

Original article:

A cross sectional study of assessment of dental anomalies in healthy adolescents

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Abstract:

Introduction: The present study evaluated anomalies of tooth formation and eruption in adolescents. This was a cross-sectional study, with the primary data was collected from educational campuses in Pune, Maharashtra.

Methodology: Total 1000, healthy male and female subjects between 14-16 years of age were selected for the study and examined for the dental anomalies of malocclusion which were divided into three type viz. dentition, occlusion and space anomalies.

Results: Descriptive statistics was done by calculating the Standard error of difference between two proportions. Comparison of outcome parameters was calculated with significance test ('p' value). Occlusion anomalies were found to be more predominant, also anomalies were found more commonly in female than male subjects, the difference being statistically significant.

Conclusion: Malocclusion is more prevalent in males; however the dentition anomalies are more common in females. We may also conclude that dentition anomalies are more common in female than male.

Keywords: Odontogenesis, Malocclusion

INTRODUCTION:

The most spectacular period of development of the human body takes place in utero, and during this period various disturbances may occur, producing changes which are congenital but not always inherited. The catastrophic changes associated with parturition causes various disturbances of several days duration which are clinically evidenced by loss of weight and arresting of general growth. These produces disturbance in odontogenesis.^(1,2) The primary and permanent dentitions are subject to considerable variations in the number, size and form of teeth and the structure of the dental tissue. These developmental anomalies may be genetically determined or brought about by environmentally induced systemic or local changes or possibly by combination of these factors. One of the etiological

factor of malocclusion is the dental anomalies.^(3,4)

The prevalence of malocclusion varies from country to country. Malocclusion may upset the natural function of the masticatory system and this may disturb the digestion and thus be detrimental to overlooked as some of them may constitute a real psychic trauma to children as well as to adults and become a handicap to the individual. ^(5,6) Malocclusion is classified into three main groups (1) Dentitional anomalies -anomalies restricted to individual teeth (2) Occlusion anomalies - anomalies in the positional relationship between the dental arches, and (3)Space anomalies. ^(7,8) The recognition of malocclusion is an important problem in Public dental health services for children implies a need for rational Planning of preventive and therapeutic orthodontic measures. The present study was planned

out to assess the anomalies of tooth formation and eruption in Males and female of age group of 14-16 years and to compare these anomalies in both sexes.

MATERIAL AND METHODS

Present study was carried out at three different educational campuses in Pune City in India. Study participants were selected by lottery method. Permission from the authority of each Institute was obtained through proper channel.

Inclusion Criteria: Total number of 500 boys and 500 girls between 14 to 16 years of age, in whom permanent teeth except third molar tooth be fully erupted and had not undergone orthodontic appliance therapy, irrespective of simultaneous extractions were selected for dental examination. After obtaining written consent and prior briefing about the study and its importance, printed data collection form were distributed. Then personal and family history was recorded. The boys and girls were examined in the health camps, and their respective classes and premises of the college. The subjects were asked to fill the history in detail. Birth dates given by the students were confirmed by checking the college records. The age was calculated in years and months.

Extra-Oral Examination: In extra oral examination symmetry of face was noted and the temporomandibular joint was examined for deviation, discomfort and opening of mouth.

Intra-Oral Examination:

1. **Soft tissue:** The condition of oral mucosa is good indicator of general health. Examination of mucosa of palate, tongue and cheeks for inflammation, any swelling, white or red patches, ulcers etc was done.

2. **Periodontal tissue:** Examination of periodontal pocketing, oral hygiene, tooth mobility was done.

3. **Teeth:** The teeth present were counted and recorded in full dental charting. The supernumerary or missing teeth were looked for. If any missing or

supernumerary tooth was found its location was noted. After counting teeth, oral cavity was observed crowded teeth and their location was noted. Oral cavity was searched for the spacing of teeth, and if present, it was noted whether they were in upper or lower arch. The size and shape of the crown of teeth were inspected. Tooth size was diagnosed as anomalous when the norms for the sex and racial group concerned were exceeded. The teeth were inspected for discoloration, after taking the history and grouped under intrinsic/extrinsic discoloration. A tooth identified rotation, if it twisted around its long axis.

4. **Occlusion:** Inspecting the distance between the upper and Lower incisors in the horizontal plane identified the over jet. The Maxillary or mandible over jet and distal medial molar Occlusions were looked for. The overbite was identified inspecting vertical overlap of the Upper and lower incisors when viewed interiorly, The overbite Which was greater than one half was described as being Increased, and was noted as overbite, The over bite which was less than one third, was described as being reduced. **Open bite** was identified by space vertically between the incisors when the buckle segment teeth were in occlusion. **Cross bite** was identified by buccal cusps of the lower premolars and/or molars occluded buccal cusp of the upper premolars and/or molars. **Scissor bite** were identified by buccal cusps of the lower Premolars and/or molars occluded lingual to the lingual cusps of the upper premolars or molars (7,9).

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OBSERVATION AND RESULTS :

Table No. 1. Study Participation data

No.	Institute	Male Subjects	Female subjects	Total
1.	Sadhana Junior College, Hadapsar, Pune	190	205	395
2.	Industrial Training Institute, Aundha, Pune	165	135	300
3.	Health camp, Vishrantwadi, Pune	145	160	305
	Total	500	500	1000

Table No 2 ,3 & 4 Statistical analysis

	N (Numbers)	Percentage (%)	Standard Error
Dentition anomalies	161	32.2%	2.08
Occlusion anomalies	242	48.4%	2.23
Space anomalies	214	42.8%	2.2

	N (Numbers)	Percentage (%)	Standard Error
Dentitional anomalies	200	40	2.19
Occlusal anomalies	253	50.6	2.23
Space anomalies	221	44.2	2.22

	Male		Female		Sex difference (P Value)
	N	%	N	%	
Dentition anomalies	161	32.2	200	40	P<0.05 Significant
Occlusion anomalies	242	48.4	253	50.6	P>0.05 Not Significant
Space anomalies	214	42.8	221	44.2	P>0.05 Not Significant

The statistical analysis for frequencies of anomalies was carried out separately for males and females by calculating standard error. Comparison of outcome parameters between males and females was calculated with significance test ('p' value)

RESULT:

Occlusion anomalies were found to be more predominant, also anomalies were found more commonly in female than male subjects, the difference being statistically significant.

DISCUSSION:

Variations of teeth have been an enduring interest to a clinical practitioner and laboratory scientist. No two teeth are alike. It is the odd, peculiar, and stranger arrangement of teeth on which we focus our attention here. They are called anomalies. The primary and permanent dentitions are subjected to considerable variations in the number, size, and form of teeth and the structure of dental tissue. These developmental anomalies may be genetically determined or systematic, prenatal, postnatal environmental and may be due to local causes.⁽¹⁰⁾The anomalies may be symmetrical or asymmetrical and indifferent degrees of severity. Variation in the morphology, number, time and order of eruption of the teeth are important etiologic

factors in the establishment of malocclusion.⁽¹¹⁾ The prevalence of dental anomalies observed in deciduous dentition is lower than in the mixed and permanent dentitions. Probably in part due to the fact that many conditions do not develop or become clearly apparent before the age of 7 to 8 or even later.^(10,11) This study suggested a fact that recognition of dental anomalies is essential in determining appropriate treatment for each patient. Early diagnosis and timely intervention could reduce or eliminate the need for orthodontic treatment and prevent serious complications. It also determines the type, prevalence and relative severity of the condition in the population. This study gives the health authorities positive information concerning the need for and the progress of dental health programs. The following discussion is mainly centered on the present Study and also an attempt has been made to give a comparative picture with other studies wherever the required data is available. Malocclusions variation from ideal occlusion, which has a dental health and / or psychosocial implications for an individual^(11,12). It is a condition where teeth do not erupt in normal position causing unsightly appearance,^(13,14)

Anomaly	Males		Females	
	Seven Helm31(1968)	Present Study(2003)	Sven Helm31(1968)	Present Study(2003)
Dentitional Anomalies	33.5%	32.2%	42.2%	40.0%
Occlusion Anomalies	53.1%	48.4%	50.4%	50.6%
Space Anomalies	47.1%	42.8%	47.4%	40.0%

An epidemiological study done by Sven Helm (2968) in Danish children showed that the frequency of dentitional anomalies in males was 33.5% and 42.2% females. In the present study the figure for males was 32.2% and for females 40.0%.The results are almost matching. The occlusion anomalies that recorded by Sven Helm were present in 50.1% males and 50.4% in females. In the present study it was present 48.4% of males and 50.6% females. According to Helm the

space anomalies were present in 47.1% males and 47.4% in females.

CONCLUSION:

From present study it may be concluded that dentitional anomalies are found more commonly in females than male. Though this is pilot study, there is requiring more detail research in response to larger sample size and statistical analysis in India.

REFERENCES:

- 1.Kurt H. Thomas, Henry M. Goldman: Oral Pathology. 5th edition. The C. V. Mosby company ,S.Louies , 23-73, 1960-1967
- 2.Atwan S.M., Turner D., Khalid A.: Early Interventation to remove mesodena and avoid orthodontic therapy. Gen. Dent.2000 -Apr 48 (2) 166-169.
3. Winter G. B.: Anomalies of tooth formation and eruption, Paediatric dentistry, 1997, 1st edition Oxford University Press, 251-270.
4. Buschang PH, Thrackmork G. S.: Does malocclusion affect masticatory performance. Angle orthod. 2002 Feb, 72 (1): 21 – 27.
5. Bijlstra K. G. The role of orthodontics in dental health service for children Am. J. Orthod 62 Vol. II 100-106.
6. Doler :Statistical Survey of the deficient dentition (Abst. From paper published Schweiz. Monatschr, Zahnla Dent Dec. 57:56, 1935. Seipal C. M. Variation of tooth position, Svensktabdl-hdskr, 39 Supp. 1946.
7. Sven Helm: Malocclusion in Danish children with adolescent dentition. A epidemiologic study. Am. J. Orthodontics volume 54 Number 5 Mat, 1968 ,40-47
8. Seipal C. M. Variation of tooth position, Svensktabdl-hdskr, 39 Supp. 1946 , 50-57.

9. Schweitzer G., Zur Frags der erbichen, Bendingtheit desisolierten und SymetrischenI: 236, 1934.
10. Winter G. B.: Anomalies of tooth formation and eruption, Paediatricdentistry, 1997, 1st edition Oxford University Press, 251-270.
11. Laury Mitchell: Cross bite, An introduction to orthodontics, Oxford University Press Inc. New York, 1996 First Edition 130-137.
12. Mills L. F., 1455 School children in dental arch. Dimensions Expressed on the basis of tooth eruption as a measure of biologicage. J. D. Res., 44 : 120-141, 1965.
13. Munblatt M. A.: A statistical study of dental occlusion in children D Items Interest 65 : 43-63, 1943.
14. Miyosh S., Tanaka S., Kunimatsu H.: An epidemiological study of supernumerary primary teeth in Japanese children. A review of racial differences in the prevalence. Oral Dis 2000 Mar 6 (2): 92-102.

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