



Original Article

Patient Knowledge and Perceptions Regarding Orthodontic Retention: A Cross-Sectional Study

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Abstract

Background: Orthodontic retention is an important phase of treatment aimed at maintaining the correct position of teeth and decreasing the relapse after treatment. Although professional guidelines suggest that patients should retain their teeth for a long time or even for life, getting them to do so is still a big challenge. There is a lack of information about how much patients know about orthodontic retention.

Aim: This study aimed to evaluate knowledge, awareness, and perceptions of patients concerning orthodontic retention after active treatment. **Materials and Methods:** A cross-sectional study was performed, including 100 orthodontic patients receiving care at outpatient clinics at the College of Dentistry, University of Kufa, and various private dental clinics. Data were collected through a structured, interviewer-assisted questionnaire consisting of 11 closed-ended questions concerning retention awareness, necessity, duration, responsibility, and follow-up visits. SPSS software was used to do statistical analysis. **Results:** About 70% percent of respondents reported awareness of orthodontic retention appliances after treatment. Regarding retention duration, 39% believed it should last less than one year, 37% believed one to three years, 7% believed three to ten years, and only 17% suggested lifelong retention. There was no statistically significant association between age groups and total awareness.

Conclusion: Patients have a large gap in their knowledge and awareness of orthodontic retention, particularly how long it remains, how important it is, and who is responsible for it. These misconceptions may negatively impact patient compliance and compromise long-term treatment stability.

Keywords: orthodontic retention, retention duration, knowledge, awareness.

Introduction

The main aim of orthodontic treatment is not only to achieve proper dental alignment and functional occlusion but also to maintain these outcomes over time. Consequently, retention is widely considered an indispensable phase of orthodontic therapy, aimed to counteract the natural tendency of teeth to

return back to their original positions under the effect of periodontal ligament fibers remodeling, occlusal forces, soft tissue pressures, and craniofacial growth [1–4]. Inadequate retention of treatment results jeopardizes long-term stability and might require retreatment, hence increasing

biological, psychological, and financial repercussions for both patients and clinicians [5,6]. Even though treatment mechanics and appliance designs have improved, orthodontic relapse after treatment is still a common and unpredictable problem [7–9]. Longitudinal studies have demonstrated that dental alignment can be altered years or even decades post-treatment, irrespective of the initial treatment quality or extraction methods utilized [10–12]. These findings signify a paradigm shift in orthodontics, emphasizing extended or lifelong retention, particularly for the mandibular anterior segment [13–15].

Patient adherence during the retention phase is a pivotal factor affecting treatment stability. Nevertheless, patients' understanding of the purpose, duration, and obligations associated with retention significantly influences their adherence to wear the retainer and attend follow-up appointments [16,17]. Prior research has indicated insufficient patient understanding and significant misconceptions regarding orthodontic retention, such as the notion that optimal treatment outcomes ensure permanent stability or that the orthodontist alone is responsible for post-treatment stability [18–20]. These beliefs may lead to premature discontinuation of retainer usage, inconsistent attendance at follow-up appointments, and greater risk of relapse [21].

Thus, proper patient education and communication are important elements of orthodontic care. Studies have shown that patients usually remember very little information said by their doctors, especially about complex biomechanical and biological concepts [22,23]. Additionally, written instructions, visual aids, and continuous reinforcement improve patient comprehension of retention and adherence to retainer wear [24–26]. However, evidence reported that orthodontic patients mostly underestimate the importance of retention, highlighting the need for continuous evaluation of patient awareness and perceptions [27].

This study aimed to evaluate patient knowledge,

awareness, and perceptions concerning orthodontic retention, mainly its necessity, duration, follow-up visits, and perceived responsibility. It is essential to know these factors to develop effective educational protocols that may help patients adhere to orthodontic treatment and maintain tooth stability over time.

Materials and Methods

Study Design

This study was performed as a cross-sectional survey aimed to evaluate patient knowledge, awareness, and perceptions regarding orthodontic retention after the completion of active orthodontic treatment.

Study Setting and Participants

The study was performed at the outpatient orthodontic clinics of the College of Dentistry, University of Kufa, in addition to various private orthodontic clinics. 100 orthodontic patients were selected through a convenience sampling method, who are currently under orthodontic treatment or those who have completed active treatment and are under the retention phase.

Inclusion and Exclusion Criteria

Both genders and different age groups were involved in this study. Dental professionals and students were excluded from participation to prevent professional bias, as they had previous clinical understanding of orthodontic retention.

Data Collection Tool

A structured, interviewer-assisted questionnaire with 11 closed-ended questions was used to collect data. The questionnaire assessed patients' awareness of orthodontic retention, their perceptions regarding the necessity and duration of retention, beliefs about treatment stability, preferences of retainers types, intervals for recall visits, and the responsibility for sustaining post-treatment stability. Demographic information, including age and gender, was also documented.

Ethical Considerations

Voluntary participation in the study was required, and all participants gave their verbal consent before data collection. The study strictly kept participant information private and anonymous at all times.

Statistical Analysis

The collected data were coded and analyzed using SPSS statistical software. Descriptive statistics were used to summarize participant responses in terms of frequencies and percentages. The chi-square test was employed to evaluate associations between age groups and patients' responses. Statistical significance was set at $p < 0.05$.

Results

Demographic characteristics of the study sample are presented in Table 1. A total of 100 orthodontic patients were included in the study. Females constituted a higher proportion of the sample (57.0%) compared to males (43.0%). Participants were categorized into three age groups, with more than half of the sample aged above 20 years (53.0%), followed by those aged 16–20 years (25.0%) and those below 16 years (22.0%).

Table 2 presents the descriptive statistics of participants' responses to the questionnaire items

related to orthodontic retention. Overall, the majority of participants demonstrated good awareness of the use of retention appliances after orthodontic treatment. Most respondents believed that retention is required in most or all cases, and nearly half considered retention necessary in all treatment situations. More than two-thirds of the participants thought that a perfect treatment result could guarantee stability. However, a large number of them also knew that teeth could move even without orthodontic appliances. Participants had different ideas about how long the retention phase should last. Most of them, however, preferred retention periods of less than one year or between one and three years. A smaller number of them supported long-term or lifelong retention. The vast majority of people who answered said that treatment stability was very important. There was a small preference for bonded retainers over removable retainers when it came to retention devices. Most people suggested recall visits once a year or every six months, and more than half thought the patient and/or parent should be in charge of keeping post-treatment stability. Most people also thought it was fair to charge for recall visits.

Table 1: Demographic characteristics of the study sample.

Variable	Category	N	%
Gender	Male	43	43.0
	Female	57	57.0
Age group	<16 years	22	22.0
	16–20 years	25	25.0
	>20 years	53	53.0

Table 2: Descriptive Statistics of participants' Responses.

Question	Response	Frequency (n)	Percentage (%)
1. Awareness of retention appliances	Yes	70	70.0
	No	30	30.0
2. Frequency of need for retention	In rare cases	12	12.0
	In half the cases	13	13.0
	In most cases	36	36.0
	In all cases	39	39.0
3. Cases where retention is necessary	After comprehensive tooth movement	16	16.0
	After treatment in adults	18	18.0
	After treatment during growth	10	10.0
	In all cases	45	45.0
	After treatment with extractions	11	11.0
4. Perfect treatment guarantees stability	Yes	68	68.0
	No	32	32.0
5. Teeth can move without appliances	Yes	55	55.0
	No	45	45.0
6. Duration of retention phase	< 1 year	39	39.0
	1-3 years	37	37.0
	3-10 years	7	7.0

	Lifelong	17	17.0
7. Importance of stable results	Not important	1	1.0
	Ambivalent	1	1.0
	Rather important	11	11.0
	Extremely important	87	87.0
8. Preferred type of retainer	Removable device	47	47.0
	Bonded device	53	53.0
9. Recall visit interval	Every 3 months	6	6.0
	Every 6 months	36	36.0
	Yearly	56	56.0
	Every 2nd year	2	2.0
10. Responsibility for stability	Patient and/or parent	54	54.0
	Orthodontist	43	43.0
	General dentist	3	3.0
11. Charging for recall visits	Yes	62	62.0
	No	38	38.0

Table 3 shows the relationship between age groups and answers to five chosen questionnaire items about orthodontic retention. The chi-square test was used to analyze the data. In general, there was no statistically significant association between age group and any of the items that were evaluated, since all p-values were higher than 0.05. Most people of all ages said they knew about the use of retention appliances after orthodontic treatment. There were no big differences between age groups. Similarly, the belief that a perfect treatment result can guarantee long-term stability did not vary significantly among

the different age groups. People of all ages had similar responses to the idea that teeth can move even without braces, which shows that everyone has the same level of understanding. The three age groups also had similar opinions about charging for recall visits, and there were no statistically significant differences between them. The preference for the type of retention device (bonded versus removable) was fairly evenly spread across all age groups, and age did not have a big effect on which type of retainer was chosen.

Table 3: Association between age groups and participants' Responses (Chi-square test)

Questionnaire item	Option	<16 years (n=22)	16-20 years (n=25)	>20 years (n=53)	Total	p-value
Are you aware that appliances are used for retention after orthodontic treatment?	Yes	13	19	38	70	0.147
	No	9	6	15	30	
Do you believe a perfect treatment result can guarantee stability?	Yes	13	17	38	68	0.567
	No	9	8	15	32	
Do you think that teeth can also move without orthodontic appliances?	Yes	11	11	33	55	0.276
	No	11	14	20	45	
Do you think it is appropriate to charge for recall visits?	Yes	15	18	29	62	0.271
	No	7	7	24	38	
Which type of retention device would you favour?	Bonded device	9	19	25	53	0.223
	Removable device	13	6	28	47	

Discussion

Retention in orthodontics is an important part of treatment that keeps teeth in the correct position and prevents them from going back to their original positions. Most of the people in this study knew about retention appliances, but this knowledge didn't mean they understood how long they were needed and why they were needed. Only 39% believed that retention is necessary in all instances, reflecting

enduring misconceptions that could adversely impact compliance, as indicated in prior research [18,19,27]. 68% of respondents thought that perfect treatment outcomes ensure long-term stability. This misconception is not supported by much evidence that indicates that relapse can occur regardless of how good the treatment is because of biological remodeling and craniofacial growth [2,7,10,28,29]. Similar findings have been reported in other

populations, highlighting a worldwide insufficiency in patient understanding of post-treatment stability [18,21].

The majority of participants favored short retention periods. About 75% suggested periods that lasted less than three years, and only a small number suggested periods that lasted for life. These results go against what is currently recommended, which is to keep teeth for a long time or permanently, especially in the lower anterior teeth. Most of the participants thought that treatment stability is very important, which shows that there is a gap between what they thought the benefits would be and what they understood about retention requirements. In terms of retainer type preferences, it was reported that a marginal preference for bonded retainers over removable retainers might result from their ease of use and less dependence on patient compliance [8,13,15,30-34]. Furthermore, most respondents suggested annual or semi-annual recall visits; however, a considerable number expressed uncertainty about the necessity of charging for these visits, reflecting a limited comprehension of the clinical significance of long-term follow-up [21,31]. The results of this study indicated substantial gaps in patient knowledge and comprehension of orthodontic retention, especially regarding its significance, duration, and shared responsibility. These gaps could negatively affect the long-term results of the treatment. Structured, repetitive, and multimodal patient education must be a part of orthodontic treatment and the retention phase. This can include pictures, written directions, and spoken explanations [22-26,35].

Limitations

The small sample size and recruitment from a single academic institution and certain private clinics may limit the generalizability of the results. Using a self-reported questionnaire may cause response bias. It is recommended that future multicenter, longitudinal studies include larger samples.

Conclusion

The current study reveals that orthodontic patients have insufficient as well as erroneous knowledge concerning orthodontic retention phase, particularly its importance, duration, and shared responsibility. These misconceptions could adversely affect patient compliance and compromise long-term treatment stability. To provide better outcomes after treatment and make sure patients adhere to their treatment plans, it is necessary to enhance patient education and keep information about retention in mind during orthodontic treatment.

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