

Knowledge and Attitude of Non-Orthodontic Specialists towards Orthodontic treatment

Ayesha Naaz, Sujit Panda, Karuna Singh Sawhny , Anushka Singh, Prachi Doneria

Rama Dental College, Hospital and Research Centre, Rama University, Kanpur, U.P, India.
ayeshanaaz12081994@gmail.com

Abstract

Objectives: This study aimed to examine the Knowledge and Attitude of Non-Orthodontic Specialists towards Orthodontic treatment.

Material and Methods: A web-based survey was formulated for non-orthodontic dental specialists to respond to questions regarding an orthodontic treatment. It contained 20 multiple-choice questions with three or more possible answers. Two hundred questionnaires were sent via email, with explanatory letters, to randomly selected non-orthodontic dental specialists.

Results: The findings show that most respondents had an excellent knowledge of orthodontic principles and techniques. Every respondent (100%) understood that a patient's masticatory function and facial appearance could be impacted by malocclusions. Results also revealed statistically significant variations ($p < 0.01$) in responses from various non-orthodontic professionals regarding contraindications for orthodontic therapy. Compared to public health practitioners, private health practitioners knew more about when is the best time for the initial orthodontic appointment (76.2%) and that implants and periodontal issues do not preclude orthodontic treatment (almost 70%).

Conclusion: The sample of non-orthodontic specialists demonstrates a commendable level of awareness and understanding regarding the principles and procedures of orthodontic treatment. Increasing the knowledge and awareness of practitioners can assist patients with malocclusions in making early orthodontic treatment decisions and avert future difficulties.

Keywords: knowledge; attitude; orthodontic treatment; specialists.

Introduction

Although there are many reasons why malocclusion occurs, the most prevalent effects are speech and chewing difficulties, a lack of self-worth, increased caries prevalence, TMD, and an unattractive facial appearance^{1, 2, 3}. Therefore, it's essential to use a multidisciplinary approach in patient education so that they can understand the necessity of orthodontic treatment. Orthodontic therapy is chosen by patients for a variety of reasons, the primary one being cosmetic⁴. General dentists and other non-orthodontic experts must

identify malocclusions since quick and proper referral is needed. According to research, patients can fully begin their treatment, however professionally recommended therapy is typically started or guided by general dentists, pediatric dentists, or orthodontists⁵. It has also been demonstrated how much of an impact the dentist has on the patient's choice^{6,7}. One significant difference in the reference is that orthodontic referrals are typically made by general dentists, whereas most specialists concentrate on the issue that brought the patient to them in the first place.

This study examined non-orthodontic specialist's opinions and knowledge of orthodontic therapy. Owing to potential differences in educational backgrounds, opinions regarding the necessity of orthodontic treatment may differ based on the dental specialty or group. While orthodontists' assessments are the gold standard for determining orthodontic treatment needs, it's crucial to comprehend other dentists' perspectives as well because they can have a direct or indirect impact on the application and outcome of orthodontic therapy.

Material and Methods

A web-based survey was developed for non-orthodontic dental specialists to respond to feedback about orthodontic treatments. There were two sections to the survey: (1) basic information including gender, age, title, employment, and specialisation; and (2) attitude and knowledge of orthodontics' principles and practices. Appendix A offers twenty multiple-choice questions with three or more possible answers. Five dental specialists received an email with the survey for the pilot project. They were told to identify any questions that were unclear or deceptive and the changes were made accordingly. A total of 200 randomly selected dental specialists received questionnaires via email along with explanation letters. The email made it clear what the study's purpose was and that answering the survey was completely voluntary.

Statistical Analysis

The statistical analysis was performed using SPSS software and the results were presented in frequency tables. For both 3-by-7 and 2-by-3 cross tables, comparisons between groups were performed using the Chi-square test of independence; the Fisher exact test was used where needed. The results were evaluated against a 95% confidence interval and $p < 0.01$ was considered significant.

Results

Of the 200 surveys, 200 were returned. A higher female predominance was found. In addition, the demographics of the survey participants revealed that the greatest proportion of respondents (59.5%) were in the age range of 19 to 27. Next in line were those between 28 and 34, and the age range of 50 to 65 represented the lowest proportion of specialists. Respondents' categories of specialisation included prosthodontists, oral surgeons, endodontists, periodontists, family dentists, pedodontists, and doctors of oral medicine. The majority of

respondents (46%) worked in the private dental health sector, 28% in the public dental health sector, and 26% did not practise dentistry. (Table 1).

Table 1. The characteristics of the non-orthodontic specialists.

	<i>n</i> (Number)	% (Percent)
Gender		
Female	139	69.5
Male	61	30.5
Age (years)		
19-27	119	59.5
28-34	38	19
35-49	32	16
50-65	11	5.5
Specialists		
Oral surgeon	30	15
Prosthodontist	29	14.5
Endodontist	46	23
Periodontist	15	7.3
Family dentist	68	34
Pedodontist	6	3
Oral medicine	6	3
You are a dental practitioner in:		
Private health practice	92	46
Public health practice	56	28
I do not practice dentistry	52	26

The results of the questionnaire on attitude and awareness of principles and practices in orthodontics are shown in Table 2. The majority of respondents, according to the data, were knowledgeable about the principles and practices of orthodontics. Every respondent (100%) understood that a patient's masticatory function and facial aesthetics could be impacted by malocclusions.

Table 2. Results from the questionnaire about attitude and awareness of principles and practices in orthodontics.

	<i>n</i>	%
Ideal time for first orthodontic appointment		
Age of 7 years	75	37.5
After erupting first permanent premolar	71	35.5
After erupting second permanent molar	54	27
Ideal time for starting orthodontic therapy		
6-8 years old	55	27.5
13-16 years old	97	48.5
Depends on dental anomalies	48	24
Upper age limit for orthodontic therapy		
40 years old	66	33
50 years old	50	25

6Doesn't exist	84	42
Patients with diastema in primary dentition should be referred to orthodontist		
Yes	165	82.5
No	32	16
I don't know	3	1.5
Patients with bad oral habit (thumb sucking, tongue thrusting, or mouth breathing) should		
Be directly referred to an orthodontist	65	32.5
Stop bad habits and then be referred to an orthodontist	114	57
Wait for permanent dentition before any orthodontic treatment	21	10.5
Malocclusion affects facial aesthetic		
Yes	200	100
No	0	0
I don't know	0	0
Malocclusion affects a masticatory function		
Yes	200	100
No	0	0
I don't know	0	0
Orthodontic therapy is contraindicated in patients with implants		
Yes	83	41.5
No	87	43.5
I don't know	30	15
Orthodontic therapy is contraindicated in periodontal patients		
Yes	134	67
No	55	27.5
I don't know	11	5.5
Malocclusion may impede oral hygiene		
Yes	152	76
No	31	15.5
I don't know	17	8.5
Untreated cavity can cause malocclusion		
Yes	134	67
No	51	25.5
I don't know	15	7.5
Orthodontic treatment always requires tooth extraction		
Yes	31	15.5
No	152	76
I don't know	17	8.5
Retention is required after orthodontic treatment		
Yes	124	64.5
No	50	25
I don't know	21	10.5
Fixed retainer removal		
After 2 years	97	40.5
After 5 years	70	35
It is not required	33	16.5
Orthodontic treatment outcomes affect the patient's self-esteem		
Yes	138	69
No	46	23
I don't know	16	8
Do you know about functional therapy?		
Yes	85	42.5
No	94	47

I don't know	21	10.5
--------------	----	------

According to Table 3, there were statistically significant differences in the responses provided by various non-orthodontic professionals regarding the contraindications for orthodontic therapy (questions 12 and 13, $p < 0.01$). Sixty-seven percent of dentists refused to treat periodontal patients with orthodontics. Finally, a comparison of the responses was made between practitioners of public health and private health. Statistically significant differences were seen in a few comparison questions (Table 4, $p < 0.01$). The optimal time for the first orthodontic appointment was better understood by private healthcare providers (76.2%), as was the fact that implants and periodontal issues do not preclude orthodontic therapy (over 70%). This suggests that practitioners in private health knew more about interdisciplinary collaboration. Public health experts were more likely to say (38.4%) that patients with poor oral habits (thumb sucking, tongue thrusting, or mouth breathing) should see an orthodontist immediately.

Table 3. Comparison of answers of different non-orthodontic specialties.

Question 12 (Orthodontic Therapy is Contraindicated in Patients with Implants)

	Yes		No		I Don't Know		<i>p</i> -Value	χ^2
	<i>N</i>	%	<i>n</i>	%	<i>N</i>	%	<i>p</i> < 0.001 *	48.82
Oral surgeon	0	0	33	96.8	1	3.2		
Prosthodontist	3	9.4	20	62.5	10	28.1		
Endodontist	4	12.5	5	19.3	19	69.2		
Periodontist	1	5	18	80	3	15		
Family dentist	8	40	8	40	7	30		
Pedodontist	2	13.4	9	53.3	5	33.3		
Oral medicine	1	8.8	10	61.5	5	30.7		
Oral surgeon								

Question 13 (Orthodontic Therapy is Contraindicated in Periodontal Patients)

	Yes		No		I Don't Know		<i>p</i> -Value	χ^2
	<i>N</i>	%	<i>n</i>	%	<i>N</i>	%	<i>p</i> = 0.007 *	27.42
Oral surgeon	11	32.3	18	56.2	5	12.6		
Prosthodontist	17	53.1	12	37.5	3	9.4		
Endodontist	13	46.3	10	39.5	4	15.4		
Periodontist	0	0	19	96	1	5		
Family dentist	12	57	9	47	0	0		
Pedodontist	6	42	7	46.7	2	13.3		
Oral medicine	5	38.5	5	38.5	4	30.7		

Table 4. Comparison of answers of public health and private health practitioners.

	Public Health Practitioners		Private Health Practitioners		<i>p</i> -Value	χ^2
	<i>N</i>	%	<i>n</i>	%		
Ideal time for first orthodontic appointment					<i>p</i> = 0.003 *	12.09
Age of 7 years	43	48.2	50	76.2		
After erupting first permanent premolar	35	37.4	13	19.7		
After erupting second permanent molar	16	18.4	4	6.7		
Patient with bad oral habit (thumb sucking, tongue thrust, or mouth breathing) should					<i>p</i> =0.009*	9.91
Without delay be referred to orthodontic appointment	34	38.4	14	18.1		
Stop bad habits and then be referred to orthodontist	58	64.6	54	82.9		
Wait for permanent dentition before any orthodontic treatment	0	0	0	0		
Orthodontic therapy is contraindicated in patients with implants					<i>p</i> < 0.001 *	28.25
Yes	13	12.1	6	7.6		
No	39	43.8	56	86.8		
I don't know	45	46.1	7	7.6		
Orthodontic therapy is contraindicated in periodontal patients					<i>p</i> < 0.001 *	26.72
Yes	38	41.7	15	23.8		
No	40	43.8	47	71.2		
I don't know	15	15.5	4	7		

Discussion

Following periodontal disorders and tooth cavities, malocclusion is the third most prevalent disease in dentistry⁸. Malocclusions have detrimental effects on patients' physical, social, and psychological well-being, making them a significant global public health issue⁹. For these reasons, prompt and adequate therapy is essential for a number of reasons. It lessens the detrimental effects of malocclusion by preventing the development of severe abnormalities and establishing the conditions necessary for the orofacial system to develop normally. Furthermore, it frequently lowers treatment costs because cases with ignored malocclusions necessitate sophisticated and costly treatments. Because of this, interdisciplinary teamwork is the foundation of modern dentistry's pursuit of perfection.

In order to potentially work with an orthodontist, this survey focuses on professionals' understanding and expertise of orthodontic therapy. It draws attention to a striking difference in the expertise and perspectives of specialists regarding different aspects of orthodontic therapy. Unsurprisingly, the majority of respondents were women, since there are more women in the profession¹⁰. It's critical to understand when the first evaluation is required, when therapy should begin, and what age is appropriate for starting therapy in order for it to start on time. The majority of dentists believed that 7 years old is the best age for the first assessment, as demonstrated by studies¹¹. The highest proportion of pedodontists responded correctly.

Conveniently, the majority of clinicians were aware that orthodontic therapy is not age-limited.

Participants without orthodontic specialization are eager to carry out the basic diagnosis process that is required for orthodontic therapy and has the mindset to seek a specialist's advice before beginning treatment.^{12,13} The current study emphasizes the necessity of providing general dentists and non-orthodontic specialists with improved education on orthodontic treatment concepts. Furthermore, our study highlights the necessity of raising general dentists' and other professionals' knowledge of early orthodontic treatment procedures. According to Tanaka et al., using ineffective methods to get rid of undesirable oral habits might delay elimination, exacerbate malocclusion, and squander time that could be used to start therapy¹⁴.

Retention is required following orthodontic treatment completion. When fixed retainers are used for an extended period of time, the greatest worry is whether this would negatively impact periodontal health and make maintaining dental hygiene more difficult. According to this survey, people's opinions about fixed retainers are generally favourable.

Conclusion

According to the study's limitations, the majority of the participants were aware of the fundamentals and procedures of orthodontic therapy. When compared to public health practitioners, private sector non-orthodontic specialists demonstrated a greater understanding of the appropriate time for referral and the indications for orthodontic treatment.

References

- 1 Bittencourt, J.M.; Martins, L.P.; Bendo, C.B.; Vale, M.P.; Paiva, S.M. Negative effect of malocclusion on the emotional and social well-being of Brazilian adolescents: A population-based study. *Eur. J. Orthod.* 2017, 39, 628–633. [CrossRef]
2. Shaw, W.C.; Addy, M.; Ray, C. Dental and social effects of malocclusion and effectiveness of orthodontic treatment: A review. *Community Dent. Oral Epidemiol.* 1980, 8, 36–45. [CrossRef]
3. Aboalnaga, A.A.; Amer, N.M.; Elnahas, M.O.; Fayed, M.M.; ElDakroury, A.E.; Labib, A.H.; Fahim, F.H. Malocclusion and Temporomandibular Disorders: Verification of the Controversy. *J. Oral Facial Pain Headache* 2019, 33, 440–450. [CrossRef]
4. Wedrychowska-Szulc, B.; Syryńska, M. Patient and parent motivation for orthodontic treatment—A questionnaire study. *Eur. J. Orthod.* 2010, 32, 447–452. [CrossRef]
5. Chambers, D.W.; Zitterkopf, J.G. How people make decisions about whether or not to seek orthodontic care: Upstream in the treatment chain. *Am. J. Orthod. Dentofac. Orthop.* 2019, 155, 826–831. [CrossRef]
6. Shaw, W.C. Factors influencing the desire for orthodontic treatment. *Eur. J. Orthod.* 1981, 3, 151–162. [CrossRef] [PubMed]

7. Gosney, M.B. An investigation into some of the factors influencing the desire for orthodontic treatment. *Br. J. Orthod.* 1986, 13, 87–94. [[CrossRef](#)] [[PubMed](#)]

- 8 Ahammed, A.Y.; Shetty, V.; Panda, A.K.; Gunda, S.; Pradhan, D.; Husain, N.; Gugwad, S. Prevalence of malocclusion among 12 to 15 caries using dental aesthetic index. *J. Contemp. Dent. Pract.* **2013**, 14, 111–114.

- 9 Vieira-Andrade, R.G.; Paiva, S.; Marques, L.S. Impact of Malocclusions on Quality of Life from Childhood to Adulthood. In *Issues in Contemporary Orthodontics*; Bourzgui, F., Ed.; Intech Open: London, UK, 2015; pp. 39–55.

- 10 Barac Furtinger, V.; Alyeva, R.; Maximovskaya, L.N. Is European Dentistry Becoming a Female Profession? *Acta Stomatol. Croat.* **2013**, 47, 51–57. [[CrossRef](#)]

- 11 Martonffy, A.I. Oral health: Orthodontic treatment. *FP Essent.* **2015**, 428, 22–26

- 12 Polychronopoulou A, Kawamura M. Oral self-care behaviours: comparing Greek and Japanese dental students. *Eur J Dent Educ.* 2005; 9: 164-70.

13. Ravichandran P. Parents knowledge and attitude of orthodontic treatment towards their school going children in Chennai - A Questionnaire Survey. *J Clin Dent Sci.* 2017;2(1):5–11

14. Tanaka, O.; Oliveira, W.; Galarza, M.; Aoki, V.; Bertaiolli, B. Breaking the Thumb Sucking Habit: When Compliance Is Essential. *Case Rep. Dent.* **2016**, 17, 601–615. [[CrossRef](#)] [[PubMed](#)]