

Study of the Knowledge and Attitude about Principles and Practices of Orthodontic Treatment among General Dental Practitioners and Non-orthodontic Specialties

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Abstract:

Background: General dental practitioners and non-orthodontic specialty can play an essential role of education and motivation of their patients about the principles and practice of orthodontic treatment; which can be very beneficial to the patient's lifestyle. It is, therefore, important to identify their level of knowledge and attitude toward orthodontic treatment. This study was planned to study this aspect in the form of comparative analysis in general dental practitioners and other specialties (except orthodontia) in dentistry.

Materials and Methods: The study was done on 78 dentists, which was divided into two groups. Group I consisted of 46 general dental practitioners and Group II consisted of 32 non-orthodontic specialties. The study was carried out with the help of 21 questionnaires, which consisted of 13 questions of orthodontic knowledge and 08 questions about the attitude toward orthodontic practice. The scores were calculated, and statistical analysis was done with the help of IBM SPSS statistics 20, using Student's *t*-test.

Results: The comparative analysis showed highly significant difference of knowledge and attitude score between general dental practitioners and non-orthodontic specialties (Student's *t*-test, $P < 0.001$). Also the comparison was made between male and female practitioners, who showed more scores in case of male practitioners; but the difference was not significant statistically (Student's *t*-test, $P > 0.01$).

Conclusion: The results of the study were moderately satisfactory, and it showed the need for increased clinically oriented education of practice and concepts of orthodontic treatment.

Key Words: Attitude, knowledge, orthodontic treatment

Introduction

Oral health generally has the effect on the general health of the individual and ultimately affects well-being, education, and development. In many countries, parents and their children's are not aware of the basic causes, incidence and prevention of the common oral diseases. One of the most common etiologies for the development of dental caries, fluorosis, temporomandibular disorders and gingival diseases is malocclusion.¹ Tooth malposition may also lead to difficulty in functional movements of the mandible, difficulty in mastication, swallowing, speech, increased susceptibility to trauma or periodontal problems.²

Malocclusion means bad bite, and it consists of a spectrum of deviation from the normal or ideal occlusion to severe anomalies.^{3,4} Malocclusion is defined as an "occlusion in which there is a molar relationship between the arches in any of the planes of spaces or in which there are anomalies in tooth position beyond the normal limits." Malocclusion usually creates feeling of shame for their facial appearance and may also give feeling of shy in their society.⁴

The outcomes of the orthodontic treatment are prevention of tissue damage, improvement in physical function and esthetic. The other major benefits are improving quality of life, development of self-confidence; and physical, psychological and social changes.¹⁻⁴

It is important to educate the individuals about the benefits of the orthodontic treatment. This can be accomplished by a multi-disciplinary approach in which general dental practitioners and other non-orthodontic specialties can play the role of oral orthodontic health educators, but only if they have good knowledge and attitude of principles and practice of orthodontic treatment. Lew⁵ has also stated that "practitioners should focus their attention beyond the orthodontic mechanotherapy to the more subjective aspects of patient discomfort and attitude toward treatment."⁶

Therefore, there is a need to identify the knowledge levels of dental practitioners with respect to the orthodontic treatment as they play an important role in inculcating healthy lifestyle

practices to their patients. This study was formulated for the comparative evaluation of the knowledge and attitude of the general dental practitioners and non-orthodontic specialties about the orthodontic treatment.

Materials and Methods

The study was done on 78 dentists of age between 30 and 50 years, which were divided into two groups. The study Group I consists of 46 general dental practitioners with a bachelor degree and Group II consists of 32 non-orthodontic specialties with a master degree in any subject of dentistry except orthodontia. These were selected from various regions of the Maharashtra, to study the knowledge and attitude toward principles and practice of orthodontic treatment. Total information about the study was given to all participants through personal contact, phone as well as through email, and the informed consent was obtained from each of the participants involved in the study.

Inclusion criteria

1. General dental practitioner with bachelor degree
2. Dentist with post-graduation degree in any branch (non-orthodontic specialty)
3. Age between 30 and 50 years.

Exclusion criteria

1. Freshly pass-out dentists
2. Dentists with age more than 50 years
3. General dental practitioners, who stopped their practice.

The study was carried out based on specially prepared structured questionnaire containing 21 questions, which were validated by doing pilot study. The questionnaires were formulated for the study of the knowledge and attitude toward practice of orthodontic treatment of the general dental practitioners and non-orthodontic specialties.

A. Questionnaire for the knowledge of the orthodontic practice:

In this, a total of 13 questions was formulated to study the knowledge of general dental surgeons and non-orthodontics specialties. The questions were of Yes/No type questions and each correct answer were given a Score 1 and incorrect answer was given score zero. The questions consists of their knowledge regarding starting age of orthodontic treatment, mixed orthodontic treatment in mixed dentition stage, facial appearance, functional therapy, proclined teeth, extraction of teeth for orthodontic purpose, habits, anchorage and retainers (Appendix I). For the scoring, Yes answer given score “one,” except for the questions with marked as “N,” for which score “one” was given for the answer No.

B. Questionnaire to study attitude toward orthodontic practice:

In this, 08 questions were prepared, which were also of

Yes/No type and scoring consists of Score 1 for correct answer and score zero for the wrong answer. In this the questions were formulated to study attitude toward orthodontic treatment like, diagnostic orthodontic procedures, opinion of orthodontist, giving information to patient about malocclusion when patient comes for the other dental treatment, orthodontic treatment in patients with periodontal problems, orthognathic surgeries and orthodontic treatment in missing teeth (Appendix II). In this section also, for the scoring, Yes answer given score “one,” except for the questions with marked as “N,” for which score “one” was given for the answer No.

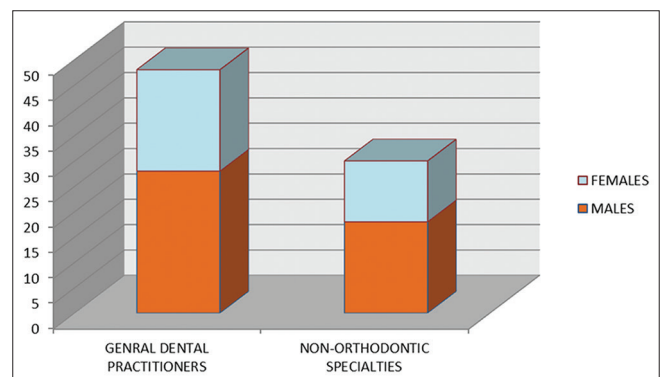
The questionnaires were distributed through email to the general dental practitioners from various regions of Maharashtra. The emails were obtained from the dental association. They were told to send their answer through separate email containing the answers with questions number. The dentists in the nearby area of 100 km were contacted personally.

Statistical analysis

Scores were calculated based on the responses given by participants. The individual scores were summed up to get a total score. Statistical analysis was performed with the help of IBM SPSS statistics 20, with the help of Student’s t-test. Descriptive statistics was calculated, and mean scores and standard deviation were obtained.

Results and Observations

The study was done on 78 participants, consisting of 46 general dental practitioner and 32 non-orthodontic specialties. Out of these, 48 (61.53%) were males, and 30 were females (38.47%). (Table 1 and Graph 1) The age group selected was 30-50 years, to avoid the freshly passed-out students and old practitioners.



Graph 1: Distribution of participants according to groups and sex.

Group	Males	Females	Total
Group I: General practitioners	28	18	46
Group II: Non-orthodontic specialties	20	12	32
Total	48	30	78

The total mean score of 21 questionnaires was calculated for the general dental practitioners and non-orthodontic specialties, which was 13.91 and 16.72, respectively (Table 2).

The scores of knowledge were compared between general dental practitioner (8.89) and non-orthodontic specialties (10.25), which showed that the scores were more for the non-orthodontic specialty and the difference was statistically highly significant (Table 3, Student's *t*-test, $P < 0.001$). This indicates that the non-orthodontic specialties, which had given their 3 more years for the education of specialty in dentistry, had more knowledge about the orthodontic treatment (Graph 2).

Also, the scores of attitude were more for the non-orthodontic specialties (6.47) as compared to general dental practitioners (5.07), which also showed highly significant difference (Table 3, Student's *t*-test, $P < 0.001$). This indicates that specialties had more positive attitude toward orthodontic treatment than general dental practitioners (Graph 2).

Comparison of the total score of 21 questionnaires was done between general dental practitioner, and non-orthodontic specialties were done, using Student's *t*-test. This was also

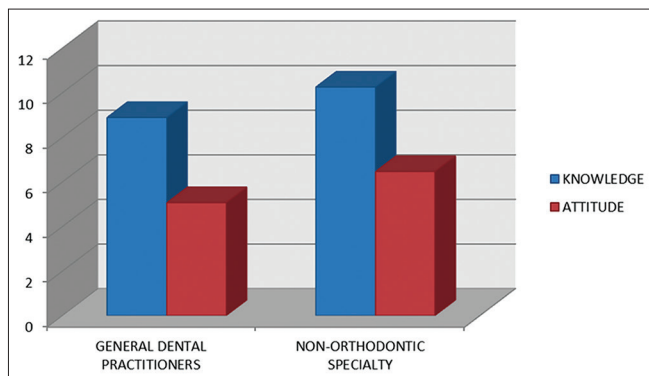
showed highly significant difference (Table 4, Student's *t*-test, $P < 0.001$).

Lastly, the scores of males and female participants of the study were compared, which showed that the scores were more for the male participants as compared to females, but the difference was not significant statistically (Table 5, Student's *t* test, $P > 0.01$) (Graph 3).

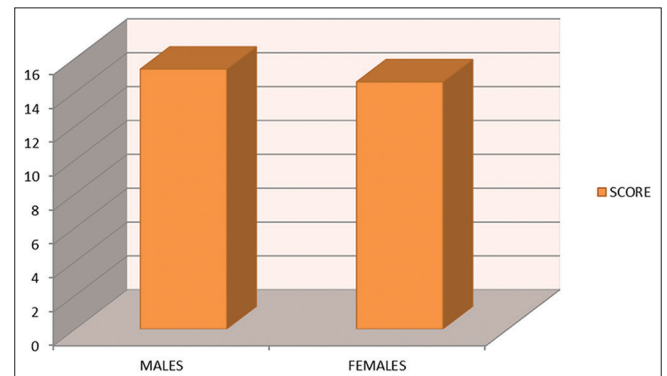
Discussion

After dental caries, malocclusion is the second most common dental disease in children and young adults. In India, the prevalence of malocclusion varies from 20% to 43%. For the improvement of the facial appearance, correction of dental malocclusion is an important factor, which is the main aim of the orthodontic treatment.^{4,7} The essential factors having impact on deciding orthodontic treatment are esthetic improvement and psychological aspect.⁷ The level of dental health knowledge, dental health attitude and dental health behavior are all interlinked, and this ultimately depends on the level of knowledge and positive attitude of the dental practitioners.⁸

In the present study, a comparative evaluation was done for the knowledge and attitude of the general dental practitioners and



Graph 2: Comparison of scores of knowledge and attitude of general dental practitioners and non-orthodontic specialties.



Graph 3: Comparison of the total score of knowledge and attitude between male and female participants of the study.

Table 2: The mean score of the knowledge and attitude according to groups and sex.

Group	Questionnaire	n	Knowledge	Attitude	Total score
General dental practitioner	Males	28	8.82	5.10	13.92
	Females	18	9.00	4.88	13.88
	Total mean score	46	8.89	5.07	13.91
Non-orthodontic specialties	Males	20	10.30	7.05	17.35
	Females	12	10.16	5.50	15.66
	Total mean score	32	10.25	6.47	16.72

Table 3: Comparison of the scores of the knowledge and attitude between general dental practitioner and non-orthodontic specialties, using Student's *t*-test.

Questionnaire	Group	n	Mean±SD	t value	Significance
Knowledge	General dental practitioner	46	8.89±1.57	3.9906	$P < 0.001^{**}$
	Non-orthodontic specialties	32	10.25±1.34		
Attitude	General dental practitioner	46	5.07±1.16	5.0053	$P < 0.001^{**}$
	Non-orthodontic specialties	32	6.47±1.29		

******Difference was statistically significant, SD: Standard deviation

Table 4: Comparison of the total score of knowledge and attitude, between general dental practitioner and non-orthodontic specialties.

Group	n	Scores of knowledge and attitude (mean±SD)	t value	Significance
General dental practitioner	46	13.91±1.68	6.9149	P<0.001**
Non-orthodontic specialties	32	16.72±1.87		

**Difference was statistically significant, SD: Standard deviation

Table 5: Comparison of the total score of the knowledge and attitude between male and female participants.

Group	n	Total score of knowledge and attitude (mean±SD)	t value	Significance
Males	48	15.35±2.37	1.4604	P>0.01*
Females	30	14.60±1.96		

*Difference was not significant statistically, SD: Standard deviation

non-orthodontic specialties, with the help of specially prepared questionnaires. When comparison of the knowledge scores between general dental practitioners and non-orthodontic specialties was done, it showed highly significant difference. Which indicates that the knowledge of the specialties in dentistry, which given three more years of their life for the education in specialty of dentistry, was more as compared to the general dental practitioners.

When all the participants were questioned knowledge question of start of the orthodontic treatment at any age, 78.2% of them answered positively. The treatment of malocclusions during mixed dentition stage and the importance of well-aligned teeth for the overall facial appearance were answered affirmatively by 67.9% and 85.8% respectively, in case of all participants. About 100% positive response was present for the awareness of extraction of few teeth for aligning of the irregular teeth, in case of non-orthodontic specialties and 87.5% for the general dental practitioners. The maximum positive response i.e. 91.3% was given by general dental practitioner for the effect of habits like mouth breathing or thumb sucking on alignment of the front teeth.

The percentage of “yes” answers for the questions of use of mini screws and retainers was 47.8% and 65.2% by the general practitioners and 75.0% and 81.2% by the non-orthodontic specialties respectively i.e. 75% of non-orthodontic specialties were aware of the fact that mini screws can replace molars for anchorage while 25% were not familiar with the concept. The results of the present study like treatment of malocclusions during mixed dentition period, use of functional appliance, awareness of the skeletal malocclusion, extraction for orthodontic treatment were in accordance with the study done by Niveda and Saravana.⁹

Also, the comparison of the attitude toward orthodontic practice and referral, between general dental practitioners

and non-orthodontic specialties showed highly significant difference. This showed that the specialties have more positive attitude toward the importance of the orthodontic treatment.

In study of attitude questions, the maximum correct response (80.4%) in general dental practitioners was given for the convincing of the orthodontic treatment and that in case of non-orthodontic specialties (87.5%) was given for the looking of the malocclusion on clinical examination when patient reports with any other complaints. The fact that the report of the patient for orthodontic treatment and orthognathic surgeries were approved positively by 56.2% and 65.6% respectively; in case of non-orthodontic specialties.

Among all participants, around 42.3% believe that orthodontic treatment can be done in patients with periodontal problems, while 57.7% did not. Only a small proportion of dentists (17.9%) denied orthodontic treatment for the patients with missing molars.

Comparison of the total score of knowledge and attitude were also compared between male and female participants. This showed, score was more in case of male participants as compared female participants, but the difference was not significant statistically. This showed that male practitioners had more positive knowledge and attitude than female dental practitioners, toward principles and practice of orthodontic therapy.

Conclusion

This particular comparative study added more focus on the facts of existing condition and scenario of the knowledge and attitude of the general dental practitioners and other practicing specialties of dentistry toward the principles and practice of the orthodontic treatment. Therefore, the study showed the need for increased clinically oriented education of practice and concepts of orthodontic treatment. For this purpose, the syllabus during undergraduation should include more emphasis on therapeutic concepts, and continuing dental education programs can be helpful for the other dental practitioners to upgrade their knowledge of orthodontic treatment.

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Appendix (Questionnaires)

Appendix I

Questions of knowledge about principles and practice of orthodontic treatment (Yes/No type questions):

1. Can orthodontic treatment be started at any age?
2. Can malocclusions be treated during mixed dentition stage?
3. Do you consider that well-aligned teeth are important for overall facial appearance?
4. Do you aware of functional therapy?
5. Do you know that functional appliance gives a better result when advised during pre-pubertal growth spurt period?
6. Do you consider skeletal malocclusions when patients report to you with a complaint of incompetent lips and proclined teeth?
7. Are you aware that few teeth may have to be removed for aligning irregular teeth?
8. Is orthodontic treatment always requires extraction? (N)
9. Do habits like mouth breathing or thumb-sucking has an effect on the front teeth alignment?
10. Do you believe that straightening the teeth makes better smile, helps in mastication, better oral hygiene, easier to speak, healthy lifestyle?
11. Do you know that temporomandibular joint disorders can be cured by orthodontic therapy?
12. Do you aware of the fact that mini screws can replace molars for anchorage?
13. Should retainers be worn after fixed appliance therapy?

Appendix II

Questions of Attitude about principles and practice of orthodontic treatment (Yes/No type questions):

1. Do you convince the patient for the orthodontic treatment?
2. Do you call specialist (orthodontist) for an opinion?
3. Do you carry out diagnostic orthodontic procedures?
4. Do you tell your patients to come for orthodontic treatment only after eruption of all permanent teeth? (N)
5. Do you always look for malocclusions on clinical examination when patients report with any other complaint?
6. Is orthodontic treatment recommended for patients having periodontal problems?
7. Do you deny orthodontic treatment for patients with missing molar? (N)
8. Do you know about the orthognathic surgeries?