ORIGINAL ARTICLE

The Extent of Knowledge and Awareness among Teachers in Saudi Arabian Elementary Schools about Managing Dental Trauma

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Abstract

Introduction: Dental trauma in children is a common health issue, often occurring in school settings. Immediate and proper management by schoolteachers is critical to reducing complications. Conducted in various regions. **Objective:** The study aimed to assess the knowledge and awareness levels regarding the emergency management of dental trauma among elementary school teachers in Saudi Arabia. **Materials and Methods:** A cross-sectional study was conducted in Saudi Arabia from July to December 2025. Participants were recruited through social media platforms including Twitter, Instagram, Snapchat, WhatsApp, and Facebook. Inclusion criteria involved Saudi elementary schoolteachers from all regions who agreed to complete the questionnaire. Exclusion criteria included non-teachers, individuals outside Saudi Arabia, and those unwilling to participate. The minimum sample size was calculated to be 384, based on a 95% confidence level and 5% margin of error. **Results:** The study involved 895 Saudi Arabian elementary school teachers recruited from all regions of Saudi Arabia. Most participants were female (73.7%), married (74.7%), and had more than 10 years of teaching experience (55.5%); 51.4% worked in the Western region and 86.3% in public schools. Formal first-aid training was reported by 42.2%, whereas only 22.7% had received specific training in dental trauma management, and 44.5% had previously witnessed a dental injury at school. Knowledge levels were critically low: 87.5% of teachers had low knowledge, 10.1% moderate, and only 2.5% high, with a mean knowledge score of 2.05 ± 1.24. In contrast, awareness was more favorable: 23.5% had low, 34.4% moderate, and 42.1% high awareness, with a mean awareness score of 5.79 ± 1.80. Region-specific dental trauma training and witnessing dental injuries were significantly associated with higher knowledge levels, whereas gender, marital status, teaching experience, region, first-aid training, and dental trauma training were significantly associated with awareness levels ($P < 0.05$). **Conclusion:** Saudi elementary school teachers demonstrated markedly inadequate knowledge but relatively positive awareness and attitudes regarding dental trauma, revealing a substantial knowledge–attitude gap. These findings highlight the urgent need for structured, evidence-based educational programs focusing on practical management of avulsed and traumatized teeth to improve school-based emergency response and child oral health outcomes.

Key words: Awareness, dental trauma, emergency management, Saudi Arabia, schoolteachers

INTRODUCTION

Due to its common occurrence, related complications, and effect on individuals' quality of life, dental trauma is recognized as a significant public health issue.[1] Orofacial trauma can impact the supporting hard and soft tissues of the teeth. Children aged 8–12 are more susceptible due to the ongoing transition from deciduous to

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permanent dentition and reduced structural resistance.[2] Immediate first aid by those on the scene of a dental trauma, such as school personnel, is vital, as early and proper care greatly influences the outcome of tooth injuries.[3]

Research shows that approximately 25% of children experience dental trauma while attending school, with a higher incidence among males than girls. In fact, 33% of schoolboys and 31.4% of schoolgirls reported having sustained dental trauma.[4] Numerous things can cause these kinds of injuries; falls were the most common cause. Other causes include car accidents and sports incidents.[5] Traumatic dental injuries (TDIs) can lead to complications such as difficulties with speech, facial deformities, chewing issues, and social and psychological impacts. Along with reducing the child's quality of life, these effects put a financial burden on families.[6]

TDIs can range in severity from modest enamel chipping to substantial damage to the supporting tissues or tooth avulsion.[7]

Given that many dental injuries occur at school, teachers play a vital role in providing initial care. However, studies reveal a general lack of knowledge and preparedness among teachers regarding dental trauma management.[8]

In 2018, a study of 1520 elementary school teachers in Riyadh found a generally low level of knowledge about dental trauma, with an average score of 2.85 out of 9. Many teachers were unaware of how to handle cases such as avulsed teeth or soft-tissue injuries. However, 86.5% expressed a willingness to learn, indicating a strong opportunity for educational programs in this area.[9] Furthermore, 71.7% were unaware that a tooth should be placed in a suitable storage medium (e.g., milk or saline).[10] Another study in Hail (2019) among 400 teachers reported that only 24.5% had prior education on dental trauma, 15.8% knew about immediate reimplantation of avulsed permanent teeth, and 32.3% recognized milk as an appropriate storage medium.[11] A 2023 study in Madinah found that only 11% of 294 teachers had received training on dental trauma management, and concluded that knowledge was insufficient and emphasized the need for structured educational programs.[12]

Most available studies are restricted to specific cities. Furthermore, many studies did not assess the impact of prior training or suggest practical recommendations to improve teachers' preparedness. Therefore, evaluating teachers' knowledge and awareness regarding dental injuries and their emergency management is crucial for improving outcomes in pediatric dental trauma cases.

Objectives

This study aimed to assess the knowledge and awareness level of management of dental trauma among teachers in elementary schools in Saudi Arabia.

MATERIALS AND METHODS

Study design and setting

This cross-sectional study was carried out in Saudi Arabia over a 6-month period, from July to December 2025. Utilizing social media platforms (such as Facebook, Instagram, WhatsApp, Snapchat, and Twitter) to identify primary school teachers across Saudi Arabia and distribute a survey form was a viable method for sample recruitment.

Sample size

Data collection involved a target sample of 384 patients (confidence level: 95%; margin of error: 5%). The sample size was estimated using the formula:

$$n = P(1\text{-}P) * Z\alpha\ 2/d^2$$ with a 95% confidence level.

n: Calculated sample size.
Z: The z-value for the selected level of confidence (1-a) = 1.96.
P: An estimated prevalence of knowledge.
Q: (1–0.50) = 50%, i.e., 0.50.
D: The maximum acceptable error = 0.05.

Therefore, the calculated minimum sample size was $n = (1.96)2 \times 0.50 \times 0.50/(0.05)\ 2 = 384$.

Inclusion and exclusion criteria

The inclusion criteria for this study were as follows: All Saudi schoolteachers working in primary or elementary schools across all provinces of the Kingdom of Saudi Arabia who were literate in the Arabic language (able to read and comprehend written Arabic text) were eligible to participate. Participants in this study were required to complete questionnaires. Non-teachers, including students, parents, healthcare workers, and administrative staff, were excluded.

Method for data collection, instrument

An Arabic-structured, self-administered questionnaire was designed and distributed electronically to elementary school teachers across Saudi Arabia. The instrument was constructed after an extensive review of relevant literature and by adapting items from previously validated questionnaires, with modifications introduced to align with the cultural and educational setting of Saudi elementary schools. The finalized survey was organized into three integrated sections. The first section presented an informed consent statement that clarified the aims of the study, highlighted the research objectives, and ensured that participation was voluntary. The second section gathered sociodemographic information, including participants' age, gender, academic background, and years of teaching experience. The third section explored

teachers' knowledge and awareness related to the study topic through a series of multiple-choice and Likert-scale questions, carefully formulated to assess both understanding and attitudes. The bilingual structure was deliberately chosen to improve comprehension and inclusivity, while the self-administered online format minimized interviewer influence and allowed respondents to complete the survey at their own convenience, thereby improving the reliability and accuracy of the collected data.[1,13]

Scoring system

In total, 19 statements were used to assess the participants' attitudes and level of knowledge: 5 statements for demographics, 6 for knowledge, and 8 for awareness. One point was given for correct answers, and zero points were given for incorrect answers or "I don't know." For scoring, Likert scales (Dichotomous, Three-Point, and Quality Scales) were utilized. The maximum score was 13 and was divided according to the original Bloom's cutoff points: 80.0–100.0%, 60.0–70%, and 59.0%. Participants were divided into three groups based on their scores. Knowledge scores ranged from 0 to 6 points and were classified into three levels: A score of 4 or below indicated a low level of knowledge, scores between 4 and 5 indicated a moderate level of knowledge, and scores of 5 or above indicated a high level of knowledge. Awareness scores ranged from 0 to 8 points and were also classified into three levels: A score of 5 or below indicated a low level of awareness, scores between 5 and 6 indicated a moderate level of awareness, and scores of 6 or above indicated a high level of awareness.

Pilot test

A pilot study was conducted to assess the simplicity of the questionnaire and the feasibility of the overall research methodology. In this phase, the questionnaire was distributed to and completed by a sample of 20 individuals. The data collected during this pilot phase were excluded from the final analysis, as the purpose was to refine the research instruments and procedures rather than to include the pilot participants' responses in the main study.

Analyses and entry method

Using the "Microsoft Office Excel Software" for Windows (2024), data were entered on the computer. After that, data were moved to be statistically analyzed using the Statistical Package for the Social Sciences (SPSS) Software program, version 25 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.). Descriptive statistics were used to summarize the numerical variables for baseline characteristics. For categorical variables, frequencies and percentages were calculated. The Chi-square test was used to identify associations between categorical variables.

RESULTS

As shown in Table 1, this cross-sectional study involved 895 Saudi Arabian elementary school teachers recruited from all regions of Saudi Arabia. The majority of participants were female (73.7%), married (74.7%), and had more than 10 years of teaching experience (55.5%). Most teachers were from the Western Region (51.4%) and worked in public schools (86.3%). Among the participants, 42.2% had received formal first aid training, whereas only 22.7% had received specific training on managing dental trauma. Approximately 44.5% reported witnessing a dental injury among students at their school.

Table 1: Sociodemographic characteristics and first aid training history of participants (*n*=895)

Parameter	No.	Percentage
Gender		
Female	660	73.7
Male	235	26.3
Marital status		
Married	669	74.7
Single	98	10.9
Divorced	85	9.5
Widowed	43	4.8
Teaching experience (years)		
More than 10 years	497	55.5
1–5 years	203	22.7
6–10 years	126	14.1
<1 year	69	7.7
Region		
Western	460	51.4
Southern	270	30.2
Central	104	11.6
Eastern	39	4.4
Northern	22	2.5
School type		
Public	772	86.3
Private	123	13.7
Formal first aid training		
Yes	378	42.2
No	517	57.8
Dental trauma management training		
Yes	203	22.7
No	692	77.3
Witnessed dental injury at school		
Yes	398	44.5
No	497	55.5

Figure 1 illustrates that approximately 44.5% reported witnessing a dental injury among students at their school.

Table 2 shows that although most teachers report being able to distinguish permanent from primary teeth (59.8%), substantial knowledge gaps were evident in key steps of avulsion management. Only 30.5% would correctly handle the tooth by the crown, none would gently wash and replant a dirty avulsed tooth, and almost half were unsure about the optimal replantation time (45.6%). Storage medium choices were fragmented, with many selecting suboptimal options and 32.1% uncertain.

Table 3 shows that most teachers agreed they had a role in managing dental accidents (74.0%), that dental injuries were urgent (84.4%), and that basic training should be provided (85.8%), indicating strong perceived responsibility and high receptiveness to education. However, just over half felt confident in managing dental emergencies (53.2%), despite high agreement that permanent teeth were crucial for quality of life (88.8%) and that preventive measures such as mouthguards and tetanus vaccination were important (71.3% and 68.6%, respectively).

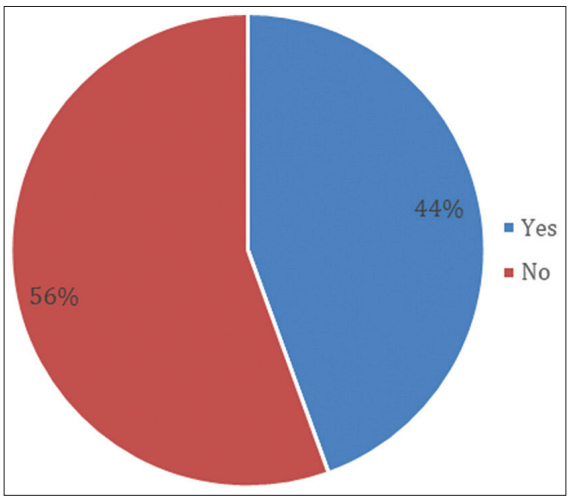

Figure 1: If the teacher had witnessed any dental injury at school

Table 2: Frequency distributions of knowledge assessment responses (*n*=895)

Question	Response	No.	Percentage
Q1: Can you distinguish whether a tooth is a permanent or a baby tooth?	Yes	535	59.8
	No	360	40.2
Q2: What is the immediate emergency management action?	Contact parents and advise a dentist visit	350	39.1
	Send to school nurse	423	47.3
	Reassure and return to class	56	6.3
	Not sure	66	7.4
Q3: How should you handle an avulsed tooth?	Hold at crown, avoid root	273	30.5
	No need to search for a tooth	296	33.1
	Can hold from any part	174	19.4
	Hold at root, avoid crown	152	17.0
Q4: How to manage a dirty avulsed tooth?	Wash gently and replant	265	29.6
	Not sure	309	34.5
	No need for treatment	205	22.9
	Scrub with a sponge and soap	93	10.4
	Replace without cleaning	23	2.6
Q5: Best storage medium for avulsed tooth?	Normal saline	194	21.7
	Milk	194	21.7
	Not sure	287	32.1
	Water	121	13.5
	Saliva	73	8.2
	Alcohol	26	2.9
Q6: Appropriate time to replant tooth?	Immediately after accident	215	24.0
	Not sure	408	45.6
	After 30 min	132	14.7
	Anytime same day	140	15.6

Table 4 shows that knowledge assessment revealed critically low levels across the study population. Only 2.5% (n = 22) of teachers demonstrated high-level knowledge regarding dental trauma management (scores ≥5), whereas 10.1% (n = 90) exhibited moderate-level knowledge (scores 4), and the overwhelming majority, 87.5% (n = 783), demonstrated low-level knowledge (scores <4). The mean knowledge score was 2.05 ± 1.24 (range 0–5), indicating substantial knowledge deficits. In contrast to knowledge deficits, awareness levels were more favorable. A total of 42.1% (n = 377) demonstrated high-level awareness (scores ≥7), 34.4% (n = 308) exhibited moderate-level awareness (scores 5–6), and 23.5% (n = 210) demonstrated low-level awareness (scores <5). The mean awareness score was 5.79 ± 1.80 (range 0–8), suggesting more favorable attitudes and beliefs about dental trauma despite limited knowledge.

Table 3: Frequency distributions of awareness assessment responses (n=895)

Question	No.	Percentage
Q1: Teachers have a role in helping students with dental accidents		
Agree	662	74.0
Disagree	233	26.0
Q2: Dental accidents occur frequently in schools		
Agree	471	52.6
Disagree	424	47.4
Q3: Basic dental accident management training should be provided		
Agree	768	85.8
Disagree	127	14.2
Q4: Dental accidents are urgent situations requiring immediate first aid		
Agree	755	84.4
Disagree	140	15.6
Q5: Confident ability to manage dental emergencies as a teacher		
Agree	476	53.2
Disagree	419	46.8
Q6: Mouthguards should be compulsory in outdoor sports		
Agree	638	71.3
Disagree	257	28.7
Q7: Tetanus vaccinations necessary for dental trauma		
Agree	614	68.6
Disagree	281	31.4
Q8: Permanent teeth are crucial for quality of life		
Agree	795	88.8
Disagree	100	11.2

Table 4: Participants categorized by knowledge and awareness proficiency levels (n=895)

Proficiency level	No.	Percentage
Knowledge level		
High	22	2.5
Moderate	90	10.1
Low	783	87.5
Awareness level		
High	377	42.1
Moderate	308	34.4
Low	210	23.5
Total	895	100.0

Figure 2 shows that knowledge levels regarding dental trauma management were predominantly low (87.5%), with moderate knowledge in 10.1% and high knowledge in only 2.5% of participants. Conversely, awareness levels were more encouraging, with 42.1% demonstrating high awareness, 34.4% moderate awareness, and 23.5% low awareness.

As shown in Table 5, Chi-square analysis revealed that knowledge levels were significantly associated with several demographic factors. The region of employment showed a significant association with knowledge (P = 0.0088), with teachers from the central region demonstrating higher proportions with moderate knowledge (16.3%). Specific training on dental trauma management was significantly associated with knowledge levels (P = 0.0154), with trained teachers showing 15.3% with moderate knowledge compared to 8.5% among untrained teachers. Witnessing dental injuries was also significantly related to knowledge (P = 0.0271), with teachers who had witnessed such events having a higher proportion with moderate knowledge (13.1% vs. 7.6%). However, gender (P = 0.3809), marital status (P = 0.4289), teaching experience (P = 7190), school type (P = 0.4004), and formal first aid training (P = 0.0959) were not significantly associated with knowledge levels.

Table 6 shows that awareness levels showed more extensive associations with demographic variables. Gender was

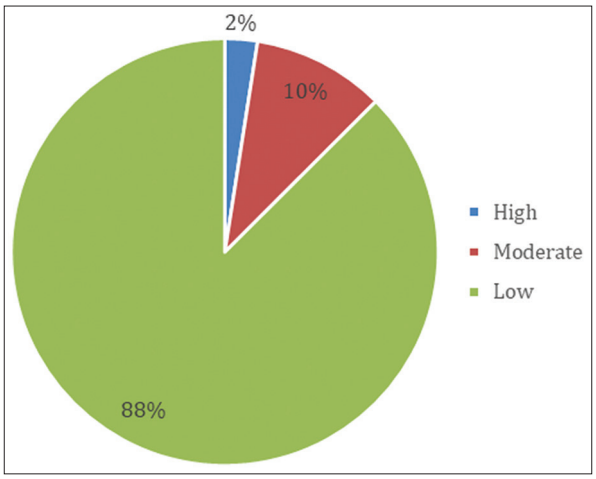

Figure 2: The distribution of knowledge levels among the participants

Table 5: Relation between demographic variables and knowledge proficiency levels (Chi-square test) (*n*=895)

Variable	Knowledge level			Total	*P*-value*
	High (%)	Moderate (%)	Low (%)		
Gender					
Female	19	65	576	660	0.3809
	2.9	9.8	87.3		
Male	3	25	207	235	
	1.3	10.6	88.1		
Marital status					
Widowed	0	6	37	43	0.4289
	0.0	14.0	86.0		
Single	5	7	86	98	
	5.1	7.1	87.8		
Married	16	68	585	669	
	2.4	10.2	87.4		
Divorced	1	9	75	85	
	1.2	10.6	88.2		
Teaching experience					
<1 year	3	8	58	69	0.7190
	4.3	11.6	84.1		
More than 10 years	11	43	443	497	
	2.2	8.7	89.1		
6–10 years	3	15	108	126	
	2.4	11.9	85.7		
1–5 years	5	24	174	203	
	2.5	11.8	85.7		
Region					
Southern	8	35	227	270	**0.0088**
	3.0	13.0	84.1		
Eastern	0	2	37	39	
	0.0	5.1	94.9		
Northern	0	5	17	22	
	0.0	22.7	77.3		
Western	13	31	416	460	
	2.8	6.7	90.4		
Central	1	17	86	104	
	1.0	16.3	82.7		
School type					
Public	18	74	680	772	0.4004
	2.3	9.6	88.1		
Private	4	16	103	123	
	3.3	13.0	83.7		
First aid training					
No	9	46	462	517	0.0959
	1.7	8.9	89.4		
Yes	13	44	321	378	
	3.4	11.6	84.9		
Dental trauma training					
No	16	59	617	692	0.0154
	2.3	8.5	89.2		
Yes	6	31	166	203	
	3.0	15.3	81.8		
Witnessed dental injury					
No	13	38	446	497	0.0271
	2.6	7.6	89.7		
Yes	9	52	337	398	
	2.3	13.1	84.7		

*(*P*<0.05) indicates a statistically significant difference. Bold: Statistically significant

Table 6: Relation between demographic variables and awareness proficiency levels (Chi-square test) (*n*=895)

Variable	Awareness level			Total	*P*-value*
	High	Moderate	Low		
Gender					
Female	308	214	138	660	**0.001**
	46.7	32.4	20.9		
Male	69	94	72	235	
	29.4	40.0	30.6		
Marital status					
Widowed	16	10	17	43	**0.001**
	37.2	23.3	39.5		
Single	43	39	16	98	
	43.9	39.8	16.3		
Married	293	232	144	669	
	43.8	34.7	21.5		
Divorced	25	27	33	85	
	29.4	31.8	38.8		
Teaching experience					
<1 year	35	20	14	69	**0.001**
	50.7	29.0	20.3		
More than 10 years	238	162	97	497	
	47.9	32.6	19.5		
6–10 years	41	48	37	126	
	32.5	38.1	29.4		
1–5 years	63	78	62	203	
	31.0	38.4	30.5		
Region					
Southern	138	83	49	270	**0.001**
	51.1	30.7	18.1		

(Contd...)

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Table 6: *(Continued)*

Variable	Awareness level			Total	*P*-value*
	High	Moderate	Low		
Eastern	10	11	18	39	
	25.6	28.2	46.2		
Northern	11	5	6	22	
	50.0	22.7	27.3		
Western	196	166	98	460	
	42.6	36.1	21.3		
Central	22	43	39	104	
	21.2	41.3	37.5		
School type					
Public	331	264	177	772	0.4675
	42.9	34.2	22.9		
Private	46	44	33	123	
	37.4	35.8	26.8		
First aid training					
No	200	182	135	517	**0.0258**
	38.7	35.2	26.1		
Yes	177	126	75	378	
	46.8	33.3	19.8		
Dental trauma training					
No	309	234	149	692	**0.0074**
	44.7	33.8	21.5		
Yes	68	74	61	203	
	33.5	36.5	30.0		
Witnessed dental injury					
No	195	175	127	497	0.1055
	39.2	35.2	25.6		
Yes	182	133	83	398	
	45.7	33.4	20.9		

*(P<0.05) indicates statistically significant difference. Bold: Statistically significant

significantly associated with awareness ($P < 0.001$), with female teachers demonstrating higher awareness (46.7% with high awareness vs. 29.4% for males). Marital status showed a significant association ($P = 0.0008$), with single and married teachers showing higher high-awareness proportions (43.9% and 43.8%, respectively) compared to divorced and widowed teachers (29.4% and 37.2%). Teaching experience was significantly related to awareness ($P = 0.0002$), with <1 year of experience showing 50.7% high awareness compared to 31.0–47.9% for other groups. Region showed a significant association ($P < 0.001$), with southern region teachers demonstrating the highest awareness (51.1%). Formal first aid training was significantly associated with awareness ($P = 0.0258$), with trained teachers showing 46.8% high awareness compared to 38.7% for untrained teachers. Dental trauma training showed a significant association ($P = 0.0074$), with trained teachers having 33.5% high awareness compared to 44.7% for untrained teachers. School type ($P = 0.4675$) and witnessing dental injury ($P = 0.1055$) were not significantly associated with awareness levels.

DISCUSSION

This study evaluated the knowledge and awareness levels regarding the emergency management of dental trauma among elementary school teachers in Saudi Arabia. Teachers represent a crucial first-responder group, as traumatic dental injuries frequently occur in school environments. The findings revealed a marked discrepancy between teachers' knowledge competency—which was critically deficient—and their awareness and attitudes toward dental trauma management, which were comparatively favorable.

In the present study, 87.5% of the 895 participating teachers demonstrated a low level of knowledge concerning the management of dental trauma, while only 2.5% exhibited a high level of knowledge. This alarming outcome is consistent with both international investigations and studies conducted within Saudi Arabia. Alsadhan *et al.* reported a mean knowledge score of 2.85 out of 9 among 1,520 elementary school teachers in Riyadh, indicating a substantial deficiency in dental trauma knowledge.[9] Similarly, Altamimi *et al.* found that only 37.8% of teachers in the Hail region could differentiate between primary and permanent teeth, and merely 16.7% correctly identified appropriate storage media for avulsed teeth.[11] Comparable findings have been reported globally; for example, a study from Kannur, Kerala showed that only 14.2% of teachers correctly identified suitable storage media for avulsed teeth and only 46.5% were aware of correct reimplantation procedures.[14] These consistent findings across diverse regions suggest a widespread lack of preparedness among school teachers.

Regarding specific clinical competencies, this study identified significant deficiencies in avulsed tooth management. Only 30.5% of participants correctly identified handling the avulsed tooth by the crown to avoid damage to periodontal ligament cells. Knowledge regarding appropriate storage media was particularly inadequate, with 32.1% of teachers unsure of suitable options and more than half selecting suboptimal choices. These results are consistent with those reported by Alharbi *et al.* in Madinah, where only a minority of teachers selected milk or saliva as appropriate storage media.[12]

The clinical implications of this knowledge gap are substantial. Khinda *et al.* demonstrated that pasteurized milk and Hank's Balanced Salt Solution are among the most effective storage media for preserving periodontal ligament cell viability, with milk maintaining cell survival for up to two hours when used promptly after avulsion.[15] In contrast, tap water has been shown to be detrimental due to its hypotonic nature and acidic pH, which contribute to rapid periodontal ligament cell lysis.[16] Furthermore, a systematic review

and meta-analysis by De Brier *et al.* confirmed that Hank's Balanced Salt Solution, milk, propolis, oral rehydration salts, rice water, and cling film demonstrate superior or comparable effectiveness in preserving periodontal ligament cell viability compared to saline or tap water.[17]

Despite poor knowledge levels, teachers demonstrated relatively positive awareness and attitudes toward dental trauma management. In this study, 42.1% of participants exhibited a high level of awareness, while 34.4% showed moderate awareness. Notably, 74.0% acknowledged responsibility for assisting students during dental emergencies, and 84.4% recognized dental trauma as an urgent condition requiring immediate first aid. Additionally, 85.8% expressed support for receiving basic training in dental trauma management. These findings align with Alsadhan *et al.*, who reported that although teachers' knowledge was limited, 86.5% expressed willingness to learn, highlighting strong potential for successful educational interventions.[9]

Analysis of demographic variables revealed that prior training in dental trauma management was significantly associated with higher knowledge levels ($p = 0.0154$). Teachers who had received training demonstrated greater competency compared to untrained counterparts. This finding is supported by Alomari *et al.*, who showed that targeted educational sessions significantly improved teachers' knowledge and ability to manage dental trauma effectively.[18] Similarly, Razeghi *et al.* found that both educational leaflets and oral presentations improved short-term knowledge and self-reported practices related to traumatic dental injury management, although reinforcement was necessary for long-term retention.[19] Gender-based differences have been reported inconsistently in the literature; for instance, Pithon *et al.* observed higher knowledge levels among female teachers in Brazil, though such differences appear to vary by geographic and cultural context.[20]

Several limitations of this study should be acknowledged. The cross-sectional design precludes causal inference between demographic variables and knowledge or awareness levels. Recruitment through social media platforms may have introduced selection bias favoring more technologically engaged participants. Additionally, reliance on self-reported data introduces the possibility of social desirability bias, potentially inflating awareness and attitude scores while underestimating practical deficiencies.

CONCLUSION

This study documents critical knowledge deficiencies in the management of emergency dental trauma in Saudi Arabian elementary school teachers in spite of more favorable awareness and attitudinal responses. The finding that only 2.5% of teachers showed high-level knowledge and 87.5% showed low-level knowledge is in contrast to the 74.0–85.8% of teachers who agree that teachers have the responsibility and that it is necessary to provide training. This large knowledge-attitude gap is a key area for specific educational intervention. Given this, the establishment of structured educational programs is imperative. The documented link between specific dental trauma educational training and higher levels of knowledge, and the expressed receptiveness by teachers to educational training programs, indicate that such training may be highly beneficial in improving the ability of this population to deliver appropriate emergency management.

ACKNOWLEDGMENT

We acknowledge all volunteers who provided samples for this research.

ETHICAL APPROVAL

The study was fully explained to all participants, and it was emphasized that participation was voluntary. Written informed consent was obtained from each participant before enrollment. All collected information was securely stored and used exclusively for research purposes.

INFORMED CONSENT

Written informed consent was obtained from all study participants.

DATA AND MATERIALS AVAILABILITY

All data generated or analyzed during this study are included in this published article.

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