

A Retrospective Study of Different Malocclusions in Patients Visiting Orthodontic OPD of a Tertiary Care Hospital

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ABSTRACT

Background: A malocclusion is a misalignment or incorrect relation between the teeth of the two dental arches when they approach each other as the jaws close. The present study was conducted to assess the patients with different malocclusion.

Materials & Methods: It included 210 patients of both gender. Inclusion criteria used was patients age ranged 10-30 years, patients with permanent teeth only, no prior history of orthodontic treatment. Class I, II and III malocclusion, crowding, spacing, increased overjet, increased overbite, open bite and mandibular prognathism was evaluated clinically.

Results: Common malocclusion observed was crowding (72%) followed by angle class I malocclusion (62%) and increased overjet (42%). Mandibular prognathism was seen in 5%, spacing in 10% and angle class III in 12% cases. The difference was significant ($P < 0.05$). class I malocclusion was observed in 60 males and 70 females, class II in 40 males and 25 females, class III in 11 males and 20 females, spacing in 13 males and 13 females, crowding in 110 males and 79 females, open bite in 10 males and 79 females, deep bite in 30 males and 48 females, increased overjet in 60 males and 50 females and mandibular prognathism in 7 males and 6 females. The difference was non-significant ($P > 0.05$). Class II div I was seen in 13 males and 14 females, class II div II in 27 males and 11 females, anterior open bite in 4 males and 20 females, posterior open bite in 6 males and 25 females, upper crowding in 60 males and 49 females while lower crowding in 50 males and 30 females. The difference was significant ($P < 0.05$).

Conclusion: The most common malocclusion was crowding followed by angle class I malocclusion and increased overjet. Crowding was significantly more in males and open bite was significantly more in females as compared to males.

Keywords: Malocclusion, Open bite, Overjet.

INTRODUCTION

Occlusion is defined as the relationship of the maxillary and mandibular teeth as they are

brought into functional contact; while malocclusion is the state of any deviation from the normal or ideal occlusion. A malocclusion is a misalignment or

Received: June. 19, 2017; Accepted: Aug. 27, 2017

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incorrect relation between the teeth of the two dental arches when they approach each other as the jaws close. The term was coined by Edward Angle, the "father of modern orthodontics" [1] as a derivative of occlusion. This refers to the manner in which opposing teeth meet (mal- + occlusion = "incorrect occlusion").¹

The World Health Organization (1987), had included malocclusion under the heading of Handicapping Dento-facial anomaly, defined as an anomaly which causes disfigurement or which impedes function, and requiring treatment "if the disfigurement or functional defect was likely to be an obstacle to the patient's physical or emotional well-being". Malocclusions feature the third highest prevalence among oral pathologies, second only to tooth decay and periodontal disease, and therefore rank third among worldwide Public Health dental disease priorities.²

Extra teeth, lost teeth, impacted teeth, or abnormally shaped teeth have been cited as causes of malocclusion. A small underdeveloped jaw, caused by lack of masticatory stress during childhood, can cause tooth overcrowding. Ill-fitting dental fillings, crowns, appliances, retainers, or braces as well as misalignment of jaw fractures after a severe injury are other causes.³

Tumors of the mouth and jaw, thumb sucking, tongue thrusting, pacifier use beyond age, and prolonged use of a bottle have also been identified as causes. Knowledge about the distribution of different malocclusions helps orthodontic practitioners to understand the existent problem in a geographic location and help them in the planning awareness and preventive programs.⁴ The present study was conducted to assess the patients with different malocclusion.

MATERIALS & METHODS

The present retrospective study was to assess the number and types of malocclusion in patients visiting the department. It included 210 patients of both gender with chief complaint of malocclusion.

Following inclusion criteria was used- Patients age ranged 10-30 years, patients with permanent teeth only, no prior history of

orthodontic treatment. Class I, II and III malocclusion, crowding, spacing; increased overjet, increased overbite, open bite and mandibular prognathism as evaluated clinically. The data were obtained through direct clinical examination by an orthodontist. Results thus obtained were subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

RESULTS

Table 1: Distribution of malocclusion

Parameter	Number	Percentage
Angle class I	130	62%
Angle class II	65	25%
Angle class III	31	12%
Spacing	26	10%
Crowding	189	72%
Open bite	55	21%
Deep bite	78	30%
Increased overjet	110	42%
Mandibular prognathism	13	5%

Table I shows that most common malocclusion observed was crowding (72%) followed by angle class I malocclusion (62%) and increased overjet (42%). Mandibular prognathism was seen in 5%, spacing in 10% and angle class III in 12% cases. The difference was significant ($P < 0.05$).

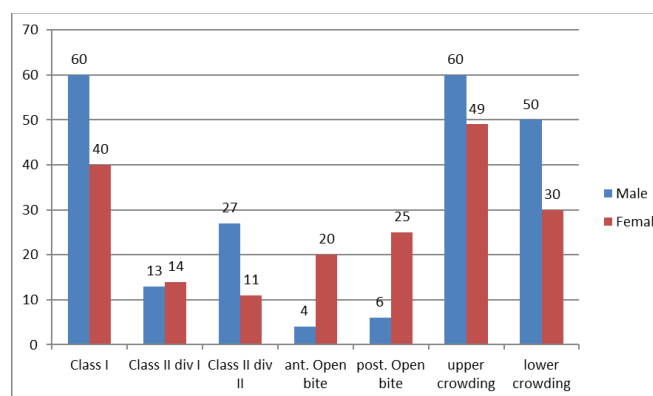
Table 2: Gender wise distribution of patients.

Parameter	Male	Female
Angle class I	60	70
Angle class II	40	25
Angle class III	11	20
Spacing	13	13
Crowding	110	79
Open bite	10	45
Deep bite	30	48
Increased overjet	60	50
Mandibular	7	6

prognathism

Table II shows that class I malocclusion was observed in 60 males and 70 females, class II in 40 males and 25 females, class III in 11 males and 20 females, spacing in 13 males and 13 females, crowding in 110 males and 79 females, open bite in 10 males and 79 females, deep bite in 30 males and 48 females, increased overjet in 60 males and 50 females and mandibular prognathism in 7 males and 6 females. The difference was non- significant ($P>0.05$).

Graph 1: Distribution of different malocclusion.



Graph I shows that class II div I was seen in 13 males and 14 females, class II div II in 27 males and 11 females, anterior open bite in 4 males and 20 females, posterior open bite in 6 males and 25 females. Upper crowding in 60 males and 49 females while lower crowding in 50 males and 30 females. The difference was significant ($P<0.05$).

DISCUSSION

Edward Angle, who is considered the father of modern orthodontics, was the first to classify malocclusion. He based his classifications on the relative position of the maxillary first molar. According to Angle, the mesiobuccal cusp of the upper first molar should align with the buccal groove of the mandibular first molar. The teeth should all fit on a line of occlusion which, in the upper arch, is a smooth curve through the central fossae of the posterior teeth and cingulum of the canines and incisors, and in the lower arch, is a smooth curve through the buccal cusps of the posterior teeth and incisal edges of the anterior teeth. Any variations from this resulted in

malocclusion types. It is also possible to have different classes of malocclusion on left and right sides.⁵

In present study, most common malocclusion observed was crowding followed by angle class I malocclusion and increased overjet. Mandibular prognathism was seen in 5%, spacing in 10% and angle class III in 12% cases. This is in agreement with Thilander et al.⁶

We found that class I malocclusion was observed more in females as compared to males, class II in males as compared to females, class III in females as compared to males. Crowding was significantly more in males as compared to females. This is in agreement with Profitt et al.⁷ We observed that open bite was significantly more in females as compared to males whereas deep bite, overjet and mandibular prognathism was almost equal in both gender. This is in agreement with Onyeso et al.⁸

Angle stated that class I as neutroclusion where the molar relationship of the occlusion is normal or as described for the maxillary first molar, but the other teeth have problems like spacing, crowding, over or under eruption, etc. Class II as distocclusion (retrognathism, overjet, overbite) in which, the mesiobuccal cusp of the upper first molar is not aligned with the mesiobuccal groove of the lower first molar. Instead it is anterior to it. Usually the mesiobuccal cusp rests in between the first mandibular molars and second premolars.⁹

There are two subtypes: Class II Division 1: The molar relationships are like that of Class II and the anterior teeth are protruded. Class II Division 2: The molar relationships are Class II but the central are retroclined and the lateral teeth are seen overlapping the centrals. Class III: Mesioclusion (prognathism, Anterior crossbite, negative overjet, underbite) In this case the upper molars are placed not in the mesiobuccal groove but posteriorly to it. The mesiobuccal cusp of the maxillary first molar lies posteriorly to the mesiobuccal groove of the mandibular first molar. Usually seen as when the lower front teeth are more prominent than the upper front teeth. In this case the patient very often has a large mandible or a short maxillary bone.¹⁰

CONCLUSION

The most common malocclusion was crowding followed by angle class I malocclusion and increased overjet. Crowding was significantly more in males and open bite was significantly more in females as compared to males whereas deep bite, overjet and mandibular prognathism was almost equal in both gender.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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