

PREVALENCE OF DEEP BITE IN ORTHODONTIC PATIENTS

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ABSTRACT

The aim of the present study was to evaluate the deep bite status of orthodontic patients. Sample consisted of 100 pre-treatment study casts of patients at the Orthodontics department de, Montmorency College of Dentistry, Lahore. The data was statistically analyzed by SPSS (8.0). Overall, it was found that 7% patients had open bite. 17% showed normal value of incisor over bite, while 76% patients showed varying values of deep bite. Out of these 76 patients (76 %), 28% were male and 72% were female patients. As far as the distribution of these 76 patients in different categories of deep bite is concerned. Maximum number of patients; 92% of these were having mild to moderate degree of deep bite while only 8% showed full coverage of lower incisor crowns.

Key words: Orthodontic treatment, Malocclusion, Over bite, Deep bite

INTRODUCTION

Deep bite can be defined as "vertical overlap of upper teeth on the labial surface of lower teeth in centric occlusion when exceeds normal range of 1-2 mm"¹. Deep bite has been considered one of the most common malocclusion and the most difficult to treat successfully¹.

Several factors are associated with development of deep bite. Among these are Incisor supraocclusion, excessive overjet, canine position, molar infraocclusion, mandibular ramus height, and vertical face type¹.

Deep bite has been found to be associated with abnormal mandibular function² and T.M.J disorders^{2,3}. Similarly patients who have had deep overbites may require an indeterminate length of time in retention⁴. Accurate information on prevalence of different occlusal traits like deep bite may be needed when planning of orthodontic services involves targeting specific types of malocclusion⁵.

Considering the significance of deep bite in orthodontic treatment planning and treatment execution, importance of accurately determining deep bite status cannot be underestimated.

METHODOLOGY

It was a cross-sectional, observational study, carried on 100⁶ pretreatment study casts of patients having permanent dentition, irrespective of their gender. Study casts were selected consecutively^{7, 8} from the model store of orthodontics department de, Montmorency College of Dentistry, Lahore Pakistan,

having the following inclusion criteria; undamaged, acceptable quality study casts⁹ and presence of permanent dentition^{8, 10}. Care was taken to exclude study casts of patients, who were having; previous orthodontic treatment^{6, 9}, history of serial extraction¹¹ and history of extraction of any permanent teeth⁹.

Scoring of the selected 100 sets of study casts were done, to evaluate deep bite according to following criteria by the authors^{5, 10}.

Score	Overbite severity
0.0	< 1/3 lower incisor coverage
1.0	1/3 to 2/3 coverage
2.0	2/3 up to fully covered
3.0	fully covered

The 100 study casts were divided into three groups depending on the amount of vertical overlap of upper teeth on the labial surface of lower teeth in centric occlusion

Normal Over bite Over bite Score 0.0

Deep bite Over bite Score 1.0, 2.0, 3.0.

A person was said to have **open bite** if there was lack of vertical overlap of upper teeth on the labial surface of lower teeth in centric occlusion.

For Intraexaminer reliability, 30 sets of study casts were randomly selected from the main sample and were reassessed 15 days after the initial assessment. SPSS (8.0) was used to analyze the data statistically.

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RESULTS

The chronological age range of the sample was 11-25.5 years, with a mean age of 17.19 years (S.D 3.1). The sex distribution (Table 1) was 25 males (25%) and 75 females (75%).

7 patients had open bite. In the open bite group, 6 patients were female and one patient was male. Remaining 93 patients were having varying degrees of overbite (Table 2). Out of 93 patients, 74% were female and 26% were male. 17% patients showed normal value of incisor over bite ($< 1/3$ lower incisor coverage).

76 patients (76%) showed varying degrees of deep bite. 50 patients had $1/3$ to $2/3$ lower incisor coverage. 20 patients showed $2/3$ up to full coverage of lower incisors, while 6 patients were found to have full coverage of lower incisor crowns. The value for kappa statistics was found to be 1.

TABLE 1: DISTRIBUTION OF MALE AND FEMALE SUBJECTS

		Total
Gender	Male	25
	Female	75
Total		100

TABLE 2: SEX DISTRIBUTION OF THE SAMPLE INTO VARYING SEVERITY OF OVERBITE/DEEP BITE

		Incisor overbite				Total
		00	1.00	2.00	3.00	
Gender	Male	3	13	7	1	24
	Female	14	37	13	5	69
Total		17	50	20	6	93

Score	Overbite severity
0.0	$< 1/3$ lower incisor coverage
1.0	$1/3$ to $2/3$ coverage
2.0	$2/3$ up to fully covered
3.0	Fully covered

DISCUSSION

The study was conducted at de, Montmorency College of Dentistry/Punjab Dental Hospital on study casts of patients present in the model store of orthodontics department. The subjects for this study were not taken from general population, but sought care and were receiving treatment at the orthodontics department, de, Montmorency College of Dentistry, Lahore. Patients seeking orthodontic treatment are of both sexes; including preadolescents, adolescents and adults.

The number of female patients 75% compared to 25% male patients in this study clearly indicates the concern of orthodontic treatment among females in our socioeconomic setup, this is consistent with findings of other studies done elsewhere¹². Although the figure of 75% of females is quite higher than a previously conducted malocclusion survey at Orthodontics department¹¹, but that survey was conducted on the

patients reporting to the orthodontic department, while subjects of the present study were the ones who were already receiving orthodontic treatment or they were about to receive it.

The results of this study showed that 7 patients (7%) had open bite, while 17 patients (17%) had normal value of incisor overbite ($< 1/3$ lower incisor coverage). Out of these 17 patients, 3 patients (18%) were male and 14 (82%) were female. 76 patients (76%) showed varying degrees of incisor deep bite, with 28% male and 72% females patients.

As far as the degree of deep bite is concerned, it is obvious from Table 2, that out of 76% patients, highest number of patients; 50 patients (66%) were having mild degree of deep bite ($1/3$ to $2/3$ lower incisor coverage). Moderate degree of deep bite was shown by 26% patients ($2/3$ up to full coverage of lower incisor crowns), while 8% patients were found to have severe deep bite (full coverage of lower incisor crowns). If we look at the female to male ratio in different categories of deep bite, it is clear from Table 2 that in all three categories of deep bite, the number of female outweighs the number of male patients.

CONCLUSION

It can be concluded that most of the patients had mild to moderate degree of deep bite (70% patients). In all categories of deep bite, female to male ratio was higher.

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