

Prevalence of Common Dental Problems Among Orthodontic Patients Attending OPD: A Survey Based Study

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ABSTRACT

Background: The purpose of this study was to know the prevalence of common dental problems among orthodontic patients.

Materials and methods: 200 patients (100 male and 100 female) were selected from the patients referred to the orthodontic department in Patna dental college and hospital, Patna. With the help of a questionnaire, a survey was conducted to find out various dental problems in the patients selected for the study. Data collected from the survey was subjected to descriptive analysis and prevalence of common dental problems like dental caries, gingivitis, fractured teeth etc was calculated.

Result: 53 % patients were found to show dental caries whereas gingivitis was found to be in 14 % of patients. Dental hypersensitivity being the third one was found in 8% of sample population.

Conclusion: Dental caries was reported to be a major dental problem followed by gingivitis and dental hypersensitivity. Fractured teeth, impacted upper and lower 3rd molars, periodontitis, extracted teeth and retained deciduous teeth were found in less than 10% of population.

Keywords: Prevalence, orthodontic problem, orthodontic patient.

INTRODUCTION

Maintaining good oral hygiene is very much important for having healthy teeth and gingiva. "Oral Health for a Healthy Life" was the theme declared by World Health Organization on World Health Day 1994. As many oral diseases affects systemic condition of body, maintaining good oral health is important for over all physical health. Healthy oral environment also play an important role in attainment of proper facial aesthetics.

Orthodontic treatment is based on three objectives: structural balance, aesthetic harmony and functional efficiency. However various studies¹ have shown that orthodontic treatment can lead to increased demineralization, on the buccal surfaces of teeth. Furthermore, presence of unhealthy oral

environment before orthodontic treatment is associated with greater incidence and severity of white spots lesions and it can also contribute to various periodontal problems. Accumulation of Plaque can lead to development of hyperplastic gingivitis and periodontal breakdown². Therefore, it is very much essential to maintain acceptable oral hygiene in patients undergoing orthodontic treatment in order to prevent dental caries and gingival inflammation. For implementing various modalities of preventive as well as corrective orthodontics, it is essential to assess complete oral health and hence this study aimed to know the incidence of common dental problems among the patients attending orthodontic department.

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A descriptive cross-sectional hospital based survey was conducted in the department of orthodontics and dentofacial orthopaedics, Patna dental college and hospital, Patna. A total of 200 (100 males, 100 female) new patients attending orthodontic OPD and giving consent to participate in the study were included in the study. Each of these patients were examined and all the clinical findings along with history were recorded with the help of a questionnaire. Along with demographic variables to know age and sex of the patients included in the study, all the findings of clinical examination and the type of treatment offered were recorded. For clinical examination following criteria were used:

Dental Caries

The teeth showing discoloration, chalky appearance of enamel, softened enamel or broken surface by visual examination or probing has been defined as caries tooth³.

Gingivitis

Bleeding from gum on visual examination or bleeding from sulcus on gentle probing and presence of deposits on teeth were diagnosed as gingivitis⁴.

Retained deciduous teeth was retained beyond the time of exfoliation was diagnosed as retained deciduous teeth⁵.

Fractured teeth Tooth with broken edges with no obvious evidence of caries were diagnosed as traumatic fractured teeth. This was confirmed by eliciting history of trauma after diagnosing fractured teeth⁶.

Orthodontic problems

Presence of all varieties of malocclusion due to any cause was diagnosed as orthodontic problem. Malocclusion is defined as any deviation from ideal occlusion⁷.

The data thus collected were analyzed using Microsoft Office Excel and the proportions of various variables were recorded.

RESULT

A descriptive cross sectional survey based study was conducted on 200 patients (100 males, 100 females) to know the incidence of various dental diseases in patients who visited department of orthodontics and dentofacial orthopaedics, Patna dental college and hospital, Patna. Gender distribution was equal for male and female (50%) [Table 1, Graph 1] in the study. Majority of the patients were of age group 11-15 years followed by 16-20 years of age [Table 2]. As sample population consisted of patients referred to the orthodontic department, separate proportion was calculated for orthodontic problem. Out of 200 patients, 62 percent (124) showed class I malocclusion, 26 percent (52) patients showed class II and 12 percent (24) showed class III malocclusion [Table 3].

Considering other dental conditions, 54 percent of patients, reported with presence of dental caries. Second common condition was gingivitis which was found in 14 percent of population. Dental hypersensitivity was the third major problem (8 %) encountered in this study. Other dental problems like impacted third molar (upper 2%, lower 6%), extracted teeth (5%), fractured teeth (3%), presence of retained deciduous teeth (6%) and periodontitis (3%) encountered in less than 10 percent of population.

Table 1: Gender distribution of sample

Gender	Number	Percentage%
Female	100	50.00%
Male	100	50.00%
Total	200	100.00%

Graph 1: Gender distribution of the patients.

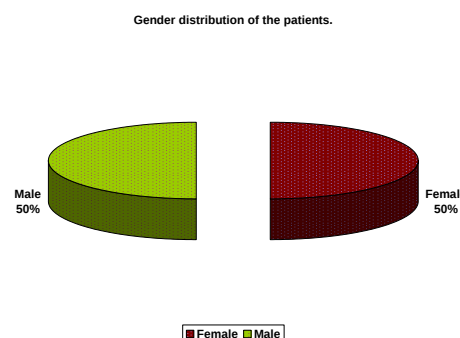


Table 2: Distribution of age of patients.

Age (years)	Percentage
1-5	0
6-10	18
11-15	64
16-20	47
21-25	29
26-30	25
31-35	17
36-40	0

Table 4: Observed dental conditions in patients.

Dental condition	Percentage
Gingivitis	14
Periodontitis	3
Dentinal hypersensitivity	8
Dental caries	53
Extracted teeth	5
Impacted upper third molar	2
Impacted lower third molar	6
Retained deciduous teeth	6
Fractured teeth	3

Table 3: Observed orthodontic problem.

Orthodontic problem	Percentage
Angle's class I malocclusion	62
Angle's class II malocclusion	26
Angle's class III malocclusion	12

DISCUSSION

Excellent oral hygiene is essential during orthodontic treatment. Inadequate or improper hygiene could result in cavities, discoloured teeth, periodontal disease and/or decalcification. These same problems can occur without orthodontic treatment, but the risk is greater to individual wearing braces or other appliances. These problems may be aggravated if the patient has not had the

benefit of fluoridated water or its substitute, or if the patient often consumes sweetened beverages or foods. Due to this greater impact of oral hygiene on orthodontic treatment effect, it is better to have an idea of prevalence of various dental problems along with orthodontic one. By keeping this in mind, the present study was done to find out prevalence of various dental problems among orthodontic patients.

The result of the study showed dental caries to be the commonest dental problem in the sample population. 53 percent of sample population was found to be affected by dental caries. The findings of this study was in consistent with the study done by Jose A and Joseph M R⁸ in rural Kerala. They reported 54.3% prevalence of dental caries. Cand.Odont. Severre Aukland and Cand.Odont.Johny Bjelkaroe⁹ reported prevalence of dental caries to be 45.8% which was also nearby the finding of the present study..

Gingivitis was found to be second common problem in the present study. The prevalence was found to be 14 %. The result of this study was also in agreement with JoseA⁸ who found15% prevalence of gingivitis. From US National sample surveys 1986 - 1987 among 12-17 year olds, Carranza reported 58.8% prevalence of gingivitis¹⁰ which was much more higher than the value obtained in the present study. Doifode et al. Found prevalence of 48.6% whereas Chakraborty et al.¹¹ in Siliguri found a prevalence of 57.03% which was also much higher than the present study. Periodontal (gum and bone) disease can develop or worsen during orthodontic treatment due to many factors, but most often due to the lack of adequate oral hygiene. 3 percent of patients showed periodontal problem in the present study.

Retained deciduous teeth are not a rare occurrence in orthodontic treatment. The present study showed a prevalence rate of 6% .Almost similar findings have been reported by Jose A who found 7% retained deciduous teeth in the study sample.⁸ Dentinal hypersensitivity was found to be third major problem in the study with a prevalence of 8%. A similar result (8.5%) was reported by Goryawala S. N.¹² in a survey conducted at a tertiary care hospital from central Gujarat.

The present study showed that among various types of malocclusion, angles class I malocclusion is most commonly found. 62 % of patients showed angles class I malocclusion whereas percentage of class II and class III malocclusion was found to be 34% and 4% respectively. a study conducted by Rashed Mohammed Golam Rabbani¹³ showed almost similar findings with class I malocclusion 61.8%, class II 25.2 % and class III was found to be 13 %.

CONCLUSION

Dental caries and gingivitis are major dental problems among patients visiting to orthodontic department. The steps must be taken to prevent dental caries and to ensure adequate gingival and periodontal health for better orthodontic treatment.

CONFLICT OF INTEREST

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

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