



## The Impact of Aggression on the Traumatic Dental Injury among School Children (11-12 Years Old) in Baghdad City, Iraq

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### ABSTRACT

*Background:* Schools provide an effective forum to enhance general as well as oral health awareness among children. The unsafe situation negatively influences on the psychology of the children and increase their aggression behavior. This aggression behavior increases the probability of traumatic dental injuries.

*Aim of study:* This study was conducted among (11-12) year's old primary schoolchildren in Baghdad city in order to estimate impact of aggression on traumatic dental injuries.

*Material and Methods:* A cross-sectional study was conducted. The study was carried out in the Baghdad city among private (574) and public (1026) primary schools. The aggression behavior adopted from Orpinas et al. and dental trauma were assessed according to Ellis classification.

*Results:* The aggression behaviors were more in males than in females, as well as higher percentage recorded in public schools than in private schools. The traumatic dental injuries were highly associated with males. Simple enamel fracture was the most common type of injury.

*Discussion:* Males showed significant higher aggressive score than females, for each type of studied aggressive behavior. This may due to biological factors; girls' frontal lobes develop earlier than boys, allowing them to self-restrain. It is in agreement with Italian study found that boys obtained higher aggression score than female. This study shows significant differences in the occurrence of traumatic dental injuries between genders, males were more affected with traumatic dental injuries than females had. The present survey is in agreement with these studies as it reported higher prevalence of males than females. This may due to males frequently engage in contact sports and intense/competitive activities, which increase the risk for accidents.

*Conclusion:* Regarding gender, males were more affected with aggression behavior and traumatic dental injuries than females.

**Key words:** Aggression, Traumatic dental injuries

**HOW TO CITE THIS ARTICLE:** Shahad Jamal, Nada Jafer MH Radhi, The Impact of Aggression on the Traumatic Dental Injury among School Children (11-12 Years Old) in Baghdad City, Iraq, J Res Med Dent Sci, 2019, 7(6): 64-69

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**Received:** 12/11/2019

**Accepted:** 28/11/2019

### INTRODUCTION

Aggression is hostile, injurious, or harmful behavior often caused by frustration can be collective or individual (WHO, 2007). The general aggression Model is the broadest theory of aggression [1]. One concept to measure aggressive behavior is the aggression scale established in 2001 by Orpinas et al. this scale was developed in Texas for children in US middle school. That might developed in psychological

or physical injury to other students. Aggressive behaviors, involving verbal aggression like (teasing, encouraging students to fight, name-calling, threatening to hurt or hit) and physical aggression like (slapping, pushing, hitting, and kicking), additionally instructions about anger like (getting angry easily, being angry most of the day) [2].

Dental trauma is an injury to the mouth, including teeth, lips, gingiva and tongue and most common dental trauma is broken or lost tooth. Traumatic Dental Injury (TDI) in children can change their future dental health [3]. In the early 90s, hypothesized that dental trauma, in the future, will probably exceed dental caries and periodontal diseases. Since that hypothesis was

made, several studies have been conducted in different populations and reported 7%–50% of the child population has sustained an oro-dental injury by the age of 15 years [4].

Traumatic dental injury may vary in its severity from a simple enamel fracture, which is the most prevalent type to multiple types of trauma affecting both soft and hard tissue, and even it may reach to a complete avulsion of the tooth [5]. Maxillary central incisors were considered the most common injured teeth the permanent dentitions [6].

Adolescents are mostly injured during sports activities, traffic accidents and some forms of violence (e.g. fights, assault and battery) which may lead to traumatic injuries [7]. Traumatic injuries not only pose a health risk worldwide, but are also regarded among serious social problems. One important category of traumatic injuries is dental trauma, accounting for a major part of health problem in adolescents [8]. Dental injuries generally affect only a single tooth; though, certain trauma types such as vehicle accidents and sports injuries might involve multiple tooth injuries. Coronal fracture of the anterior teeth area is common form of dental trauma that mainly affects adolescents [9]. This not only causes pain and discomfort but can affect the most endearing quality of a human being which is their smile. A 'smile' that shows beautiful natural teeth is a greatest asset one person can have. Adolescents are especially perceptive about missing/fractured front teeth and there is often a conscious effort to avoid smiling. The permanent anterior teeth are not only important for aesthetics but are also essential for speech, mastication, health of adjoining tissues and psychological health of adolescent [10].

Poor smile and oral health has been related to poor social relationships and permanent disabilities that affect the ability to learn and grow which may lead to reduced self-esteem. Healthy and free of pain free mouth enables an individual to eat, speak and have higher self-esteem.

Many Iraqi studies had been conducted on the traumatized anterior teeth [5,11-13] but this study is considered the first one in Iraq to search aggression behavior and traumatic dental

injuries.

## MATERIAL AND METHODS

A cross-sectional study was conducted. The study was carried out in Baghdad city among the private and public primary schools. Examination started at the beginning of January 2019 until the beginning of May 2019. Official permission was obtained from Iraqi Ministry of Education before data collection in order to examine the selected individuals with no obligation. The study purpose and idea was fully explained to the primary school's principal and teaching staff in order to gain their full attention and cooperation.

A sample of 1600 school children were chosen randomly from public (males and females) and private (males and females) schools in Baghdad. Students were eligible to participate in the study aging from 11-12 years old, according to World Health Organization (1987), every child's age was estimated regarding his/her last birthday. The schoolchildren in private and public schools whom participate in this study had an equal chance to be included in the study.

In addition, an ethical approval was given from the Baghdad University/College of dentistry and a special consent was prepared and given to the children's parents to get the permission for their children's participation in the study.

The aggression format adopted from students were respond on the 10 items describing aggressive behavior that measured on 5 points scale, a self-administrated questioner format contain a number of close-ended questions, a positive item was identified as having a score of (most of the time) and (always). The aggressive behavior score termed high if the student showed three or more positive aggressive behaviors, below that it is low aggressive score. The examination of oral cavity was done under standardized condition depending on basic method of oral health surveys of World Health Organization (WHO, 1997) by using dental mirrors probes. The traumatic dental injury was assessed according to Ellis classification [14]. Visual and tactile examination was used for recording the type of dental injuries. Root fracture was not recorded as no radiographic were taken. A tooth that showed more than one type of injury was recorded once according to the highest score.

The researcher used statistical package for social sciences (SPSS version 23 for windows) for both data entry and statistical analysis. Percentage was used to examine the variable. Chi-square was used to examine the association between variables. A level of p-value equal to or less than 0.05 was considered significant.

**RESULTS**

In the present study, the total sample considered of 1600 schoolchildren from both genders, of 11-12 years old. Figure 1 illustrates the distribution of children according to type of schools (private and public) and gender. 574 were in private schools and 1026 were in public schools.

Table 1 shows the aggression questionnaire among schoolchildren according to type of schools (private and public) and gender. The highest number and percentage of schoolchildren were regarded to “fight back when someone hit me”; in both gender and school types except for females were highest percentage regarded to “get angry very easily with someone” in private schools. While the lower number and percentage of schoolchildren appears in “encourage other students to fight” were recorded in private schools, whereas “tease students to make them angry” were listed in public schools. Concerning the question “Get angry very easily with someone”

is the second most common aggression behavior in males in both school types; while females of private school the “fight back when someone hit me” was the most second one and in public was “is angry most of the day. Regarding all aggression behavior questionnaire the highest percentage of total schoolchildren were recorded among public schools than private schools, also males and females showed the highest percentage in public schools than private schools.

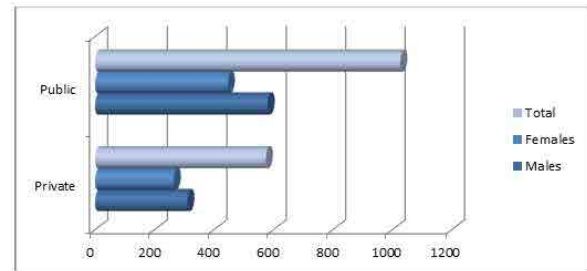


Figure 1: Bar chart showing the distribution of total schoolchildren sample by gender and school type.

Table 2 demonstrates the distribution of schoolchildren with traumatic teeth according to type of school and gender. The lower percentage of schoolchildren with traumatized teeth was found in private schools than public schools. Regarding gender, males in private schools were showed lowest percentage than in public. The same finding was recorded among females.

Table 1: The distribution of schoolchildren according to aggression behavior by school type and gender.

Aggression questions	Type of schools											
	Private				Total	Public				Total		
	Males		Females			Males		Females				
No	%	No	%	No.	%	No.	%	No.	%	No.	%	
Tease students to make them angry	31	5.4	7	1.22	38	6.62	190	18.52	63	6.14	253	24.66
Get angry very easily with someone	93	16.2	45	7.84	138	24.04	428	41.72	115	11.2	543	52.92
Fight back when someone hit me	104	18.12	37	6.44	141	24.56	444	43.27	129	12.57	573	55.84
Say things about other kids to make other students laugh	53	9.23	20	3.49	73	12.72	331	32.26	91	8.87	422	41.13
Encourage other students to fight	25	4.35	4	0.7	29	5.05	213	20.76	61	5.94	274	26.7
Push or shove other students	26	4.53	5	0.87	31	5.4	252	24.56	73	7.11	325	31.67
Is angry most of the day	73	12.77	35	6.1	108	18.87	355	34.6	128	12.47	483	47.07
Get in to physical fight because of being angry	61	10.67	15	2.61	76	12.83	326	31.77	81	7.89	407	39.66
Threaten to hurt or to hit someone	42	7.32	10	1.74	52	9.06	220	21.44	64	6.24	284	27.68
Call other students bad names	41	7.14	10	1.74	51	8.88	254	24.76	83	8.09	337	32.85

Figure 2 illustrates the distribution of traumatic dental injuries according to type of trauma and school type. (36) Teeth affected by trauma were recorded in private schools and (138) teeth were in public schools. (CI I) traumatic dental injuries were recorded the highest tooth fracture class among private and public schools, while the lowest percentage were recorded in (CI VII) in both school types.

Table 3 illustrates the association between aggression behavior and traumatic dental injuries by school types. The highest percentage of association between the aggression behavior and traumatic dental injuries among schoolchildren were regarded to "Push or shove other students" in private and public schools. The lowest percentage of association between the aggression behavior and traumatized teeth in schoolchildren were observed in "Say things about other kids to make other students laugh" in private schools, while in public schools recorded in "Fight back when someone hit me". Regarding all the association between aggression behavior and traumatic dental injuries; the higher number and percentage of association were recorded in public schools than private schools. All differences except "say things about other kids to make other students laugh" in private schools were statistically highly significant.

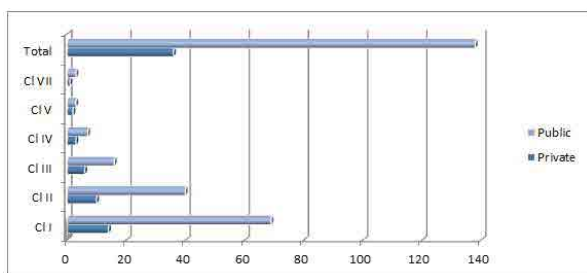


Figure 2: Bar chart showing the distribution of traumatic dental injuries according to type of trauma and school type.

DISCUSSION

The study revealed that all aggression behavior questionnaires were recorded in higher percentage among males than females, similar results were recorded in Landsford survey which found boys reported more regarding physical aggression, this may due to males use more verbal and physical aggression with the difference being greater in the physical type than females [15]. The opposite pictures were observed in Warburton research, females are somewhat more likely to have physical aggression than males. Loveland et al. found that higher levels of aggression may have a negative impact on academic performance as the students may remain absent, being unable to deal with the stressors of school life [16].

The finding of this study recorded that students were physically fight (fight back or physical fight because of being angry) was 24.56% in private schools and 55.84% in public schools. The finding in present study recorded higher percentage among public schools than in AUE 43.2%, Oman 41.6%, and Jordan 46.6%. This may due to attribute to difference in experimental design among the studies, differences in the population studied and variation in the age or the size of sample [17].

In this study, the prevalence of traumatic dental injuries for both private and public schoolchildren permanent anterior teeth ranged from (6.27%-13.25%), while other studies reported the range (1.36%-29.6%) [5,13,18]. This may due to schoolchildren frequently engaged in intense/competitive activities which increase the risk for accidents [19].

Regarding gender, males were affected more than females in both school types. Same result were recorded in many studies [11-13,18,20-25]. This due to male's higher participation in sports and physical activities than females [3].

Table 2: The distribution of school children with traumatic teeth according to type of schools and gender.

Traumatic teeth	School type											
	Private						Public					
	Male		Female		Total		Male		Female		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Present	27	4.7	9	1.57	36	6.27	89	8.67	47	4.58	136	13.25
Absent	283	49.31	255	44.42	538	93.73	491	47.86	399	38.89	890	86.75

**Table 3: The association between aggression behavior and traumatic dental injuries by school types.**

Questions	School					
	Private			Public		
	N.	%	p-value	N	%	p-value
Tease students to make them angry	9	14.75	0.004	62	28.44	0
Get angry very easily with someone	21	12	0	109	22.61	0
Fight back when someone hit me	26	13.61	0	101	20	0
Say things about other kids to make other students laugh	10	9.35	0.146	93	24.03	0
Encourage other students to fight	9	16.98	0	60	24.59	0
Push or shove other students	15	20.55	0	84	29.68	0
Is angry most of the day	20	12.58	0.001	90	21.69	0
Get in to physical fight because of being angry	18	18	0	97	25.46	0
Threaten to hurt or to hit someone	12	17.14	0	72	26.97	0
Call other students bad names	14	14.74	0	78	27.56	0

Uncomplicated crown fractures (simple enamel fracture or enamel and dentine fracture) where the most common type of dental injury in this study, same pictures were observed in many studies [5,12,13,26] while opposite pictures were recorded by other studies (complicated crown-root fractures, intrusion, extrusion and luxation injuries).

This study shows the maxillary central incisors were the most common teeth affected by trauma. This result was in agreement with many previous studies [5,13,24,25,27], because of their morphology and location they are more susceptible to traumatic dental injuries [17].

In present study a highly association between aggression behavior and traumatic dental injuries was found that schoolchildren whom affected with more than one aggression behavior tend to have injuries among anterior teeth more than those whom have no aggression behavior, this may affect their social relationships, same conclusion were showed in Slade, et al. study [28]. Injuries, especially dental injuries, have been associated with behavioral and emotional risk factors [29].

### CONCLUSION

From this study it was concluded that:

1. Male had high aggressive behavior than females.
2. The "fight back when someone hit me" were

regarded the highest percentage in both gender.

3. The traumatized teeth were more among males than females.
4. Class I traumatic dental injuries were the highest tooth fracture class among private and public schools.

The highest percentage of association between the aggression behavior and traumatic dental injuries among schoolchildren were regarded to "Push or shove other students" in both school types.

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