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Dental Trauma in Relation to Malocclusion among Primary School Children in Najaf City, Iraq

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ABSTRACT

Dental trauma has a great impact on quality of life, affecting children physically, esthetically and psychologically. This study aimed to assess the Dental trauma in relation to malocclusion amongst primary school children within Najaf city, Iraq. This cross-sectional study was carried out with 3176 children attending 12 primary schools in Najaf city. Cluster sampling methodology was used for selection of subjects, where each school formed a cluster. All students aged 7-12 years were examined in accordance with the Ellis and Davey classification of traumatic injuries to anterior teeth and grouped according to incisors relationship to three groups Cl I, Cl II & Cl III. Statistical inspection was done by Chi-Square test. Among the 3176 (M=1653, F=1523) examined, found Cl I 57.9 % (1842), Cl II 32.02 % (1017) & Cl III 9.98 % (317), the prevalence of traumatic injury to anterior teeth was 7.93% (252). Of those 252 patients, 64.29% (162) were boys and 35.71% (90) were girls with male/female ratio approximately 2:1. The trauma according to incisor classification was Cl I 25 % (63), Cl II 69.84 % (176) & Cl III 5.16 (13) .The uppermost percentage of tooth injuries arise amongst 9-10 years old children. Sole tooth injury was found in 79.6% of the cases, 18.5% had two teeth injury, and 1.9% had more than two teeth injury. The most commonly affected teeth were maxillary central incisors (70.1%). Fall (52.3%) was the most common cause for traumatized dental injuries. Most common type of fractures was class II (49.3%) and class III (33.8) and most of them were untreated (95.2%). Traumatized dental injury is an existent dental poser and emphasis should be given in school dental healthiness programs on deterrent aspects of traumatized dental injuries especially CI II incisor relationship.

Keywords: Malocclusion, Dental Trauma, Permanent Anterior Teeth, Incisors Relationship, Ellis and Davey Classification

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INTRODUCTION

Most dental injuries involve the anterior teeth, which may lead to restriction in biting, difficulty in speaking clearly, and embarrassment while showing teeth [1].

Traumatic dental injuries are associated with biological, socio-economic, psychological and behavioral factors and predisposing factors which include increased incisal overjet, open bite, protrusion and lip incompetence [2].

The prevalence of traumatic dental injuries ranging from 6.4% to 27.56% in the permanent dentition (Table 1). This variation may be caused by a number of factors such as: differences in data collection method, sample

Selection and place where the study was conducted [3]. Some studies claim that boys are more prone to dental trauma than girls, which may be explained by male's higher participation in sports and physical activities [4].

The most frequent etiologic factor for the occurrence of dental trauma is fall from the child's own height, followed by collision against a hard object [5-7].

The subject of pervasiveness of dental trauma had been antecedently studied in Iraq, the prevalence of traumatic dental injuries ranging from 4.5% to 7.7% (Table 2) [8, 9]. No studies are convenient in Najaf city to outline the pervasiveness of traumatized anterior teeth amongst 7- 12 years old children.

Table 1: Prevalence of traumatic dental injuries in permanent teeth in different studies

Author	Year	Country	Sample	Age	Dental Trauma (%)
Artun *et al.*	2005	Kuwait	1583	13-14	**14.9**
Fakhruddin *et al.*	2008	Ontario	2422	12-14	**11.4**
Lin & Naidoo	2008	South Africa	290	10-14	**9.3**
Naidoo *et al.*	2009	South Africa	1665	11-13	**6.4**
Adekoya-Sofowora *et al.*	2009	Nigeria	415	12	**12.8**
Cavalcanti *et al.*	2009	Brazil	448	7-12	**21.0**
Huang *et al.*	2009	Taiwan	6312	15-18	**19.2**
Navabazam & Farahani	2010	Iran	1440	9-14	**27.5**
Navin *et al.*	2010	Chennai	687	11-13	**11.5**

Table 2: Prevalence of traumatic dental injuries in permanent teeth in Iraqi studies

Author	Year	Sample	Age	Dental Trauma (%)
Baghdadi *et al.*	1981	-----	6-12	**7.7**
Noori A.J. & Al-Obaidi W.A.	2009	4015	6-13	**6.1**
Hemn M. S.	2010	1868	7-12	**4.5**

MARERIAL AND METHODS

A cross sectional survey was carried out on school going children of Najaf city. Cluster sampling methodology was used, where each school formed a cluster. A total of 12 schools were with an average of 250-300 students in each school to reach a sample size of 3176. Examination of anterior permanent teeth was done in accordance with the Ellis and Davey [10] classification and grouped according to Incisors relationship to three groups CI I, CI II & CI III. Using a standard mouth mirrors and probes, Information concerning gender, age, type of fracture, cause of fracture, number and the type of injured tooth were documented. The data was possessed and superintended to statistical analysis by means of SPSS.

RESULTS

Out of the 3176 students who were examined and responded the questionnaire, 52.05% were male participants and 47.95% were female participants (Figure 1). 39.89% were 7-8 years old, 33.03% were 9-10 years old and 27.08% were 11-12 years old (Figure 2).The students groups according to incisors relationship in to Cl I 57.9 % (1842), Cl II 32.02 % (1017) & Cl III 9.98 % (317) (Figure 3)..The pervasiveness of traumatic dental injury was established to be 7.93% (Figure 4). 64.29% of boys and 35.71% of girls were affected with anterior tooth fracture (Figure 5).

The supreme percentage of injuries manifest amongst 9-10 years old children which counted 41.98% for male and 43.33% for female, followed by 7-8 years old children which counted 33.95 for male and 32.22% for female, then 11-12 years old children which counted 24.07% for male and 24.45% for female (Figure 6). The trauma according to incisor relationship was Cl I 25 % (63), Cl II 69.84 % (176) & Cl III 5.16 (13) (Figure 7).

79.6% were affected by single tooth fracture. 18.5% and 1.9% had two and more than two fracture respectively (Figure 8). Fall was the utmost cause of injury (52.3%) followed by sports (21.6%), accidents (13.7%), fights (6.1%), collisions (5.1%) and others (1.2%) (Figure 9). The utmost periodic injuries were class II crown fracture 49.3%, peruse by class III 33.8%, class IV 14.7% and class I 2.2% consequently (Figure 10). Maxillary central incisor (70.1%) was the most commonly affected fractured tooth followed by maxillary lateral incisor (16.3%), mandibular central incisor (6.8%), maxillary canine (4.2%), mandibular lateral incisor (1.7%) and mandibular canine (0.9%) (Figure 11). 95.2% of the fractured teeth were untreated and only 4.8% were treated by dentist (Figure 12).

DISCUSSION

The study found a prevalence of 7.93% of traumatic dental injuries to the permanent incisors of 7-12 year old school children in Najaf

city, which was much lesser then the study done by Navabazam and Farahani [11] evaluating tooth trauma prevalence and factors related to it in children with age between 9 and 14 years, whose results showed a prevalence of 27.5%. Notwithstanding, some studies presented higher [12-14] or lower [9, 15, 16] but this result was matching to that established by Baghdadi *et al*. study [8]. Schoolboys are likewise faced to traumatic dental injuries [9, 10, 17] , Schoolboys tend to participate in more tough activeness with risky trauma ,like contact sports and more combative types of playing [9] In this study, heterogeneity in the recurrence of dental injuries was recognized between boys and girls with a ratio of 2:1, similar to the study done by Adekoya *et al*[18], this ratio was lesser than that found Navin *et al*., study [19], showed 4:1. The uppermost occurrence of dental injury was raised in the 9-10 years age group [20-22]. The schoolboys are usually further active in this period of life and oftentimes loss motoric coordination as a result of their develop-mental status [23].

Uppermost of dental injuries to the maxillary teeth can be interpreted by the protrusion of these teeth. The maxillary central incisors are intermittently in a protrusive position and sometime inadequately covered by the upper lips, which could perhaps amortize the force [24, 25]. Dissimilar the lower teeth and the canines, the canine, expressed as the forceful tooth in the jaw, are usually better safeguarded by the lips and not so faced to injury [24, 26].

The falls is the main cause for injuries [27-29].and in less degree by sports and accidents [30-32]. The uppermost periodic traumatized tooth in the current study was the maxillary central incisor and minimum traumatized was mandibular canine. This is a harmony with Alonge *et al*., study [33].

This study has exhibited a palling vision that dental awareness is very squat as noticeable in the number of schoolboy (4.8%) who were show up by the dentist in comparison to children who were not served by dentist. The high popularity of unprocessed traumatized teeth call for concern. Scarcity of dental realization and non-affordability of the charge of the treatment were the dominant reason why the fractured teeth were not handled.

CONCLUSION

The study showed the prevalence of traumatized dental injuries to be 7.93%. The boys were more prone to traumatic dental injuries compared to girls. Majority of them were Cl II incisors relationship & most of them affected by single tooth fracture. The most commonly affected teeth were maxillary central incisors. Fall was the most common cause for traumatized dental injuries. Most common type of fractures was class II. Most of the children examined were untreated. There is need to create dental awareness Najaf school going schoolboy to enhance their nature of life respecting esthetics and discourage self-remedy through dental education.

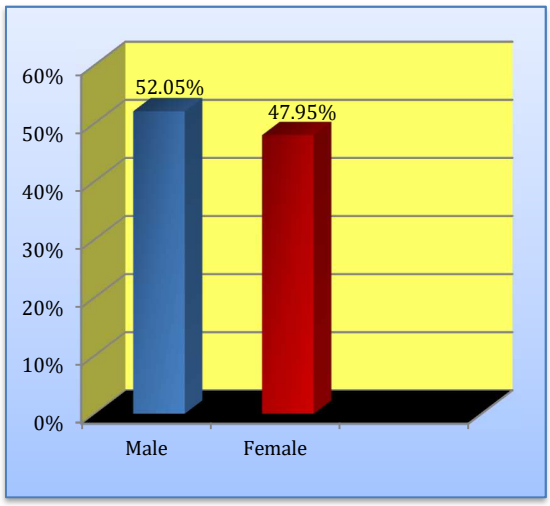

Figure 1: Distribution of sample according to gender

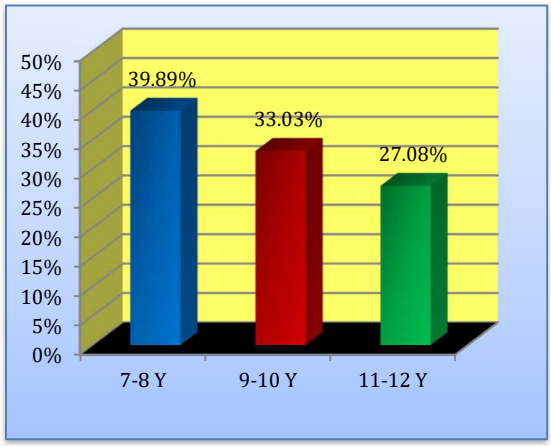

Figure 2: The distribution of sample according to age groups

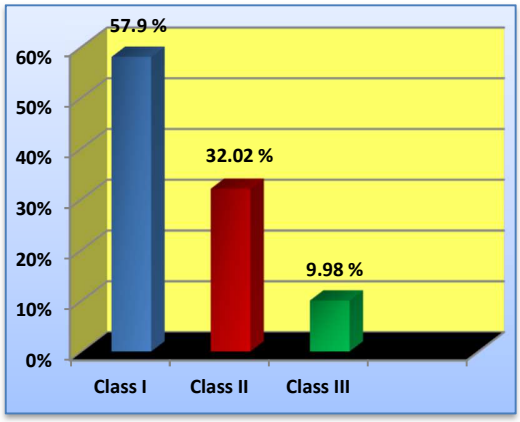

Figure 3: Distribution of sample according to incisors relationship

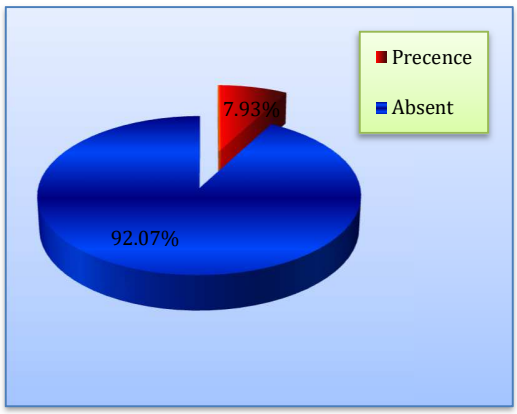

Figure 4: Prevalence of traumatized dental injuries

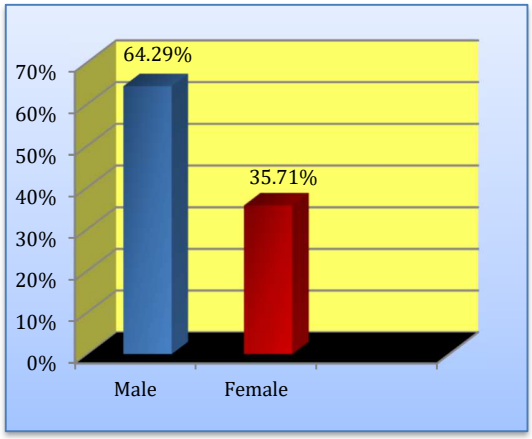

Figure 5: Prevalence of traumatized dental injuries by gender

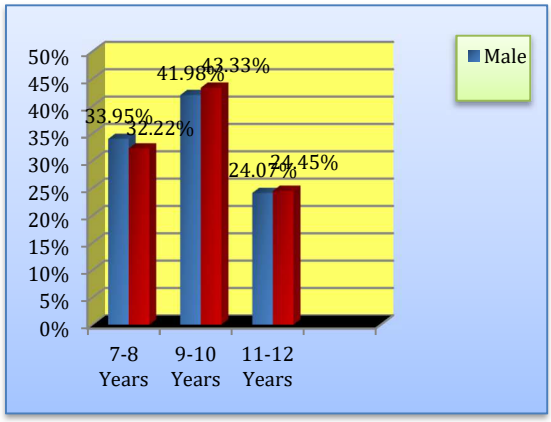

Figure 6: Distribution of traumatized dental injuries according to age groups

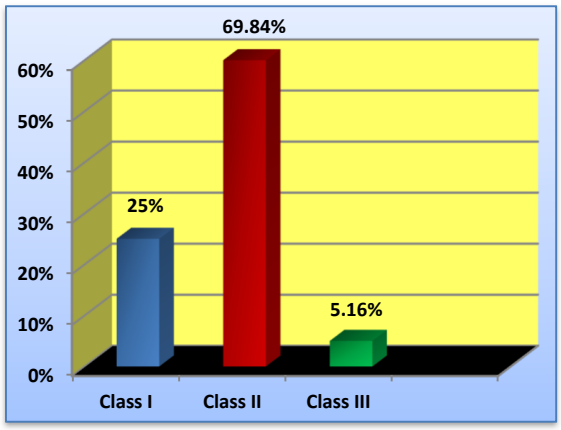

Figure 7: Distribution of traumatized dental injuries according to incisors relatioship

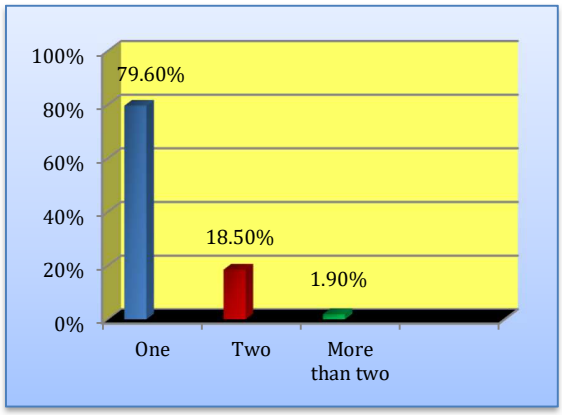

Figure 8: Distribution of traumatized dental injuries according to the No. of fracture tooth

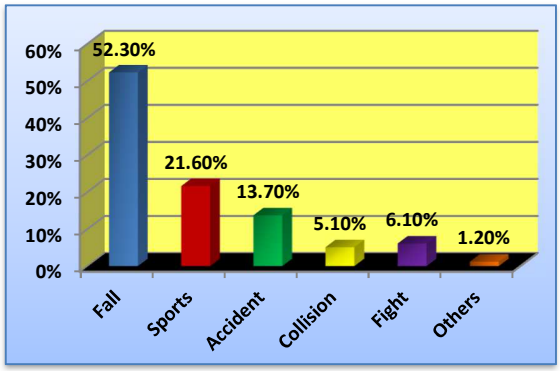

Figure 9: Distribution of traumatized dental injuries according to the cause of fracture

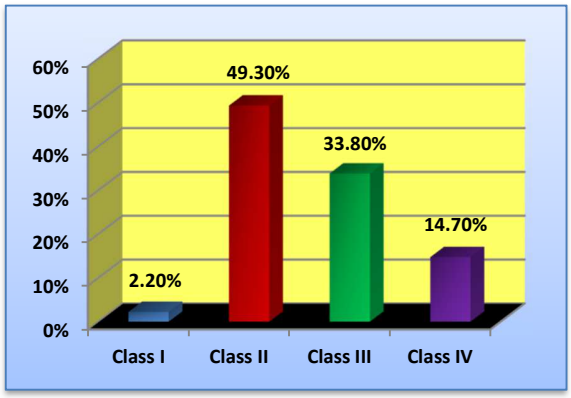

Figure 10: Distribution of traumatized dental injuries according to Ellis and Davey classification

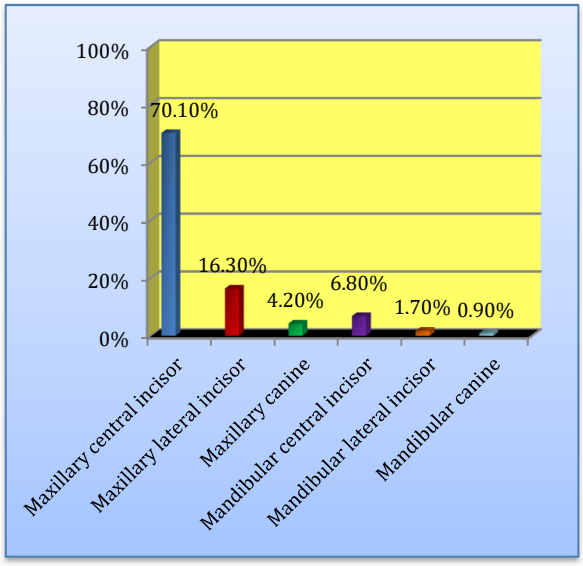

Figure 11: Distribution of fracture according to type of teeth

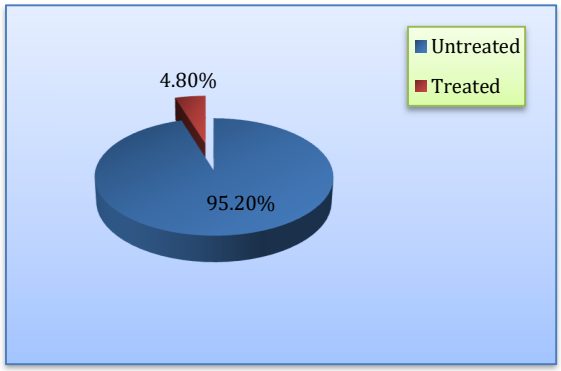

Figure 12: Distribution of Subjects according to presence of treatment for fractured teeth

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