

# Traumatic dental injuries in relation to quality of life among school children in Baghdad /Iraq

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## ABSTRACT

**Background:** One of the significant public health problems is the traumatic dental injury to the anterior teeth, it has a great impact on children's daily. Physical and psychological disturbance, pain and other negative impacts, such as tendency to avoid laughing or smiling may be associated with traumatic dental injuries, that may affect the social relationships. To determine the occurrence of traumatic dental injuries in relation to quality of life, this study was established among children of primary schools.

**Material and Methods:** A cross-sectional study was conducted among private (574) and governmental (1026) primary school children in Baghdad city. Dental trauma was assessed according to Ellis and Davey classification in 1970 and quality of life concerning a child Perceptions Questionnaire (CPQ) was used which consisted according to Jokovic et al. in 2006. Statistical analysis was done using IBMSPASS version (21).

**Results:** Among the permanent anterior dentitions; the most widespread injured teeth were the maxillary central incisors. The boys were more affected with traumatic teeth than girls, as well as a higher percentage noticed in governmental schools than in private schools. Among all quality of life questionnaire, a higher percentage were observed in boys rather than in girls, as well as in governmental schools a higher percentage were listed more than in private schools, all differences were statistically highly significant.

**Conclusion:** A higher association was noticed between traumatic anterior teeth and quality of life for children.

**Keywords** Traumatic dental injuries, quality of life and oral condition. (Received: 27/2/2021, Accepted: 8/4/2021)

## INTRODUCTION

Traumatic dental injuries to the permanent incisors are remarkably common among children and often result in partial or total loss of dental hard tissues along with the underlying esthetic, physical, social, psychological, functional and therapeutic adverse effects on the individual's quality of life <sup>(1,2)</sup>. It is accepted that the appearance and the position of the anterior teeth have both psychological and social impacts on children by which the appearance of the face plays an important psychosocial role in human life and relationships <sup>(3)</sup>. Maxillary central incisors are the most common injured teeth of the permanent dentitions <sup>(4,5)</sup>.

Quality of life is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from oral symptoms, functional limitations, emotional well-being, and social well-being, and the environment.

Quality of life (QOL) measures are not a substitute of measuring outcomes associated with the disease, but are adjunct to them <sup>(6)</sup>. Many Iraqi studies had been done concerning the trauma to the anterior teeth <sup>(7-11)</sup> however, this study was conducted in Baghdad city to estimate the occurrence of traumatic dental injuries in relation to quality of life in elementary schoolchildren, this study is considered the first one in Iraq to search association of quality of life and traumatic dental injuries. The null hypotheses was that there is no relation between traumatic dental injuries and quality of life

## MATERIAL AND METHODS

This cross-sectional study was carried out in Baghdad city among the private ( boys 310 and girls 264) and public (boys 580 and girls 446) primary schools, aged 11- 12 years old. as the sample size was measured by specific statistical equation. Depending on the basic method of oral health surveys of the World Health Organization the oral examination was conducted under integrated situation <sup>(12)</sup> dental mirrors and probes were used. Traumatic dental injury was assessed according to Ellis and Davey classification <sup>(13)</sup>. The child Perceptions Questionnaire (CPQ) consisted of 16 questionnaire that measure quality

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of life (QoL) <sup>(1)</sup>, a number of close-ended questions contain a self-administrated questioner format.

A statistical package for social sciences (SPSS version 21 for windows) was used for both statistical analysis and data entry. Chi-square was used to conduct the association between the dependent variable with independent variables. A level of p-value equal to or less than 0.05 was considered as a significant value.

**RESULTS**

The total sample in the present study were consist of 1600 schoolchildren from boys and girls, aged 11- 12 years old. They were 574 from private

schools and 1026 from governmental schools (table1). Table (2) shows the distribution of schoolchildren with traumatic teeth injuries according to the type of schools and gender. The high percentage of schoolchildren with traumatized teeth was found in governmental schools than private schools. Regarding gender, boys were affected by dental trauma more than girls. The mean value of traumatic dental injuries were higher among schoolchildren in private schools than in governmental schools, however, this was statistically not significant as it shown in Table(3).

**Table (1): Distribution of t he sample by gender and school type.**

Type of schools	Gender				Total	
	boys		girls		No.	%
	No.	%	No.	%		
private	310	54.01	264	45.99	574	100
public	580	56.53	446	43.47	1026	100

**Table (2): Distribution of children with traumatic dental injuries by gender and school type.**

Traumatic injuries of teeth	School type											
	Private				Governmental							
	boys		girls		Total		boys		girls		Total	
No	%	No	%	No.	%	No	%	No	%	No.	%	
Present	27	4.70	9	1.57	36	6.27	89	8.67	47	4.58	136	13.25

**Table (3): The mean values and standard error of teeth with traumatic dental injuries among private and public schoolchildren.**

School type	No.	Mean	SE	t-test	p-value
Private	36	2.25	0.24	-1.39	0.19
Governmental	136	1.89	0.10		

Tables (4a), (4b), (4c) and (4d) illustrate the association of traumatic dental injuries and quality of life by schools type. Regarding all the associations of traumatic dental injuries and quality of life, among private schools except for “TDI/ Trouble in sleeping, TDI/ Teased or called names and TDI/Not wanted to speak or read loud in class” were statically significant (p<0.05). While concerning all the association of traumatic dental injuries and quality of life in governmental schools they were statistically highly significant (p<0.01).

In table (4a), the association of traumatic dental injuries and oral symptoms, it was found that the highest percentage of association in private schools was recorded in bad breath. The same picture was observed in governmental schools, while in table (4b), the association between traumatic dental injuries and functional limitation showed the highest percentage of association was recorded in difficulty in (eating/drinking) hot/cold things in both schools type. Table (4c) shows the association of traumatic dental injuries and emotional well-being, the highest percentage of association in private schools was observed in concerned what people think about your teeth/mouth, while in

governmental schools it was observed in felt irritable/frustrated). Regarding the association of traumatic dental injuries and social well-being the

highest percentage of association recorded in Avoided smiling/laughing in both schools type, ( table 4d ).

**Table (4a): The association of traumatic dental injuries and quality of life regarding oral symptom by school types.**

Variables	Severity	Trauma School					
		Private		P[HS]	Governmental		
		N.	%		N.	%	P[HS]
pain in teeth/mouth	0	22	61.11	0.000	53	38.97	0.000
	1	6	16.67		23	16.91	
	2	7	19.44		22	16.18	
	3	0	0.00		27	19.85	
	4	1	2.78		11	8.09	
Bad breath	0	20	55.56	0.000	48	35.29	0.000
	1	10	27.78		9	6.62	
	2	2	5.56		31	22.79	
	3	3	8.33		30	22.06	
	4	1	2.78		18	13.24	
Mouth sore	0	30	83.33	0.034	73	53.68	0.000
	1	3	8.33		29	21.32	
	2	3	8.33		23	16.91	
	3	0	0.00		11	8.09	
	4	25	69.44		49	36.03	
Food catching between teeth	1	5	13.89	0.000	17	12.50	0.000
	2	4	11.11		28	20.59	
	3	2	5.56		34	25.00	
	4	0	0.00		8	5.88	

**Table (4b): The association of traumatic dental injuries and quality of life regarding functional limitation by school types.**

Variables	Severity	Trauma School					
		Private		P[HS]	Governmental		
		N.	%		N.	%	P[HS]
Difficulty in (eating/drinking) hot/cold things	0	19	52.78	0.000	59	43.38	0.000
	1	4	11.11		10	7.35	
	2	7	19.44		27	19.85	
	3	5	13.89		30	22.06	
	4	1	2.78		10	7.35	
Difficulty in eating firm food	0	22	61.11	0.000	70	51.47	0.000
	1	3	8.33		15	11.03	
	2	8	22.22		27	19.85	
	3	2	5.56		18	13.24	
	4	1	2.78		6	4.41	
Difficulty in saying words	0	28	77.78	0.000	94	69.12	0.000
	1	6	16.67		19	13.97	
	2	1	2.78		16	11.76	
	3	1	2.78		6	4.41	
	4	0	0.00		1	0.74	
Trouble in sleeping	0	26	72.22	0.126	70	51.47	0.000
	1	2	5.56		2	1.47	
	2	1	2.78		5	3.68	
	3	3	8.33		20	14.71	

Table (4c): The association of traumatic dental injuries and quality of life regarding emotional well-being by school types.

Variables	Severity	Trauma School					
		Private			Governmental		
		N.	%	P[HS]	N.	%	P[HS]
Upset	0	26	72.22	0.021	56	41.18	0.000
	1	5	13.89		25	18.38	
	2	5	13.89		32	23.53	
	3	0	0.00		16	11.76	
	4	0	0.00		7	5.15	
Felt irritable/frustrated	0	23	63.89	0.000	51	37.50	0.000
	1	4	11.11		11	8.09	
	2	8	22.22		39	28.68	
	3	1	2.78		23	16.91	
	4	0	0.00		12	8.82	
Felt shy	0	25	69.44	0.000	101	74.26	0.000
	1	7	19.44		11	8.09	
	2	3	8.33		15	11.03	
	3	1	2.78		7	5.15	
	4	0	0.00		2	1.47	
Concerned what people think about your teeth/mouth	0	20	55.56	0.000	58	42.65	0.000
	1	10	27.78		31	22.79	
	2	5	13.89		31	22.79	
	3	1	2.78		16	11.76	

Table (4d): The association of traumatic dental injuries and quality of life regarding social well-being by school types.

Variables	Severity	Trauma School					
		Private			Governmental		
		N.	%	P[HS]	N.	%	P[HS]
Teased/called names	0	31	86.11	0.126	83	61.03	0.000
	1	3	8.33		4	2.94	
	2	1	2.78		21	15.44	
	3	1	2.78		24	17.65	
	4	0	0.00		4	2.94	
Avoided smiling/laughing	0	18	50.00	0.000	53	38.97	0.000
	1	5	13.89		30	22.06	
	2	9	25.00		38	27.94	
	3	4	11.11		15	11.03	
Not wanted to speak/read loud in class	0	35	97.22	1.000	104	76.47	0.000
	1	1	2.78		12	8.82	
	2	0	0.00		13	9.56	
	3	0	0.00		7	5.15	
Argued with children/family	0	23	63.89	0.000	66	48.53	0.000
	1	4	11.11		11	8.09	
	2	1	2.78		13	9.56	
	3	6	16.67		24	17.65	
	4	2	5.56		22	16.18	

## DISCUSSION

A problems in the oral health were recognized as important factors in causing a negative impact on daily performance and QoL<sup>(2)</sup>; the problem in oral the oral health were more in private than in governmental schools. Perhaps trauma is one of

the dental disturbances that cause much of distress and psychological adverse effect to both children and their parents. Moreover, the anterior teeth are more susceptible to traumatic dental injuries due to their morphology and location<sup>(14)</sup>.

The prevalence of traumatic dental injuries to the permanent anterior teeth in both private and governmental children of primary schools; permanent anterior teeth where from (6.27% - 13.25%), while other studies reported it (1.36% - 29.6%)<sup>(10; 15-18)</sup>. Increase the risk for accidents in schoolchildren may be due to frequently engaged in intense/competitive activities which will increase the risk for accidents<sup>(19,20)</sup>. The negative impact of Traumatic Dental Injuries on the children's life includes difficulty in eating, loss appetite, cannot sleep well, losing weight, irritability in their behavior and low self-confidence and decrease in school performance<sup>(21)</sup>.

This study showed a significant impact of TDI on QoL among primary schoolchildren. Reduced smiling, laughing, and socializing with others may due to the inconclusive appearance of untreated fractured incisors. This is in agreement with results that suggested that children with fractured teeth were major concerns for esthetics rather than function<sup>(22)</sup>.

The present study revealed that there was a high association between traumatic dental injuries and the functional and emotional well-being. Santos et al.<sup>(20)</sup> also supported these results related to "difficulty in eating" "felt shy" and "caring about what others were thinking of appearance." Opposite picture was observed in other study<sup>(21-24)</sup>. Good oral health is essential to improve individual overall health and well-being as oral health also affects quality of life in children.

The present study recommended an educational program for children regarding information about the importance of dental trauma, ways of how to prevent dental trauma, the advantages of immediate attendance and conservation of avulsed and fractured teeth. This would not only reduce the overall rate of dental injuries, but also minimize the sequelae of traumatic injuries, and it

is also recommended that increase knowledge and improvement of quality of life among schoolchildren will enhance their oral health condition.

## Conflicts of interest

The authors has nothing to disclose.

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### المستخلص

الخلفية: واحدة من مشاكل الصحة العامة الكبيرة هي إصابة الأسنان الأمامية للأسنان ، ولها تأثير كبير على حياة الأطفال اليومية. الاضطرابات الجسدية والنفسية والألم والآثار السلبية الأخرى ، مثل الميل إلى تجنب الضحك أو الابتسام قد تترافق مع إصابات الأسنان الرضية التي قد تؤثر على العلاقات الاجتماعية. لتحديد مدى حدوث إصابات الأسنان الرضية فيما يتعلق بنوعية الحياة ، تم إنشاء هذه الدراسة بين أطفال المدارس الابتدائية.

المادة والطرق: تم إجراء دراسة مقطعية على (574) تلميذ من القطاع الخاص والحكومي (1026) من تلاميذ المدارس الابتدائية في مدينة بغداد. تم تقييم إصابات الأسنان وفقاً لتصنيف Ellis و Davey في عام 1970 وتم استخدام نوعية الحياة المتعلقة باستبيان تصورات الطفل (CPQ) والذي يتكون وفقاً لتصنيف Ellis و Davey في عام 1970. تم إجراء التحليل الإحصائي باستخدام نسخة (21) IBMSPASS.

النتائج: من خلال الأسنان الأمامية الدائمة. كانت الأسنان الأكثر إصابة هي القواطع المركزية العلوية. كان الأولاد أكثر تأثراً بإصابات الأسنان مقارنة بالفتيات ، كما أن النسبة التي لوحظت في المدارس الحكومية أعلى منها في المدارس الخاصة. من بين جميع استبيانات جودة الحياة ، لوحظت نسبة أعلى في الأولاد وليس لدى الفتيات ، وكذلك في المدارس الحكومية تم تسجيل نسبة أعلى منها في المدارس الخاصة ، وكانت جميع الفروق ذات دلالة إحصائية عالية.

الخلاصة: لوحظ ارتباط أعلى بين الأسنان الأمامية المتعرضة للصدمة ونوعية الحياة للأطفال.

