



pISSN 2234-7518 • eISSN 2005-372X
<https://doi.org/10.4041/kjod26.002>
Korean J Orthod 2026;56(3):221-230

Senior orthodontic treatment: A comprehensive analysis of patient motivation, distribution, and treatment outcomes

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Objective: This study aimed to investigate the clinical characteristics of senior orthodontic patients. **Methods:** The cohort consisted of consecutive senior patients (age ≥ 60 years, $n = 146$) who visited the orthodontic clinic of a university hospital between 2020 and 2025. Host factors, treatment or referral motives, path of visit, orthodontic diagnosis and treatment acceptance rates, oral health status, severity of malocclusion, and treatment outcomes were evaluated using medical records and the modified discrepancy index (DI). **Results:** A higher proportion of females (65.1%) than males (34.9%) was observed. The primary treatment motives were improvement of anterior crowding or spacing (65.0%), followed by intrusion of supraerupted molars (9.6%) and space management for edentulous or hopeless sites (8.2%). Direct visits and referrals from other specialties accounted for 24.7% and 75.3% of cases, respectively. The prevalence of retaining 20 or more natural teeth was 94.9%. The orthodontic treatment acceptance rate was 70.9%, peaking at 84.6% among seniors who directly visited the orthodontic clinic for anterior alignment. Orthodontic treatment primarily focused on the anterior segment (83.6%), with a significant decrease in DI ($P = 0.001$). **Conclusions:** Seniors who visited the orthodontic clinic were predominantly females in their 60s with a high retention rate of natural teeth. Orthodontic consultations were driven not only by esthetic needs for anterior alignment, but also by recommended referrals as part of interdisciplinary care. The orthodontic treatment acceptance rate was higher when orthodontic goals aligned with the patient's intrinsic motivation for anterior alignment or edentulous space management. Orthodontic treatment in senior patients led to significant improvements in malocclusion.

Keywords: Aging, Senior orthodontics, Treatment motives, Treatment acceptance rate

Received January 6, 2026; Revised March 26, 2026; Accepted April 1, 2026.

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Jung-Yul Cha is a section editor of the Korean Journal of Orthodontics; however, he was not involved in the peer reviewer selection, evaluation, and decision process of this article.

How to cite this article: Lee J, Cha JY, Yu HS, Lee JH, Kim KH, Chung CJ. Senior orthodontic treatment: A comprehensive analysis of patient motivation, distribution, and treatment outcomes. Korean J Orthod 2026;56(3):221-230. <https://doi.org/10.4041/kjod26.002>

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INTRODUCTION

The demand for orthodontic treatment among adults has increased significantly over the past few decades.¹⁻³ This global trend has also been observed in South Korea. The average number of adult patients per orthodontist increased by 27.53% between 2012 and 2018.⁴ Moreover, the proportion of orthodontic patients aged 40 years or older has steadily increased in recent years, from 1.2% in 2000 to 8.0–9.3% in 2017, reflecting a broader demographic shift in orthodontic care.⁵⁻⁷

This trend has been attributed to rising esthetic demand, growing awareness of orthodontic treatment,⁸ enhanced social acceptability of orthodontics, and advancements in discreet treatment options that appeal to older adults.^{9,10} In addition to the traditional young adult population with esthetic demands,^{1,11,12} age-related dental issues, such as spacing and secondary crowding caused by periodontitis or tooth loss, have further increased treatment demand in this demographic group.¹³

Despite the growing demand, several barriers impede older adults from initiating orthodontic treatment. These barriers include financial concerns, lengthy treatment duration, esthetic discomfort during treatment, and the misconception that orthodontic care is less suitable or even detrimental for their age group.^{13,14} In particular, middle-aged adults often express concerns that orthodontic treatment may harm their oral health or fail to meet their expectations.¹³ Nevertheless, the periodontal response to orthodontic treatment appears to be similar across age groups when fundamental orthodontic principles are followed.^{15,16} Moreover, orthodontic care can play a vital role in maintaining periodontal stability and maximizing overall treatment outcomes in patients with periodontal disease or compromised oral health.^{5,15} These findings suggest a knowledge gap and persistent misconceptions regarding the risks and benefits of orthodontic treatment in older adults, thereby necessitating further investigation.

South Korea is approaching super-aged society status, with the population aged 65 years and older nearing the critical 20% threshold.¹⁷ The clinical relevance of this demographic change is reflected in practice data showing that the proportion of orthodontic patients aged 50 years and older increased from 9.1% in 2018¹⁴ to 24.5% in 2022.¹⁸ Despite this demographic shift, the orthodontic literature currently groups individuals aged 40 years and older into a broad “aged adult” category, thereby failing to address the distinct clinical complexities of geriatric patients and older adults. Consequently, studies and reports describing the clinical characteristics of older or elderly adults remain limited in the orthodontic literature.

Therefore, this study aims to investigate the treatment

motives and clinical characteristics of senior patients aged 60 years and older and to examine orthodontic treatment outcomes in this population.

MATERIALS AND METHODS

Participants

This retrospective study was approved by the Institutional Review Board (IRB; 3-2024-0284) of Gangnam Severance Hospital. The study cohort consisted of “senior” patients aged 60 years and older who underwent an initial orthodontic consultation at the Department of Orthodontics, Gangnam Severance Hospital, Yonsei University, between 2020 and 2025. The requirement to obtain informed consent was waived. While Korean national surveys often define older adults as individuals aged 65 years and older, national policies frequently refer to “new age” or active seniors as adults in their 50s and 60s.¹⁸ In this study, seniors were defined as individuals aged 60 years and older to capture an age group beyond those included in previous studies of middle-aged adults,^{5,13} while retaining data from the 60–65-year age group.

All patients who met these inclusion criteria were consecutively enrolled ($n = 146$). Host factors, including age, sex, and main treatment motive, that is, chief complaint (CC), were evaluated using medical records.

Treatment motives and path of visit of seniors

Patients' treatment motives

Patients' self-reported CCs were collected and reviewed by five experienced orthodontists, then standardized into clinically homogeneous categories to reduce terminological variability and enable quantitative analysis. When multiple motives were documented, only one motive was assigned to each patient to ensure mutually exclusive grouping; the primary motive was defined as the first-listed CC for patients who directly visited the clinic or the first-listed referral reason for referred patients. For analytical consistency, the following categories were used: improvement of anterior crowding or anterior spacing; molar intrusion for supraerupted teeth; forced eruption for restorative purposes; edentulous or hopeless space management; diagnostic consultation; and orthodontic maintenance or retention. Mapping rules aligned patients' phrasing with standardized clinical terminology. For example, “crooked teeth” and “teeth are crowded” were classified as “anterior crowding.” Complaints related to preprosthetic orthodontic procedures were grouped under “molar intrusion” or “forced eruption.” Statements such as “need space for dental implant” or “managing hopeless teeth” were classified as “edentulous or hopeless space management.” “Diagnos-

tic consultation” was assigned when the initial CC was recorded as a general, non-specific request, such as “I’m concerned about my bite” or “I have a gum problem.”

Path of visit

To understand patient inflow, the initial path of visit was categorized as either a direct visit to the orthodontic clinic or referral from other specialties. Primary referral sources were analyzed based on the frequency of referrals from each specialty, including Prosthodontics, Periodontics, Conservative/Endodontics, Oral and Maxillofacial Surgery (OMFS), and other sources, including medical clinics.

Referral motives from other dental specialties

Referral motives were categorized as orthodontic CC, beneficial for overall prognosis, orthodontic maintenance, and interdisciplinary consultation. Detailed definitions and classification criteria for referrals are provided in **Supplementary Table 1**.

Oral health characteristics of seniors

Oral health status

Baseline oral health status was evaluated in subjects who had panoramic radiographs available at the initial visit ($n = 136$). Two indicators—the number of existing natural teeth and the prevalence of retaining 20 or more natural teeth—were assessed using pretreatment panoramic radiographs, following the methodology of the Korea National Health and Nutrition Examination Survey (KNHANES) as described in a previous report.¹⁹ The number of existing natural teeth was calculated by excluding teeth classified as missing due to caries or other noncarious causes.

Severity of malocclusion

Given the pre-existing prosthetic molar restorations in the majority of subjects, the severity of malocclusion was assessed using the modified discrepancy index (DI), which represents the degree of anterior malocclusion and treatment complexity of the canine-to-canine segment.²⁰ This analysis was performed in subjects with available cephalograms and complete maxillary and mandibular diagnostic models ($n = 69$). Scoring was conducted according to the American Board of Orthodontics criteria.¹⁵

Orthodontic treatment outcomes of seniors

Orthodontic diagnosis and treatment acceptance rate

After the initial consultation, patients who agreed to proceed underwent an orthodontic assessment, including clinical photographs, diagnostic models, and

cephalometric radiographs. Following this analysis, an orthodontic diagnosis and corresponding treatment plan were discussed with each patient.

The orthodontic diagnosis rate was defined as the proportion of patients who underwent orthodontic assessment after the initial consultation. The treatment acceptance rate was calculated as the proportion of patients who proceeded with the recommended active orthodontic treatment among those who underwent orthodontic diagnosis, representing the conversion from the diagnostic stage to active orthodontic treatment.

Orthodontic treatment characteristics

Among the seniors who underwent active orthodontic treatment, excluding one patient treated solely for retainer repair ($n = 55$), treatment patterns were classified according to the treatment region: maxillary anterior segment, mandibular anterior segment, both maxillary and mandibular anterior segments, and posterior segment(s).

Orthodontic outcomes

Changes in the modified DI before and after orthodontic treatment were compared among seniors who had completed orthodontic treatment and had complete sets of records available ($n = 25$).

Statistical analysis

Descriptive statistics, frequency analysis, and t tests were performed. To examine differences in diagnosis and treatment acceptance rates according to age, treatment motives, and path of visit, chi-square tests and one-way analysis of variance were conducted. Statistical significance was set at $P < 0.05$. All analyses were performed using SAS 9.2 (SAS Institute Inc., Cary, NC, USA).

RESULTS

Clinical characteristics of senior patients visiting the orthodontic clinic

Among the cohort of 146 senior patients (age ≥ 60 years), a higher proportion of females (65.1%, $n = 95$) than males (34.9%, $n = 51$) was observed. The mean age of female and male patients was 66.5 ± 4.8 years (range, 60–81 years) and 67.0 ± 5.8 years (range, 60–80 years), respectively. Most patients were in their 60s (74.7%, $n = 109$), followed by those in their 70s (22.6%, $n = 33$) and 80s (2.7%, $n = 4$).

The primary treatment motives among seniors were improvement of anterior crowding ($n = 71$, 48.6%) or anterior spacing ($n = 24$, 16.4%), followed by molar intrusion ($n = 14$, 9.6%) for prosthetic restoration. Space management for edentulous or hopeless sites ($n = 12$, 8.2%), diagnostic consultation ($n = 11$, 7.5%), mainte-

nance issues related to previous orthodontic treatment, such as retainer repair ($n = 10$, 6.9%), and forced eruption ($n = 4$, 2.8%) were also reported.

Regarding the initial path of visit, 24.7% (36/146) directly sought orthodontic care at the orthodontic clinic, whereas 75.3% (110/146) were referred from other specialties, including Prosthodontics (28.8%), Conservative/Endodontics (20.5%), Periodontics (17.8%), OMFS (7.5%), and other sources (0.7%) (Table 1).

Referral motives of senior patients visiting the orthodontic clinic

Common referral motives from other specialties included “interdisciplinary consultation” ($n = 43$, 39.1%), particularly for prosthodontic purposes, and referrals based on patients’ CCs involving anterior alignment ($n = 42$, 38.2%). Active referrals based on the clinician’s judgment that orthodontic treatment was beneficial or essential for the overall prognosis ($n = 19$, 17.3%), as well as referrals for orthodontic retention maintenance ($n = 6$, 5.4%), were also observed (Table 2).

Oral health status and severity of malocclusion among senior patients visiting the orthodontic clinic

The prevalence of senior patients retaining 20 or more natural teeth ranged from 86.9% to 100%, with a mean of 94.9%. The mean number of natural teeth among senior patients was 25.0 ± 3.4 , which did not differ significantly across age subgroups ($P = 0.345$) (Table 3).

Regarding the severity of malocclusion, mild-to-moderate proclination (≥ 1 mm to ≤ 5 mm), followed by severe proclination (> 5 to ≤ 7 mm), was observed in 59.4% and 21.7% of senior patients, respectively. For overbite, 78.3% of senior patients demonstrated normal to mild deep bite (> 0 mm to ≤ 5 mm). Mild-to-moderate crowding (≥ 1 mm to ≤ 5 mm) and severe crowding were observed in 56.5% and 21.8% of patients, respectively. Missing or hopeless teeth were identified in 23.2% of patients, and interdental spacing of ≥ 2 mm was noted in 21.7% (Table 4).

Table 1. Clinical characteristics of senior patients visiting the orthodontic clinic

Category	n (%)
Sex	
Male	51 (34.9)
Female	95 (65.1)
Age (yr)	
60–69	109 (74.7)
70–79	33 (22.6)
≥ 80	4 (2.7)
Treatment motives	
Anterior crowding	71 (48.6)
Anterior spacing	24 (16.4)
Molar intrusion	14 (9.6)
Edentulous space management	12 (8.2)
Diagnostic consultation	11 (7.5)
Retention maintenance	10 (6.9)
Forced eruption	4 (2.8)
Path of visit	
Direct	
Orthodontics	36 (24.7)
Referral	
Prosthodontics	42 (28.8)
Conservative/Endodontics	30 (20.5)
Periodontics	26 (17.8)
OMFS/TMJ clinic	11 (7.5)
Others	1 (0.7)
Total	146 (100.0)

OMFS, Oral and Maxillofacial Surgery; TMJ, temporomandibular joint.

Table 2. Referral motives of senior patients to the orthodontic clinic

Referral motive	Number of referred patients					
	Prosthodontics	Con/Endo	Perio	OMFS	Others	Total
Interdisciplinary consultation	27 (24.6)	3 (2.7)	5 (4.5)	8 (7.3)	0 (0)	43 (39.1)
Patient’s orthodontic chief complaints	12 (10.9)	16 (14.6)	11 (10.0)	2 (1.8)	1 (0.9)	42 (38.2)
Active referral for better prognosis	0 (0)	8 (7.3)	10 (9.1)	1 (0.9)	0 (0)	19 (17.3)
Retention maintenance	3 (2.7)	3 (2.7)	0 (0)	0 (0)	0 (0)	6 (5.4)
Total	42 (38.2)	30 (27.3)	26 (23.6)	11 (10.0)	1 (0.9)	110 (100.0)

Values are presented as number (%).

Prosthodontics; Con/Endo, Conservative/Endodontics; Perio, Periodontics; OMFS, Oral and Maxillofacial Surgery.

Table 3. Oral health status of senior patients visiting the orthodontic clinic

Age group (yr)	Total	Retaining natural teeth ≥ 20		Number of natural teeth		
	n	n (prevalence, %)	P	Mean	SD	P
60–64	53	52 (98.1)	0.260	25.8	2.8	0.345
65–69	48	46 (95.8)		25.0	3.0	
70–74	23	20 (86.9)		24.0	4.8	
75–79	8	7 (87.5)		23.3	3.7	
≥ 80	4	4 (100.0)		25.3	1.0	
Total	136	129 (94.9)		25.0	3.4	

SD, standard deviation.

Orthodontic treatment acceptance rate

After the initial consultation, approximately half of the senior patients proceeded to orthodontic assessment, corresponding to an orthodontic diagnosis rate of 54.1% (79/146). Following orthodontic diagnosis, 70.9% (56/79) underwent the recommended active orthodontic treatment.

Diagnosis and acceptance rates varied across age groups. Diagnostic rates differed significantly according to detailed treatment motives ($P < 0.001$). Treatment motives related to improvement of anterior crowding, anterior spacing, and edentulous space management were associated with relatively higher orthodontic diagnosis and treatment acceptance rates, ranging from 58.3% to 76.7%. Interventions related to prosthetic treatment, such as “molar intrusion” and “forced eruption,” demonstrated relatively high diagnosis rates (approximately 71.4–75.0%); however, treatment acceptance rates were lower, ranging from 33.3% to 50.0%. Orthodontic maintenance was associated with a low diagnosis rate, and patients presenting for maintenance consultation did not proceed with diagnostic evaluation or treatment.

Seniors who directly visited the orthodontic clinic for anterior alignment demonstrated a diagnosis rate of 56.5% and the highest treatment acceptance rate (84.6%), whereas seniors who presented for maintenance exhibited the lowest diagnosis rate regardless of the path of visit. Overall, the diagnosis rate was significantly higher among seniors referred from other specialties (59.1%) than among those who directly visited the orthodontic clinic (38.9%) ($P = 0.011$).

Among referred seniors, those presenting with their own orthodontic CC demonstrated the highest acceptance rate (77.8%), followed by those actively referred for improved prognosis (75.0%). Nevertheless, the acceptance rate did not differ significantly according to the path of visit alone ($P = 0.344$) (Table 5).

Table 4. Severity of malocclusion among senior patients based on modified discrepancy index criteria

Category	Criteria	n (%)
Overjet	≥ 0 to < 1 mm	8 (11.6)
	≥ 1 to ≤ 3 mm	22 (31.9)
	> 3 to ≤ 5 mm	19 (27.5)
	> 5 to ≤ 7 mm	15 (21.7)
	> 7 to ≤ 9 mm	2 (2.9)
	> 9 mm	1 (1.5)
	Negative overjet	2 (2.9)
Crowding	Less than 1 mm	15 (21.7)
	≥ 1 to ≤ 3 mm	27 (39.1)
	> 3 to ≤ 5 mm	12 (17.4)
	> 5 to ≤ 7 mm	10 (14.5)
	> 7 mm	5 (7.3)
Missing teeth	None	53 (76.8)
	Non-congenital	16 (23.2)
	Congenital	0 (0)
Overbite	> 0 to ≤ 3 mm	40 (58.0)
	> 3 to ≤ 5 mm	14 (20.3)
	> 5 to ≤ 7 mm	4 (5.8)
	100% overbite	2 (2.9)
	0 mm (edge-to-edge)	5 (7.3)
	Open bite	4 (5.8)
IMPA*	$< 99^\circ$	47 (70.1)
	99° to $< 104^\circ$	15 (22.4)
	104° to $< 109^\circ$	5 (7.5)
Spacing	Diastema ≥ 2 mm	15 (21.7)
	Below threshold	54 (78.3)

IMPA, incisor mandibular plane angle.

*The total count of IMPA ($n = 67$) differs from other categories due to insufficient data or unmeasurable landmarks.

Table 5. Orthodontic diagnosis and treatment acceptance rates among senior patients

Category	n	Diagnosis rate	Acceptance rate
Age (yr)			
60–69	109	58 (53.2)	45 (77.6)
70–79	33	20 (60.6)	10 (50.0)
≥ 80	4	1 (25.0)	1 (100.0)
<i>P</i> value		0.492	0.177
Treatment motives			
Anterior crowding	71	43 (60.6)	33 (76.7)
Anterior spacing	24	14 (58.3)	10 (71.4)
Edentulous space management	12	8 (66.7)	6 (75.0)
Molar intrusion	14	10 (71.4)	5 (50.0)
Forced eruption	4	3 (75.0)	1 (33.3)
Retention maintenance	10	1 (10.0)	1 (100.0)
Diagnostic consultation	11	0 (0)	0 (0)
<i>P</i> value		< 0.001*	0.391
Path of visit			
Direct			
Anterior alignment	23	13 (56.5)	11 (84.6)
Maintenance etc.	13	1 (7.7)	0 (0)
Total	36	14 (38.9)	11 (78.6)
Referral			
Patient's orthodontic chief complaints	42	27 (64.3)	21 (77.8)
Interdisciplinary consultation	43	29 (67.4)	17 (58.6)
Active referral for prognosis	19	8 (42.1)	6 (75.0)
Retention/maintenance	6	1 (16.7)	1 (100.0)
Referral total	110	65 (59.1)	45 (69.2)
<i>P</i> value		0.011*	0.344
Total	146	79 (54.1)	56 (70.9)

Values are presented as number only or number (%).

P values were obtained using the chi-square test. Statistical significance was set at **P* < 0.05.

Clinical characteristics of senior orthodontic patients

The main treatment motives among actively treated seniors were primarily related to anterior esthetics, including anterior crowding (33/55), anterior spacing (10/55), and edentulous space closure (3/55), rather than localized single-tooth movements such as molar intrusion or forced eruption for restorative purposes (6/55).

Accordingly, the most common orthodontic treatment sites involved the anterior teeth. Alignment of either the mandibular anterior segment (16/55), the maxillary anterior segment (8/55), or both anterior segments (22/55) accounted for 83.6% of cases, whereas treatment of the posterior segment accounted for 16.4% (Table 6).

Orthodontic treatment improved occlusion among seniors

Following orthodontic treatment, the DI score decreased significantly from 6.68 ± 3.60 before treatment to 4.20 ± 2.78 after treatment, indicating improvement in occlusion (*P* = 0.001) (Table 7).

DISCUSSION

Orthodontic treatment for middle-aged adults has recently gained increased attention due to shifts in the age structure indicating a rapid increase in the elderly population.^{5–7} To provide a comprehensive understanding of this newly emerging senior orthodontic population, basic demographic characteristics, oral health status, and clinical features related to orthodontic treat-

Table 6. Demographic and clinical characteristics of seniors who proceeded with recommended active orthodontic treatment

Seniors	Variable	n (%)
Sex	Male	22 (40.0)
	Female	33 (60.0)
Age (yr)	60–69	45 (81.8)
	70–79	9 (16.4)
	≥ 80	1 (1.8)
Direct visit (n = 11)	Anterior crowding	8 (14.5)
	Anterior spacing	3 (5.5)
Referred patients (n = 44)	Anterior crowding	25 (45.4)
	Anterior spacing	7 (12.7)
	Molar intrusion	5 (9.1)
	Edentulous space closure	3 (5.5)
	Edentulous space regaining	3 (5.5)
	Forced eruption	1 (1.8)
Treatment region	Maxillary and mandibular anterior segments	22 (40.0)
	Mandibular anterior segment	16 (29.1)
	Maxillary anterior segment	8 (14.5)
	Posterior segment/single-tooth movement	9 (16.4)
Total		55 (100.0)

Table 7. Improvement in occlusion following treatment in senior orthodontic patients

Treatment outcome (n = 25)	Pre-Tx		Post-Tx		P value
	Mean	SD	Mean	SD	
Discrepancy index	6.68	3.60	4.20	2.78	0.001*

SD, standard deviation.

* $P < 0.05$.

ment were evaluated in a university-based orthodontic clinic setting.

Based on the results, seniors who visited the orthodontic clinic were predominantly females in their 60s with a high retention rate of natural teeth. Orthodontic consultations were driven not only by esthetic needs, such as improvement of anterior alignment, but also by recommended referrals from other specialties as part of interdisciplinary care. Although not all seniors proceeded with orthodontic treatment after the initial consultation, the orthodontic treatment acceptance rate was higher when orthodontic goals aligned with the patient's intrinsic motivation for anterior alignment or edentulous space management.

The most notable characteristic of the senior cohort was the exceptionally high retention rate of natural

teeth. Overall, 94.9% of patients aged 65 years and older retained 20 or more natural teeth, substantially exceeding the 64.3–70.8% reported for the general Korean elderly population aged 65–74 years,¹⁹ and comparable to the 91.4% observed in the younger age group of 40–64 years,²¹ highlighting the high baseline level of functional dentition. This finding suggests that the senior cohort comprised individuals with a high level of oral health awareness and a proactive commitment to treatment, distinguishing them from the general elderly population. These patients likely sought orthodontic treatment as a final step in comprehensive oral rehabilitation or as a form of esthetic or rejuvenation treatment. Conversely, although maintaining good oral health may ensure the feasibility of orthodontic treatment, this observation may also reflect a broader misconception among the general population that orthodontic treatment is feasible only for individuals who are sufficiently healthy or young.^{13,14}

Furthermore, this specialized demographic profile—predominantly individuals in their early 60s—reflects the rise of the “active senior” demographic in Korea.²² Often referred to academically as the “young-old,”²³ this group differs from the traditional frail elderly population in that they remain socially and economically active. Their strong demand for esthetic correction, combined with relatively stable periodontal health, indicates a willing-

ness to invest in maintaining a youthful appearance and a high quality of life. This characteristic may partially explain the higher treatment acceptance rate observed among individuals in their 60s compared with those in their 70s, as the former may perceive orthodontic care as an integral component of their active lifestyle rather than as a burdensome medical intervention and may therefore transition to active treatment more readily.

For seniors, comprehensive orthodontic considerations may be required by integrating orthodontic treatment into the overall oral reconstruction regimen, which may lead to improved treatment outcomes and prognosis. For older adults, customized treatment planning and a multidisciplinary approach are often necessary because of the increasing complexities associated with the aging dentition,²⁴ differences in hard and soft tissue esthetics, and variations in physiologic and biological responses to orthodontic treatment.²⁵⁻²⁷ According to a UK survey, approximately 22% of adult treatment cases required adjunctive multidisciplinary care, and among patients aged 50 years and older, a notable proportion (44.4%) received orthodontic treatment as part of interdisciplinary care aimed at restorative procedures or management of periodontal breakdown.¹ Given that 75.3% of patients were referred from other specialties, this finding clearly demonstrates that orthodontic treatment is not merely an isolated esthetic procedure but rather an essential component of comprehensive oral rehabilitation, thereby underscoring the importance of interdisciplinary collaboration in managing the oral health needs of this population.

However, although the most common referral motive was “interdisciplinary consultation” ($n = 43$), particularly from prosthodontists, the transition from the initial consultation to conventional preresorative orthodontic procedures—such as forced eruption, intrusion of supraerupted molars, or comprehensive interdisciplinary diagnostic evaluation—was relatively low. In contrast, orthodontic treatment was predominantly characterized by interventions focused on the anterior segments, either among patients who directly visited the orthodontic clinic for anterior alignment or among referred patients presenting with their own CC of alignment, consistent with previous reports.^{12,28} These findings suggest that treatment uptake among older adults is influenced not only by the clinical need for intervention but also by the extent to which the proposed treatment aligns with the patient’s personal concerns and intrinsic motivation, underscoring the importance of clearly communicating the long-term functional and esthetic benefits of orthodontic treatment. Clinically, treatment acceptance in senior patients may depend less on a prolonged decision-making process and more on the patient’s primary treatment needs and the interdisciplinary context.

Acceptance may be lower when prosthetic rehabilitation is already anticipated but higher when orthodontic treatment is presented as supporting tooth preservation or facilitating periodontal or restorative management. A clear explanation of its role within the overall treatment plan may therefore improve treatment acceptance.

Orthodontic treatment satisfaction among older adults aged 50 years and older has been reported to be comparably high, with satisfaction scores related to practical aspects—such as treatment duration, treatment costs, and intention to recommend orthodontic treatment to others—exceeding those of younger adults.^{14,18} These findings suggest that successful treatment uptake among older adults is influenced not only by the clinical need for treatment but also by the extent to which the proposed intervention aligns with the patient’s personal concerns and intrinsic motivation, underscoring the importance of clearly communicating the long-term functional and esthetic benefits of orthodontic treatment. This pattern indicates that older adults may have more realistic expectations regarding the scope and duration of limited orthodontic interventions and may place high value on the benefits achieved relative to the investment. Furthermore, seniors were aware of facial changes following orthodontic treatment and perceived post-orthodontic facial appearance as younger and healthier compared with pre-orthodontic appearance to a greater extent than younger adults.²⁹ Coupled with the rapid transition of Korean society into a super-aged demographic structure, these esthetic motivations and high satisfaction with realistic outcomes suggest that orthodontic treatment may emerge as a viable and beneficial option for the elderly population.

Interestingly, the female-to-male ratio was lower than typically reported in younger orthodontic cohorts, suggesting relatively greater male representation among seniors. This pattern may reflect diminishing gender differences in esthetic demand with aging and greater male uptake of orthodontic treatment as part of comprehensive oral rehabilitation and interdisciplinary care in older age. In addition, consistent with prior evidence, Lee et al.¹⁸ reported higher satisfaction in men than in women after orthodontic treatment, particularly among adults aged over 50 years. Nevertheless, direct comparisons across age groups were not performed in this study, and larger multicenter studies are warranted to confirm age-related shifts in sex distribution.

This study was conducted retrospectively at a single university hospital and focused on a specific cohort of patients who were sufficiently motivated and healthy to engage in orthodontic treatment. The study cohort likely represents a health-conscious senior subgroup undergoing long-term health maintenance and demonstrating greater willingness to access specialty care

than the general senior population. In addition, the high proportion of referrals for interdisciplinary care may have further enriched this cohort with patients considered clinically suitable candidates for orthodontic intervention. Therefore, these results may not be directly generalizable to the broader Korean elderly population, which encompasses varying degrees of oral and systemic pathology. Accordingly, the diagnostic and treatment acceptance rates, as well as clinical profiles, may differ in other subgroups, particularly individuals with substantial tooth loss, advanced periodontal disease, frailty, or limited access to care. Furthermore, because the present study included a limited number of patients in several subgroups, future studies with larger sample sizes are needed to perform multivariable analyses, such as logistic regression, to identify independent predictors of orthodontic treatment acceptance among senior patients.

This study primarily focused on the overall clinical flow of senior patients rather than on comparing specific occlusal and periodontal outcomes or patient-reported measures, including satisfaction, perceived esthetic improvement, and oral health–related quality of life. Future prospective studies in senior populations incorporating both objective and subjective indices may better capture patient-centered benefits and enhance our understanding, thereby facilitating the development of evidence-based guidelines for clinical practice in this population. Nevertheless, within the limited scope of this study, the findings support the clinical feasibility of treating senior patients and emphasize the need to establish specialized protocols to address the unique needs of this growing patient population.

CONCLUSIONS

This study characterized an emerging senior orthodontic population with distinct oral health profiles and diverse treatment motivations related to anterior esthetics and interdisciplinary care. Orthodontic treatment acceptance was high, particularly when treatment aligned with patients' intrinsic goals. These findings underscore the need for specialized protocols and interdisciplinary collaboration to meet the growing demand from this active demographic.

AUTHOR CONTRIBUTIONS

Conceptualization: CJC. Data curation: JL. Formal analysis: JL. Funding acquisition: CJC. Investigation: JL. Methodology: JL, CJC. Project administration: JL, CJC. Resources: CJC. Supervision: CJC. Validation: CJC. Visualization: JL, CJC. Writing—original draft: JL, CJC. Writing—review & editing: All authors.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

FUNDING

This work was supported by a research grant from the Korean Association of Orthodontists Foundation (2025) and by the National Research Foundation of Korea (NRF), funded by the Korea government (MSIT) (RS-2024-00350077).

SUPPLEMENTARY MATERIAL

Supplementary data are available at <https://doi.org/10.4041/kjod26.002>

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