

Orthodontic Treatment Provided by General Dentists with Different Types of Appliances in Chattishgarh, India

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ABSTRACT

Objective: The study was done to determine the quantity of orthodontics and the type of appliance used for orthodontic treatment by general dentist.

Materials and Methods: A total of 410 dentists completely participated in the study. The study included questions to know the positive effects of orthodontic treatment done by general dentists and their opinions and qualities regarding the provision of treatment.

Statistical Analysis: Statistical analysis was done using SPSS version of 16.0 was used at $p \leq 0.05$.

Results: One forty six (35.6%) dentists answered that they

practice orthodontic treatment to their patients, of which most were providing removable appliances (39.5%). There was a significant difference between the groups toward the benefits of orthodontic treatment according to experience of service and locality. General dentist were providing this treatment mainly in the mixed dentition period i.e. 96(65.8%). Most of the participants gave positive response regarding expansion of their syllabus related to orthodontics.

Conclusion: A significant difference in response to the benefits of the treatment were seen according to experience and are of practice and most of the participants showed positive response increasing their courses in orthodontics at undergraduate level.

Keywords: Dentists, Fixed appliance, Removable appliances

INTRODUCTION

Malocclusion has been observed among different populations, but the statistics can vary based on the differences in the classification of malocclusions, age of population and intra/inter examiner differences [1]. The effect of malocclusion on oral health increases the prevalence of dental caries and can lead to temporomandibular disorders [2]. With the changing time in dental profession there will be certainly an increase in need for orthodontic therapy [3]. Increasingly, patient-centered measures are used to assess these subjective attributes in assessing orthodontic need and in determining the outcomes of orthodontic care [4].

The demand for orthodontic treatment is increasing in most countries [5]. But the number of orthodontics is less in as compared to their needs especially in the rural areas. Moreover, the establishment of a service usually leads to increased demand for treatment [6]. In many areas general dentists are practicing orthodontic treatment [7]. In a study by Wolsky and McNamara found that 76.3% of general dental practitioners were providing basic orthodontic treatment and 19.3% comprehensive orthodontic treatment [8]. Jacobs et al., proposed that there was an increase in the amount of orthodontic treatment performed in general practice [9]. This study was planned to examine the practice of orthodontic treatment provided by general dental practitioners.

MATERIALS AND METHODS

The study was done to determine the extent of orthodontic treatment being provided by general dental practitioners. A total of 410 dentists participated completely in the study and 146 of them mentioned that they deal with orthodontics being undergraduates. Among all 84 were practicing in the urban location and 62 in the rural regions of Chhattisgarh.

Criteria of selection

Dentists willing to participate and present on the day of visit were included in the study. Those who were not willing and did not fill the proforma completely were excluded.

Pilot study was done to validate the questionnaire which was constituted of 15 items on awareness of infection control practices.

QUESTIONNAIRE

The study included the following questions as

1) Experience of practice; 2) Area of practice; 3) Orthodontic treatment done at different dental development stages; 4) Type of orthodontic appliances used; 5) Frequency of orthodontics patient seen per month; 6) Opinion regarding expansion of orthodontic syllabus in dentistry.

Five questions were dichotomous to know the positive effects of orthodontic treatment done by general dentists as:

1) Does orthodontic treatment reduces the risk of caries? 2) Does orthodontic treatment reduces the risk of periodontal diseases? 3) Does orthodontic treatment reduces the risk of TMD problems? 4) Does orthodontic treatment improves aesthetics? 5) Does orthodontic treatment improve mastication?

STATISTICAL ANALYSIS

For statistical analysis, SPSS version of 16.0 was used. ANOVA and Student t-test were performed to obtain the mean values and Chi-square test to obtain frequency values at $p \leq 0.05$.

RESULTS

One forty six (35.6%) dentists answered that they practice orthodontic treatment to their patients. The distribution of the study participants according to their experience and area of practice is mentioned in [Table/Fig-1,2].

It was sowed that most of the general dental practitioners provide removable appliances (39.5%), whereas 32.4% deal with fixed appliances and around 28.1% provide both kinds of treatments [Table/Fig-3].

There was a significant difference between the groups toward the benefits of orthodontic treatment according to experience of

Experience	No	Mean	SD	F	Sig.
1-3 years	38	2.41	1.900	4.912	0.003
4-6 years	29	2.68	2.015	9.041	0.003
7-9 years	39	3.82	1.502	8.395	0.004
≥10 years	40	3.50	1.679	3.171	0.045
Total	146	3.16	1.845		

[Table/Fig-1]: Mean perception scores toward the benefits of orthodontic treatment

Locality	No	Mean	SD	Sig.
Urban	84	2.81	1.991	0.005
Rural	62	3.63	1.517	

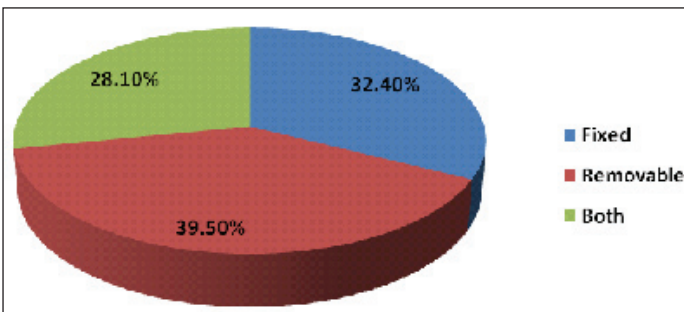
[Table/Fig-2]: Mean perception scores toward the benefits of orthodontic treatment

service. It was seen in [Table/Fig-1] that experienced dentists were more satisfied with their outcome results significantly. Similarly the authors observed significant difference according to area of location of their practice (p=0.005) as mentioned in [Table/Fig-2].

According to provision of orthodontic treatment at different dental development stages by general dentist was seen mainly in the mixed dentition period i.e. 96 (65.8%) followed by permanent dentition 66 (45.2%) and primary dentition 40 (27.4%). There was no significant difference in the treatment according to locality in all the stages [Table/Fig-4].

It was also found that more than half of the participants (54) deal with 2 to 4 orthodontic patients per month followed by 0-2 by 42 dentists, 4-6 by 32 dentists, 6-8 by 14 dentists and more than 8 by only 4 dentists [Table/Fig-5].

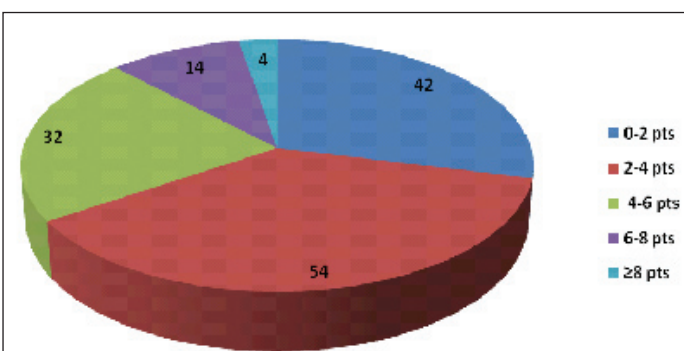
When the participants were asked about the opinion regarding expansion of orthodontic syllabus and clinical experience at undergraduate level, most of the participants gave positive response and few showed negative (10.3% disagree and 3.4% highly disagree) shown in [Table/Fig-6].



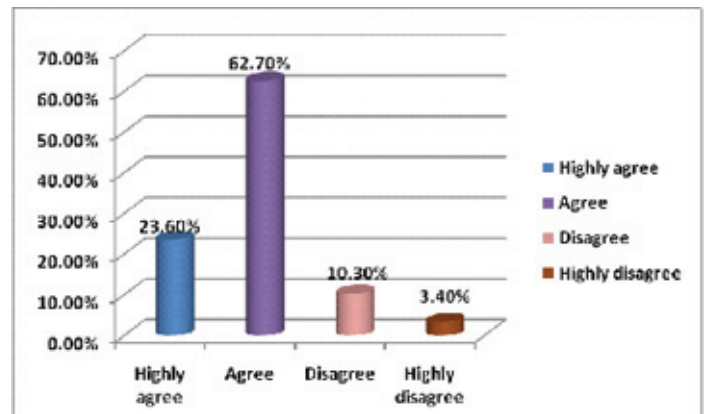
[Table/Fig-3]: Distribution of type of orthodontic appliances used by general practitioners

Locality	Primary	Mixed	Permanent
Urban	27 (18.5%)	55 (37.7%)	36 (24.7%)
Rural	13 (8.9%)	41 (28.1%)	30 (20.5%)
Total	40 (27.4%)	96 (65.8%)	66 (45.2%)
	0.095	0.539	0.310

[Table/Fig-4]: Orthodontic treatment done at different dental development stages by general dentist



[Table/Fig-5]: Frequency of orthodontics patient seen per month



[Table/Fig-6]: Opinion of general dentists regarding expansion of orthodontic syllabus and clinical experience in undergraduates

DISCUSSION

Orthodontic treatment provided by general dental practitioners has been a long topic of attention in the dentistry. In the present study 146 dentists were practicing orthodontics with overall percentage of 35.6%. Data also showed that 36% general dentist disagree that it is illegal to provide fixed orthodontic appliances. There was some contrast because 59% of dentists felt that syllabus of undergraduate level is not adequate and they want to learn more during their graduation.

It was observed that most of the general dental practitioners provide removable appliances (39.5%) and 32.4% deals with fixed appliances. But there is no doubt that removable orthodontic appliance based treatment is out-dated as it does not provide as good as level of treatment compare to fixed appliances.

This study showed that most of the practitioners belonged to urban localities, as people in these areas are more aware regarding the orthodontic problems. There was a significantly a positive response towards the benefits of orthodontic treatment among the general dentists. It was observed that this procedure reduces the chances of caries, periodontal problems and TMJ problems. This study observed that most of the orthodontic procedures were done in the mixed dentition period i.e. 96 (65.8%) followed by permanent dentition 66 (45.2%) and primary dentition 40 (27.4%). Finding of similar studies are given in [Table/Fig-7].

S.no.	Name of authors	Findings
1	Galbreatha et al., [10] and Wolsky [8]	Dentists were practicing orthodontics with overall percentage of 62% and 76.3%.
2	Koroluk DD et al., [11] and Jacobs RM, Turpin DL, Schlossberg M [9,12,13]	However another survey by Koroluk et al., from Indiana University found that 18% of general practitioners provide comprehensive orthodontic therapy and similarly the quantity of orthodontic treatments provided by general dentists has been addressed in many studies like in Ohio, Florida, and Michigan.
3	Gravely JF [14]	General dentist disagree that it is illegal to provide fixed orthodontic appliances which was similar to our study.
4	Taylor GK, Kerr WJ [15] and Sullivan PG, Dibiase D [16]	Founded that there is no doubt that removable orthodontic appliance based treatment is out-dated as it does not provide as good as level of treatment compare to fixed appliances.
5	Purmal K et al., [17]	The study showed that most of the practitioners belonged to urban localities, as people in these areas are more aware regarding the orthodontic problems results were similar to our study.
6	Hunt O et al., [18], Bollen AM et al., [19] and Helm S, Petersen PE [20]	This showed that dentists showed better self-esteem.
7	Hilgers et al., [7]	Founded that most orthodontic treatments were provided during the permanent dentition, by the orthodontists which was in contrast to our study.

[Table/Fig-7]: Finding of similar studies

CONCLUSION

The study revealed that 35.6% dentists were providing orthodontic treatment and most of them are dealing with removable appliances but there is a great demand for accredited orthodontic theoretical and clinical courses at graduate level. The perceptions general dental professionals were statistically significant regarding the benefits of completed orthodontic treatment according to locality and their experiences in practice.

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