

Prevalence of Malocclusion in Patna, Bihar, India

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Abstract

The study was undertaken to determine the prevalence of malocclusion in Patna, Bihar, India. A total of 400 subjects, in the age group of 16–26 years were divided into five groups of normal occlusion, Angle's Class I, Class II Div 1, Class II Div 2, and Class III malocclusion. The results revealed that the prevalence of malocclusion was 63.25%, with the majority of them having Class I malocclusion (52.5%), while the prevalence of Class III malocclusion was found to be the least (1.75%). There was no statistically significant gender difference among the subjects studied.

Keywords: Malocclusion, Angle's classification, Population, Bihar

INTRODUCTION

Normal alignment of teeth not only contributes to the oral health but also goes a long way in the overall well-being and personality of an individual. Correct tooth position is an important factor for esthetics, function, and for overall preservation or restoration of dental health. While dental caries has been regarded as one of the major dental diseases throughout the world, malocclusion is a close runner-up. Many organized population surveys have been carried out in different parts of the world with the objective of estimating prevalence of malocclusion and orthodontic treatment needs.

The prevalence of malocclusion varies greatly in different parts of the world, in different ethnic groups and people of different origins. The prevalence of malocclusion among Indian population has been reported to be as low as 19.6% (Migliani *et al.* in 1965) and as high as 90% in Delhi (Sidhu).^[1] To assign a treatment plan and to work out on the treatment needs of a particular group or population, it is mandatory to know the trends of occurrence of various malocclusions. As there is a lack of statistical data on malocclusions in this particular geographical area, a study was conducted on 400 patients in the city of Patna, the capital of Bihar, to identify the distribution of malocclusion. Although there is no single way to classify malocclusion, the most commonly and universally accepted Angle's classification was used, due to its simplicity.

MATERIALS AND METHODS

The present study was carried out on 400 subjects ranging in ages from 16 to 26 years. The subjects were selected randomly from the patients reporting to the Dental OPD of PHC, Dhanarua, Patna, Bihar. The criteria for selection of the subjects were as follows:

1. All permanent teeth present in each arch (excluding third molars) and in a sufficient state of eruption.
2. No previous history of orthodontic treatment in either arch.
3. No large coronal restoration that might have altered both coronal shape and size.

All occlusal relationships were evaluated at a centric occlusion position which was achieved by asking the subject to swallow and then to bite on his or her teeth. The sample was divided into normal occlusion (NO) group and malocclusion groups, on the basis of Angle's classification.

- Group I: NO: Only those subjects were included in the study which on clinical evaluation showed bilateral

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Angle's Class I molar relationship with acceptable overjet and overbite and well-aligned arches.

- Group II: Showed bilateral Angle's Class I molar relationship with one or more of these characteristics: Crowded incisors (Dewey Type 1), protruded maxillary incisors (Dewey Type 2), anterior cross-bite (Dewey Type 3), unilateral or bilateral posterior cross-bite (Dewey Type 4), mesial drift of molars (Dewey Type 5), anterior or posterior open bite, and deep anterior overbite.
- Group III: Class II Div 1 malocclusion
- Group IV: Class II Div 2 malocclusion
- Group V: Class III malocclusion

The collected data were tabulated and analyzed statistically.

RESULTS

The occlusal classification of the subjects is shown in Table 1 that shows that NO was found in 36.75% of the subjects and 63.25% of the subjects had malocclusion. Prevalence of Angle's Class I malocclusion was the highest (52.50%) and that of Angle's Class III malocclusion was the least (1.75%).

Table 2 shows the gender distribution of NO and various types of malocclusion. While 43.75% of the males had NO, Class II Div 2 and Class III malocclusion were least prevalent (2.89% each). The females with NO constituted 29.16% of the sample while prevalence of Class III malocclusion was the least (0.52%).

DISCUSSION

The study showed that 63.25% of the subjects surveyed had malocclusion. This is somewhat similar to the findings of Das and Venkatsubramanian,^[2] who conducted an epidemiological study of malocclusion in the age group of 8–12 years in Bangalore city in 2008, and reported a high incidence of malocclusion of 71%. The findings of the present study are in disagreement with those of Kharbandha *et al.*^[3] who have found 36.6% prevalence of malocclusion in Delhi, while Sidhu^[4] in his study found higher prevalence rate of Angle's malocclusion of 90% in the age group of 6–30 years.

Angle's Class I malocclusion (52.50%) was more common than Angle's Class II Div 1 malocclusion (6.25%). This is similar to the findings of Das and Venkatsubramanian,^[2] who reported 62% Class I malocclusion and 7% Class II Div 1 malocclusion. The prevalence of Class II Div 2 and Class III malocclusion were low, that is, 2.75% and 1.75%, respectively. This is similar to the findings of Singh *et al.*,^[5] who reported prevalence of class II Div 2 malocclusion of 5.85% and prevalence of Class III malocclusion of 3.17% in his study of distribution of malocclusion among North Indians seeking orthodontic treatment.

Table 1: Occlusal classification

Type of occlusion	N	%
Normal occlusion (NO)	147	36.75
Angle's Class I malocclusion	210	52.50
Angle's Class II Div 1 malocclusion	25	06.25
Angle's Class II Div 2 malocclusion	11	02.75
Angle's Class III malocclusion	07	01.75
Total	400	100.0

Table 2: Gender distribution of occlusal variations

Occlusal classification	Male		Female	
	n	%	n	%
Normal occlusion (NO)	91	43.75	56	29.16
Angle's Class I malocclusion	87	41.82	123	64.06
Angle's Class II Div 1 malocclusion	18	8.65	07	3.65
Angle's Class II Div 2 malocclusion	06	2.89	05	2.61
Angle's Class III malocclusion	06	2.89	01	0.52
Total	208	100	192	100

There was no statistically significant difference between males and females either in the prevalence of malocclusion.

CONCLUSION

From this study, the following conclusions have been drawn:

- Prevalence of malocclusion was found to be 63.25%.
- Angle's Class I malocclusion was more prevalent as compared to the other types of malocclusion.
- There was no statistically significant gender difference among the subjects studied.

The prevalence of malocclusion is high, a reason to continue training professionals to care for those patients in need of treatment. The functional, esthetic, and psychologic benefits of orthodontic treatment ensure a continued seeking out of these services by those afflicted with malocclusion.

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