.8% had not attended such a course.

For the sixth question, regarding the action to take if there is mobility in the tooth immediately after trauma, 68.3% of respondents stated they would take the child directly to the dentist, while 22.3% indicated they would simply

observe the child. The seventh question, asking what to do if the tooth is displaced, showed that 71.8% would take the child to the dentist, and only 14.6% would attempt to reposition the tooth with their fingers.
In response to the eleventh question, which asked about the suitable storage medium for a knocked-out tooth, 53.1% of participants chose milk, while only 8.8% selected tap water.

Table 3. Survey based on gender

Questions	Male	Female	P-value
Have you ever observed an instance of dental trauma?	Yes: 75.4% No: 24.5%	Yes: 62.4% No: 37.5%	.004
Have you participated in a training course related to dental trauma management?	Yes: 21.6% No: 78%	Yes: 20.8% No: 79.1%	.907
If so, where did you receive the information from?	Dentist: 33.9% Physician: 4.24% Friend: 6.13% Internet: 18.86% Other: 35.3%	Dentist: 44.34% Physician: 4.97% Friend: 11.31% Internet: 26.6% Other: 30.7%	.041
What steps will you take if the tooth shows mobility right after the injury?	Nothing just observe the child: 27.8% Take the child to the dentist immediately: 64.6% I don't know: 7.51%	Nothing just observe the child: 0.17% Take the child to the dentist immediately: 71.4% I don't know: 10.3%	.146
If a 9-year-old child falls and damages their upper front tooth, what type of tooth is most likely to be affected?	A baby tooth: 46.6% A permanent tooth: 32.54% I don't know: 20.75%	A baby tooth: 38.91 A permanent tooth: 46.21% I don't know: 14.93%	.013
Do you feel prepared to handle dental traumas if they occur?	Yes: 31.13% No: 68.86%	Yes: 31.57 No: 68.32%	.918
Would you be interested in learning more about dental trauma?	Yes: 89.15% No: 10.84%	Yes: 75.56% No: 24.43%	.000

Table 3 shows that there are no significant differences between male and female participants' responses to most of the questions, as evidenced by the p-values greater than 0.5. However, for the first question, "Have you ever observed an instance of dental trauma?", there is a notable difference between genders, with a P-value of 0.004. Similarly, the eleventh question, "If a 9-year-old child falls and fractures their upper front tooth, what type of tooth is it most likely to be?" also reveals a significant gender-based difference, with a P-value of 0.013.
Looking at the statistically significant p-values, the analysis highlights several gender-based differences. For example, fewer females have witnessed dental trauma compared to males (62.4% vs 75.4%, P = 0.004). In terms of receiving information about dental trauma, females are more likely to have obtained it from a dentist (44.34% vs 33.9%, P = 0.041). Additionally, females are more likely to correctly identify the permanent tooth likely to be broken in a child (46.21% vs 32.54%, P = 0.013). On the other hand, females are less inclined to seek further information about dental trauma compared to males (75.56% vs 89.15%, P < 0.001).
These differences in responses underscore significant variations in knowledge and behavior regarding dental trauma between female and male participants. These findings can guide the development of tailored educational programs to enhance dental trauma awareness and management for both genders.

Table 4. Survey based on school type

Questions	Private	Government	p-value
Have you ever observed a case of dental trauma before?	Yes: 64.5% No: 35.5%	Yes: 72.5% No: 27.46%	.078
Have you been provided with any information regarding dental trauma previously?	Yes: 57.5% No: 42.5%	Yes: 47.63% No: 52.36%	.043

What steps would you take if bleeding occurs from the gum following trauma?	Nothing. Just ask him to rinse: 47.72% Take the child to the dentist: 42.42% I don't know: 9.84%	Nothing. Just ask him to rinse: 33.54% Take the child to the dentist: 51.61% I don't know: 14.83%	.044
Is it important to preserve the broken fragment of the tooth?	Yes: 41.5% No: 27.5% I don't know: 31%	Yes: 36% No: 31.75% I don't know: 31.75%	.503
What would be your first response?	Replant the tooth: 10% Store the tooth: 22% Stop bleeding: 40.5% Not sure: 27.5%	Replant the tooth: 8.15% Store the tooth: 19.31% Stop bleeding: 43.34% Not sure: 29.18%	.777
Are you interested in obtaining information about dental trauma?	Yes: 82.5% No: 17.5%	Yes: 81.97% No: 18.02%	.900

Table 4 presents the survey responses based on school type, highlighting three questions with a P-value < 0.05, indicating statistical importance. One of these questions, "Have you been provided with any information regarding dental trauma previously?" showed an important difference in responses between private and government school participants, with a P-value of 0.043. This suggests that individuals from private schools were more likely to have received information on dental trauma compared to those from government schools.

Another question that revealed a significant difference was, "What steps would you take if bleeding occurs from the gum following trauma?" The responses indicated that parents of children attending private schools were more inclined to take them to the dentist immediately, as reflected by a P-value of 0.044.

In contrast, the question "Is it important to preserve the broken fragment of the tooth?" had a P-value of 0.503, demonstrating no significant difference between government and private school participants, as both groups provided similar answers. The question "Have you ever observed a case of dental trauma before?" had a P-value of 0.078, which, while approaching significance, was not statistically meaningful, indicating that any observed difference could be due to chance.

Similarly, the questions "Have you participated in a training course related to dental trauma management?" and "What steps would you take if there is tooth mobility right after the trauma?" did not show statistical significance, with p-values of 0.079 and 0.683, respectively. However, important differences in responses were observed for the questions "What steps would you take if bleeding occurs from the gum following trauma?" and "What would you do if the tooth is displaced from its original position?" when comparing private and government school participants.

Table 5. Survey based on age group

Questions	20-30 years	31-40 years	41-50 years	> 50 years	P-value
Have you ever observed a case of dental trauma before?	Yes: 58.6% No: 41.4%	Yes: 69.8% No: 30.2%	Yes: 74.1% No: 25.9%	Yes: 82.2% No: 17.8%	.008
Have you previously participated in a training course on dental trauma?	Yes: 22.6% No: 77.4%	Yes: 19.4% No: 80.6%	Yes: 21.5% No: 78.5%	Yes: 22.2% No: 77.8%	.931
What steps would you take if bleeding from the gum occurs following trauma?	Nothing. Just ask him to rinse: 37.7% Take the child to the dentist: 45.3% I don't know: 16.9%	Nothing. Just ask him to rinse: 47.2% Take the child to the dentist: 44.9% I don't know: 7.9%	Nothing. Just ask him to rinse: 36.2% Take the child to the dentist: 49.3% I don't know: 14.5%	Nothing. Just ask him to rinse: 34.8% Take the child to the dentist: 60.9% I don't know: 4.3%	.278

What course of action would you take if a tooth becomes mobile right after experiencing trauma?	.00: 0% Nothing. Just observe the child: 16.98% Take the child to the dentist immediately: 71.70% I don't know: 11.32%	00: 0% Nothing. Just observe the child: 28.08% Take the child to the dentist immediately: 65.17% I don’t know: 6.74%	.00: 1.45% Nothing. Just observe the child: 23.18% Take the child to the dentist immediately: 65.22% I don't know: 10.14%	00: 0% Nothing. Just observe the child: 21.74% Take the child to the dentist immediately: 73.91% I don't know: 4.35%	.518
What is the appropriate storage medium for preserving a knocked-out tooth?	Tap water: 12.0% Antiseptic Solution: 26.3% Milk: 47.4% Tissue paper: 14.3%	Tap water: 5.8% Antiseptic solution: 25.2% Milk: 54.0% Tissue paper: 15.1%	Tap water: 6.9% Antiseptic solution: 25.0% Milk: 60.3% tissue paper: 7.8%	Tap water: 13.3% Antiseptic solution: 24.4% Milk: 48.9% Tissue paper: 13.3%	.356
Are you interested in obtaining information about dental trauma?	Yes: 77.4% No: 22.6%	Yes: 87.1% No: 12.9%	Yes: 79.3% No: 20.7%	Yes: 88.9% No: 11.1%	.096

Table 5 presents the findings of a survey carried out across various age groups, shedding light on the participants' knowledge and actions concerning dental trauma. The statistical importance of the differences observed between the age groups is highlighted by the p-values. The first question inquired whether the respondents had ever witnessed dental trauma, with “yes” responses ranging from 58.6% in the twenty to thirty age group to 82.2% in the group above 50. The p-value for this response was 0.008, indicating an important difference between age groups.

The second question focused on whether the participants had participated in a dental trauma training course. With a P-value of 0.931, this question showed no important difference between age groups. The third question asked whether the respondents had previously received information about dental trauma. The P-value here was 0.102, again showing no important difference between the groups. The fourth question examined the source of the participants' information on dental trauma. Dentists were identified as the most frequent source across all age groups, with percentages ranging from 19.8% in those above 50 years to 33.1% in the 20-30 years group. The P-value of 0.149 indicated no important difference between age groups.

The fifth question asked what actions respondents would take if they experienced gum bleeding after trauma. The P-value of 0.278 suggested no significant difference in responses across age groups. The sixth question concerned the actions participants would take if there was mobility in the tooth immediately following trauma. The majority of respondents in all age groups, from 65.17% in the 31-40 years age group to 73.91% in the above 50 years group, chose to take the child to the dentist promptly. With a P-value of 0.518, this response showed no important difference between the groups.

In the seventh question, participants were asked what actions they would take if a tooth were to be displaced from its socket. The most common response across all age groups was to take the child to the dentist, with 68.5% in the 31-40 years age group and 75.5% in the 20-30 years age group. The p-value for this question was 0.322, indicating no statistically important difference between the age groups.

The ninth question, which asked whether it is advisable to save a fractured tooth piece, showed varying responses. In the 41-50 years age group, 35.16% answered “yes,” while 45.11% of participants in the 20-30 years age group responded the same way. The P-value for this question was 0.589, indicating no important difference between the age groups.

The subsequent question, which inquired about the immediate steps to take if a tooth is knocked out, did not show any statistically significant differences in the responses across the age groups, with the P-value > 0.05.

Another question addressed the proper storage method for a knocked-out tooth. This also showed no statistically significant differences between the age groups, with the P-value > 0.05. The third question focused on the type of tooth most likely to break in a 9-year-old’s upper front teeth. Like the previous questions, the P-value for this one was > 0.05, indicating no significant differences.

The twelfth question asked whether the participants felt confident in their ability to manage dental traumas. The P-value for this question was also > 0.05, indicating no statistically important differences.

The final question assessed whether the participants were interested in receiving more information about dental trauma. As with the other questions, the p-value for this question was > 0.05, showing no statistically significant differences across age groups.

The goal of this study was to assess the level of knowledge among primary school teachers in Riyadh, Saudi Arabia, regarding the treatment of traumatic dental injuries. It also aimed to explore how various factors such as marital status, gender, nationality, school type, age group, location, years of experience, and education level might impact the teachers' understanding of this subject [12].

In a study by Nirwan *et al*. [13], it was found that age had a statistically significant relationship with knowledge of traumatic dental injury (TDI) management, with older teachers displaying more knowledge. However, contrary to previous studies, the connection between knowledge and both gender and teaching experience was not significant. The earlier research indicated that 93.8% of teachers hadn't received any specific training in TDI management as part of their first-aid education. Research by Delcea and Siserman [14] and Chandukutty *et al*. [15] found that 71.9% of instructors hadn't undergone first-aid training for TDIs, while another study reported that 85.7% of teachers hadn't received any training in handling oral trauma [16, 17].

The present study also examined how professionals would respond if a tooth showed mobility after trauma. A statistically important difference was observed between the responses of those with less than ten years of experience and those with more than ten years, with a p-value of 0.028. However, when asked about actions to take if the tooth shifted from its position, no statistically important difference was found between professionals with under or over ten years of experience (P-value = 0.055). Similar findings were reported by Alluqmani *et al*. [18] and Griffin *et al*. [19], where only 28.1% of instructors had been trained in first aid for serious injuries which was lower than the percentage found in a survey from Hong Kong [20]. Alluqmani *et al*. [18] also discovered that 50% of teachers would seek dental care in the event of a dental emergency, while 19.7% preferred hospital treatment [18]. Other surveys indicated that about 50% of respondents would contact local emergency services [21, 22].

Research indicates that 41.6% of teachers were unable to treat fractured teeth because they considered the broken piece irrelevant and preferred to disregard it [13]. In contrast, the current study found that 21.9% of participants would transport the broken fragment to the dentist in a liquid medium. A similar rate (23.4%) was recorded in a comparative study where teachers sought the broken piece and took the child to the dentist [15, 23].

The findings from the present study regarding the best storage method for an avulsed tooth revealed no significant difference based on educational level, with a p-value of 0.602. In another question, participants were asked to identify the type of tooth most likely to break if a 9-year-old child fell and fractured their upper front teeth. The majority of respondents, irrespective of their educational background, believed it would be a permanent tooth. However, the responses from the three groups did not show a statistically significant difference (P = 0.634) [24]. Previous studies, consistent with this one, revealed that most respondents (63.5%) could differentiate between permanent and deciduous teeth [13]. Properly distinguishing between these two types of teeth is crucial for managing TDIs effectively. Furthermore, 78.7% of respondents did not opt to replant avulsed deciduous teeth, a finding that aligns with Young *et al*. [20], who reported that 38.2% of teachers recognized the need to replace avulsed permanent teeth. However, earlier research recorded lower percentages (16.2% and 24%, respectively) [20, 25, 26].

The results of the current research, with a p-value of 0.333, indicated no statistically important difference between the responses of teachers with less than 10 years of experience and those with more than 10 years of experience. Regarding the appropriate storage material for an avulsed tooth, oral trauma guidelines [1, 22] recommend using physiological media such as milk (chosen by 19.7% of teachers) and the saliva of the injured person (selected by 3.2%). This suggests that over 75% of teachers did not select the proper storage medium for dental avulsion. Additionally, more than half of the survey participants expressed dissatisfaction with their current knowledge of managing dental trauma, a higher proportion than found in an earlier study in Riyadh [27]. Teachers need to be prepared to address oral trauma, as it is a common occurrence in classrooms.

While over 75% of the teachers showed interest in learning how to manage oral trauma, such topics are not included in standard first-aid training courses. In terms of gender, the study found no significant effect on the teachers' knowledge, aligning with the results of other research. However, a study conducted in Brazil showed that female teachers had better knowledge than their male counterparts. Consistent with findings from research in Hong Kong [20], there was no important connection between the type of school (public or private) and the teachers' expertise. Similarly, the educational qualifications of participants did not significantly influence their

knowledge, as observed in a study in Brazil [8]. While earlier local studies did not examine these factors, the present research found no correlation between the teachers' knowledge and their marital status or nationality.
In a study conducted by Zakirulla *et al*. [28], teachers from the northern region of Riyadh were found to have the highest level of knowledge among the city's five geographic zones. This may be linked to their higher socioeconomic status which can directly affect their level of awareness. It has been shown that both experience and age significantly influence one's understanding of dental trauma and its management.
The findings of this study indicate a lack of sufficient training and knowledge among respondents in managing dental trauma. A majority of the participants had not attended any training on dental trauma care and expressed a lack of confidence in their ability to manage such injuries if they occurred. However, there is a clear willingness to learn, as most respondents indicated an interest in gaining more knowledge about dental trauma.

Conclusion

The study revealed a lack of adequate knowledge among school teachers in Riyadh regarding the management of severe dental injuries. Teachers' understanding of how to handle such injuries was found to be associated with their age, years of experience, and the location of their school. However, no significant link was found between this knowledge and the teachers' gender, nationality, marital status, educational level, or type of school.

Recommendations
It is recommended that the ministries of health and education collaborate to design and implement training and educational programs aimed at enhancing teachers' knowledge about managing traumatic dental injuries in schools. Additionally, schools should establish direct partnerships with local dentists or dental clinics to ensure a swift and appropriate response in case of dental emergencies. Research by Al-Khalifa and AlYousef [29] suggests that providing teachers with informational materials, such as educational leaflets, can be an effective and suitable way to improve their understanding of oral injury management. Distributing such resources to educators could therefore be a helpful step in increasing awareness and preparedness.

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