

Knowledge and Attitude of General Dentists and Non-Orthodontic Specialists Towards Early Orthodontic Treatment – A Cross-Sectional Analytical Study

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ABSTRACT

Introduction: Malocclusion is one of the most important oral health problems among children and young adults, leads to social stigma and psychological disorders. Early detection of orthodontic disorders is essential in motivating patients to intervene prior to long-term complications when the disorders are not recognized. The aim of this study is to determine and evaluate the knowledge and attitude of general dentists and non-orthodontic specialists towards early orthodontic treatment.

Materials and Method: A total of 240 dentists and other specialists than orthodontists participated in the study. A questionnaire consisting of 3 domains having 17 items was circulated using Google forms. The responses were collected further coded and analysed to assess the knowledge and attitude scores. Data was entered in SPSS (v.21.0) and statistical analysis was performed. ($p < 0.05$)

Result: A total of 122 general dentists and 122 non-orthodontic specialists responded to the questionnaire. The results showed that the non-orthodontic specialist had a higher mean knowledge score of 7.2 as compared to general dentists (6.1). Furthermore, both the study participants had a positive strong attitude towards improving their knowledge in early orthodontic treatment.

Conclusion: The study highlights the need of better education for treatment concepts in orthodontics to the general dentist and non-orthodontic specialist.

KEYWORDS: Early orthodontic treatment, General dentist, Knowledge, Non-orthodontic specialist, Questionnaire.

INTRODUCTION

Malocclusion is the abnormality of the eruption process of permanent or deciduous teeth in the jaws. It is the second most common dental disease after dental caries in children and young adults.¹ It is considered to be one of the most important etiological factors for the advancement of dental caries, temporomandibular dysfunctions, gingival and periodontal pathologies. It can result in social embarrassment, rejection and inevitable psychological disorders. Orthodontic specialty is involved in the prevention, diagnosis, and correction of malocclusions due to skeletal and

neuromuscular abnormalities related to developing or mature dentofacial structures.^{2,3}

General public should be aware about the cause, consequences and benefits of orthodontic treatment. This can be accomplished by a multidisciplinary approach in which general dental practitioners and other non-orthodontic specialists can play the role of orthodontic health educators.^{4,5}

The Orthodontic speciality deals with the prevention, interception, and correction of malocclusions due to

skeletal abnormalities related to developing or mature dentofacial structures.⁶ Orthodontic care whether performed due to the professional assessment or patient self-perception brings about beneficial effects, including aesthetic enhancement, functional improvement, and psychosocial wellbeing.

Many a times patient might present with a chief complaint that he/she would not be able to correlate with an underlying malocclusion. In that case, it is imperative for the dentist to identify and diagnose the chief cause which may be an orthodontic cause and then plan a proper referral. Not only the majority of patients referring to orthodontic professionals consists of children, but also the pre-adolescent stage of life is a crucial period during which dental health development takes place. These important issues urge the need to seek out the most efficient and effective measurements to establish better dentofacial health and function during this period.^{7,8}

Previous studies^{9,10,11} declared vital role of parents in performing orthodontic management for their children, interestingly having similar viewpoints as dentists' evaluation of dentofacial deformities. The former studies have illustrated that parents choose orthodontic treatment for promoting their children oral health and function and limiting social stigma as well. Evidence has revealed that the parents, who had been orthodontic patients beforehand or interested to undergo this treatment now, are more approving of implicating this treatment for their children. Assessing the knowledge of dentists in orthodontics is necessary to ensure that they are able to diagnose any problem in patients and they are subsequently referred to orthodontic specialists for treatment.

Hence in this study was conducted with the aim to assess the knowledge and attitude of general dentist and non-orthodontic specialist towards early orthodontic treatment.

MATERIAL AND METHODS

The study was conducted after obtaining relevant permissions from the Scientific Advisory Committee and Institutional ethics committee. A cross-sectional analytical study was conducted in Department of orthodontics SDDCH, Parbhani, Maharashtra, A convenience sampling approach was used. The eligibility criteria were pre-determined. All those participants who were willing to participate and giving written informed consent and who were present at the time of the study were included in the study. The sample size was derived

from previous study conducted on knowledge, attitude and practices of general dentists, considering 95% confidence intervals and 80% power of the study using comparing means formula on Epi info software. The total sample size derived was 240 participants.

A closed ended questionnaire was distributed to a total 240 dentists and other specialist other than orthodontists in 1:1 ratio by using Google forms. The questionnaire consisted of three domains. The first domain consisted of demographic and educational details of the study participants followed by their practice details. The next two domains consisted of knowledge and attitude domain; wherein closed-ended questions were designed regarding awareness and knowledge towards orthodontic treatment. (Appendix 1). The responses were collected and further coded and analysed to assess the knowledge and attitude scores.

Statistical Analysis

Data was collected by using a structured proforma. Data collected was sorted and entered in MS excel sheet and analysed by using SPSS 24.0 version IBMUSA. Frequency statistics of each variable was performed and frequency distribution and percentage of each item of the questionnaire was calculated. Mean and standard deviation of knowledge and attitude score was derived. Chi-square test of proportion was performed to analyse the significant difference between the parameters. All statistical tests were performed at 95% confidence intervals; keeping p value of less than 0.05 as statistically significant.

RESULTS

The present study aimed to determine and evaluate the awareness, knowledge and attitude of general dentists and non-orthodontic specialists. The study population included 240 total participants out of which 122 were dental specialists (except orthodontic specialist) and 122 were general practitioner dentists (Figure 1)

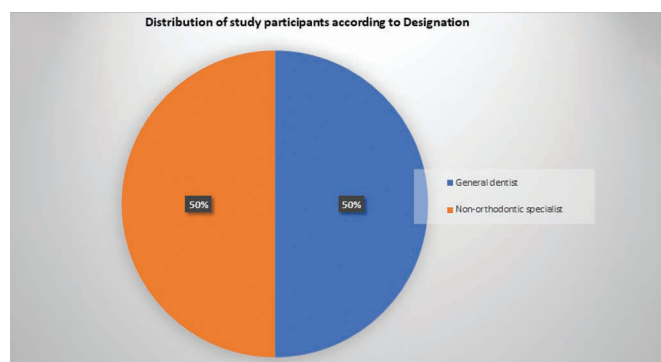


Figure 1 - Distribution of study participants according to Designation

KNOWLEDGE DOMAIN

The Frequency analysis of the different questions addressed under the knowledge domain is mentioned in Table 1. All the responses given by the general dentists and its comparison to the non-specialist orthodontist is mentioned. Chi-square test of proportion showed statistically significant results (p value <0.05) with respect to all questionnaire items. (Table 1).

In this present study, when the responses were analysed to evaluate the mean knowledge score for general

dentist and for non-orthodontic specialist, it was seen that the non-orthodontic specialist had a higher mean knowledge score of a 7.2 as compared to general dentists (6.1) (Figure 2).

In our study, the overall prevalence of knowledge was 60% in general dentist and 73% in non-orthodontic specialist. On the other hand, overall attitude of both the groups was favourable towards referring the patients to an orthodontist at early stages (Figure 3).

Table 1 – Knowledge domain

Questionnaire items	Responses	General dentist (n=122)	Non-orthodontic specialist (n=122)	p value
Suitable age for orthodontic treatment	At mixed dentition	62	53	0.001*
	At primary dentition	12	9	
	At any age	46	58	
orthodontic treatment can be done in mixed dentition	Yes	88	106	0.000*
	No	18	11	
	Not sure	14	3	
check for skeletal malocclusion in patients with dental malocclusion	Yes	91	95	0.03*
	No	20	18	
	Not sure	9	7	
Any difference in orthodontic treatment of child and adult	Yes	102	106	0.001*
	No	10	12	
	Not sure	8	2	
know about functional therapy?	Yes	90	99	0.000*
	No	14	15	
	Not sure	16	6	
During pre-pubertal growth spurts, can we use functional appliance	Yes	61	82	0.043*
	No	21	15	
	Not sure	38	23	
orthodontic treatment always require extraction	Yes	17	24	0.001*
	No	93	91	
	Not sure	10	5	
early preventive measures in childhood can prevent the need for later treatment	Yes	94	109	0.000*
	No	10	8	
	Not sure	16	3	
there any different orthodontic treatment timing for boys and girls?	Yes	75	87	0.049*
	No	23	19	
	Not sure	22	14	

Questionnaire items	Responses	General dentist (n=122)	Non-orthodontic specialist (n=122)	p value
habits (thumb sucking, tongue thrusting, etc) really affect malocclusion	Yes	102	109	0.01*
	No	12	8	
	Not sure	6	3	

*p value <0.05 statistically significant

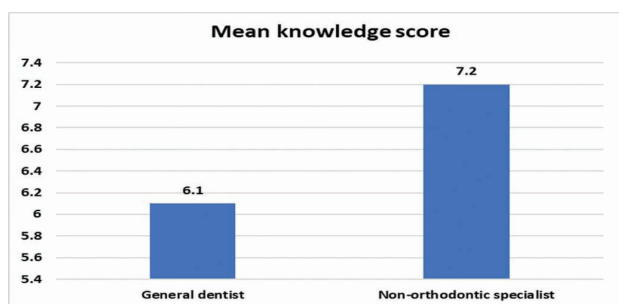


Figure 2 – Mean knowledge score of General dentists and non-orthodontic specialist

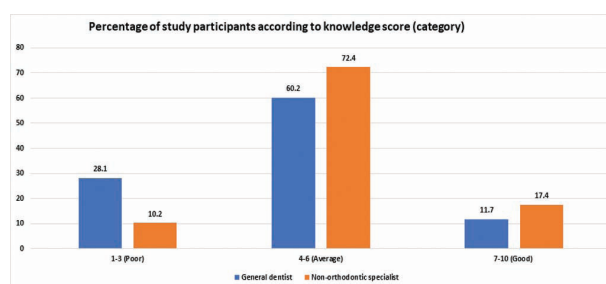


Figure 3 - Percentage of study participants according to knowledge score (category)

ATTITUDE DOMAIN

The Frequency analysis of the different questions addressed under the attitude domain is mentioned in Table 2. All the responses given by the general dentists and its comparison to the non-specialist orthodontist is mentioned. Chi-square test of proportion showed statistically significant results (p value <0.05) with respect to all questionnaire items. (Table 2).

Table 2 – Attitude Domain

Questionnaire items	Responses	General dentist (n=122)	Non-orthodontic specialist (n=122)	p value
Necessary to call specialist for an opinion about orthodontic procedure	Agree	94	117	0.001*
	Disagree	9	3	
	Neutral	17	0	
Do you think performing any basic diagnostic orthodontic procedure is necessary for orthodontic treatment	Agree	95	98	0.02*
	Disagree	15	18	
	Neutral	10	4	
You think orthodontic treatment should be done only after eruption permanent dentition	Agree	41	49	0.01*
	Disagree	53	60	
	Neutral	26	11	
Necessary to prescribe a space maintainer to a child after early extraction of primary teeth	Agree	95	104	0.01*
	Disagree	7	13	
	Neutral	18	3	
Necessary to look for malocclusion on clinical examination when patient reports with any other complaint?	Agree	91	94	0.000*
	Disagree	14	20	
	Neutral	15	6	
think orthodontic treatment can be done in cases with missing molar?	Agree	77	81	0.032*
	Disagree	10	30	
	Neutral	33	9	

*p value <0.05 statistically significant

DISCUSSION

The purpose of this study was to assess knowledge and attitude about early orthodontic treatment among general dentist and non-orthodontic specialist, the perception of the orthodontic treatment for the counselling of the patients. Figure 2 shows that most of the general dentists and the non-orthodontic specialists were aware of the basic concept of the orthodontic treatment. However, around (56) % of the participants aren't aware that orthodontic evaluation can be done at any age if the periodontium is healthy. This lack of knowledge is very vital for the patient counselling and referral for the optimal outcome of the orthodontic treatment. This shows the need for increase in clinically oriented education of practice and concepts of orthodontic treatment.^{12,13} When asked about mixed dentition criteria in reference to orthodontic treatment 88% non-orthodontic specialist and 73% general dentist were aware that orthodontic treatment can be done in mixed dentition. Around 75% general dentist and 80% orthodontic specialist were aware to check for skeletal malocclusion with respect to dental malocclusion this suggest that their variation in knowledge about the difference between the skeletal and dental malocclusion.

On evaluation of knowledge about difference between orthodontic treatment of child and adult there was no significant difference Around 85% general dentist and 88% orthodontic specialist agreed that there is difference between the treatment pattern. Myofunctional appliances are more important as they avoid the natural forces of the orofacial musculature which hamper the normal development of child¹⁴ when asked about the knowledge of myofunctional appliance 75% general dentist and 89% orthodontic specialist were aware about the functional appliance. Myofunctional appliances give optimum results when used at the time of growth. Therefore, knowledge about growth spurts is important when asked about the growth spurts around 50% general dentist and 80% orthodontic specialist were only aware about growth spurts.¹⁵

The mean score of knowledge among general dentists and non-orthodontic specialists is 6.1 and 7.2 respectively. In a similar study done by Acharya et al¹⁶ to assess the knowledge of principle and practice of orthodontic treatment among general dentists and non-orthodontics specialists, the mean score of knowledge was found 13.47 and 13.87 respectively. Niveda and Dinesh¹⁷ in Chennai, India on a similar study sample, the

knowledge and awareness prevalent among the study participants was found to be moderately satisfactory. But they concluded that general dentist and non-orthodontic specialist lack the knowledge of therapeutic options and advance treatment modalities. Qualification and specialty participants showed significant and positive correlation with the level of knowledge about orthodontic treatment. This may be due to the increase in the number of cases who were treated by other specialists with aspect of orthodontic treatment directly or indirectly interfere with their specialties.^{18,19}

Non orthodontic speciality participants have the attitude to call for a specialist opinion before the treatment and they are keen towards performing the basic diagnosis procedure which is necessary for orthodontic treatment.^{20,21} The present study highlights the need of better education of treatment concepts in orthodontics to the general dentist and non-orthodontic specialist. Moreover, our study outlines the need to spread more awareness regarding the early orthodontic treatment practices amongst general dentists and other specialists. All these contribute to the strengths of our study. Our study limitations include a smaller sample size, lesser groups for comparison and a limited information on specific early treatment of orthodontics.

CONCLUSION

Our study results concludes that the existing knowledge and approach of general dentists as well as non-orthodontic specialists towards orthodontic treatment should be improved. Conduction of Continuing Education programs to update them regularly in diagnosis of orthodontic problems, functional appliance therapy, management of periodontally compromised cases, use of orthodontic mini screws and retention protocol after orthodontic treatment might be of great help to the practitioners in providing meticulous care to their patients.

CONFLICT OF INTEREST

There was no conflict of interest.

REFERENCES

1. Sastri MR, Tanpure VR, Palagi FB, Shinde SK, Ladhe K, Polepalle T. Study of the Knowledge and Attitude about Principles and Practices of Orthodontic Treatment among General Dental Practitioners and Non-orthodontic Specialties. *J Int Oral Health*. 2015;7(3):44–8.
2. Aldrees AM, Tashkandi NE, Al Wanis AA, Al Sanouni MS, Al-Hamlan NH. Orthodontic treatment and referral patterns: A survey of pediatric dentists, general practitioners, and orthodontists. *Saudi Dent J*. 2015;27(1):30-9.
3. King GJ, McGorray SP, Wheeler TT, Dolce C, Taylor M. Comparison of peer assessment ratings (PAR) from 1-phase and 2-phase treatments protocols of Class II malocclusion. *Am J Orthod Dentofacial Orthop*. 2003;123(5):489-96.
4. Koroluk LD, Tulloch JF, Phillips C. Incisor trauma and early treatment for Class II Division 1 malocclusion. *Am J Orthod Dentofacial Orthop*. 2003;123(2):117-25.
5. Fleming PS, Dowling PA. A survey of undergraduate orthodontic training and orthodontic practices by general dental practitioners. *J Ir Dent Assoc*. 2005 Summer;51(2):68-72.
6. Danaei SM, Oshagh M, Pajuhi N, Ghahremani Y, Bushehri GS. Assessment of parental awareness about malocclusion in Shiraz, Islamic Republic of Iran. *East Mediterr Health J*. 2011;17(7):599–603.
7. Reichmuth M, Greene KA, Orsini MG, Cisneros GJ, King GJ, Kiyak HA. Occlusal perceptions of children seeking orthodontic treatment: impact of ethnicity and socioeconomic status. *Am J Orthod Dentofacial Orthop*. 2005;128(5):575–82.
8. Sivertsen R. How different social classes benefit from the subsidized orthodontic services in Norway. *Eur J Orthod*. 1981;3(4):273–7.
9. Milen A, Tala H. Social inequity in oral health—a newly awakened problem. *Proc Finn Dent Soc*. 1986;82(5-6):260–6.
10. Sharma A, Menon I, Aruna D, Dixit A. Prevalence of Malocclusion and Treatment Needs Among 12 to 15 Years Old School Children in Muradnagar Uttar Pradesh. *IOSR J Dental Med Sci (IOSR-JDMS)*. ;1(14):60–5.
11. Jha K, Saha S, Gv J, Narang R, Biswas G, Sood P, et al. Prevalence of Malocclusion and its Psycho-Social Impact among 12 To 15-Year-old School Children in Lucknow City. *J Clin Diagn Res*. 2014;8(10):36–9.
12. Dogan AA, Sari E, Uskun E, Saglam AM. Comparison of orthodontic treatment need by professionals and parents with different sociodemographic characteristics. *Eur J Orthod*. 2010;32(6):672–6.
13. Al-Sarheed M, Bedi R, Hunt NP. The views and attitudes of parents of children with a sensory impairment towards orthodontic care. *Eur J Orthod*. 2004;26(1):87–91.
14. Abdelkarim A, Jerrold L. Strategies for improved interdisciplinary care and communication in orthodontics. *Am J Orthod Dentofacial Orthop*. 2017;152: 717-21. PMID: 29103450.
15. Chew MT, Aw AKL. Appropriateness of orthodontic referrals: self-perceived and normative treatment needs of patients referred for orthodontic consultation. *Community Dent Oral Epidemiol*. 2002; 30: 449-54.
16. Acharya A, Mishra P, Shrestha RM, Shah P. Orthodontic treatment knowledge among general dentists and non-orthodontic specialists. *Orthod J Nepal*. 2019; 9: 40-4.
17. Niveda S, Saravana D. A survey of the knowledge, attitude and awareness of principles and practices in orthodontics among general dentists and nonorthodontic specialists. *IOSR J Dent Med Sci*. 2014;13(1):44–6.
18. Muhanad L, Alshami Nada K, Imran, Mustafa R, Abdurazaq, Krupal Narendra Kumar. Attitude and Knowledge of Orthodontics among General Dentists and Non-Orthodontic Specialists: A Questionnaire Based Survey. *Int J Dentistry Oral Sci*. 2020;7(9):815-820.
19. Soni UN, Baheti MJ, Dash S, Toshniwal NG, Baldawa RS. Knowledge and awareness of malocclusion among rural population in India. *Asian Pacific J Heal Sci*. 2014;1(4):329–34.
20. Polychronopoulou A, Kawamura M. Oral self-care behaviours: comparing Greek and Japanese dental students. *Eur J Dent Educ*. 2005; 9: 164-70.
21. 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.