

## Original Article

### Oral Hygiene Status among Patients receiving Orthodontic Treatment

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#### ABSTRACT:

**Background:** Number of patients seeking orthodontic treatment has increased over years. Orthodontic treatment not only improves functioning of dentition it also aids to esthetic values. However it is related with many complications like oral hygiene, pain etc. Brackets often cause food accumulation and leads to poor oral hygiene. **Aim:** To evaluate the oral hygiene status among patients receiving orthodontic treatment. **Material and method:** A total of 60 patients were evaluated, 30 males and 30 females. Age group selected for the study was 12 to 40 years. A Simplified Oral hygiene Index was used to determine oral hygiene status. The Debris index and Calculus index for each patient were determined. A self-administered questionnaire was also used to determine the cleaning measures used frequency of brushing. **Results:** Sixty orthodontic patients consisting of 30 females (50%) and 30 males (50%) were included in the study. 65% were scored under good oral hygiene status. 53.3% patients reported they brushed twice daily. Use of mouthwash was more common among patients. **Conclusion:** The studied showed good oral hygiene care among patients undergoing orthodontic treatment. Regular oral prophylaxis and continuous motivation can help to maintain good oral hygiene.

**Key words:** oral hygiene, orthodontic patients, plaque index, mouthwash.

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#### INTRODUCTION:

Orthodontic treatment is one of the most accepted and acknowledged dental treatment due to its positive effects on the dentofacial complex and esthetics. It not only helps in establishing dental and facial esthetics but also helps in building self esteem of an individual.<sup>1,2</sup> Anomalies in dentition can lead to derangement of teeth and leads to malocclusion. Lack of space, overcrowding, deep bite etc causes plaque accumulation. Not only malocclusions but also placement of orthodontic brackets used for correction of malocclusion causes plaque accumulation.

Good oral hygiene is the key to success. Inadequate oral health care can lead to accumulation of food which further leads to plaque accumulation, gingivitis, halitosis, and dental caries and if not treated on time can cause periodontitis. According to the data available patients with orthodontic appliances are at increased risk of caries and gingivitis.<sup>3,4</sup> However Zachrisson in his study mentioned that orthodontic treatment has negligible effect on periodontal status of patients.<sup>5</sup> Due to complex nature of

orthodontic brackets self cleansing is not possible and patients generally fail to maintain good oral hygiene. Regular monitoring and continuous motivation can help to maintain good oral hygiene. The Simplified Oral Hygiene Index by Greene and Vermillion is often used for assessment of oral hygiene state of individuals.<sup>6</sup> Regular examination conducted on patients undergoing orthodontic treatment will reveal the current oral hygiene status among individuals.

So we aimed to evaluate the oral hygiene status among patients undergoing orthodontic treatment.

#### MATERIAL AND METHOD:

A cross sectional study was planned. Sample selected for the study consisted of individuals undergoing orthodontic treatment. A total of 60 patients were selected for the study, 30 males and 30 females. Age groups selected for the study were patients aged between 12 to 40 years. Inclusion criteria for the study included:

1. Patients undergoing orthodontic treatment

2. Age group 12 to 35 years
3. No systemic disease
4. No history of oral prophylaxis at least 4 weeks preceding their examination.

Present study was approved by ethical committee. A written informed consent was obtained from patients/guardians and patients were explained in detailed regarding the study. Complete oral examination was done with the help of mouth mirror and probe. The patients were examined during every 6 months by a trained examiner. A Simplified Oral hygiene Index was used to determine oral hygiene status.<sup>6</sup> The Debris index and Calculus index for each patient were recorded. Patients were graded into three groups:

Group 1- Good (OHI value 0-1.2),

Group 2-Fair (OHI value 1.3-3.0) and

Group 3- Poor (OHI value 3.1-6.0)

A self-administered questionnaire was also used and it aimed at oral hygiene practice. Question asked mainly consisted of method of brushing, frequency of brushing, type of tooth brush used and use of other oral hygiene aids like mouthwash, floss, Interdental brush etc.

**DATA ANALYSIS:**

All the data was collected and tabulated. Statistical analysis was done using Statistical Package for Social Sciences (SPSS) version 10. One-way analysis of variance (ANOVA) was used to determine differences at the 5 percent significance level (p<0.05).

**RESULTS:**

A total of orthodontic patients consisting of 30 females (50%) and 30 males (50%) were included in the study (table 1). Patients were aged between 12 to 40 years. Most common age group in present study was 12-20 years i.e. 28 patients (46.6%) and 21-30 years, 29 patients (48.3%). In age group 12-20 years number of males (53.3%) were more as compared to females and in age group 21-30 it was vice versa (Table 2).

On examination of oral hygiene status it was found that majority of subjects showed good oral hygiene 39 patients (65%). Out of 60 patients 18 were scored under fair oral hygiene (30%). However 3 patients were categorized under poor oral hygiene (5%). There was no statistically significant differences in the distribution of oral hygiene status (P>0.05) among the patients (Table 3). When asked about frequency of brushing 10 males (33.3%) and 8 females (26.6%) said they brush once daily. 15 males (50%) and 17 females (56.6%) reported they brushed twice daily. Frequency of brushing twice was more common among females as compared to males. Highly significant difference was found among patients brushing twice, 2-3 times and more than 3 times (p-0.001). 11.6% patients said they brushed two to three times a day. However only 5% said they brushed more than three time 2 males and 1 female (Graph 1). Mouthwash, Interdental tooth brush, dental floss and tooth pick were the other oral hygiene aids used by the patients. 63.3% said they regularly use mouth wash, 58.5%

said the use Interdental tooth brush. Whereas 28.3% reported using dental floss and 16 said they prefer toothpick. Use of dental floss and tooth pick was less common among patients (Graph 2).

**TABLE 1: PATIENTS DEMOGRAPHIC DATA**

Gender	Sample (n)	Percentage
Male	30	50%
Female	30	50%
<b>Total</b>	<b>100</b>	<b>100%</b>

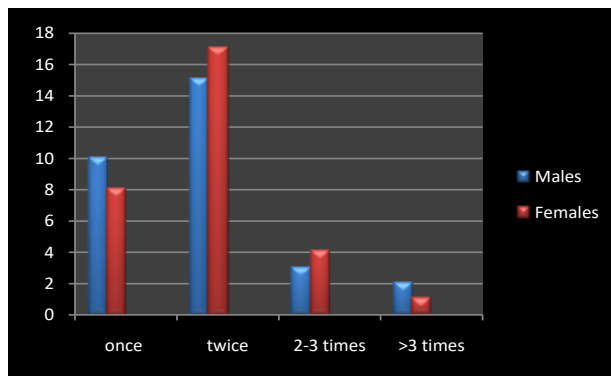
**TABLE 2: AGE AND GENDER DISTRIBUTION**

AGE	MALES	FEMALES	TOTAL
12-20	16 (53.3%)	13 (43.3%)	28 (46.6)
21-30	12 (40%)	17 (56.6%)	29 (48.3)
31-40	2 (6.7%)	0	2 (3.3%)
<b>TOTAL</b>	<b>30 (100%)</b>	<b>30 (100%)</b>	<b>60 (100%)</b>

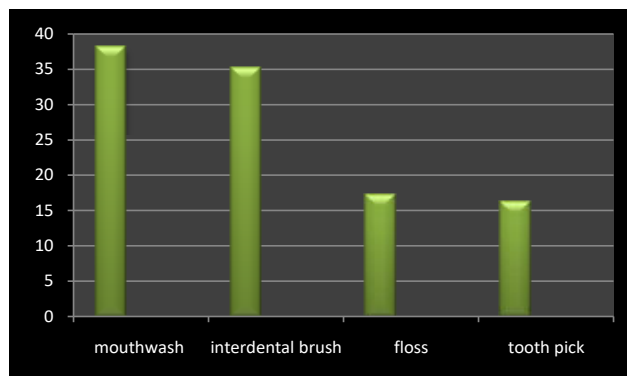
**TABLE 3: ORAL HYGIENE INDEX**

OHI Score	n= 60	Percentage
Good	39	65%
Fair	18	30%
Poor	3	5%
<b>Total</b>	<b>60</b>	<b>100%</b>

**Graph 1: FREQUENCY OF TOOTH BRUSHING**



**GRAPH 2: OTHER ORAL HYGIENE AIDS USED**



## DISCUSSION:

Orthodontic treatment along with its benefits is also associated with complications like pain, accumulation of food under brackets and discomfort that may occur during treatment.<sup>7</sup> Good oral hygiene has an important role to play in prognosis of orthodontic treatment.<sup>8</sup> Authors have suggested that plaque buildup was more common among bracket wearers and maintain a oral hygiene regime was often difficult.<sup>9,10</sup>

Assessment of oral hygiene and continuous motivation to maintain oral hygiene is important in patients undergoing orthodontic treatment. In present study total 60 patients were examined and number of males and females participating in study were equal (Table 1) Assessment of oral hygiene status in present study revealed a good number of patients had good oral hygiene i.e.65% (Table 3). Only three patients in our study reported poor oral hygiene. The expected reason behind was negligence in brushing. Wang et al in his study suggested that comprehensive oral hygiene care program helped patients to control plaque, decrease gingival inflammation and improve patients' oral health status.<sup>11</sup>

Study conducted by Wang et al and other suggested that there was no significant difference in oral hygiene practices between genders or age groups.<sup>11,12</sup> We are in agreement with authors in our study no statistical gender differences was found in the distribution of oral hygiene status among orthodontic patients. In current study majority of subjects reported that they brushed twice daily (53.3%), it was more common in females (Graph 1). Atassi F and Awartani in their study reported 54% patients brushed twice daily. 30% said they brushed once daily. Many others mentioned that majority patients brushed at least twice daily, similarly to the those reported in our study.<sup>12,14</sup>

All the 60 patients said they used tooth brush. Thus toothbrush is the most common oral hygiene aid used which is similar to those reported in other studies.<sup>3,14</sup> when asked about the other oral hygiene aids used 63.3% (n=38) said they used mouthwash and 58.3% (n=35) used interdental tooth brush (graph 2). Less use of floss was evident in present study. Patients said it was technique sensitive and they found it difficult to use.

## CONCLUSION:

Within the limits of our study it was found that oral hygiene awareness is increased among patients undergoing orthodontic treatment.

Oral hygiene status was found to be satisfactorily good in present study only three patients were scored under poor oral hygiene. No statistical difference was found among males and females. Use of other aids like mouthwash and interdental tooth brushes are no more uncommon among bracket wearers. Correct brushing habits and regular oral prophylaxis can help to prevent complications caused due to orthodontic treatment.

## REFERENCES:

1. Ellis PE, Benson PE Potential hazards of orthodontic treatment-what your patient should know. Dent Update 2002; 29: 492-96.
2. Shaw WC, O'Brien KD, Richmond S (1991) Quality control in orthodontics: factors influencing the receipt of orthodontic treatment. Br Dent J 170(2): 66-68.
3. Zachrisson S, Zachrisson BU. Gingival condition associated with orthodontic treatment. Angle Orthod. 1972; 42(1):26-34.
4. Leggott PJ, Boyd RL, Quinn RS, Eakle WS, Chambers DW. Gingival disease pattern during fixed orthodontic therapy adolescents versus adults. J Dent Res 1984; 63 (Special issue): 309, abstract 1245.
5. Zachrisson BU (1984) Periodontal changes during orthodontic treatment. In: McNamara JA, et al. (Eds.), Malocclusion and the periodontium, Center for Human Growth and Development, University of Michigan, USA, pp. 268.
6. Greene JC, Vermillion JR, The simplified oral hygiene index. J Am Dent Assoc 1964;68: 7-13.
7. Petrone J, Fishell J, Berk NW, Kapur R, Sciote J, et al. (2003) Relationship of malocclusion severity and treatment fee to consumer's expectation of treatment outcome. Am J Orthod Dentofacial Orthop 124: 41-45.
8. Da'ameh MD, Al-Shorman I, Al-Shdeifat N, Fnaish MM (2011) Oral hygiene measures in orthodontic treatment in Northern Jordan. Pakistan Oral & Dental J 31: 336-339.
9. Travess H, Roberts-Harry D, Sandy J (2004) Orthodontics. Part 6: Risks in orthodontic treatment. Br Dent J 196: 71-77.
10. Hadler-Olsen S, Sandvik K, El-Agroudi MA, Ogaard B (2012) The incidence of caries and white spot lesions in orthodontically treated adolescents with a comprehensive caries prophylactic regimen- a prospective study. Eur J Orthod 34: 633-639.
11. Wang SY, Yang YH, Chang HP (2007) The effect of an oral hygiene intervention on plaque control by orthodontic patients. J Dent Sci 2: 45-51.
12. Ajayi EO, Azodo CC. Oral hygiene status among orthodontic patients attending University of Benin Teaching Hospital, Benin City, Nigeria. J Dent Health Oral Disord Ther 1: 00023.
13. Atassi F, Awartani F (2010) Oral hygiene status among orthodontic patients. J Contemp Dent Pract 11(4): 25-32.
14. Elanchezhian S, Raja (2010) Awareness on gingival health among orthodontic correction seeking individuals. JIADS 1: 19-21.

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