

Oral hygiene methods followed by patients with malocclusion

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ABSTRACT

Background: Orthodontic treatment has been given high importance in the contemporary dental care as the number of people seeking for the treatment is increasing annually. However, the placement of fixed orthodontic appliances has led to difficulties in the maintenance of oral hygiene. **Aim:** The aim of the study was to determine the oral hygiene methods followed by the orthodontic patients under fixed appliances therapy at Chennai. **Methodology:** A pretested questionnaire detailing the oral hygiene practices among orthodontic patients was composed and distributed. The study sample consisted of 60 patients undergoing orthodontic treatment at Saveetha Dental College, Chennai, India, satisfying suitable inclusion criteria. The responses were tabulated and analyzed. **Results:** Results show that the major age group that receives orthodontic treatment is in the group of 11–20 years constituting 46.7%. Besides that in relation to the frequency of toothbrushing among the subjects, most of the patients brush teeth twice daily with a percentage of 68.3%. 46.67% do not use any of the aids. Most of the patients brush teeth twice daily with a percentage of 68.3%. 46.67% do not use any of the aids. However, among the oral hygiene aids, subject prefers using the toothpick with a percentage of 23.3%, followed by dental floss and finally miswak and interdental brush with 6.67%. **Conclusion:** The orthodontic patients in this study have adequate knowledge on oral hygiene practices with tooth brushing and moderate levels of awareness on other oral hygiene aids. Rigorous health education on oral hygiene measures can be attributed for this achievement.

KEY WORDS: Dental hospital, Malocclusion, Methods, Oral hygiene, Orthodontic treatment

INTRODUCTION

Orthodontic treatment has been given high importance in the contemporary dental care as the number of people seeking for the treatment is increasing annually. This treatment is mostly received in the form of fixed appliances which aids in improving esthetics.^[1] This mechanotherapy works by correcting malocclusion and the skeletal defects. However, placement of fixed orthodontic appliances has led to difficulties in the maintenance of oral hygiene. This is mainly due to inadequate oral home care and dental hygiene practices which leads to plaque accumulation which increases the probability of the orthodontic patients in developing gingivitis, gingival recession, loss of gingival attachment, and periodontal support and dental caries.^[2,3] Thus, patients undergoing orthodontic treatment should always maintain their oral hygiene through proper use of various dental

aids to prevent any periodontal issues or dental caries. According to the study conducted by Zachrisson,^[4] he had observed that conventional orthodontic treatment has negligible effects on periodontal health if oral hygiene procedures are maintained during treatment. Other than that, Ramfjord and Ash^[5] also reported that crowding of teeth is the factor that determines the severity of gingivitis and it is not determined by the amount of plaque present on the teeth. Thus, it is the duty of the clinician to ensure the patients to be aware of the potential of the components of the fixed appliance in plaque retention and colonization of microfloras. Special care should be implemented in poorly motivated patients to prevent any dental or oral infections.^[6-8] Oral hygiene assessment is necessary for patients receiving fixed appliance to facilitate treatment planning and oral hygiene instructions to be given. Thus, occurrence of dental or oral infection can be prevented at an early stage while minimizing ill effects to the oral cavity. The aim of this study was to determine the oral hygiene methods followed by the orthodontic patients under fixed appliances therapy at the Saveetha Dental College, Chennai.

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MATERIALS AND METHODS

A study conducted among the patients undergoing active orthodontic treatment at the Orthodontic Department of Saveetha Dental College was conducted in June 2016. The orthodontic patients are selected based on following criteria:

1. Treatment that consisted of full mouth fixed appliance that had been in place for at least 6 months
2. No systemic diseases
3. No history of any antibiotics intake
4. No treatment by a dental hygienist any time during the month preceding the study.

The study sample consisted of 60 patients undergoing orthodontic treatment at Saveetha Dental College, Chennai, India. A set of questionnaire was composed and distributed. The questionnaire contained the following items regarding the different aspects of oral hygiene care:

1. Do you use toothbrush?
2. If yes, how many times do you use it per day?
3. What kind of toothbrush do you use?
4. What type of toothbrush do you use?
5. Do you use any of the following cleaning aids?
 - a. Dental floss (y/n)
 - b. Interdental brush (y/n)
 - c. Toothpick (y/n)
 - d. Miswak(y/n).
6. Do you use mouthwash?
7. If yes, what type of mouthwash do you use?
8. Have you done scaling during orthodontic treatment?
9. If yes, how many times.

RESULTS

A total of 60 patients were examined in this study. Table 1 and Figure 1 show the age group of the orthodontic patients attending Saveetha Dental College. It shows that the major age group that receives orthodontic treatment is in the group of 11–20 years constituting 46.7% which is depicted in Table 1.

Figure 1 depicts the frequency of the tooth brushing among the subjects. Most of the patients brush teeth twice daily with a percentage of 68.3%. Then, the statistics is followed by subjects that brush once daily and more than once daily which is depicted in Table 2 and Figure 2.

Besides that, various oral hygiene aids used by the patients are also assessed and depicted in Table 3 and Figure 3, 46.67% patients do not use any of the aids. However, among the oral hygiene aids, subject prefers using the toothpick with a percentage of 23.33%, followed by 16.67% with dental floss and finally miswak and interdental brush with same 6.67%.

Table 1: Age group of orthodontic patient participated in this study

| Age group | Number of patients (%) |
|-----------|------------------------|
| 11–20 | 28 (46.7) |
| 21–30 | 21 (35) |
| 31–40 | 9 (15) |
| 41–50 | 2 (3.3) |

Table 2: Frequency of tooth brushing

| Frequency of tooth brushing | Number of patients (%) |
|-----------------------------|------------------------|
| Once a day | 16 (26.7) |
| Twice a day | 41 (68.3) |
| More than twice a day | 3 (5) |

Table 3: Oral hygiene aids used by patient

| Oral hygiene aid | Number of patients (%) |
|-------------------|------------------------|
| Dental floss | 10 (16.67) |
| Interdental brush | 4 (6.67) |
| Toothpick | 14 (23.33) |
| Miswak | 4 (6.67) |
| None | 28 (46.67) |

DISCUSSION

Oral hygiene is paramount for the maintenance of general health,^[9] maintenance of oral health becomes even more crucial in orthodontic patients as poor oral hygiene can severely compromise the success of the treatment outcome. 47% of the sample population was aged between 11 and 20 years old which correlate to the early commencement of orthodontic treatment in adolescence stage. The number of females was higher compared to males in this study. This may be contributed to the fact of greater self-interest, awareness of malocclusion and desire for correction.

The satisfactory oral health awareness is observed in this study, therefore, suggested a good ability of these orthodontic patients to control and reduce plaque accumulation around their fixed appliances. This study also shows that majority of the subjects brushes their teeth twice daily, subsequently resulting inconsistency with increased frequency of subjects with good oral hygiene.

Moreover, Ratemo had studied the oral health status of patients with malocclusion attending Orthodontic Clinic at a Hospital in Nairobi and concluded most pediatric malocclusion patient has poor oral health status.^[10]

This achievement can be attributed to their dental awareness and positive attitude toward oral health since most individuals who seek orthodontic treatment desire improved dental aesthetics, oral function,

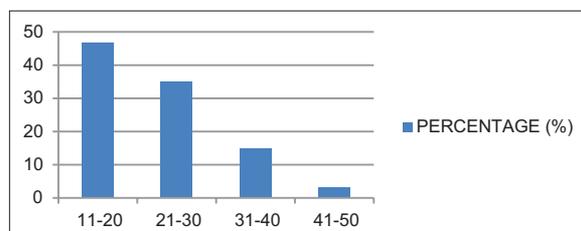


Figure 1: Frequency of tooth brushing among subjects

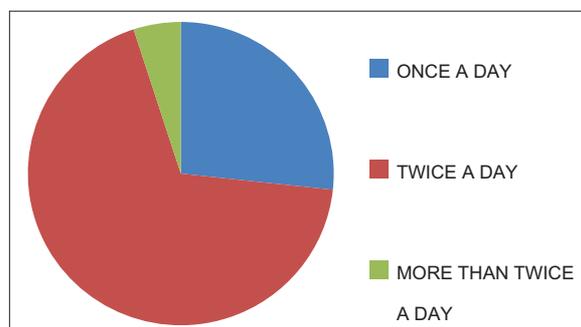


Figure 2: Frequency of tooth brushing

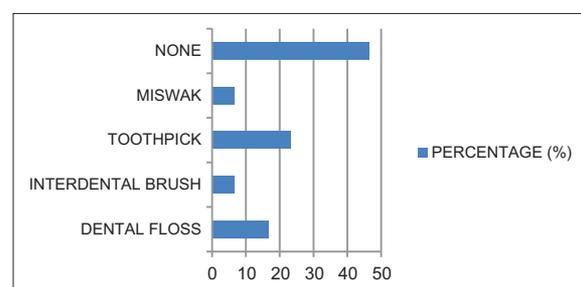


Figure 3: Oral hygiene aids used by patient

optimal oral health, and psychological well-being. Besides that, routine dental checkups, oral hygiene instructions, and home care instructions to the intending orthodontic patients pre-treatment at the consultant orthodontists' clinic may also play some role.

Besides that, high dental awareness and positive attitude toward oral health among patients had showed significant contributory factors in achieving good oral hygiene status. It is also imperative to note that while the orthodontic patients have the responsibility to observe and maintain good oral hygiene, the orthodontists also have an important role to aid oral hygiene during orthodontic treatment which will include choice of more hygienic orthodontic appliances, provision of oral health education and advice about methods of plaque control, dietary advice, fluoride therapy, motivation, and monitoring to ensure effectiveness of the oral hygiene regime with the aim of reducing plaque accumulation during treatment and prevention of corresponding adverse effects.

In addition, Ajayi and Azodo have also studied the oral hygiene status among orthodontic patients attending

University of Benin Teaching Hospital, Benin City, Nigeria, and concluded a satisfactory oral hygiene condition among the orthodontic patients which would improve orthodontic treatment.^[11]

Shaw *et al.* have evaluated the quality control in orthodontics by factors influencing the receipt of orthodontic treatment and concluded assessment of orthodontic treatment need is influenced by many variables relating to opportunity and demand for treatment.^[1] Furthermore, Hobson and Clark had studied on how UK orthodontists advised patients on oral hygiene and concluded skills in behavioral management are essential among orthodontist, and oral hygiene method is more cost-effective when done by trained auxiliaries.^[12]

Atassi and Awartani had evaluated the oral hygiene status of patients with fixed orthodontic appliances and concluded the oral home care of the orthodontic patients surveyed was not at an optimal level, hence need to establish an oral hygiene maintenance program. Besides that, he is also reported unsatisfactory oral hygiene in their orthodontic patients despite the fact that more than half of their patients (54%) brushed their teeth twice daily and one-fifth thrice daily. They also stated that frequency of tooth brushing alone cannot be used as a measure of the quality of oral hygiene, but levels of patient's education and motivation, and throughout encouragement of oral home care are major factors in oral hygiene care.^[13]

De Oliveira and Sheiham have also studied relationship between normative orthodontic treatment need and oral health-related quality of life and concluded the current methods of assessing orthodontic need should be complemented by the oral health-related quality of life measures with valid psychometric properties, and measures of perceived need.^[14]

Meticulous oral hygiene practices should be encouraged in patients wearing fixed orthodontic treatment through active and continuous oral health awareness and maintenance programs. Specialized orthodontic tooth brushes should be advocated to further improve oral hygiene in orthodontic patients.

CONCLUSION

The orthodontic patients in this study have adequate knowledge on oral hygiene practices with tooth brushing and moderate levels of awareness on other oral hygiene aids. Rigorous health education on oral hygiene measures can be attributed to this achievement.

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