

Awareness Regarding the Use of Different Types of Orthodontic Appliances among Undergraduate Students

Remmiya Mary Varghese*, Praneeksha

Department of Orthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai, Tamil Nadu, India

ABSTRACT

Introduction: Dental braces are devices used in orthodontics that align and straighten teeth and help position them with regard to a person's bite while also aiming to improve dental health. They are often used to correct under bites, as well as malocclusions, overbites, open bites, deep bites, cross bites, crooked teeth, and various other flaws of the teeth and jaw. Braces can be either cosmetic or structural.

Materials and methods: A questionnaire was designed online using Google docs which consisted of 10 questions. The study population included 100 undergraduate dental students. Data was statistically analysed using Chi square test.

Results and discussion: From this survey it was evident that the majority of the Undergraduate students prefer removable appliances more than fixed appliances for their patients, and mostly second year dental students prefer removable appliances more than fixed appliances. The results were statistically significant according to the Chi square test, where $p < 0.05$.

Conclusion: According to the data collected the majority of the participants were from second year and most of them preferred removable appliances over fixed appliances for their patients, but both the appliances have their own pros and cons so both the appliances can be used in different procedures and cases.

Key words: Appliances, Brackets, Fixed appliances, Innovative survey, Innovative technique, Preferences, Removable appliances

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Corresponding author: Remmiya Mary Varghese

E-mail: remmiyav.sdc@saveetha.com

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INTRODUCTION

Oral braces are orthodontic devices that straighten and align teeth, as well as help place them in relation to a person's bite, with the goal of improving dental health [1,2]. They are frequently used to repair under bites, malocclusions, overbites, open bites, deep bites, cross bites, crooked teeth, and a variety of other dental and jaw abnormalities. Braces are available in two types: cosmetic and structural [3-5]. Dental braces are frequently used in conjunction with other orthodontic tools to broaden the palate or jaws, as well as to help shape the teeth and jaws in other ways. The use of braces causes the teeth to shift as a result of the force and pressure applied to them. Brackets, bonding material, archwire, and ligature elastic (sometimes known as an "O-ring") are the four main elements commonly utilised. When the archwire presses on the brackets and teeth, the teeth shifts from its position. To increase the force in a

given direction, springs or rubber bands are commonly used [6-8].

Orthodontic therapy may be a painful experience. Foreign items are introduced in a physically and psychologically sensitive part of the body with orthodontic equipment. Others are often aware that they are being worn, and it is probable that vulnerable persons are self-conscious about wearing such devices in public [4,9-10]. Patients, especially children, may face social criticism from their peers. Orthodontic patients, on the other hand, are expected to be docile and cooperative during their therapy, which might take many years [11]. The psychological reactions of patients to orthodontic treatment, as well as their capacity to adjust to appliances, are clearly a major issue. In both permanent and removable appliance therapy, there is a greater risk of iatrogenic injury to the dentition, the likelihood of early termination of treatment, and a decreased quality of outcome if the patient does not cooperate [12].

Removable appliances have a limited range of applications, owing to the fact that they can only move single teeth and broaden the upper or lower arches. Because they aren't precision appliances, they can't be utilised for complex or

delicate tooth motions [13]. Fixed appliances are used to rotate teeth that do not fit the arch form of the other teeth, to transfer numerous teeth to various locations, to adjust the angle of teeth, and to change the position of the root of the tooth, among other things. It is not recommended if the patient has poor oral hygiene (which can lead to decalcification, tooth decay, and other issues), is unmotivated (since treatment takes many months and oral hygiene commitment is necessary), or the malocclusions are minor [14,15]. So there are even more therapy options present and the aim of this survey is to know about the preference of the type of orthodontic appliance among Undergraduate students [16-20].

MATERIALS AND METHODS

The study setting is based on an online survey and the dental students participated. Approval has been done through Institutional Review Board-SRB of SDC. Two people were involved, one primary investigator and the guide. The sample size of this study is 100 which were based on the power analysis. The Sampling method is a randomised sampling method and the measure taken to minimise bias is randomisation and running the review through a second reviewer. Internal validity is the pretested questionnaire based on personal protection measures that has been connected through the email. The results were collected and analysed carefully using software (SPSS version 22.0) inferential statistics were done using *chi square test* (Figure 1, 2).

RESULTS AND DISCUSSION

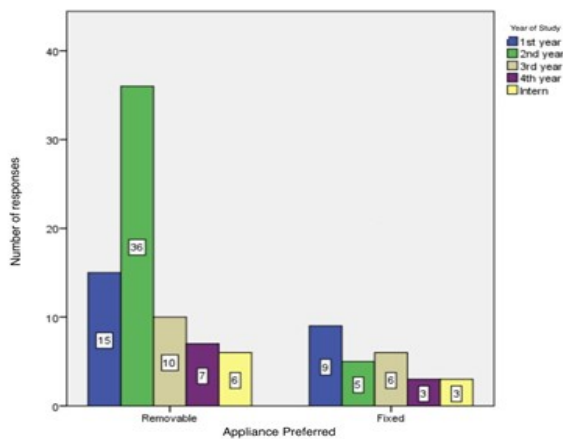


Figure 1: Bar Graph depicts the association between the year of study of the student and the type of orthodontic appliance that is more aesthetic. X-axis represents the type of appliance preferred and Y-axis represents the number of responses. Out of the total study population, majority, 36% of the second year students (Green, 15% of the first year students (Blue, 10% of the third year students (Beige, 7% of the fourth year students (Violet and 6% of the interns (Yellow preferred removable appliances over fixed appliances. The results were statistically

significant according to the *Chi square test*, where $p < 0.05$.

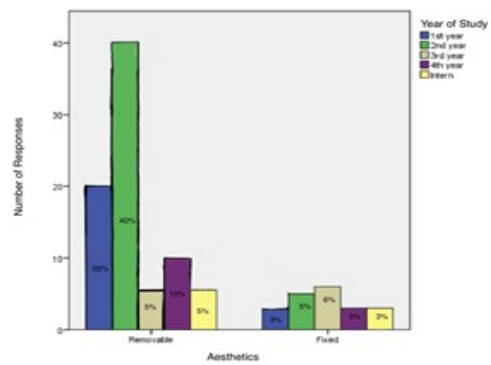


Figure 2: Bar graph depicts the association between year of study and type of appliance based on aesthetics. X-axis represents the type of appliance preferred by the undergraduate students and Y-axis represents the number of responses. Out of the total study population, the majority responded that the removable appliances are more aesthetic than fixed appliances. 40% of the second years (Green, 20% of the first years (Blue, 10% of the fourth years (Violet, 5% of the third years (Beige and 5% of the interns (Yellow responded that removable appliances are more aesthetic. The results were statistically significant according to the *Chi square test*, where $p < 0.05$.

DISCUSSION

This study was conducted to assess the awareness regarding the different types of orthodontic appliances used during orthodontic therapy among Undergraduate students of a dental college in Chennai. The study was conducted among 100 students which included both males and females. Of the total population 59% were females and 41% were males. Out of this, 50% of the students who participated were second years, 30% were 1st years, 10% of them were from 3rd year and 5% of the fourth years and 5% of them were interns. According to the data collected, 74% of the respondents preferred removable appliances and 26% of the respondents preferred fixed appliances for their orthodontic therapy, Saito and Jang [16] in their study explained that removable appliances can be used to treat patients who are disabled. 51% of the participants responded that fixed appliances are effective and 49% of them responded that removable appliances are effective. Out of the total population, 69% of the participants responded that removable appliances are easy to maintain and 31% of the participants responded that fixed appliances are easy to maintain. Artherton [21] in his study explained that even though removable appliances have advantages it also has certain disadvantages. 63% of the participants responded that fixed appliances are expensive as compared to removable appliances. Of the total

population the participants responded that there is equal discomfort in using both the appliances.

Out of the total population, 73% of the participants responded that the treatment time is more with removable appliances and 27% of them responded that the treatment time is more with fixed appliances. 71% of the participants responded that removable appliances show more desired changes as compared to fixed appliances. 53% of the participants responded that fixed appliances can be used for older patients as compared to 47% participants responded that removable appliances can be used for older patients. Luther. F [22-24] has explained that the appliance has to be designed and fitted in a certain manner which can also be used in old aged people which gives comfort and is used widely on many patients. 68% of the participants responded that fixed appliances are more hygienic as compared to removable appliances. Greco PM has explained that removable appliances are less hygienic because the patients are reluctant to follow proper hygiene techniques and also said concerning hygiene fixed appliances are better [15]. 80% of participants responded that fixed appliances are aesthetic as compared to removable appliances. Figure 1 depicts the association between the year of study of the student and the type of orthodontic appliance that is more aesthetic. Out of the total study population, majority, 36% of the second year students, 15% of the first year students, 10% of the third year students, 7% of the fourth year students and 6% of the interns preferred removable appliances over fixed appliances. The results were statistically significant according to the Chi square test, where $p < 0.05$.

CONCLUSION

According to the data collected the majority of the participants were from second year and most of them preferred removable appliances over fixed appliances, but both the appliances have their own pros and cons so both the appliances can be used in different procedures and cases.

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