



COMPARISON OF ORTHODONTIC TREATMENT NEEDS AS ASSESSED BY PARENTS AND ORTHODONTIST IN A NORTH-INDIAN POPULATION

Dental Science

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ABSTRACT

Introduction: This study was designed to compare the orthodontic treatment needs as assessed by parents and the normative treatment need as determined by an orthodontist in a north Indian population

Materials and Methods: 200 (112 girls and 88 boys, between 11 and 18 years) new patients were scored for DHC and AC of IOTN. The DHC was evaluated by an orthodontist. The AC was scored both by the patient's parents (one or both together) and by the orthodontist independently. The scores were subjected to statistical analysis to study the co-relation between the AC scores of the IOTN and the characteristics of the patients as well as compare the difference between orthodontist's and parents' AC score.

Results: In 71% subjects, a definite need for orthodontic treatment (DHC grades 4 and 5), in 15.8% subjects, a borderline need (DHC grade 3) and in 13.2% subjects, little need (DHC grades 1 and 2) was recorded. According to the orthodontist, 52.5% of the patients had a severe need (AC grades 8–10), while 16.0% displayed a borderline need (AC grades 5–7) and 31.5% displayed little (AC grades 1–4) need for treatment. In contrast, 35.5% of parents scored their children's malocclusion as severe, 20.5% as borderline, and 44.0% as normal or with a minimal malocclusion.

Conclusions: Compared with the orthodontist's score, parents considered that their children had a lower aesthetic need. Parents as well as patients should be educated regarding the evidence base for orthodontic treatment needs as clearly as possible, so that a well informed treatment plan may be designed for the patient.

KEYWORDS

IOTN, Parent perception, Treatment Need

Introduction

The severity of malocclusion has always been considered a determinant of the need for treatment. Various indices for indicating orthodontic treatment need were proposed in the 1970s, the most popular being the Grainger's Treatment Priority Index (TPI). Shaw and co-workers in the United Kingdom also developed a widely used scoring system for malocclusion, the Index of Treatment Need (IOTN)¹.

In addition to the severity of malocclusion, the importance of patient's own perception of malocclusion and his/her own motivation to seek orthodontic treatment has been extensively documented in various populations^{2,4}. Several studies have evaluated the effect of gender, age, education, social status on the above along with the effect of parents' perception of malocclusion on the need for orthodontic treatment^{2,5,6}. Often, parents make the final decision concerning treatment as part of the informed consent in discussion with the treating orthodontist, where concern and input of the parents is of utmost importance^{6,7}.

In light of the above, this study was designed to compare the orthodontic treatment need as assessed by parents and normative treatment need as determined by an orthodontist in a north Indian population.

Materials & Methods

200 individuals (112 girls and 88 boys, between 11 and 18 years: mean age at the start 12.2 ± 2.2) new patients referred for orthodontic consultation to the department of orthodontics, IDS, Sehora, Jammu were examined for this cross-sectional study. Patients who reported for consultation with either of the parents present were included in the study while those reporting alone or with a guardian other than parents were excluded. Patients whose parents had previous history of orthodontic treatment were also excluded. The 200 patients were then divided into mixed dentition (9–12 years) and permanent dentition (13–18 years) groups. The mixed dentition group included 96 patients (66 female and 30 male) and the permanent dentition group included 104 (46 female and 58 male). An informed consent was obtained after each of the participating parents was informed about the purpose of the study.

For evaluating the study subjects, Index of Orthodontic Treatment Need (IOTN), an internationally accepted scoring system for

orthodontic treatment need as perceived by the professionals and patients, was used. This system consists of the following 2 components:

- Dental Health Component⁸
- Aesthetic component⁹

The DHC records various occlusal traits into five grades according to severity and the need for orthodontic treatment⁸ as follows

- Grades 1 and 2 : No/little need for treatment
 - Grade 3 : Borderline
 - Grades 4 and 5 : Definite need for orthodontic treatment.
- The DHC of the IOTN was evaluated by an orthodontist (author).

The AC consists of a scale of 10 colour photographs which represent different levels of dental attractiveness, ranging from grade 1 denoting the most attractive and grade 10 the least attractive^{9,10} as follows:

- Grades 1–4 : No or little aesthetic need
- Grades 5–7 : Borderline aesthetic need
- Grades 8–10 : Definite aesthetic need

The AC was scored both by the patient's parents (one or both together) and by the orthodontist independently. The subjects were also examined clinically by the same orthodontist (author) who collected the data using the AC and DHC of the IOTN. 20 subjects were re-examined 15 days after the initial examination to rule out intra-operator bias in measurements.

The results were expressed as median and percentage distributions. The Spearman's correlation coefficient (rho) was used to test the correlation between the AC scores of the IOTN and the characteristics of the patients. Wilcoxon's test was used to compare the difference between orthodontist's and parents' AC score. Statistical Package for Social Sciences Version 11 (SPSS Inc., Chicago, Illinois, USA) was used to analyze the data and significance levels were set at 0.05.

Results

The sample characteristics along with the median score of aesthetic component (AC) of IOTN for both the orthodontist's and parents' is given in Table 1.

Table 1. Sample characteristics and AC scores

Number	Percentage	Orthodontist	Parents	
		Median score	Median score	
Female	112	56	7	4
Male	88	44	8	6
9-11	96	48	6	6
13-18	104	52	7	5
Total score			7	5

The orthodontist's median treatment need score was higher than that of the parents (7 and 5, respectively). The percentage distribution of the dental health component (DHC) of the IOTN of patients scored by the orthodontist are shown in Figure 1. In 71% subjects, a definite need for orthodontic treatment (grades 4 and 5), in 15.8% subjects, a borderline need (grade 3) and in 13.2% subjects, little need (DHC grades 1 and 2) was recorded.

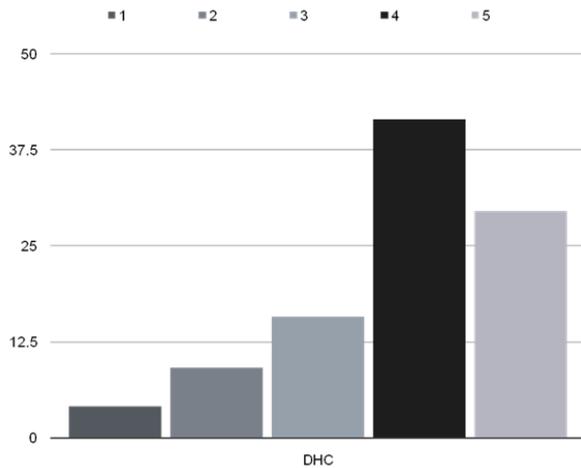


Figure 1. Percentage distribution of orthodontic treatment need as per the Dental Health Component (DHC) of the IOTN scored by the orthodontist

Figure 2 displays the AC grades for the orthodontist and parents. According to the orthodontist's, 52.5% of the patients had a severe need (grades 8-10), while 16.0% displayed a borderline need (grades 5-7) and 31.5% displayed little (grades 1-4) need for treatment. In contrast, 35.5% of parents scored their children's malocclusion as severe, 20.5% as borderline, and 44.0% as normal or with a minimal malocclusion. In addition, the 86 patients whose malocclusion was considered normal by the parents, 13 were scored as borderline and 23 as severe by the orthodontist.

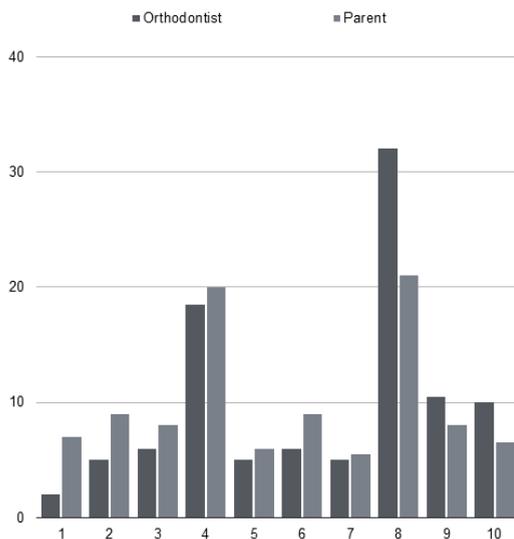


Figure 2. Percentage distribution of orthodontic treatment needs as per the aesthetic component (AC) of the IOTN scored by the orthodontist as well as the parent(s)

On the other hand, of the 63 patients considered normal by the orthodontist, 6 were assessed as borderline and 4 as severe by the parents (Table 2).

Table 2. AC of the IOTN scored by the orthodontist as well as the parent(s)

		Orthodontist			Total
		Normal/little need 1-4	Borderline need 5-7	Severe need 8-10	
Parents	Normal/little need 1-4	50 (25%)	13 (21.5%)	23 (11.5%)	86 (43%)
	Borderline need 5-7	6 (3%)	18 (9%)	23 (11.5%)	47 (23.5%)
	Severe need 8-10	4 (2%)	5 (2.5%)	58 (29%)	67 (33.5%)
Total		60 (30%)	36 (18%)	104 (52%)	200 (100%)

Both the orthodontist's and parents' AC grades were higher (i.e. greater treatment need; $P < 0.01$ and $P < 0.05$, respectively) for male subjects. There was a statistically significant correlation between DHC and the orthodontist scored AC of the IOTN (Spearman's correlation coefficient, $\rho: 0.625, P < 0.001$). Table 3.

Table 3. Correlation between the DHC and AC of IOTN scores.

	Dental Health Component (DHC)	Aesthetic Component (AC) - Orthodontist	Aesthetic Component (AC) - Parents
Gender	0.120	0.188	0.155
Dentition	0.116	0.002	-0.077

* $P < 0.05$, ** $P < 0.01$, Spearman's correlation coefficient (ρ).

Discussion

The need for orthodontic treatment is dependent to a great extent on the patient's self-perception of his/her facial appearance. Additionally, it is often influenced by his/her own self-esteem as well as peer pressure. The perception of orthodontic treatment need by the parents for their children is a critical aspect which often influences whether orthodontic treatment is sought at the optimum age/developmental stage. Our study has compared the orthodontic treatment need as assessed by parents to that determined by an orthodontist in a north Indian population. The results point towards a lesser perception of orthodontic treatment need by parents for their children compared to the orthodontist.

Several studies in different population groups have reported varying levels of need for orthodontic treatment needs. In a study of 11-16 year old Saudi Arabian children 18.7% were found to have need for orthodontic treatment. Various studies of British populations have indicated a need for treatment to be around 30%. In a Finnish population, 20% of the subjects were found to need treatment based on DHC2. Fox et al. (1999) found a similar proportion (71%) for those seeking orthodontic treatment, as seen in our study. Orthodontists have been found to recommend treatment in 10-12% more cases as compared to laymen.

This study indicated that the orthodontist scored the AC of IOTN higher compared to the parents. 30% of the patients had no or little aesthetic need as scored by both the orthodontist and parents, which is lower compared to that found in previous studies. Additionally, the severe aesthetic need scored by both orthodontists and parents was greater compared to previous studies. Differences in sampling may be the reason for this divergence. The subjects for our study were drawn from those who sought treatment on their own rather than randomly from the total population.

The orthodontist scored AC scales were higher for female patients, though no association was found between gender and DHC grades. Parents of female patients scored their children's dentition towards the more attractive end of the AC grades. Similar findings have been reported previously while certain other studies came to opposite conclusion where in parents tended to perceive their daughters' teeth less attractive. In general parents were found to rate their children's treatment need lower as compared to the orthodontist.

Conclusions

Compared with the orthodontist's score, parents considered that their children had a lower aesthetic need. Parents as well as patients should be educated regarding the evidence base for orthodontic treatment need as clearly as possible, so that a well informed treatment plan may be designed for the patient.

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