

## Knowledge and Attitude of Primary School Teachers Regarding Emergency Management of Dental Trauma, in Khartoum State

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### Abstract

*Objective:* To assess knowledge of primary school teachers regarding emergency management of dental trauma, in Khartoum State. *Materials and Methods:* Across sectional study conducted on a sample size of 384 primary school teachers. A questionnaire designed by Cecilia Young, KY Wong & LK Cheung -with slight modifications. The questionnaire included questions about; whether the respondents had received formal first-aid training or acquired dental trauma information and whether they thought that they could distinguish deciduous teeth from permanent teeth and questions about management of dental traumatic injuries. *Results:* Out of the 384 teachers, 200 of them were females and the rest were males. Gender was of no significance ( $p>0.05$ ). The teaching years experience had no significance in male teachers' knowledge of trauma management ( $p>0.05$ ). Whereas significance was found in female teachers' ( $p<0.05$ ). The majority of teachers have neither received first aid training 62%, nor dental trauma emergency management training 67.4%. However, they were aware that the place for treatment is the dentist 39%, that dental trauma should be treated immediately 33%, that a fractured tooth should be placed in a liquid medium 42%, and that a displaced tooth should be returned to its original position 43%, and that baby teeth should not be returned 66%. *Conclusion:* Most of the teachers have neither received first aid training nor dental trauma emergency management training. Yet they have a reasonable knowledge that they have received from reading or hearing about dental trauma management. Training must be compulsory by schools and educational campaigns should be established by the concerned authorities.

**Keywords:** Teacher; Dental Trauma; Teaching Experience; First Aids.

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### Introduction

Injuries to the face are highly associated with physical activities which are a basic need for a child's growth. These injuries could affect both primary and permanent dentitions. Dental injury is frequent in children of ages 8-11, as they are very active at this age [1].

The prevalence of dental injuries is 60% out of which over 48% involve maxillary teeth. Over 16% was in the school environment and 19% of the injuries were due to fall [2-10].

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Depending on the knowledge of the child's parents and school teachers lies the prognosis of the treatment of the traumatized teeth, which improves with appropriate and prompt treatment [11]. Since sports have been implicated in the aetiology of dental trauma [6,12] and a high proportion of dental trauma at school occurred during classes in physical education [13] it would be favourable for physical education teachers to be capable of managing such injuries [1].

Studies have shown that physical education teachers' knowledge and practice regarding management of dental trauma is very poor [12,13].

The consequences of dental trauma range from simple enamel fracture to more complicated tooth avulsion.

Treatment approaches for all types of injured teeth should aim at determining the convenient treatment as soon as possible for the achievement of a favourable prognosis. This is most urgent for avulsed permanent teeth as any delay in re-plantation

significantly reduces the long-term prognosis and leads to loss of traumatized teeth[14-116].

The prevalence of traumatic dental injuries in primary and permanent teeth is high throughout the world. Statistics from most countries show that one fourth of all school children and almost one third of adults have suffered trauma to their permanent dentition, but there are variations among and within countries [17-21]. To our knowledge, in Sudan no studies are available about the awareness of primary school teachers about management of dental trauma emergency, therefore the present study have been designed to study this problem and increase the awareness of deficient in it.

### Materials and Methods

A number of schools in Khartoum state were randomly selected as the study area. An approval from the ethical committee of the University of Medical Sciences and Technology (UMST) & from the Ministry of Education were given to the principals of these schools whom in return provided a list with the names of teachers working at these schools. The sample size was 384 teachers.

A questionnaire designed by Cecilia Young, KY Wong & LK Cheung [19] with slight modifications was then administered to and collected from the respondents by the researcher.

The questionnaire included questions about; the first section included basic demographic information whether the respondents had received formal first aid training or acquired dental trauma information and whether they thought that they could distinguish deciduous teeth from permanent teeth. The second part consisted of questions about

management of dental traumatic injuries. The gathered data was then entered in the computer system.

On the proposed dates all teachers were present, they were gathered and the aim of the study was thoroughly explained. The questionnaires were then handed out to them, and collected after completion by the researcher. The correct answers will have this symbol \* next to them. All 384 teachers filled the questionnaires with no missing data.

### Data analysis

Computer program used was Statistical Package for Social Sciences (SPSS) for Windows, version 20 and Microsoft Excel for cross tabulation. Chi-square test was used for all statistical tests a P-value of less than 0.05 was considered to be significant.

#### *Ethical consideration*

Approvals from ethical committee of University of Medical Science and Technology, from ministry of education and from schools head master were obtained prior to start the study as well as a verbal consent from the teachers whether to participate or not after explaining the purpose of the research.

### Results

Descriptive statistics of the results are displayed in form of tables and figures. According to figure 1, females were more predominant with frequency of 200 and percentage of (52.1%) and males with frequency of 184 and percentage (47.9%).

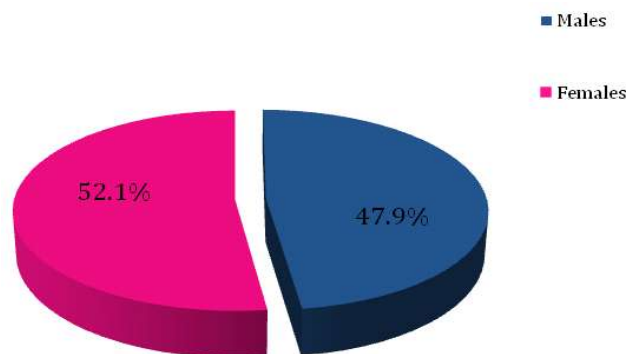


Fig 1: Gender distribution among teachers.

Teachers were asked about their age groups, the majority of teachers of both genders were at the age of 40-50 with males' percentage of 39.7%, and females'

percentage of 34%. Meanwhile the least of both genders were at the age 30-40, with males' percentage of 17.9%, and females' percentage of 22% figure 2.

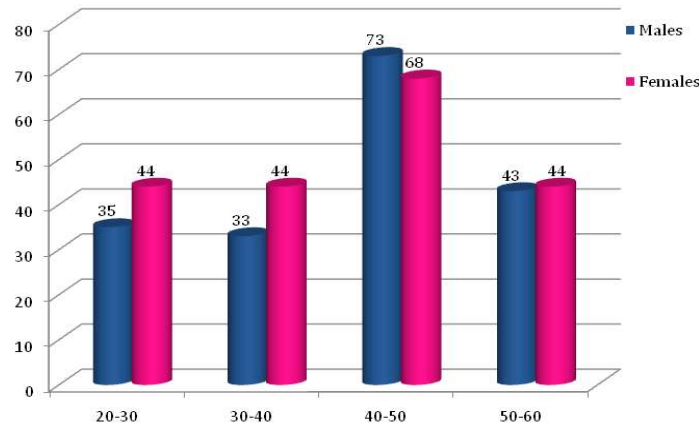


Fig 2: Age groups of teachers of both genders P= 0.547

In figure 3 the teaching experience of teachers was shown.. Most male teachers had a teaching experience of 11-20 years; 71 males (38.6%). Meanwhile, the

majority, 90 females (45%), had an experience of 1-10 yrs. However, the least was 31-40 years of experience for both genders; 27 males (14.7%) and 24 females (12%).

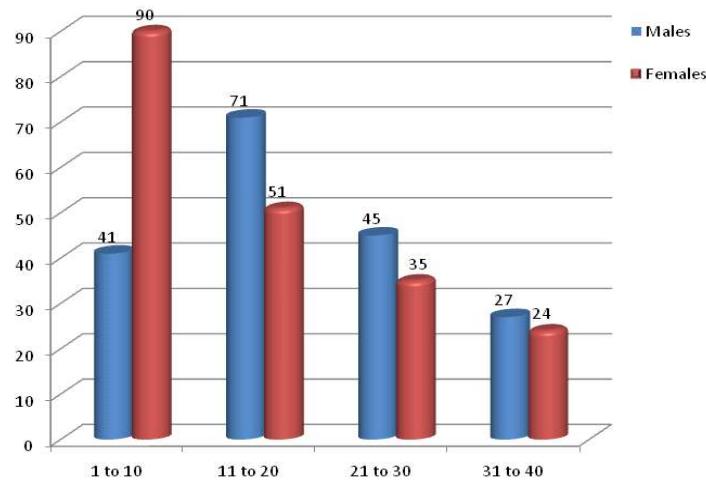


Fig. 3: Teaching years experience among gender P =0.251

It has been observed that 26(14.1%) of male teachers with experience of 11-20 yrs and 36, (18%) females with 1-10 years of experience received first aid training. Whereas only 18, (10%) of males with

11-20 yrs and 35, (18%) of females with 1-10 yrs, received dental trauma management training. No significance was observed (p>0.5) table 1.

Table 1: Experience of received first aid training among the teachers

Gender	Teaching	Received first aid training		Total	P-value
		Yes (%)	No (%)		
Males	1-10	15 (18.5)	26 (14.13)	41 (22.23)	0.984
	11-20	26 (14.13)	45 (24.6)	71 (38.6)	
	21-30	17 (9.24)	28 (15.22)	45 (24.5)	
	31-40	11 (6)	16 (8.7)	27 (14.7)	
	Total	69 (37.5)	115 (62.5)	184 (100)	
Females	1-10	36 (18)	54 (27)	90 (45)	0.278
	11-20	20 (10)	31 (15.5)	51 (25.5)	
	21-30	9 (4.5)	26 (13)	35 (17.5)	
	31-40	12 (6)	12 (6)	24 (12)	
	Total	77 (38.5)	123 (61.5)	200 (100)	

Correlation between genders P=0.840

**Table 2:** Experience of received dental management among the teachers

Gender	Teaching years	Received dental management		Total (%)	P -value
		Yes (%)	No (%)		
Males	1 -10	12 (6.52)	29 (15.7)	41 (22.23)	0.777
	11 -20	18 (10)	53 (28.8)	71 (38.6)	
	21 -30	15 (18.5)	30 (16.3)	45 (24.5)	
	31 -40	8 (4.4)	18 (9.8)	27 (14.7)	
	Total	54 (29.34)	130 (70.6)	184 (100)	
Females	1 -10	35 (17.5)	55 (27.5)	90 (45)	0.566
	11 -20	19 (9.5)	32 (16)	51 (25.5)	
	21 -30	9 (4.5)	26 (13)	35 (17.5)	
	31 -40	12 (6)	12 (6)	24 (12)	
	Total	71 (35.5)	129 (64.5)	200 (100)	

Correlation between genders  $p=0.199$

Table 1 & 2 showed no statistical significant between gender in relation to teaching experience years in both first aid and dental trauma emergency management trainings.

As shown in table 3, the vast majority of both males & females are not confident in distinguishing between types of teeth (deciduous, permanent). However, significance was found between teaching years and confidence in females;  $p<0.05$ .

**Table 3:** Teaching years experience in relation to confidence in distinguishing between types of teeth.

Gender	Teaching years	Confident in distinguishing types of teeth		Total (%)	P -value
		Yes (%)	No (%)		
Males	1 -10	11 (6)	30 (16.3)	41 (22.23)	0.841
	11 -20	16 (8.7)	55 (30)	71 (38.6)	
	21 -30	13 (7.1)	32 (17.4)	45 (24.5)	
	31 -40	8 (4.3)	19 (10.3)	27 (14.7)	
	Total	48 (26)	136 (74)	184 (100)	
Females	10	33 (16.5)	57 (28.5)	90 (45)	0.045
	11 -20	16 (8)	35 (17.5)	51 (25.5)	
	21 -30	4 (2)	31 (15.5)	35 (17.5)	
	31 -40	6 (3)	18 (9)	24 (12)	
	Total	59 (29.5)	141(70.5)	200 (100)	

Correlation between genders( $p=0.456$ )

According to table 4; 48 males, (26.1%) with 11-20 yrs experience, as well as 54 females (27%) with 1-10 yrs have 'read or heard dental injury information'.

For both genders, no significance was found between teaching years and reading or hearing dental injury information.

**Table 4:** Teaching years experiences in relation to whether teachers have read or heard dental injury information

Gender	Teaching years	Read or heard dental injury information		Total (%)	P -value
		Yes (%)	No (%)		
Males	1-10	26 (14.13)	15 (8.15)	41 (22.23)	0.912
	11 -20	48 (26.1)	29 (15.8)	71 (38.6)	
	21 -30	28 (15.22)	17 (9.24)	45 (24.5)	
	31 -40	18 (10)	9 (5)	27 (14.7)	
	Total	114 (62)	70 (38)	184 (100)	
Females	1-10	54 (27)	36 (18)	90 (45)	0.856
	11 -20	30 (15)	21 (10.5)	51 (25.5)	
	21 -30	25 (12.5)	10 (5)	35 (17.5)	
	31 -40	7 (4.5)	17 (8.5)	24 (12)	
	Total	116 (58)	84 (42)	200 (100)	

Correlation between genders  $p=0.323$

Regarding the place for treatment, the highest percentage (11%), 20 male teachers with 11-20 yrs experience, as well as (20.5%), 41 female teachers with 1-10 yrs experience, believe that the place for treatment is the 'dentist'. Meanwhile the least

percentage of both males and females believe that they should 'treat it by themselves'. Significance was found in females between teaching years and place for treatment,  $p=0.032$  table 5.

**Table 5:** Teaching years experience in relation to place for treatment.

Gender	Teaching years	Go to nearest hospital	Call ambulance	Place for treatment (%)				Total	P-value
				Private doctor	Family doctor	Dentist*	Treat it by myself		
Males	1-10	10 (5.43)	2 (1.1)	13 (7.1)	4 (2.17)	12 (7)	0 (0)	41(22.23)	0.743
	11 -20	12 (7)	4 (2.17)	18 (10)	11 (6)	20 (11)	6 (3.3)	71 (38.6)	
	21 -30	2 (1.1)	8 (4.35)	13 (7.1)	5 (3)	14 (8)	3 (1.63)	45 (24.5)	
	31 -40	3 (2)	1 (0.54)	6 (3.3)	2 (1.1)	15 (8.2)	0 (0)	27 (14.7)	
	Total	27 (14.7)	15 (8.2)	50 (27.2)	22 (12)	61(33.2)	9 (5)	184 (100)	
Females	1-10	27 (13.5)	7 (4.5)	8 (4)	7 (4.5)	41 (20.5)	0	90 (45)	0.032
	11 -20	15 (7.5)	6 (3)	6 (3)	7 (4.5)	17 (8.5)	0	51 (25.5)	
	21 -30	4 (2)	10 (5)	3 (1.5)	5 (2.5)	13 (6.5)	0	35 (17.5)	
	31 -40	1 (0.5)	0 (0)	2(1)	2 (1)	19 (9.5)	0	24 (12)	
	Total	47 (23.5)	23 (11.5)	19(9.5)	21(10.5)	90(45)	0 (0)	200 (100)	

Correlation between genders( $p=0.210$ )

In table 6 it clear that 20 males, (11%), with 11-20 yrs, and 38 females (19%), with 1-10 yrs, believe that dental injury should be treated 'immediately'

whereas, the least percentage 0.5% of both males and females 'don't know' the time for treatment. Significance was found in females between teaching yrs and time for treatment,  $p=0.019$ .

**Table 6:** Teaching years experiences in relation to time for treatment.

Gender	Teaching years	Time for treatment (%)						Total	P-value
		After school	Within 24 hrs	Within 48 hrs	Within 4 hrs	Immediately *	Don't know		
Males	1-10	4 (2.17)	7 (4)	6 (3.3)	11 (6)	12 (7)	1 (0.54)	41(22.23)	0.136
	11-20	6 (3.3)	15(8.2)	8 (4.35)	18 (10)	20 (11)	4 (2.17)	71 (38.6)	
	21-30	6 (3.3)	10(5.4)	5 (3)	9 (5)	15 (8.2)	0 (0)	45 (24.5)	
	31-40	6 (3.3)	1 (0.54)	4 (2.17)	1 (0.54)	10 (5.43)	5 (3)	27 (14.7)	
	Total	22 (12)	33 (18)	23 (13)	39 (21.2)	57 (31)	10 (5.43)	184 (100)	
Females	1-10	15 (7.5)	17 (8.5)	11 (5.5)	8 (4)	38 (19)	1 (0.5)	90 (45)	0.019
	11-20	9 (4.5)	6 (3)	6 (3)	6 (3)	19 (9.5)	5 (2.5)	51 (25.5)	
	21-30	8 (4)	5 (2.5)	6 (3)	4 (4)	11 (5.5)	1 (0.5)	35 (17.5)	
	31-40	2 (1)	7 (3.5)	3 (1.5)	3 (1.5)	9 (4.5)	0 (0)	24 (12)	
	Total	34 (17)	35(17.5)	26 (13)	28 (14)	70 (35)	7 (3.5)	200 (10)	

Correlation between genders( $p=0.659$ )

**Table 7:** Teaching experiences years in relation to immediate management of fractured teeth

Gender	Teaching years	Immediate management of fractured tooth (%)				Total	P-value
		Ignore it it's useless	Wrap it with a gauze for later examination	Put it in a liquid medium for later examination*	Don't know		
Males	1-10	14( 8)	6 (3.3)	19(10.3)	2(1.1)	41 (22.23)	0.141
	11-20	24 (13)	14 (8)	29(15.8)	4(2.2)	71 (38.6)	
	21-30	19 (10.3)	10 (5.43)	15( 8.2)	1(0.54)	45 (24.5)	
	31-40	9 (5)	3 (2)	15 (8.2)	0 (0)	27 (14.7)	
	Total	33(17.9)	66(35.9)	78(42.4)	7(3.8)	184 (100)	
Females	1-10	16 (8)	28 (14)	37 (18.5)	9 (4.5)	90 (45)	0.027
	11-20	9 (4.5)	16 (8)	23 (11.5)	3 (1.5)	51 (25.5)	
	21-30	2 (1)	15 (7.5)	15 (7.5)	3 (1.5)	35 (17.5)	
	31-40	3 (1.5)	8 (4)	9 (4.5)	4 (2)	24 (12)	
	Total	30 (15)	67 (33.5)	84 (42)	19 (9.5)	200 (100)	

Correlation between genders( $p=0.154$ )

As shown in table 7, the highest choice for immediate management of fractured teeth was put it in a liquid medium for later examination' by 29 males, (15.8%) with 11-20 years. Meanwhile 37 females, (18.5%) with 1-10 years of experience chose the same option. The least said they 'don't know'; 0.5 % of males and 1.5% of females. Significance was found in females between teaching yrs and time for treatment,  $p=0.027$ .

Regarding the immediate management of displaced tooth, the majority of males with frequency of 26 (14%),

with 11-20 yrs experience said they would 'ask patient to clench on it'. Females' frequency was 45, (22.5%), with 1-10 years of experience; for 'return to its original position', with 1-10 years of experience.

The least percentage, 1% of males said 'don't touch, leave it in its new position'. Meanwhile 1% of females said they 'don't know'. Significance was found in females between teaching yrs and time for treatment,  $p=0.016$ .

**Table 8:** Teaching experience years in relation to immediate management of displaced teeth

Gender	Teaching years	Immediate management of displaced tooth (%)				Total	P-value
		Don't touch leave it in its new position	Return to original position*	Ask patient to clench one's tooth	Don't know		
Males	1-10	15 (8.2)	12 (6.52)	11 (6)	3 (2)	41 (22.23)	0.828
	11-20	19 (10.33)	17 (9.24)	26 (14.13)	9 (5)	71 (38.6)	
	21-30	9 (5)	18 (10)	11 (6)	7 (3.8)	45 (24.5)	
	31-40	2 (1.1)	18 (10)	3 (2)	4 (2.2)	27 (14.7)	
	Total	46(25)	65(35.32)	50(27.17)	23(12.5)	184 (100)	
Females	1-10	16 (8)	45 (22.5)	23 (11.5)	6 (3)	90 (45)	0.016
	11-20	6 (3)	27 (13.5)	16 (8)	2 (1)	51 (25.5)	
	21-30	9 (4.5)	16 (8)	8 (4)	2 (1)	35 (17.5)	
	31-40	7 (3.5)	13 (6.5)	3 (1.5)	1 (0.5)	24 (12)	
	Total	38 (19)	101 (50.5)	50 (25)	11 (5.5)	200 (100)	

Correlation between genders( $p=0.098$ )

**Table 9:** Teaching experience years in relation to whether knocked out baby

Gender	Teaching years	Should you return knocked out baby			Teeth (%)	Total	P-value
		Yes	No*	Don't know			
Males	1-10	8 (4.35)	26 (14.1)	7 (4)	41 (22.23)	0.223	
	11-20	13(7.1)	47(25.5)	11(6)	71 (38.6)		
	21-30	9 (5)	28(15.2)	8(4.4)	45 (24.5)		
	31-40	3 (2)	22 (12)	2(1.1)	27 (14.7)		
	Total	33 (18)	123 (61.5)	28 (15.2)	184 (100)		
Females	1-10	11 (5.5)	63(31.5)	16 (8)	90 (45)	0.024	
	11-20	8 (4)	30 (15)	13 (6.5)	51 (25.5)		
	21-30	5 (2.5)	21(10.5)	9 (4.5)	35 (17.5)		
	31-40	3 (1.5)	16 (8)	5 (2.5)	24 (12)		
	Total	27 (13.5)	130 (65)	43 (21.5)	200 (100)		

Correlation between genders( $P=0.192$ )

**Table 10:** Teaching experience years in relation to whether knocked out permanent teeth should be returned.

Gender	Teaching years	Should you return knocked out permanent teeth (%)			Total	P-value
		Yes*	No	Don't know		
Males	1-10	15 (8.2)	19 (10.33)	7 (3.8)	41 (22.23)	0.116
	11-20	29 (16)	31 (17)	11 (6)	71 (38.6)	
	21-30	13 (7.1)	23 (12.5)	9 (5)	45 (24.5)	
	31-40	14 (8)	8 (4.35)	5 (2.72)	27 (14.7)	
	Total	71(38.6)	81 (44)	32 (17.4)	184 (100)	
Females	1-10	32 (16)	40 (20)	18 (9)	90 (45)	0.031
	11-20	17 (8.5)	24 (12)	10 (5)	51 (25.5)	
	21-30	11 (5.5)	18 (9)	6 (3)	35 (17.5)	
	31-40	7 (3.5)	15 (7.5)	2 (1)	24 (12)	
	Total	71 (35.5)	93 (46.5)	36 (18)	200 (100)	

Correlation between genders( $P=0.820$ )

Table 9 and 10 the results of 2 questions; in the first question the majority 47 males, (25.5%) with experience of 11-20 yrs said that baby knocked out teeth should 'not' be returned as well as 63 females (31.5%) with 1-10 yrs whereas 1% of males, said they 'don't know' and 1% of females said 'yes'. Significance was found in females between teaching

yrs and time for treatment,  $p=0.024$ . Meanwhile in the second question 29% of males, (16%) with 11-20 yrs, and 32 females, (16%), with 1-10 yrs of experience, said permanent knocked out teeth should be returned. A few, 2.7 % of males and 1% of females said they 'don't know'. Significance was found in females between teaching yrs and time for treatment,  $p=0.031$ .

**Table 11:** Teaching experience years in relation to medium for storing knocked out teeth

Gender	Teaching years	Medium for storing knock ed out teeth							Total (%)	P-value
		Useless tooth,discard	Gauze or tissue	Cold milk*	Patient's saliva*	Tap water	Disinfect. solution	Don't know		
Males	1-10	1(0.5)	2 (1.1)	7(3.8)	14(7.6)	4(2.2)	11(6)	2(1.1)	41(22.23)	0.443
	11-20	10(5.4)	8(4.3)	11(6)	18(10)	3(1.6)	19(10.3)	2(1.1)	71(38.6)	
	21-30	7(3.8)	8(4.3)	12(6.5)	0(0)	3(1.6)	15(8.2)	0(0)	45(24.5)	
	31-40	1(0.5)	5(2.7)	2(1.1)	7(3.8)	3(1.6)	9(5)	0(0)	27(14.7)	
	Total	19 (10.3)	23(12.5)	32(17.4)	39(21.2)	13(7.1)	54(29.3)	4(2.2)	184 (100)	
Females	1-10	16 (8)	14 (7)	12 (6)	5 (2.5)	13(6.5)	23 (11.5)	7 (3.5)	90 (45)	0.025
	11-20	20 (10)	4 (2)	7 (3.5)	0 (0)	15(7.5)	3 (1.5)	2 (1)	51 (25.5)	
	21-30	10 (5)	0 (0)	0 (0)	0 (0)	18 (9)	4 (2)	3 (1.5)	35 (17.5)	
	31-40	4 (2)	7 (3.5)	0 (0)	0 (0)	9 (4.5)	4 (2)	0 (0)	24 (12)	
	Total	50 (25)	25(12.5)	19(9.5)	5 (2.5)	55(27.5)	34(17)	12(6)	200 (100)	

Correlation between genders( $P=0.811$ )

In table 11 teachers were asked about the medium for storing knocked out teeth. The results were, 19 males (10.3%) with 11-20 years of experience chose 'disinfectant solution' as well as 23 females, (11.5%) with 1-10 years of experience. Meanwhile as low as 0.5% of males chose 'useless tooth, discard', and 1% of females said they 'don't know'.

Significance was found in females between teaching years and time for treatment,  $p=0.025$ .

### Discussion

Nowadays dental injuries are becoming more prevalent. They may become of more occurrence than oral health problems in the near future. These injuries may be traumatic to the patients psychologically and socially due to their negative effect on aesthetics [22,23].

Regardless of the cruciality of this issue to our knowledge, no published studies were conducted in Sudan. Therefore this study aimed to assess the knowledge of primary school teachers regarding emergency management of dental trauma, in Khartoum State.

This survey included randomly selected schools; all teachers were asked to participate. The response rate was 100%.

I was basically interested to evaluate the association between gender and teaching year's

experience, with their knowledge about emergency management of dental trauma.

In the current study, as low as one third of teachers (37.5% males & 38.5% females) have received first aid training. More or less the same findings were obtained for dental trauma management, (29.3% males & 35.5% females). These results are relatively in line with the results obtained by A de Lima Ludgero et al, in a Brazilian population [17].

Similarly, much higher results, (90.8%) were obtained by U Mohandas & GD Chandan in Bangalore [18].

In this study, despite the low percentage of teachers receiving dental management courses, females were more superior in their knowledge to males;  $p<0.05$  in almost all questions for females, whereas males showed no significance between teaching years and knowledge about trauma management. This was probably due to the fact that most females have read or heard about dental trauma management.

Many reasons were suggested as an explanation for this, such as teachers' lack of awareness of the importance of dental trauma management, or due to their negligence or lack of interest in learning, or most probably because it's not compulsory by schools for teachers to have these trainings.

In the present study, the majority of teachers said they were not confident in distinguishing deciduous teeth from permanent teeth. In contrast, U Mohandas & GD Chandan reported similar findings among

teachers who have received first aid training[18]. Despite the lack of training, most teachers believed that the place for treatment is the 'dentist' and that the time for treatment was 'immediately'. A study conducted by Cecilia Young et al showed that the majority, 43.3% of her sample size-which was primary & secondary school teachers in Hong Kong-also chose the 'dentist', meanwhile 74.7% chose 'immediately' as well [19].

The majority of teachers of both genders answered correctly regarding immediate storage of a fractured tooth (put in a liquid medium) and immediate management of displaced tooth (put it back in its original position). As expected, in the current study teachers knew that knocked out baby teeth should not be returned. Disappointingly, they also stated that knocked out permanent teeth should not be returned. Similar results were obtained in previous study in Hong Kong [19].

In this study, results showed that when teachers were asked about the storage medium for an avulsed tooth, the teaching years experience had no significance ( $P > 0.05$ ), although it was expected otherwise. This was also confirmed by A de Lima et al [17]. However, the most favoured medium for storing an avulsed tooth selected by females was 'water', and the least favourite was 'patient's saliva'. Meanwhile the males chose 'disinfectant solution' as the most favoured and the least said they 'don't know'.

### Conclusion

The majority of teachers have neither received first aid training 62%, nor dental trauma emergency management training 67.4%. The reason for their lack of trainings is possibly because they're not compulsory by schools. Yet, more female teachers received first aid and dental trauma management trainings than male teachers. Therefore they have more knowledge regarding management of dental trauma.

The teaching years experience had no significance in male teachers' knowledge of trauma management ( $p > 0.05$ ) whereas, significance was found in female teachers' ( $p < 0.05$ ).

Although the majority of teachers of both genders have not received the trainings, the vast majority have read or heard about dental trauma management and therefore they were aware that the place for treatment is the dentist 39%, that dental trauma should be treated immediately 33%, that a fractured tooth

should be placed in a liquid medium 42%, and that a displaced tooth should be returned to its original position 43%, and that baby teeth should not be returned 66%.

### Recommendations

- ▲ First aid and dental trauma management training must be compulsory for all primary school teachers in Sudan, Dental clinic must be available in all primary schools for immediate dental trauma emergency.
- ▲ Concerned educational authorities are advised to direct their efforts toward well established educational programs & campaigns for teachers about emergency management of dental trauma.

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