



## The Prevalence of Dental Disorders among Primary and Medium School Children at Age 8-15 Years Old in Fallujah City, Anbar Governorate, Iraq

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### ABSTRACT

Dental disorders are condition affecting children and related with aesthetic, function and malocclusion. This study has been performed to evaluate the prevalence of the more common dental disorders among primary and medium school children with ages 8-15 years old in Fallujah city, Anbar governorate, Iraq. 2652 school children were selected from primary and medium schools, selected by randomized stratified clustered. The study subject were divided into 3 groups and in each group 884 students (442 boys and 442 girls) were examined. Examination was performed in quiet condition with the natural light. Lips and cheeks were retracted with disposable mirror. The results were analyzed with chi-square statistic test in SPSS (Statistical Package for the Social Sciences) version 22. The prevalence of all dental disorders was 12.8% (Enamel hypoplasia 9.04%, Macrodonia 2.26%, Microdonia 0.67%, Peg lateral shape 0.41%, Mesodense 0.3%, Fusion teeth 0.07%). Although it is difficult to prevent dental disorders occurrence, health educational programs for the parents and school children are critical. Early diagnosis and treatment should be required.

**Keywords:** Dental Disorders, Enamel Hypoplasia, Mesodense, Peg Lateral

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### INTRODUCTION

Disorders of teeth are conditions affecting children and related with aesthetic, function and malocclusion [1], due to disturbance of the mesenchymal and epithelium interactions can obviously change the normal odontogenesis leading to the malformation of teeth, according to the developmental stage in which the alteration has been occur, local and systemic factors responsible for these abnormalities [2]. These influences may start before or after birth, hence the teeth may be affected, many investigations suggest a hereditary and genetic basis for the causes of dental disorders of number, position, size, timing of eruption and shape [3]. Appropriate investigations and Careful observation are required to diagnose the dental disorders that are important for planning comprehensive treatment for such conditions in children [4]. Dental disorder in deciduous teeth is often related with an

increased risk of disorders in permanent teeth [5]. Dental abnormalities are wide range among orthodontics population than the comparable population, and seem to be related with certain malocclusions [6]. Basdra *et al.*, reported dental anomalies among patient with Class II division 2 malocclusion in a German population. The conclusion was the dental disorder is closely related to malocclusion [7]. Also dental disorders may be increase the risk of periodontitis and dental caries (create area of food stagnation) and may be lead to aesthetic, endodontic or orthodontic problems [8]. Due to limited studies in relation to dental disorders in Fallujah city the study conducted. The aim of the study was to evaluate the prevalence of dental disorders among school children at age 8-15 years old in Fallujah city, Anbar governorate, Iraq.

### MATERIALS AND METHODS

A cross sectional study conduct in Fallujah city from October 2016 to October 2017, on 2652 students in the age range of 8-15 years old. The

numbers of boys were 1326(50%) and the girls were 1326(50%). The samples were selected by randomized stratified clustered sampling from primary and medium schools. The study subject was divided into 3 groups (8-10 years, 11-13 years, 14-15 years) and in each group 884 students (442 boys and 442 girls) were examined. With equal male: female ratio in age group. Before scheduling the survey, the official permission was obtained from the college of dentistry / Anbar University and Directorate of education Fallujah. The clinical examination of school children was performed using disposable mouth mirrors and probes. Examination was performed in quiet condition with the natural light. Lips and cheeks were retracted with disposable mirror. The results were statistically analyzed using SPSS (Statistical Package for the Social Sciences) version 22.

**RESULTS**

The prevalence of dental disorders among 2652 pupils were (1326 (50%) boys and 1326 (50%) girls), the total affected cases were 339(12.8 %). In this study the disorders of teeth were more prevalent in both gender (boys 167 (12.59%), girls 173 (13.04%), there was not significant differences between them (P>0.05) (Table 1). Among dental disorders, enamel hypoplasia was observed in 240 cases from these we notice (121 cases (9.1%) ) in boys, and 119 cases (8.97%) in girls. The statistical differences between them was not significant (P>0.05). Macrodonatia was observed in 60 case (2.26%) of the subjects and more prevalent in both genders (boys 30(2.26%), girls 30(2.26%)). The statistical differences between them was not significant (P>0.05).

Microdonatia was observed in 18 cases 0.67% of our population and more slightly prevalent in girls 12 (0.9%) than boys 6 (0.45%). The statistical differences between them was not significant (P>0.05). Peg lateral shape was found only in 11 cases 0.41% of the subjects with no significant differences between them. Mesodense was observed in 8 cases 0.3% of our subject and was more slightly prevalent in girls 5 cases (0.22%) than boys 3 cases (0.37%). The statistical differences between them was not significant (P>0.05). Fusion teeth were reported only in boys 2 cases 0.15%. Table (2, 3) shows distribution of dental disorders among boys and girls according to age. Table (6) shows distribution of dental disorder according to upper and lower Jaw among both genders. Figure (1-6) show picture for Enamel hypoplasia, Macrodonatia, Microdonatia, Mesodense, Fusion tooth and Peg lateral shape respectively.

**Table1: Distribution of dental disorder according to gender**

Dental disorder	Boys n=1326		Girls n=1326		Total n=2652 N (%)	P Chi - square
	No	%	No	%		
Enamel hypoplasia	121	9.1	119	8.97	240 (9.04)	0.45*
Macrodonatia	30	2.26	30	2.26	60 (2.26)	0.88*
Microdonatia	6	0.45	12	0.90	18 (0.67)	0.16*
Mesodense	3	0.22	5	0.37	8 (0.30)	0.5*
Peg lateral shape	4	0.30	7	0.52	11 (0.41)	0.39*
Fusion	2	0.15	0	0	2 (0.07)	**
<b>Total</b>	<b>166</b>	<b>12.51</b>	<b>173</b>	<b>13.04</b>	<b>339 (12.8)</b>	

\*No Significant P>0.05 \*\*Not calculate

**Table2: Distribution of dental disorder according to age in boys**

Age group	Enamel hypoplasia	Macrodonatia	Microdonatia	Mesodense	Peg lateral shape	Fusion	Total
8-10	50	17	2	3	1	1	74
11-13	53	11	2	0	3	0	69
14-15	18	2	2	0	0	1	23
<b>Total</b>	<b>121</b>	<b>30</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>166</b>

**Table3: Distribution of dental disorder according to age in girls**

Age group	Enamel hypoplasia	Macrodonatia	Microdonatia	Mesodense	Peg lateral shape	Fusion	Total
8-10	47	17	1	5	2	0	72
11-13	42	11	6	0	2	0	61
14-15	30	2	5	0	3	0	40
<b>Total</b>	<b>119</b>	<b>30</b>	<b>12</b>	<b>5</b>	<b>7</b>	<b>0</b>	<b>173</b>

**Table 4: Distribution of dental disorder in maxillary dentition for both genders**

Dental disorder	Boys N=1326	Girls N=1326	Total N=2652	P (Chi square)
Enamel hypoplasia	116	111	227	0.39*
Macrodontia	30	30	60	0.93*
Microdontia	6	12	18	0.15*
Mesodense	3	5	8	0.49*
Peg lateral shape	4	7	11	0.37*
Fusion	2	0	2	**
<b>Total</b>	<b>161</b>	<b>165</b>	<b>326</b>	

\*No Significant P>0.05 \*\*Not calculate

**Table 5: Distribution of dental disorder in mandibular dentition for both genders**

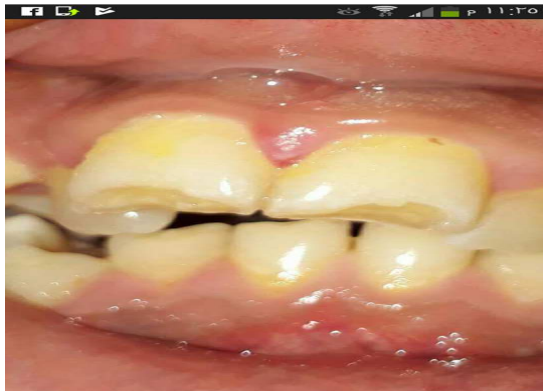
Dental disorder	Boys N=1326	Girls N=1326	Total N=2652	P (Chi square)
Enamel hypoplasia	5	8	13	0.41*
Macrodontia	30	30	60	0.74*
Microdontia	6	6	12	0.93*
Mesodense	0	0	0	**
Peg lateral shape	0	0	0	**
Fusion	0	0	0	**
<b>Total</b>	<b>41</b>	<b>44</b>	<b>85</b>	

\*No Significant P>0.05 \*\*Not calculate

**Table 6: distribution of dental disorder according to upper and lower Jaw**

	Boys N=1326		Girls N=1326		Total N=2652		P (Chi square)
	No	%	No	%	No	%	
<b>Maxillary</b>	162	12.21	165	12.44	327	12.33	0.9*
<b>Mandibular</b>	42	3.16	44	3.31	86	3.24	0.9*
<b>Total</b>	<b>204</b>	<b>15.38</b>	<b>209</b>	<b>15.76</b>	<b>413</b>	<b>15.57</b>	

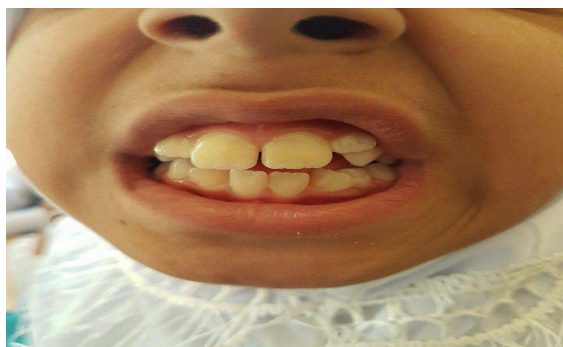
\*No Significant P>0.05



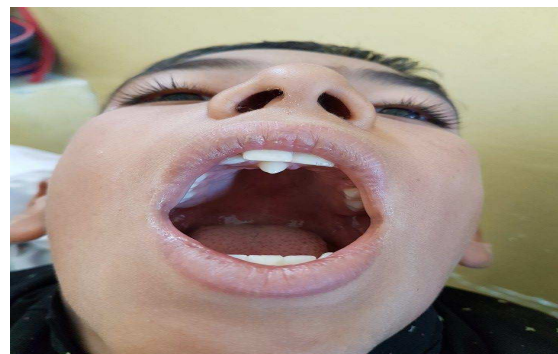
**Figure 1: Enamel hypoplasia**



**Figure 3: Microdontia**



**Figure 2: Macrodontia**



**Figure 4: Mesodense**



Figure 5: Fusion tooth

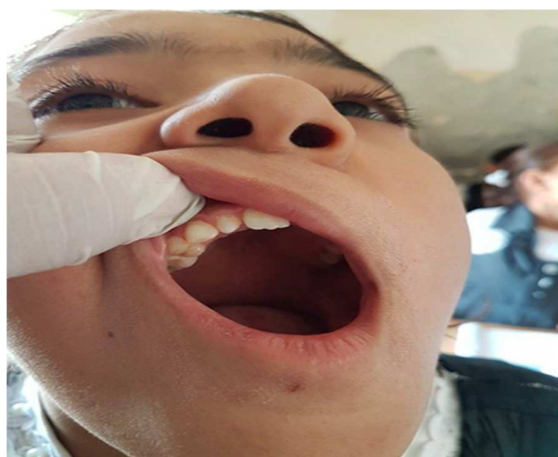


Figure 6: Peg lateral shape

## DISCUSSION

In the present study the incidence of dental disorders was evaluated among 8-15 years old school children in Fallujah city in Iraq. Although there have been many studies reporting the incidence of dental disorders in Iraq and other countries in the world, but no study has been carried out in Fallujah city. The etiology of dental disorders of number, size, position, as well as timing of development, have been suggested to be genetic and hereditary [9]. The higher prevalence of total dental disorders in the present study was enamel hypoplasia, seen with 9.04% of the total population, which was higher in frequency compare with study reported by Hag-Kasim [10], Sarkis [11], Mahmood [12], Mohammed [13], Najm and Younis [14], which were 6.61% , 5.8%, 3.06%, 2.07% 2.04% respectively. Nearly to that found by Al-Nori [15] 7.8%. This difference in

results among these studies may be related to either local factors as abscess or local trauma or to certain content in the type of nutrition, nutritional deficiency such as calcium and vitamin D is a cause for enamel hypoplasia [14]. Macrodonia occurs when a teeth, or tooth are larger than those considered to be within normal range. Macrodonia can be classified as true generalized and localized macrodonia. Generalized macrodonia, the condition in which all the teeth are larger than normal. Localized macrodonia is when a single tooth exhibits normal root, pulp and crown morphology except for the size [16]. In present study only 2.26% of macrodonia were seen. Which was less than finding by Gupta *et al.*, 2015 [17]. The prevalence of macrodonia among 3248 students was 3.8%. This differences may be attributed to sample size. Microdonia represents 0.67% which was less than that found by Najm and Younis [14] Al-Nori [15] in Baghdad city, Sarkis [11] in Al-Radwaniya village, Mahmood [12] in Halabja city, Bashir in 2006 in Khartoum [1] and Gupta *et al.*, 2014 [18] which were 4.8%, 1.1%, 1.86% , 1.75%, 14.3%, 52.3% , respectively. The difference in results may be due to differences in racial variations, sample size and method of examination. Our study showed peg lateral shape to have incidence of 0.41%, this is similar to that reported by Nayak and Nayak [19] 0.4%. Previous study has found that the prevalence to be 0.33% [20]. These variations are mostly the result of racial and ethnic differences between populations. The most common type of supernumerary teeth is the mesiodense which is formed in the midline of the maxilla, either erupted or impacted and may occurs singly or in multiples, uni- or bilaterally, in both jaws [21]. Supernumerary tooth or teeth representing 0.3% of total sample, which is in agreement with Najm and Younis [14] in Missan 0.36% , Al-Nori [15] in Baghdad city which was 0.4% and less than that reported by Sarkis [11] in AlRadwaniya village which was 0.93%, Gupta et al in 2011 [22] 2.40% and Bashir in 2006 in Khartoum [1] 7.4%.

All the cases of supernumerary tooth seen were (mesiodens). Fusion teeth may be partial or complete and may present with two independent root canals or less often, a single root and one or two pulp chambers [23] There was a two case of fusion teeth reported in the present study (0.07%) of total sample, near to that reported by Najm and Younis (14) in Missan (0.03%) but the result was



less than that observed by Hamasha and Al-Kateeb [24] in Jordanian population which was 0.22%.

### CONCLUSION

The most prevalent dental disorders were enamel hypoplasia followed by macrodontia and microdontia. Although it is difficult to prevent dental disorders occurrence, but health educational programs to the parents and school children are critical. Early diagnosis and treatment should be required. Treatment aims should include prevention of caries and periodontal disease. It's difficult to detect familial background of dental disorders.

### REFERENCES

1. Bashir R. The prevalence of dental anomalies among school children (6 - 14 years) in Khartoum State. Master thesis. The University of Khartoum Graduate College Medical & Health Studies Board Faculty of Dentistry, 2006.
2. Shrestha A, Marla V, Shrestha S, Maharjan IK. Developmental anomalies affecting the morphology of teeth—a review. *RSBO*. 2015; 12(1):68-78.
3. Shalish M, Peck S, Wasserstein A, Peck L. Malposition of unerupted mandibular second premolar associated with agenesis of its antimere. *American Journal of Orthodontics and Dentofacial Orthopedics*. 2002; 121(1):53-56.
4. Oliver O. Prevalence of hypodontia and supernumerary teeth including mesiodens, fused teeth and talon cusp in Saudi Arabia. *Saud Dent J*. 2002; 14(1):16-20
5. Richard R. Anomalies of tooth formation and eruption. *A Text Book of Pediatric Dentistry*, 2nd Ed. New York: Oxford University, 2001: 251.
6. Basdra EK, Kiokpasoglou M, Stellzig A. The Class II Division 2 craniofacial type is associated with numerous congenital tooth anomalies. *The European Journal of Orthodontics*. 2000; 22(5):529-35.
7. Basdra EK, Kiokpasoglou MN, Komposch G. Congenital tooth anomalies and malocclusions: a genetic link?. *The European Journal of Orthodontics*. 2001; 23(2):145-52.
8. White S, Pharoah M. *Oral radiology principles and interpretation*. 6th Edition, Mosby: St. Louis, 2002
9. Patil S, Doni B, Kaswan S, Rahman F. Prevalence of dental anomalies in Indian population. *Journal of Clinical and Experimental Dentistry*. 2013; 5(4):e183.
10. Hag-Kasim. *Developmental Anomalies of Teeth and Oral Soft Tissues among (14-15) year's old school children in Mosul city*. Master Thesis, college of Dentistry/University of Baghdad, 1997.
11. Sarkis S. *Anomalies in Al-Radwaniya Iraqi Village*. *Iraqi Dent J*. 1999; 33: 83-89.
12. Mohammed DN. *Developmental Anomalies of Teeth and Oral Mucosa in (6-12) years old school children in Sulimania city*. Master Thesis, college of Dentistry/ Sulimania University, 2006.
13. Mahmood M. *Possible effects of chemical weapons used in Halabja Martyr city at 16th March 1988 developing oral and dental tissues*. Master Thesis, college of Dentistry/ Sulaimania University, 2008.
14. Najm M, Younis W. The prevalence of oral and dental development anomalies among 14-17 years Iraqi student in Missan governorate. *Journal of Bagdad College Dentistry*. 2009; 21(3):90-95
15. Al-Nori A and Al-Talabani N. *Developmental anomalies of teeth and oral soft tissue among (14-15) years old school children in Baghdad city with reference to enamel defects*. A thesis submitted to the college of Dentistry /Baghdad University, 1990.
16. King NM, Tongkoom S, Wong HM. Morphological and numerical characteristics of the Southern Chinese dentitions. Part III: anomalies in the primary dentition. *The Open Anthropology Journal*. 2010; 3(25-36):1874-9127
17. Gupta P, Gupta N, Gupta R, Arora V, Mehta N. The prevalence of oro-dental anomalies among 14-17 years students in Panchkula District Haryana, India. *Journal of Dentistry and Oral Hygiene*. 2015; 7(4):44-47.
18. Gupta S, Nitish K, Tripathi A, Gupta O. *Distribution of various developmental dental anomalies in Uttar Pradesh: A Hospital based study*. *RRJDS*. 2014; 2 (3).
19. Nayak P, Nayak S. Prevalence and distribution of dental anomalies in 500 Indian school children. *Bangladesh Journal of Medical Science*. 2011; 10(1):41-44
20. Altug Atac AT, Erdem D. Prevalence and distribution of dental anomalies in orthodontic patients. *American Journal of*

- Orthodontic and Dentofacial Orthopedics. 2007; 131(4):510-14
21. Orhan AI, Özer L, Orhan K. Familial occurrence of nonsyndromal multiple supernumerary teeth: a rare condition. *The Angle Orthodontist*. 2006; 76(5):891-97.
  22. Gupta SK, Saxena P, Jain S, Jain D. Prevalence and distribution of selected developmental dental anomalies in an Indian population. *Journal of Oral Science*. 2011; 53(2):231-38.
  23. Oliván-Rosas G, López-Jiménez J, Giménez-Prats MJ, Piqueras-Hernández M. Considerations and differences in the treatment of a fused tooth. *Medicina oral: organo oficial de la Sociedad Española de Medicina Oral y de la Academia Iberoamericana de Patología y Medicina Bucal*. 2004; 9(3):224-28.
  24. Hamasha AA, Al-Khateeb T. Prevalence of fused and geminated teeth in Jordanian adults. *Quintessence international*. 2004; 35(7):556-59.

**Case Sheet**

Name:

Age :

Gender:

Address:

Family History:

Medical History:

Drugs: