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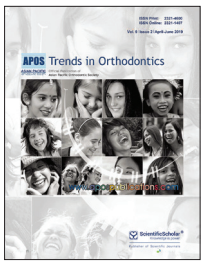

Original Article

Trending topics in orthodontic treatment practices in the past 5 years: A longitudinal study on case reports

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ABSTRACT

Objectives: This study aimed to analyze the case reports published in the past 5 years in orthodontic journals in the Web of Science (WOS) indexes and evaluate the trending topics.

Material and Methods: Following a search conducted by entering the keyword "orthodontics" in the WOS Master Journal List search site, four journals in the Science Citation Index (SCI) and five journals in the Emerging Science Citation Index (ESCI) were included in the study, and case report articles published in these journals between 2016 and 2020 were examined. The case reports were analyzed by examining each issue of each journal published during these years. In addition, frequently studied topics were examined under seven headings.

Results: Only nine of the 16 journals in the list of related journals have published case reports in the past 5 years. The largest number of articles appeared in the *American Journal of Orthodontics and Dentofacial Orthopedics* for the SCI group and *International Orthodontics* for the ESCI group. When the frequently examined topics were evaluated, it was determined that the highest number of articles was fixed orthodontic treatments (53.4%), orthognathic surgery (18.9%), multidisciplinary treatments (6.5%), and treatments for individuals with general health problems (6.5%).

Conclusion: The number of case reports published has gradually increased in the past 5 years. The number of articles in the journals included in the SCI is higher. The subject variety of case reports is too great to be limited to a narrow field.

Keywords: Orthodontic journals, Case reports, Orthodontic treatment types

INTRODUCTION

Recently, many bibliometric studies of different journals and focused on different periods have aimed to investigate trends and topics in orthodontic research.[1-7] The parameters of these studies, the periods studied, and the research subjects vary considerably. However, these studies generally focus on the 2–3 most popular journals of orthodontics, have research-based parameters, and include few subject reviews.[3,5,7-10] Sometimes, only the most-cited studies[2,9,11] are taken into consideration and the others are ignored. Moreover, only a few of them mention a topic of general interest.[1,3,11]

Orthodontic research, which is usually presented as original research, explores various diagnostic methods, presents new and usable treatment mechanisms, and provides academic information on fundamental issues such as research on retention-relapse.[1] However, it is not feasible for these academic data to be interpreted by all interested parties and read by clinicians in a narrow time frame.[12] However, publications in the form of case reports presented in fewer numbers

than these original studies are easier to understand and can be interpreted by both clinicians and academic researchers; thus, in some cases, they may contribute more.[13]

Many studies have aimed to determine the topics of interest in the field of orthodontics by examining research articles.[3,6,8,9] Some studies have mentioned the diversity of articles published in journals.[1,4,6] However, to the best of our knowledge, none have mentioned the contents of case reports, which clinicians tend to prefer and sometimes see as inextricable. In this study, we aimed to examine the case report publication trends and numbers in the main orthodontic journals in the Web of Science (WOS) database in the past 5 years, determine the subjects and treatment types examined in these reports, and evaluate the cases that were most commonly examined.

MATERIAL AND METHODS

In this study, case reports were published in the past 5 years in journals related to orthodontics that are in the WOS database (https://www.webofknowledge.com) and scanned in the Science Citation Index Expanded (SCIE) and Emerging Science Citation Index (ESCI) were evaluated. To identify journals to include in the study, a search was conducted by typing the words "Orthodontics" and "Orthodontist" on the Master Journal List webpage (https://mjl.clarivate.com/home) in the Clarivate database [Figure 1], and the web pages of all results were examined and evaluated. It was determined that case reports were published in nine journals that were published on orthodontics [Table 1]. Four of these journals (*American Journal of Orthodontics and Dentofacial*

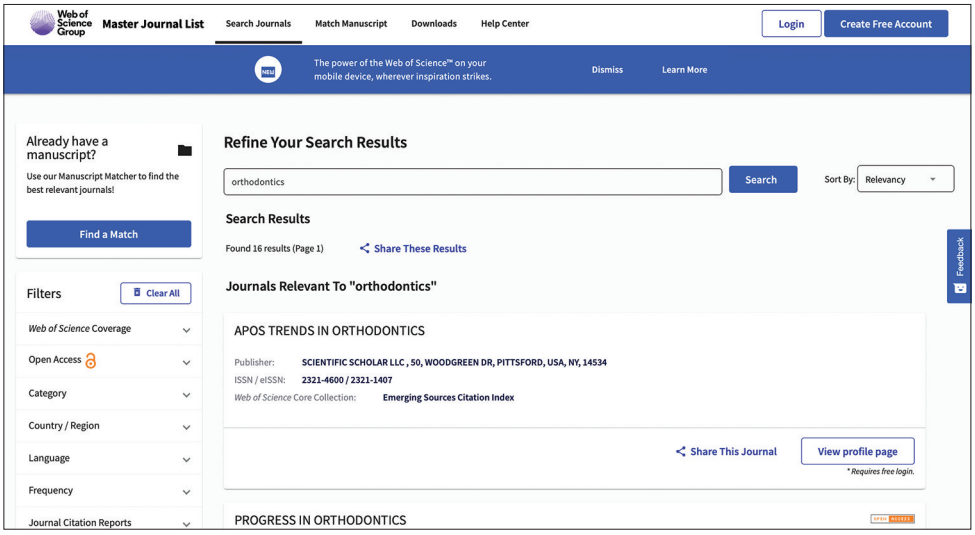

Figure 1: Web of Science Master Journal List web page view used for journal browsing.

Table 1: In the Web of Science index, each field is the journals with case reports on "Orthodontics."

Journal category	Journal Title	ISSN/eISSN	2016		2017		2018		2019		2020		Total	
			N	%	N	%	N	%	N	%	N	%	N	%
SCIE	AJODO	0889-5406/1097-6752	26	21.7	26	21.7	17	14.2	29	24.2	22	18.3	120	35.4
	ANGLE	0003-3219/1945-7103	3	15.0	2	10.0	3	15.0	5	25.0	7	35.0	20	5.9
	KJO	2234-7518/2005-372X	3	11.5	6	23.1	2	7.7	6	23.1	9	34.6	26	7.7
	AAO	207-7472/2207-7480	3	17.6	6	35.2	4	23.5	4	23.5	0	0.0	17	5.0
ESCI	TJO	2528-9659/2148-9505	1	4.5	6	27.3	5	22.7	7	31.8	3	13.6	22	6.5
	JORTHO	1465-3125/1465-3133	6	17.1	5	14.3	5	14.3	10	28.6	9	25.7	35	10.3
	INTORTHO	1761-7227/1879-680X	3	7.0	3	7.0	4	9.3	16	37.2	18	41.9	43	12.7
	APOS	2321-4600/2321-1407	15	37.5	8	20.0	5	12.5	6	15.0	5	12.5	40	11.8
	WAVES	1344-0241/1878-1837	1	6.3	4	25.0	5	31.3	3	18.8	3	18.8	16	4.7
Totally			61	18.0	66	19.5	50	14.7	86	25.4	76	22.4	339	100.0

N: Count, %: Percentage, SCIE: Science Citation Index Expanded, ESCI: Emerging Science Citation Index, AJODO: American Journal of Orthodontics and Dentofacial Orthopedics, ANGLE: The Angle Orthodontist, KJO: The Korean Journal of Orthodontics, AAO: Australasian Orthodontic Journal, TJO: Turkish Journal of Orthodontics, INTORTHO: International Orthodontics, APOS: APOS Trends in Orthodontics, JORTHO: Journal of Orthodontics, WAVES: Orthodontic Waves, ISSN: International Standard Serial Number, eISSN: Electronically International Standard Serial Number

Orthopedics, *The Angle Orthodontist*, *The Korean Journal of Orthodontics*, and *Australasian Orthodontic Journal*) were indexed in the SCI and five (*Turkish Journal of Orthodontics*, *International Orthodontics*, *APOS Trends in Orthodontics*, *Journal of Orthodontics*, and *Orthodontic Waves*) were indexed in the ESCI [Table 1].

The obtained data were saved in Microsoft Excel software (Microsoft Office 365, USA). Statistical Package for the Social Sciences software (Ver. 24.0; IBM Corp., Armonk, NY, USA) was used to analyze the data, and Microsoft Excel was used to prepare the graphics. The data from the case reports published in these journals are reported as counts and percentages.

RESULTS

In the past 5 years, a total of 339 case reports have been published in the reviewed journals [Table 1]. Among these, it was determined that the most frequent case report of the journal was published as AJODO (35.4%) in the SCI group and INTORTHO (12.7%) in the ESCI group. The number of published case reports was higher in 2019 (25.4%) and 2020 (22.4%) than in the other 3 years studied [Table 1]. The case reports were examined and divided into seven subgroups [Table 2]: Cleft lip-palate, maxillary expansion, functional orthopedics, treatments in patients with problems in general health, multidisciplinary treatments (except maxillofacial surgery), orthognathic surgery, and fixed orthodontic treatments. Among these, the most frequently examined subjects were fixed orthodontic treatment (53.4%) and orthognathic surgery (18.9%), while the least studied subject was functional orthopedics [Table 2].

Detailed data on the subjects examined under the main subject headings are presented in [Figures 2-4]. It was found that the most common subjects examined were "adult" treatments (63.0%) in the CLP group, "the miniscrew-supported" treatments (58.0%) in the maxillary expansion group, and treatments related to "Noonan syndrome" (27.0%) and idiopathic osteoarthritis (18.0%) in the "Treatments in patients with problems in general health" group [Figure 2]. Regarding orthognathic surgery, "Skeletal Class III" (33.0%), "Pre-surgical orthodontics" (12.0%), and "Skeletal Class II" (11.0%) treatments were examined most frequently [Figure 3]. The cases published on fixed orthodontic treatments are divided into 32 subheadings based on the relevant subject [Figure 4]. Among these, "Non-surgical open bite" (14.0%) and "Camouflage of Class III malocclusion" (9.0%) were the most common topics.

DISCUSSION

This study aimed to analyze the case reports published in the past 5 years (2016–2020) in nine orthodontic journals in the WOS Master Journal List. Although orthodontic journals have been examined in previous bibliometric studies, to the best of our knowledge, the case reports and the types of cases and treatments examined in such articles have not yet been examined.

It was found that only nine of the 16 journals on the Master Journal List page in the WOS index had published an article in the form of a case report in the past 5 years. In the other seven journals, no case reports were identified among the articles published in the past 5 years. In addition, each issue published between 2016 and 2020 in the journals examined

Table 2: Distribution of the main trending topics by journals.

	SCIE				ESCI					Totally
	AJODO	ANGLE	KJO	AAO	TJO	JORTHO	INTORTHO	APOS	WAVES	
Cleft lip-palate	4 (25.0%)	1 (6.25%)	2 (12.5%)	0 (0.0%)	1 (6.25%)	1 (6.25%)	1 (6.25%)	2 (12.5%)	4 (25.0%)	16 (4.7%)
Maxillary expansion	5 (41.7%)	2 (16.7%)	2 (16.7%)	0 (0.0%)	1 (8.3%)	0 (0.0%)	2 (16.7%)	0 (0.0%)	0 (0.0%)	12 (3.5%)
Functional orthopedics	9 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (5.5%)	2 (11.2%)	6 (33.3%)	0 (0.0%)	18 (5.3%)
Treatments in patients with problems in general health	9 (40.9%)	0 (0.0%)	2 (9.1%)	0 (0.0%)	2 (9.1%)	7 (31.8%)	2 (9.1%)	0 (0.0%)	0 (0.0%)	22 (6.5%)
Multidisciplinary treatments (except of maxillofacial surgery%)	2 (9.1%)	0 (0.0%)	4 (18.2%)	5 (22.7%)	1 (4.5%)	4 (18.2%)	2 (9.1%)	3 (13.5%)	1 (4.5%)	22 (6.5%)
Orthognathic surgery	28 (43.7%)	1 (1.6%)	5 (8.0%)	6 (9.6%)	3 (4.8%)	2 (3.2%)	10 (16.0%)	5 (8.0%)	4 (6.4%)	64 (18.9%)
Fixed orthodontic treatments	63 (34.8%)	16 (8.8%)	11 (6.1%)	5 (2.8%)	14 (7.7%)	19 (10.5%)	24 (13.3%)	22 (12.2%)	7 (3.9%)	181 (53.4%)
Totally	120 (35.4%)	20 (5.9%)	26 (7.7%)	16 (4.7%)	22 (6.5%)	34 (10.0%)	43 (12.7%)	38 (11.2%)	16 (4.7%)	339

N: Count, %: Percentage, SCIE: Science Citation Index Expanded, ESCI: Emerging Science Citation Index, AJODO: American Journal of Orthodontics and Dentofacial Orthopedics, ANGLE: The Angle Orthodontist, KJO: The Korean Journal of Orthodontics, AAO: Australasian Orthodontic Journal, TJO: Turkish Journal of Orthodontics, INTORTHO: International Orthodontics, APOS: APOS Trends in Orthodontics, JORTHO: Journal of Orthodontics, WAVES: Orthodontic Waves

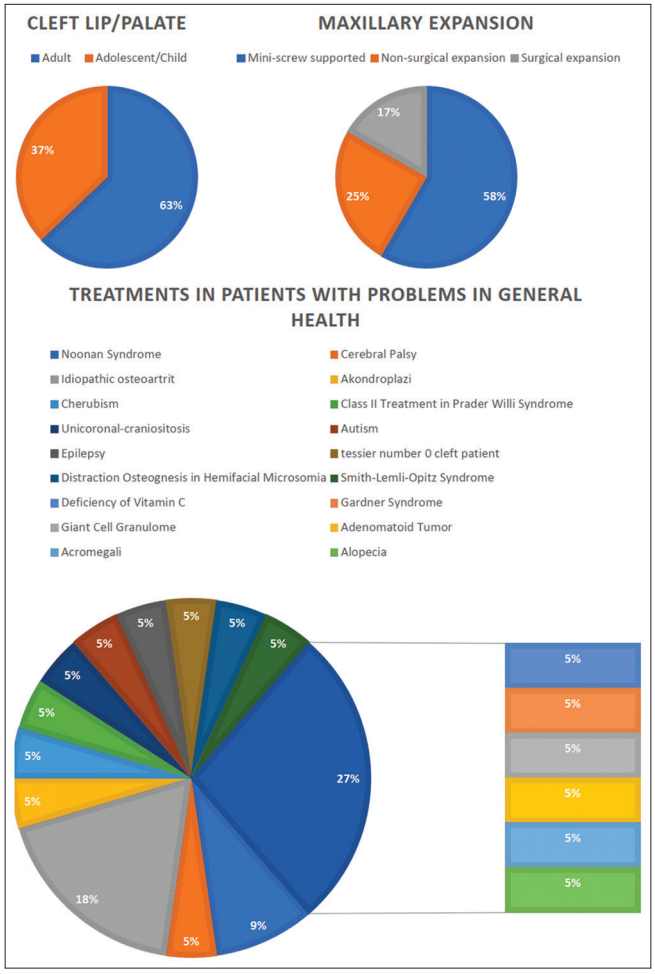

Figure 2: Graphs showing the distribution of subtypes of the cleft lip/palate, maxillary expansion, and treatments in patients with problems in general health groups as percentages for trending topics.

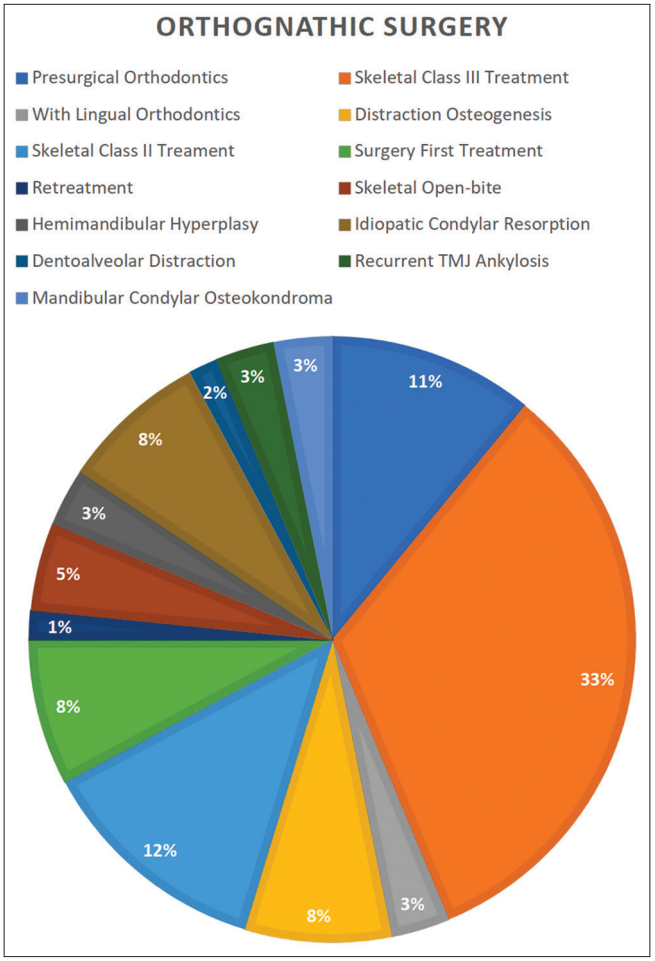

Figure 3: Distribution of trending topics in orthognathic surgery.

in the study was analyzed and reviewed, and all of the cases reports published in these issues were read from beginning to end. All other manuscripts were excluded, except for the case report form that was reviewed.

In the previous studies on articles in the orthodontic literature,[1-3,5,7,9-11] the articles in the research area were examined in a general manner. In many of the previous studies,[1,3,5,11,14,15] the articles published in AJODO were examined and it was reported that the number of publications in the form of research articles, reviews, meta-analyses, and especially case reports was higher in this journal than in other journals, in line with the results of this study. For example, Prasanna *et al.* reviewed orthodontic research publications from the past 5 years in the three most popular orthodontic journals, and the articles in all three journals were examined under seven subtitles.[3] It was reported that the subjects related to fixed orthodontics were examined more frequently in the research articles in AJODO and AO. Similarly, in this study, it was determined that case reports related to fixed orthodontics were examined more frequently than the other subjects. As in our study, six orthodontic journals scanned in the WOS index were examined bibliometrically in the study by Bilgic *et al.*[14] However, only the journals in the SCI were included in the cited study; the journals in the ESCI were not examined. In addition, the topics and research trends examined were not included in the study. In the study by Martin *et al.*, research in the field of orthodontics in the past 30 years was examined.[16] The topics were examined under 48 titles according to the number of citations they received. Although many subjects were examined in this study, no information about patients with general health problems or the treatments applied to them was provided. However, similar to our study, it was stated that subjects related to orthognathic surgery, impacted canine teeth, Class II and Class III malocclusions, and open bite treatments have been studied more often in recent years. In the study by Aura-Tormos *et al.*, the trends in the past 10 years of orthodontic articles in Journal Citations Reports were examined.[1] They

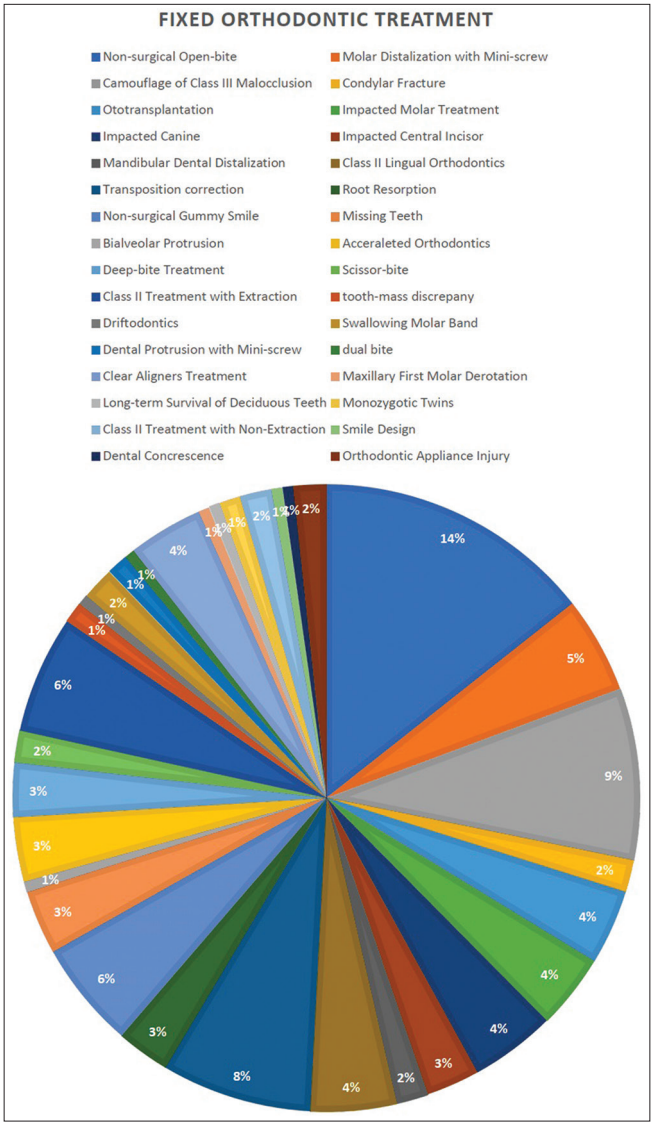

Figure 4: Distribution of trending topics in fixed orthodontic treatments.

stated that there were more case reports in the orthodontic journals examined in this study, especially in the journals AJODO, AO, KJO, and AOJ than in other journals. This is consistent with the findings of this study. In addition, our findings are consistent with the subjects examined in the study by Aura-Tormos *et al.*[1] These findings suggest that the topics in our study may be trending topics. In addition to all this, AJODO aims to contribute more to the literature of orthodontic with the online publication of a new journal called "AJO-DO Clinical Companion" that will emphasize case reports with long-term results or patient recall for long-term records.[17]

To the best of our knowledge, before this study, the general health problems to which orthodontic treatment is applied had not yet been analyzed in the literature. In addition, in this study, we report which types of orthognathic surgery have been examined. It was determined that skeletal Class II and Class III treatments were the most frequently examined subjects and pre-surgical orthodontic treatments. The findings of our study show that the number of case reports on orthodontic treatment approaches in adulthood is higher in patients with CLP. This finding is consistent with the literature discussed in the article by Cash[18] who found that patients with CLP who did not want treatment during childhood and adolescence demanded treatment in adulthood. It has been found that most case reports on maxillary expansion describe miniscrew-assisted maxillary expansion device designs. This finding may suggest that miniscrew-assisted applications are preferable to conventional maxillary expansion applications[19] due to their advantages, such as being able to be used in the late period without requiring surgical assistance, having a greater skeletal effect, and reducing dental side effects.

Limitations

In addition to the WOS database, the Google Scholar, SCOPUS, and Journal Citation Reports databases also provide bibliometric information about published articles.[20] In this study, the journals in only one database were examined; this is a limitation. However, this database was used because other databases usually give a ranking and analysis of the articles, and the WOS index is more acceptable in the international arena.[20,21]

CONCLUSION

- The number of case reports published has gradually increased in the past 5 years.
- Among the journals examined, the largest number of case reports was published in AJODO.
- It was found that the notable topics investigated were CLP, maxillary expansion, orthognathic surgery, and disease diversity in individuals with general health problems.
- Although there are limitations to this study, it can provide suggestions for future studies, as it is a first in this field to our knowledge.
- We recommend conducting more subject-based studies in the future.

Declaration of patient consent

Patient consent is not required as there are no patients in this study.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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