

Prevalence Of Different Types Of Malocclusion In Young Adults, In Ahmednagar District, Maharashtra (According To Angle's Classification)

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Abstract

Introduction: Malocclusion is one of the most prevalent oral pathologies, next only to dental caries and periodontal disease and usually ranked third among worldwide public health dental disease priorities. Our aim was to determine the prevalence of different types of malocclusion in young adults. Our objectives were to evaluate the prevalence of different types of malocclusion in young adults to examine molar relationship, overjet (OJ), overbite (OB), midline deviation, crossbite, and crowding/spacing.

Material and methods: A descriptive cross sectional study was conducted among the school & junior college going children in Ahmednagar district, Maharashtra, India. The duration of the study was 12 months, conducted from January 2016 to January 2017.

Materials: Dental chairs, Disposable gloves and masks, Dental mirrors and probes, Metal Rulers, Dental Van.

Method: Simple random samples of the total 1000 adolescence aged 14 to 20 years were examined. 20 public schools & Junior colleges were randomly selected in Ahmednagar District where fifty students from these school were selected randomly for the study. Out of those 50 students, 10 students were randomly selected from 8th, 9th, 10th, 11th, 12th grade each.

Result: The no. of Class I malocclusions found in males was 288 & in females was 151. The no. of Class II Div I malocclusions in males was 109 & in females was 103.

The no. of Class II Div II malocclusions in males was 23 & in females were 21.

The no. of Class III malocclusions in males was 15 & in females were 12.

Introduction:

Millions of individuals worldwide are suffering from orodental problems in spite of most of them being preventable. Malocclusion is one of them. Malocclusion is not a disease

but a morphological variation which may or may not be associated with pathological conditions. Malocclusion is one of the most prevalent oral pathologies, next only to dental caries and periodontal disease and usually ranked third among worldwide public health dental disease priorities.^[1]

Malocclusion is a clinically significant variation from the normal range of growth and morphology. In contrast to disease and pathologic lesions, malocclusion may just a minor variation from the normal.^[2]

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Developing countries like India are struggling to eradicate many medical and dental diseases. The main reason behind this is an inadequate implementation of preventive oral health care programmes which need a sound base of epidemiological data. Epidemiological studies on occlusion and malocclusion not only help in orthodontic treatment planning and evaluation of dental health services but also offer a valid research tool for ascertaining the operation of distinct environmental and genetic factors in the aetiology of malocclusion.^[3]

Facial appearance has a long lasting implication on an individual. An unacceptable dental appearance has often been associated with a negative effect on self-image, career advancement and peer-group acceptance. In order to prevent a wide-spread impact on their psychological development, children having very severe or handicapping malocclusion should be identified and corrective measures should be instituted at the earliest.^[4]

Malocclusion is one of the most widespread oral health problems that the society is facing. It has not been so thoroughly investigated, probably because the pain and misery caused by this disorder is seldom acute. The prevalence of malocclusion varies from country to country and among different races. Malocclusion is a developmental problem determined mainly by hereditary and environmental factors. Any of these factors may influence the type and frequency of malocclusion in a given population.^[5]

Early prevention and interception of a disease can reduce the burden of cost and more expensive treatment modalities on the nation. Extensive multicentric studies are required to obtain a countrywide representative data. A more practical and feasible alternative is to develop a regional database; compilation of such databases may provide an understanding of the national scenario.^[6]

The demand for orthodontic treatment is increasing in most of the countries including India. Therefore, rational planning of orthodontic preventive measures on population basis is essential. This stresses the importance of epidemiological studies in order to obtain knowledge about the prevalence of different types of malocclusion and the need for the orthodontic treatment and in accessing the resources required for such services.^[7]

Ahmednagar district is the largest district of Maharashtra state in western India. In 2006, Ministry of Panchayati Raj named Ahmednagar one of the country's 250 most backward districts. It has the maximum number of sugar factories. The first cooperative sugar factory in Asia was established at Pravaranagar.

In 2011 census, Ahmednagar district recorded a population of 4543083, roughly equal to the nation of Costa Rica. Ahmednagar had a sex ratio of 934 females for every 1000 males and the literacy rate of 80.22%.

Aim: To determine the prevalence of different types of malocclusion in young adults.

Objectives :

- 1) To evaluate the prevalence of different types of malocclusion in young adults.
- 2) To examine molar relationship, overjet (OJ), overbite (OB), midline deviation, crossbite, and crowding/spacing.
- 3) A clinical examination to determine the orthodontic treatment need.

Materials & methods:

A descriptive crosssectional study was conducted among the school & junior college going children in Ahmednagar district, Maharashtra, India. The duration of the study was 12 months, conducted from January 2016 to January 2017.

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The following selection criteria were followed before including the subjects into the study group:

1. Young male or female patients between 14 to 20 years of age.
2. Full permanent dentition.
3. Class I malocclusion.
4. Class II malocclusion.
5. Class III malocclusion.

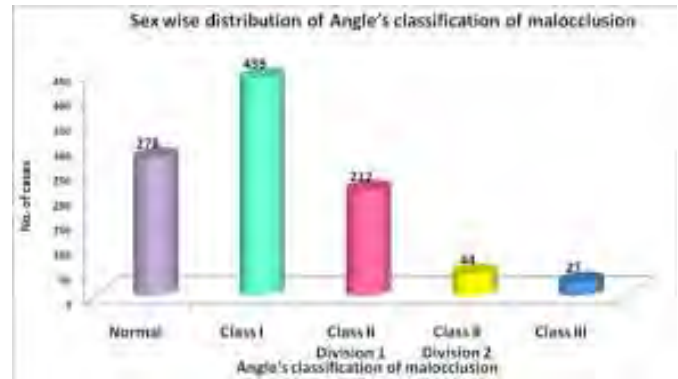
6. Teeth with abnormal buccolingual relationship.

EXCLUSION CRITERIA:

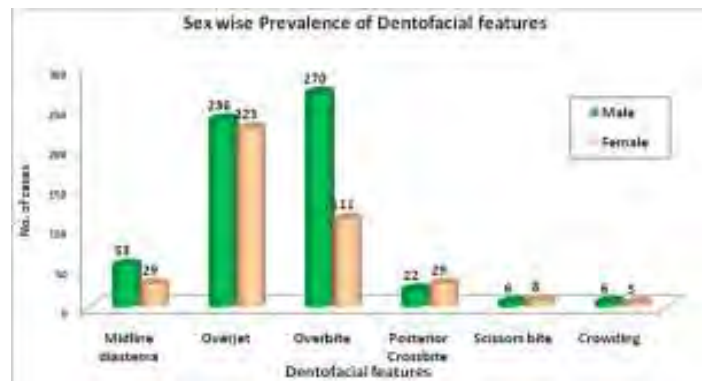
1. Children with severe systemic diseases or syndromes.
2. Syndromic condition.
3. Previous growth modification therapy.
4. Children aged above or below the age.
5. Children who have already undertaken or are in orthodontic treatment.
6. Children with extensive carious lesions or with permanent teeth.

A written Informed consent was obtained from parents before data of all the children who fulfilled the eligibility criteria and were willing to participate in the study.

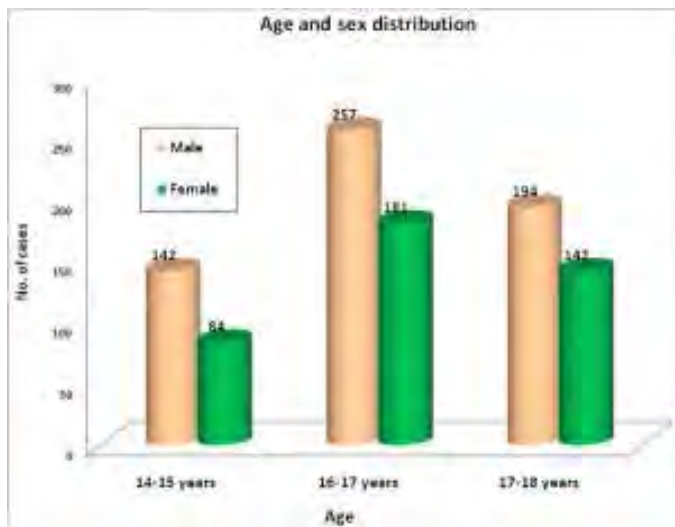
Results:



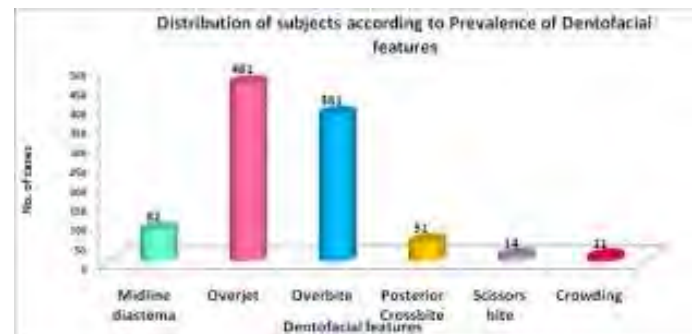
Graph No.3: Distribution of subjects according to Angle's classification of malocclusion:



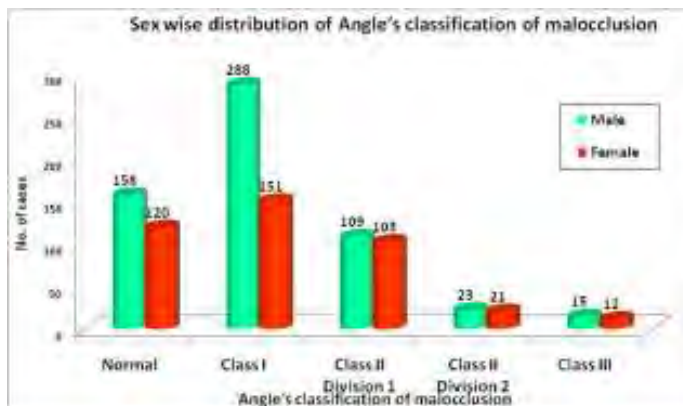
Graph No.4: Sex wise Prevalence of Dentofacial features:



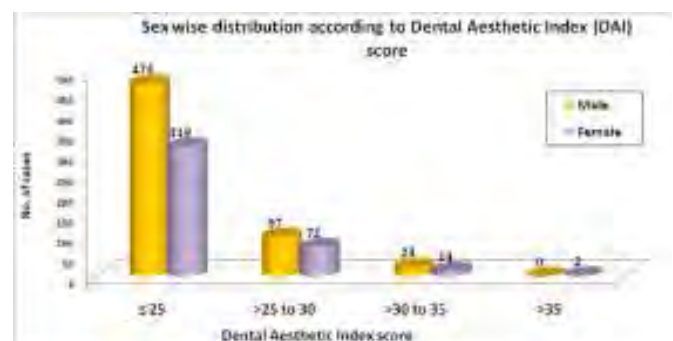
Graph No.1: Age and sex distribution:



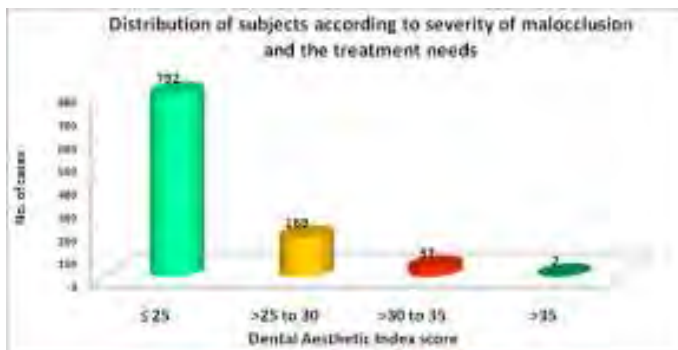
Graph No.5: Distribution of subjects according to Prevalence of Dentofacial features:



Graph No.2: Sex wise distribution of Angle's classification of malocclusion:



Graph No.6: Sex wise distribution according to Dental Aesthetic Index (DAI) score:



Graph No.7: Distribution of subjects according to severity of malocclusion and the treatment needs:

Discussion

Oral health is an integral part of general health.^[8] Healthy mouth enables an individual to eat, speak and socialize without active disease or discomfort and contributes the general well-being. It is concerned with maintaining the health of craniofacial complex, the teeth and gums as well as the tissue of the face and head that surrounds the mouth.^[9]

Developing countries like India are struggling to eradicate many medical and dental diseases. The main reason behind this is an inadequate implementation of preventive oral health care programmes which need a sound base of epidemiological data. Epidemiological studies on occlusion and malocclusion not only help in orthodontic treatment planning and evaluation of dental health services but also offer a valid research tool for ascertaining the operation of distinct environmental and genetic factors in the etiology of malocclusion.

Dentofacial appearance has a lot to do with the way the people are perceived in the society.^[10] Adolescents with significant dentofacial harmonies are considered at risk for negative self-esteem and social maladjustments.^[11] In general, malocclusion is defined as an irregularity of the teeth or a molar relationship of the dental arches beyond the accepted range of normal.^[69]

Malocclusion is one of the most prevalent oral pathologies, next to dental caries and periodontal disease and usually ranked third among worldwide public health dental disease priorities.^[1] Severe malocclusion can be a social handicap.^[12] Malocclusion can cause different problems for the patient, such as psychosocial problem related to impaired dentofacial aesthetics, problems with oral functions including difficulty in jaw movements,

temporomandibular joint disturbances, difficulty in mastication, swallowing and speech, greater susceptibility to trauma and accentuated periodontal disease.^[13]

Early prevention and interception of a disease can reduce the burden of cost and more expensive treatment modalities on the nation. Extensive multicentre studies are required to obtain a countrywide representative data. A more practical and feasible alternative is to develop a regional database; compilation of such databases may provide an understanding of the national scenario.

The goal of orthodontic treatment is to attain optimal occlusion within the framework of function, stability and aesthetics. The facial region is usually the area of significant concern for the individual because it draws most attention from other people. An unacceptable dental appearance has often been associated with negative effect on self image, career advancement and peer-group acceptance. As a result, patients who seek orthodontic treatment are concerned with improving their appearance and social acceptance, and often they are concerned with improving their oral function or health. Improving these aspects of quality of life is an important motive for undergoing orthodontic treatment.^[14]

Malocclusion has not been so thoroughly investigated, probably because the pain and misery caused by this disorder is seldom acute. The prevalence of malocclusion varies from country to country and among different races. Malocclusion is a developmental problem determined mainly by hereditary and environmental factors. Any of these factors may influence the type and frequency of malocclusion in a given population.^[15]

Prevalence of malocclusion traits shows a definite ethnic and geographical variation. Factors which may have directly or indirectly contributed to the extreme variations in the prevalence of malocclusion reported by several workers are:

- 1) The different procedures adopted in the selection of children
- 2) The sample size
- 3) The age group
- 4) The lack of objective criteria of recording the malocclusion and its traits.

The important step is to objectivise the traits of malocclusion. Angle's classification alone is insufficient for epidemiological purposes. This classification alone does not objectively tell us the nature/severity of the problems more so in reference to the treatment needs. The traits of malocclusion have been well defined by WHO, however, the dentofacial anomalies assessment form of WHO lacks provision for recording of bimaxillary protrusion. This type of malocclusion needs to be recorded in the Indian context. To have reliable and accurate recordings of the traits of malocclusion, the field workers should be supervised in the beginning till reasonable consistency in reproducing the recordings is achieved.

There are large variations in the prevalence of malocclusion in different parts of the country not because they belong to different ethnic groups but due to sociodemographic profile which is expressed in nutritional status and dietary habits.

Conclusion:

The study which was conducted amongst the young adult population of Ahmednagar district in the age group of 14 – 18 years have the following findings:

WITH RESPECT TO PREVALENCE OF MALOCCLUSION

- Angle's Class I malocclusion is the most prevalent (27.80%).
- Individuals with normal occlusion followed next (43.90%).
- Angle's Class II Division 1 malocclusion ranked third (21.20%).
- Angle's Class II Division 1 malocclusion ranked Fourth (4.40%).
- The least prevalent malocclusion was Angle's Class III malocclusion (2.70%).

Males outnumbered females in every type of malocclusion and every malocclusion had a predilection to affect males more than females.

OTHER FEATURES

Apart from the Angle's classification study was carried out on other features as well, the findings of which are as follows:

- Several subjects irrespective of the malocclusion had increased overjet as another undesirable feature (46.10%).
- Deep overbite was another finding that ranked second in terms of prevalence (38.10%).
- Prevalence of Midline diastema came in third (8.20%).
- Posterior crossbite was fourth (5.10%).
- Followed by scissors bite (1.40%).
- Crowding was the least (1.10%).

Again sex wise males (59.3 %) had a higher predisposition than females (40.7 %) with respect to the prevalence of midline diastema, overjet, overbite, posterior crossbite, scissors bite and crowding.

ACCORDING TO THE SEVERITY OF MALOCCLUSION

The relationship between the severity of malocclusion and its need for treatment was also assessed and its findings of the severity of malocclusion are as follows

- 79.2% subjects required no/slight treatment.
- 16.9% subjects showed the need for elective treatment.
- 3.7% subjects showed a highly desirable need for treatment.
- 0.2% subjects needed mandatory treatment.

Thus it can be concluded that the findings of this study are similar in findings to that of previous studies carried out in India.

References

1. Nainani JT, Sugandh R (2011) Prevalence of Malocclusion in school children of Nagpur Rural region – An epidemiological study. JIDA 5(8) : 865-867.
2. Dr Suresh Babu, Dr Chandu, Dr Shafilulla (2005) Prevalence of malocclusion and orthodontic treatment needs among 13-15 year old school going children of Davangere city, Karnataka, Journal of Indian association of Public health Dentistry, vol issue 6, pg 32-35

3. Hassan R, Rahimah AK (2007) Occlusion, malocclusion and method of measurements- An overview. Archives of Oro-facial sciences 2: 3-9.
4. Houston WJ (2000) Walther's Orthodontic notes (4th edition), The Stonebridge publishers, pp.46-50.
5. Graber TM, Orthodontics current principles and techniques 2nd ed, St. Louis: Mosby: 1994
6. Agarwal SS, Jayan B, Chopra SS - An Overview of malocclusion in India, Journal of dental Health, oral disorders and therapy (2015), 3(3): 00092.
7. VK Bhardwaj, KL Veerasha, KR Sharma – Prevalence of malocclusion an orthodontic treatment needs among 16 & 17 year old school going children in Shimla city, Himachal Pradesh, Indian Journal of Dental Research, 22(4), (2011): 556-560.
8. Col. Prasanna Kumar, Brig S.M. Londhe, Col. Atul Kotwal, Col. Rajat Mitra – Prevalence of Malocclusion an Orthodontic treatment need in school children-an epidemiological study, Medical Journal Armed forces India 69 (2012) 369-374.
9. Silva RG, Kang DS (2001) Prevalence of malocclusion among Latino Adolescents. Am J OrthodDentofacialOrthop 119(3): 313-315.
10. Dunning JM. Principles of Dental Public Health, 4th ed, Cambridge.
11. Emmanuel OA (2008) Prevalence of malocclusion among school children in Benin City, Nigeria. Journal of Medicine and Biomedical Research 7(1-2): 58-65.
12. Esa R, Razak IA, Allister JH. Epidemiology of malocclusion and orthodontic treatment need of 12-13 year old Malaysian school children. Community Dent Health 2001;18:31-6.
13. Kumar DA, Varghese RK, Chaturvedi SS, Agrawal C, Fating C, Makkad RS. Prevalence of malocclusion among children and adolescents residing in orphanages of Bilaspur, Chhattisgarh, India. J Adv Oral Res 2012 Sep-Dec;3(3):21-28.
14. Yewe Dyer M. The definition of oral health. Br Dent J 1993; 174:224-5.
15. Philip C, Bennet ME, Brader HL. Dentofacial disharmony, psychological status of patients seeking treatment consultation. Angle Orthod 1998;68:547-56.

