

Prevalence of usage of various removable appliances among undergraduate dental students in a private dental college

Malavika Pradeep,
Nivethigaa Balakrishnan¹,
T. R. Prasanna Arvind¹

Department of Orthodontics and
Dento Facial Orthopaedics, Saveetha
Dental College and Hospitals, Saveetha
Institute of Medical and Technical
Sciences, Saveetha University,
¹Department of Orthodontics, Saveetha
Dental College and Hospitals, Saveetha
Institute of Medical and Technical
Sciences, Chennai, Tamil Nadu, India

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ABSTRACT

The aim of the present study was to assess the prevalence of usage of various removable appliances among undergraduate dental students in private dental colleges. Ethical approval for the study was obtained from the Institutional Review Board of Saveetha Institute of Medical and Technical Sciences, Chennai, India. A dental record of patients was investigated. Data evaluation was completed and entered into Microsoft Excel. Gender distribution among the cohorts was assessed. The most commonly used appliance is Hawley's appliance (61), followed by Essix retainer (25), Begg's wrap-around retainer (23), Hawley's appliance with tongue crib (16), cantilever spring (7), splint (7), and T spring (1), respectively. The majority of the females (36) took Hawley's appliance. The difference was not statistically significant between both the arches and between the male and female population. Hawley's appliance is the most commonly used removable appliance among dental graduates.

Key words: Begg's appliance, Begg's wrap-around retainer, Essix retainer, Hawley's appliance, innovative appliances, labial bow

INTRODUCTION

The population's concern for esthetics has increased. Orthodontic treatments have been in high demand for the past three decades. Patients wearing removable appliances have a higher incidence of proximal caries, gingivitis, and halitosis than patients who do not have removable appliances. The correct hygiene of orthodontic appliances may help to minimize germs in the mouth.^[1,2]

Address for correspondence:

Dr. Nivethigaa Balakrishnan,
Department of Orthodontics, Saveetha Dental College and
Hospitals, Saveetha Institute of Medical and Technical Sciences,
Chennai - 600 077, Tamil Nadu, India.
E-mail: nivethigaab.sdc@saveetha.com

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The efficacy of several hygiene measures to control the presence of bacteria in removable acrylic appliances has been studied.^[3-7] Multiple studies have shown that a combination of mechanical and chemical methods reduced microorganisms on the appliance surface when compared with other techniques. The role of the dentist in oral health promotion is important since dentists have evidence-based knowledge of oral health and could influence a patient's behavior.^[8] Only a few researchers have looked into dentists' opinions on oral hygiene. Orthodontic patients' habits and traits, such as cleanliness and attitudes about removable orthodontic appliance (ROA), are sparse. Furthermore, there is no research evaluating the hygienic measures used by youngsters to clean their ROA.

It is crucial to understand the features of youngsters who are treated with orthodontic equipment. Effective solutions

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to decrease microbiota and prevent dental illnesses should be included in a dentist's suggestion. Malocclusion has been seen in several groups, however, statistics can vary due to variances in malocclusion categorization, population age, and examiner differences.^[9] Malocclusion can also affect the quality of life by increasing the prevalence of microbial flora and temporomandibular disorders.^[10] An increasing need for orthodontic therapy is gradually seen with changing times.^[11] The many aspects of orthodontic treatment requirements and orthodontic treatment outcomes are assessed using patient-centered treatment outcomes.^[12]

The demand for orthodontic treatment is rising gradually worldwide, but there are not enough orthodontists to meet the demand, particularly in rural areas.^[13] In addition, the demand for treatment typically rises as a result of the introduction of service.^[14] General dentists practice orthodontics in several locations.^[15] According to a survey by Wolsky and McNamara, 76.3% of general dentists offer basic orthodontic care, and 19.3% offer full-fledged orthodontic treatment.^[16] Jacobs *et al.* suggested expanding the scope of orthodontic treatment provided in general clinics.^[17] Our team has produced a number of excellent articles as a consequence of our research and knowledge.^[18-32]

The current study's objective was to determine how frequently undergraduate dental students at private dental colleges used various removable appliances.

MATERIALS AND METHODOLOGY

Ethical permission

The Saveetha Institute of Medical and Technical Sciences in Chennai, India's institutional review board granted the study ethical approval. Patients' dental records were looked into. Institutional clearance number – IHEC/SDC/ORTHO/21/053.

Evaluation of data

Data evaluation was completed and entered into Microsoft Excel. A total of 975 data were collected.

Software used for data collection

Google Forms was used for data collection. Bar graphs were used to represent the data. The statistical software used was SPSS 23.0, which was a statistical software developed by International Business Machines Corporation (IBM), Armonk, New York, United States of America. Descriptive statistics were used for analysis. Data collection, data analysis, and data interpretation were carried out for software analysis.

RESULTS

The results that were obtained from the survey have been arranged in tabular form as shown in Table 1 and were plotted graphically for a clear assessment as shown in Figures 1 and 2.

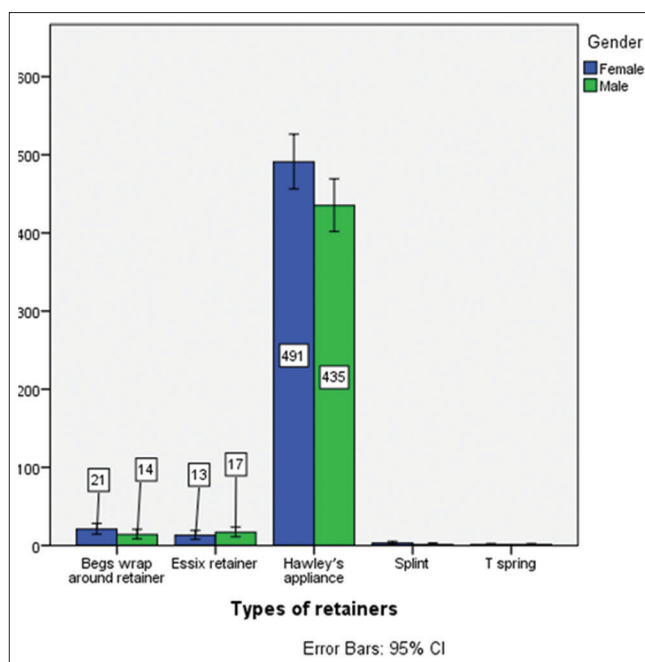


Figure 1: Bar graph represents the association between types of retainers and gender distribution. X-axis depicts the types of retainers and Y-axis depicts the number of patients. Blue color depicts female and green color depicts male. The majority of females (491) took Hawley's appliance. P is 0.4 (> 0.05 , not of statistical significance). CI: Confidence interval

DISCUSSION

In the present study, it can be found that Hawley's appliance, Begg's wrap-around retainer, Essix retainer, labial bow, and Begg's appliance are used the most. Stainless steel clips (clasps) on the back teeth, a wire (labial bow) across the anterior, and a polished acrylic setup along the interior of the roof of the mouth (palate) augmented with stainless steel wires and make up a Maxillary Hawley Appliance. The Maxillary Hawley Appliance is used to maintain orthodontic corrections and prevent relapse. Following active orthodontic treatment, patients typically wear retainers full-time for 3 months. In the United States, George Crozat was the first to introduce removable appliances^[33] in the US.

Removable appliances for tooth movement have been less common in recent decades as fixed appliances have become more popular. However, in many cases, especially when early intervention is necessary, they would be the appliance of choice for tooth movements. In recent decades, there has been less discussion of intraoral removable orthodontic equipment in the orthodontic literature, and fewer researchers have looked at their indications and benefits. Removable appliances have advantages, according to Proffit and Fields, since they are more inexpensive for patients, easier to adjust for orthodontists, and in some cases, therapy with fixed appliances may be reduced by previous treatment with a removable device.^[34]

Table 1: Representation of usage of removable dental appliances based on Gender distribution and Arch distribution

Gender Distribution				P
Type of retainer	Total number of retainers used	Male	Female	
Beggs wrap around retainer	35	14	21	0.4*
Essix retainer	29	16	13	
Hawley's Appliance	905	434	471	
Splint	4	1	3	
T-spring	2	1	1	
Arch Distribution				P
Type of retainer	Total number of retainers used	Upper arch	Lower arch	
Beggs wrap around retainer	35	21	12	0.4*
Essix retainer	29	20	6	
Hawley's Appliance	905	510	351	
Splint	4	4	0	
T-spring	2	2	0	

*P>0.05, Not statistically significant

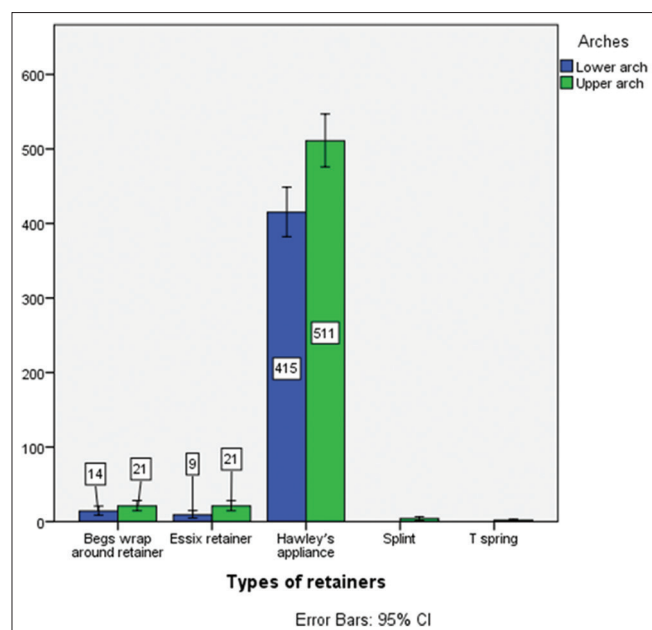


Figure 2: Bar graph represents the association between types of retainers and number of patients. X-axis depicts the types of retainers and Y-axis depicts the number of patients. Blue color depicts the lower arch and green color depicts the upper arch. The majority of the patients took Hawley's appliance for the upper arch (511). P is 0.4 (> 0.05, hence not of statistical significance). CI: Confidence interval

While detachable appliances provide clear benefits for socially busy persons, treatment effectiveness can be patient-dependent.^[35] Taylor *et al.* analyzed patient records who received dual-arch fixed appliances and a mix of removable and "mini-fixed" appliances at a dental facility. The Peer Assessment Rating (PAR) score and percentage decrease were also calculated, but they were not displayed. Appointment intervals, pretreatment, and presence of anterior crossbite PAR score were incorporated in a regression equation for dual-arch fixed appliance therapy.^[36-38]

The limitations of the present study are that the total number of records was only 140. In future, similar studies can be done with more patients. In the present study, the appliances that were analyzed are Begg's wrap-around retainer, Essix retainer, splint, Hawley's appliance, Hawley's appliance with tongue crib, cantilever spring, and T spring. In future studies, more appliances can be included than the following. The patient's records were taken from Saveetha Dental College in the present study. In future studies, more than one college/institute can be included since it will provide us with more diverse and different results than that which was obtained in the present study.

CONCLUSION

Within the limitations of the study, it can be concluded that Hawley's appliance was the most prevalent orthodontic appliance used. Other appliances that were in use for removable orthodontic therapy included Begg's wrap-around retainer and T spring.

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Conflicts of interest

There are no conflicts of interest.

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