

Knowledge, attitude, and awareness on the protocols and trends in orthodontic retention among dental students

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ABSTRACT

This survey aimed at evaluating the knowledge and awareness regarding the various retention protocols used in orthodontic practice. A survey has been conducted among the dental students by circulating 15 close-ended questions online to analyze the data collected on the protocols and trends in orthodontic retention. The male and female distribution among the study population was evaluated, and the retention protocols used were computed; statistical analysis was performed using SPSS software. Ninety-four percent accepted that Hawley retainers are predominantly used compared to fixed retainers. Eighty-seven percent agreed that they aim at a more stable dentition by the completion of orthodontic treatment. The Chi-square test on the knowledge of respondents on the permanent retention to be followed after orthodontic treatment to close generalized spacing is statistically not significant, $P = 0.056$. Within the considered limitations, it is clear that there is awareness among the dentists regarding the use of a retention appliance to ensure stability at the finish of orthodontic treatment. But the protocol for the same remains variable. Further studies can be performed to identify the effectiveness of each of the different retention protocols and their indications in various cases.

Key words: Orthodontic treatment, retainers, retention

INTRODUCTION

Retention in orthodontics is the period of treatment where active tooth movements are stopped and an attempt is made to maintain the dentition in the newly moved position.^[1] Dentition is surrounded by the periodontium

and the entire oral apparatus comprising many structures. Hence, it is essential for us to create a harmony between teeth and all these structures in the newly moved tooth positions, so that the stability of the occlusion becomes predictable. Unfortunately, patient compliance frequently diminishes as orthodontic treatment advances, and unfortunate consistency with maintenance apparatuses can regularly challenge the enhancements accomplished during treatment.^[2] Backslides can be limited or forestalled by some kind of retainers. Retainers act as a key for productive orthodontic treatment; the maintenance of the posttreatment position helps us completely overcome the consequences of the malocclusion.^[3]

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In most orthodontic cases, retainers are subsequently a fundamental piece of orthodontic treatment. Anyway, no proof is available to propose that the maintenance treatment for grown-ups ought to contrast from that utilized for young adult patients, given the periodontal supporting tissues are typical. Postmaintenance results in adults are consistent when differentiated from those in young individuals. There are not many occlusal challenges for which maintenance is not required. The general dental practitioner likewise accepts a huge part in staying aware of incredible dental prosperity while simultaneously wearing retainers.

Our research and knowledge have resulted in high-quality publications from our team.^[4-18]

This survey aimed at evaluating the knowledge and awareness regarding the various retention protocols used in orthodontic practice.

MATERIALS AND METHODS

A survey has been conducted among the dental students by circulating 15 close-ended questions, like which is the most commonly used retainers, which retainers are preferred for long-time retention, online to analyze the data collected on the protocols retention. The sample size was 153 dental students from Saveetha Dental College, Chennai. An ethical approval of the study was approved from Saveetha Dental College, Chennai. The male and female distribution among the study population was evaluated. Information replicated to the product and measurable examination was done. Measurable examination was finished utilizing IBM SPSS programming. The importance level was at 0.005. Elucidating examination and Chi-square tests were finished. Charts were classified. Inclusion criteria: both males and females were included. Exclusion criteria: age, profession, caste, and religion.

RESULTS

The online survey concluded with the below results. One hundred and one agreed that maintaining the newly moved teeth as retention, while 52 disagreed with this statement. One hundred and three consented that maintenance convention is looking at the place of the teeth on the finish of the treatment with their unique positions and likewise distinguish the course of the expected backslide, while 50 contradicted something similar. One hundred and forty-four opted that Hawley retainers are predominantly used in maxillary arch though nine opted for fixed retention. Ten chose permanent fixed retention, 53 chose removable retention, and 90 chose both as orthodontic treatment that lower incisor alignment undergoes. In those patients treated with extraction, two participants believed usage of retainer for a period of 1 year, 10 responded as that lifetime wear is required, and 52 participants believed that

it was supposed to be worn for a period of 2-3 weeks. Eighty-seven concurred that the point of the orthodontic treatment is working on those dependability of the dentition postorthodontic methodology, while 66 differ something very similar. One hundred and forty-nine acquiesced that vacuum-formed retainers are not huge in keeping up with the arrangement of the labial sections, though four acknowledged that vacuum-shaped retainers are not huge in keeping up with the arrangement of the labial fragments. Eighty-nine are in arrangement that super durable maintenance has been encouraged following orthodontic treatment to close summed up separating, while 64 are not viable for the equivalent. Thirteen selected that they know about the utilization of a front chomp plane until the culmination of facial development has been suggested for rectification of overbite, while 140 picked different ways [Figures 1-4 and Table 1].

DISCUSSION

Fixed retainers are habitually utilized in the orthodontic maintenance stage as they enjoy various benefits, similar to a better style, less understanding participation, adequacy, and reasonableness for long-lasting maintenance.^[19] In any case, the necessity for exact holding strategy, delicacy, and propensity to create periodontal issues by debilitating oral cleanliness are not many impediments.^[20] Similarly, the survey done by Levin showed that strengthened fixed retainers can cause extended plaque conglomeration, gingival slump, and depletion on testing.

The maintenance shows from the evaluated people certified overwhelming usage of the Hawley or the vacuum-molded retainers on the maxillary bend and the fixed upkeep on the mandibular bend. The example of orthodontists recommending, especially fixed support, is stressed over long-stretch dental changes that they have seen during their own practices. It is not fantastic for an orthodontic patient to return to preparing for retreatment years after the hidden treatment. The essential backslide model from Pratt M shows that patient consistency with removable retainers is poor, in any event, following 5 years out of treatment. In addition, scarcely any past investigation distinguished those patients' tasks as extremely durable reinforced retainers more than removable retainers. The trend of utilizing Hawley retainers more than vacuum-formed retainers found in this review is in agreement with specific past investigations.

Anyway, orthodontists picked different varieties of the retainers and diverse orthodontic malocclusions; various examples are taken note. The blend of the vacuum-outlined retainer and the fixed retainer is most generally used in the upper bend, while Hawley retainers were typically proposed. Destang and Kerr surveyed on the upkeep time on the maxillary bend which was recognized to be 1 year that displayed a predominant robustness in the teeth

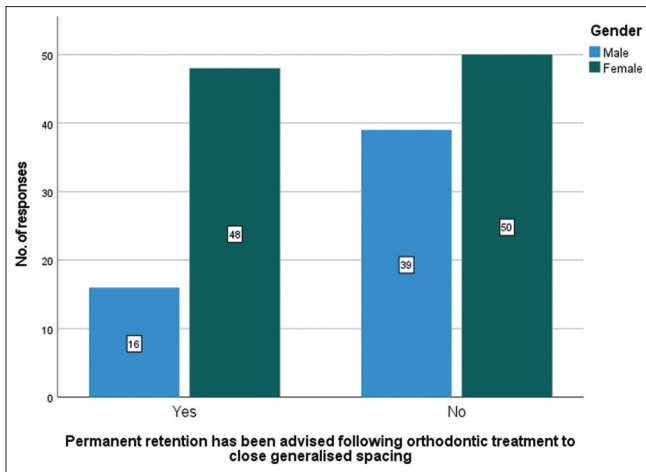


Figure 1: The bar graph describes the association between the knowledge the respondents have on the permanent retention. Permanent retention is usually advised following orthodontic treatment to close generalized spacing. X axis represents the knowledge of the respondents on whether the permanent retention has been advised following the orthodontic treatment to close generalized spacing. Y axis denotes the number of responses. The blue bar and green bar represent male with female, respectively. However, this is statistically not significant. Chi-square test, $P = 0.056$ ($P > 0.05$ - not significant)

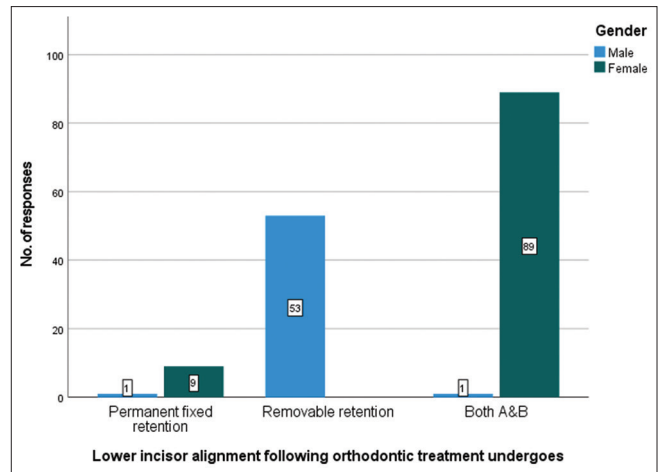


Figure 2: The bar graph symbolizes the association between knowledge of respondents on the lower incisors alignment following orthodontic treatment. X axis represents the knowledge of respondents on the lower incisors alignment following orthodontic treatment. Y axis denotes the number of responses. The blue bar and green bar represent male as well as female, respectively. Conversely, the result is statistically not significant. Chi-square test, $P = 0.337$ ($P > 0.05$ - not significant)

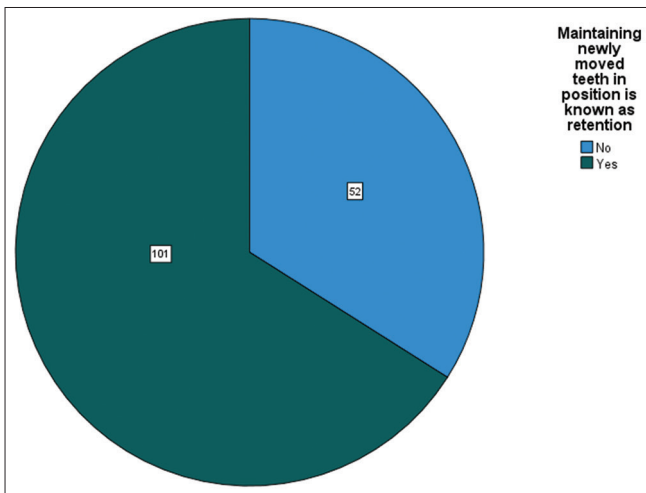


Figure 3: The pie chart represents the knowledge of people about maintaining newly moved teeth in position is known as retention. 101 respondents responded yes (Green) and 52 respondents responded no (blue)

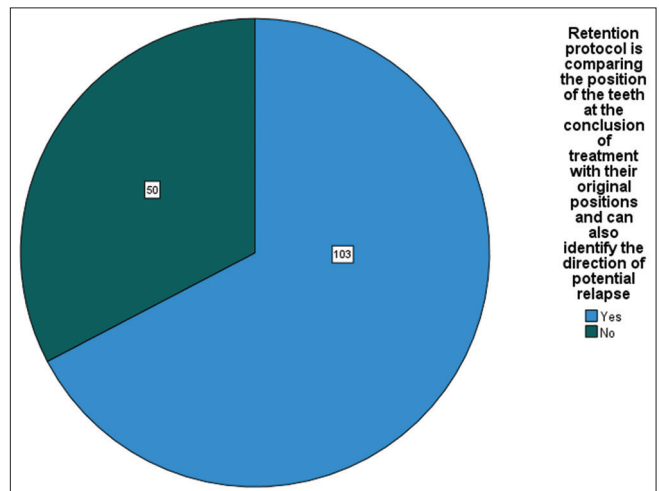


Figure 4: The pie chart represents the knowledge of the respondents about the retention of teeth by before and after comparison of the position of the teeth and identify possible ways of relapse. 103 respondents responded that they were aware of this (Blue), wherein the remaining 50 responded did not

position than the one of a half year. One year after the backings are taken off, more than 90% of orthodontists leave the retainers for a boundless period frame outline. In case if the oral tidiness of the patient was poor and it could not grow additionally, then the dental treatment plan intended for the front teeth, the legitimate retainer to be dispensed with. Similar results of the current audit were gained in the survey coordinated by Al-Jewair *et al.*^[21]

Several clinical trials have to be performed to see their long-term effectiveness.^[22] A survey done previously

suggested that permanent retention was preferred by most of the orthodontists in the Netherlands. Bonded retainers were not preferred due to poor oral hygiene. Most of the orthodontists felt that practice guidelines for orthodontic retention treatment must be revised.^[23] A study done in Norway reported that bonded retainers are preferred for mandible and combination of removable and bonded retainers are preferred for maxilla.^[24] A previous study suggested that the combination of fixed and removable retainers was commonly used and many factors such as type and duration of retainer used significantly affected the retainer's choice.^[25] Vacuum retainers are the most preferred

Table 1: Results of survey on the protocols and trends in orthodontic retention

Question	Options	UG % (out of 100)	Male % (out of 50)	Female % (out of 50)	P
Maintaining newly moved teeth in position is known as retention	Yes	66%	92% (46)	88% (44)	0.505
	No	34%	8% (4)	12% (6)	
Retention protocol- comparison of the position of the teeth original and at the end of treatment	Yes	67%	86% (43)	84% (42)	0.779
	No	33%	14% (7)	16% (8)	
Most commonly used retainers in maxillary arch	Hawley retainer	6%	58% (29)	54% (27)	0.687
	Fixed retainer	94%	42% (21)	46% (23)	
Lower incisor alignment following orthodontic treatment undergoes	Permanent fixed retention	16%	20% (10)	12% (6)	0.551
	Removable retention	63%	60% (30)	66% (33)	
	Both A&B	21%	20% (10)	22% (11)	
Patients who extracted few teeth has to wear retainer for	One year	13%	16% (8)	10% (5)	0.402
	Rest of their life at night	35%	28% (14)	42% (21)	
	2-3 weeks none of these	52%	56% (28)	48% (22)	
Aim of the orthodontic treatment are to improve the stability of the tooth in their newly moved position	Yes	64%	68% (34)	60% (30)	0.405
	No	36%	32% (16)	40% (20)	
VFR are not significant in maintaining the alignment of the labial segments	Yes	83%	84% (42)	82% (41)	0.790
	No	17%	16% (8)	18% (9)	
Permanent retention- To be followed after space in patients with generalized spacing	Yes	61%	48% (24)	74% (37)	0.008*
	No	39%	52% (26)	26% (13)	
Mostly commonly used retainers in mandibular Arch	Yes	65%	74% (37)	56% (28)	0.002*
	No	35%	26% (13)	44% (22)	
Use of anterior bite plane along with the retention appliance in deep bite cases.	Yes	50%	52% (26)	48% (24)	0.877
	No	50%	48% (24)	52% (26)	
Comparing the amount of tooth movement, Which of these situations would you prefer long term retention?	1mm	11%	16% (8)	6% (3)	0.001*
	2mm	62%	42% (21)	82% (41)	
	4mm	27%	42% (21)	12% (6)	
Are you aware that VFRs are inexpensive and can be quickly fabricated on the same day as appliance removal	Yes	63%	62% (31)	64% (32)	0.844
	No	37%	38% (19)	36% (18)	
Fixed bonded retainers	Used when periodontal support is weakened	44%	46% (23)	42% (21)	0.724
	used for Retention of a midline diastema	39%	40% (20)	38% (19)	
	Both A&B	17%	14% (7)	20% (10)	

* $P < 0.05$ - statistically significant. $P > 0.05$ Not statistically significant. VFR: Vacuum-formed retainer

retainers among orthodontists and preferred full-time wear for 3–4 months.^[26] Turkish orthodontists do not prefer lifetime retention like the other countries.^[27]

CONCLUSION

Within the restraints of the study, it is concluded that there is awareness among the dentists regarding the use of a retention appliance to ensure the stability of the teeth in their corrected dental position by the end of orthodontic treatment. But there is no evidence regarding the existence of any fixed protocol regarding the use of specific retainer. Further studies can be performed to identify the effectiveness of each of the different retention protocols and their indications in various cases.

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Conflicts of interest

There are no conflicts of interest.

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