

# Awareness towards Orthodontic Treatment in Children of Age Group 12 to 15 years along with their Parents in the High-Schools in Maharashtra

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## Abstract

**Aim:** To evaluate the awareness towards the orthodontic treatment in children of age group 12 to 15 years along with their parents in the Loni, Maharashtra. **Materials And Methods:** The sample consisted of 840 subjects (i.e. 420 children and their parents) were subdivided in four groups according to their socioeconomic status of schools. The outcome of interest was attitude towards orthodontic treatment, and data were collected using a standardized questionnaire. Judgment of dental esthetics and treatment need were assessed using a postcard size color photograph of anterior occlusion, presented in random order. The Z test & Chi-square test used for statistical analysis. **Results:** Of the four groups interviewed, there is a significant difference between mean score of regarding attractiveness in all schools under study when compared as parents v/s children (i.e.  $p < 0.05$ ). **Conclusion:** Most of the children and parents attributed the general health as most important attribute. Most of the children & parents of all groups seemed to know about fixed orthodontic appliances only. The knowledge about orthodontics and its concerned facts would be more in the higher income groups as compared to the lower income groups & there is need to increase awareness in lower income groups.

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**Key words:** Orthodontic, Awareness, Parents, Anterior occlusion

## Introduction

The face is seen as the most important physical characteristic in the development

of the self-image and self-esteem. People who are dissatisfied with their facial appearances, however, often express more dissatisfaction with their teeth than with any other facial feature. Judgments involved in the perception of malocclusion are complex and are generally considered to be highly subjective.<sup>1</sup> Therefore, it is not surprising that most people view

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orthodontic treatment primarily as a way to improve dentofacial appearance.

Before any treatment can be perceived by a patient, one has to consider their readiness towards it. In order to gain their confidence, we have to understand their mind-frame. The 'mind' is synonymous with 'psychology' and one of the integral aspects of psychology is the individual's attitude. Although perception of malocclusion is influenced by aesthetic norms in the society, it is also related to individual psychological factors and norms for dental attractiveness.<sup>2</sup>

Generally, decisions concerning orthodontic treatment are made in childhood, and desire for treatment is usually influenced by parental attitudes and values. Peers and parents are the groups usually involved in the initiation of the individual's dissatisfaction with her/his teeth leading to orthodontic treatment demand, with peer group influences being more significant.<sup>3,4</sup> Their agreement to offer psychological support may be advantageous. Their willingness and ability to co-operate with the orthodontist is usually helpful for successful completion of treatment.

An appearance is a concern of basic motivational factor in seeking orthodontic treatment, although other factors including peer group, social class, genders, and ethnicity also have been a big impact. On the other hand, parents have a major role to play and, therefore, knowledge about their perception of malocclusion is relevant.<sup>5</sup>

The various steps of recognition, perceived seriousness, treatment possibilities, barriers, and cues to action will, in the case of orthodontics, be moderated by both child, parent and also by advice from the dentist and orthodontist. In addition, the general and immediate social context may also have an effect on treatment-seeking behavior.

The purpose of the present study was to determine whether differences in the immediate and general social context of a person would be reflected in different levels of recognition, perception about malocclusion and orthodontic treatment need.

### Material and Methods

A study was conducted at four different schools located in and around the geographical area of Loni from June 2013 to March 2014. These schools were sorted out after thorough and a comprehensive listing of all the schools functional in the Loni village.

### Material

The total sample in the study consisted of 840 subjects under two groups:

1. Children (n=420)
2. Parents (n=420)

The study was conducted on the children of age group of 12-15 years or studying in Std. VII, IX and their parents. The 420 children and their parents were subdivided in four groups according to their schools of socioeconomic status..

The schools included in the study were:

1. **Group 1:** Punyashlok Ahilyabai Holkar Vidyalay, Loni.
2. **Group 2:** Rayat Shikshan Society's Padmashree Shri Vitthalrao Vikhe Patil School, Loni.
3. **Group 3:** Pravara Education Society's School, Loni.
4. **Group 4:** Pravara Public School, Loni.

### Method

A questionnaire study was conducted on the children of age group 12-15 years. The children were selected randomly 420 of Std. VII, IX children (12 to 15 years of age) and 420 of their parents were

interviewed concerning dental esthetics, treatment need and knowledge about, attitudes towards, and value placed on orthodontic treatment. 2 sets of questionnaires were prepared:

**Set 1:** Filled by students

**Set 2:** Filled by respective parents

The respective group was further subdivided into subgroups of 20 students each for ease of conducting the survey.

The children were instructed to fill the questionnaire in the school premises without any prior intimation or discussion among themselves. Ample amount of time was provided to each child to fill their respective questionnaire forms. At the time of the interview, the children were given opportunity to ask about any doubts pertaining to the questions to prevent any misinterpretation of bywords and phrases that may have arisen. The questionnaire forms for their parent were given to the children and they were asked to get it filled by their parents, both or anyone parent and submit the form to their class teacher.

The interviews were structured to obtain information in the following four areas:

**Part I: Judgment of dental esthetics and treatment need**

Each respondent was shown a postcard size color photograph of the anterior occlusion, presented in random order. The interviewees were asked to rate the attractiveness of the dental appearance, using a 100 mm visual analogue scale with extremes corresponding to very attractive (100 mm) to very unattractive (0 mm). The assigned position on the linear scale was used to derive a score for each respondent's evaluation of the attractiveness of the photographs.

**Part II: Value placed on orthodontic treatment**

They were asked to rate the importance of straight teeth as being greater or less than various other attributes, such as good health, good eyesight, good memory etc.,

**Part III: Relative knowledge of and attitude toward orthodontic treatment**

The respondents were questioned concerning their understanding of how teeth are straightened, their familiarity with different appliances, their estimation of treatment time, cost.

**Part IV: Experience with orthodontic services**

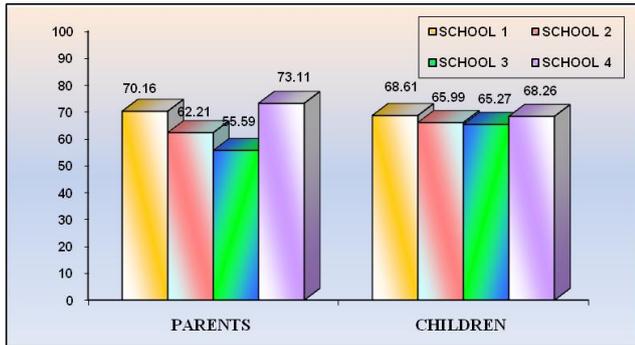
In order to establish some comparison of the utilization of orthodontic services, each respondent was questioned about his or her own orthodontic experience, past, present and anticipated, and also about that of the immediate family and peers.

**Results**

Four schools having a different fee structures were included in this study and all children were of 13-14 years of age. The parents of these children were also included in the study. The **Z test** was obtained for the part I of the questionnaire which contained photographs. The results for Part II, III and IV of the questionnaire were obtained by using the **Chi-square test**.

**Part I:**

After applying Z test of difference between two sample means there is a significant difference between mean score of regarding attractiveness in all schools under study when compared as parents V/s children (i.e.  $p < 0.05$ )



Graph1: Comparison of Attractiveness Rating by the Four Groups

The attractiveness ratings by the four groups were quite similar. The children of the group 1 school scored 68.61 on rating the appearance of the photographs of different anterior occlusions shown to them. Group 2 children scored 65.99; Group 3 scored 65.27 while the Group 4 scored 68.26. These ratings were not much in accord with the ratings of the previous panel comprising of five orthodontists (Table No. 1).

Table No.1: Comparison of Attractiveness Rating by the Four Groups

	Childre n	Parent s	'Z' test valu e	'p' value	Significanc e
	Mean ± SD	Mean ± SD			
School 1 (n=102)	68.61± 15.89 (40-98)	70.16± 13.53 (49-95)	1.16	p<0.05	Significant
School 2 (n=104)	65.99± 14.64 (42-92)	62.21± 18.76 (27-96)	1.62	p<0.05	Significant
School 3 (n=109)	65.27± 14.45 (41-90)	55.59± 19.75 (20-93)	3.89	p<0.05	Significant
School 4 (n=105)	68.26± 15.43 (44-95)	73.11± 11.49 (37-93)	2.13	p<0.05	Significant

The attractiveness ratings by the parents of the four groups were quite different. The group 1 parents scored 70.16 on rating the appearance of the photographs of different anterior occlusions shown to them. Group 2 parents scored 62.21; Group 3 scored 55.59 while the Group 4 scored 73.11.

Group 1 & Group 4 showing the maximum knowledge or awareness towards various malocclusions.

Part II (Table No.2)

Table No. 2: Importance of various attributes

Options		1. Good health	2. Good eye sight	3. Good memory	4. Good/straight teeth
		No (%)	No (%)	No (%)	No (%)
School 1 (n=102)	Childre n	50 (49.0%)	12 (11.78%)	40 (39.22%)	0
	Parents	58 (56.86%)	22 (21.57%)	14 (13.72%)	8 (7.85%)
School 2 (n=104)	Childre n	74 (71.15%)	11 (10.58%)	13 (12.5%)	6 (5.77%)
	Parents	71 (68.27%)	18 (17.31%)	12 (11.54%)	3 (2.88%)
School 3 (n=109)	Childre n	78 (71.56%)	8 (7.34%)	10 (9.17%)	13 (11.93%)
	Parents	93 (85.32%)	4 (3.70%)	12 (11.01%)	3 (2.76%)
School 5 (n=105)	Childre n	76 (72.38%)	3 (2.86%)	26 (24.76%)	0
	Parents	105 (100%)	0	0	0

When asked to rate the importance of straight/good teeth as compared to other attributes like general health, eyesight and memory, all the groups had different opinions. In Group 1, 49% children & 56.86% parents rated general health as most important attribute. 39.22% of children & 21.57% of parents rated the attribute of memory of prime importance.

The third attribute of eyesight was most important to 11.78% children and 13.72% parents. &the last attribute of good/straight teeth scored 0% children & 7.85% parents, showing that no child of group 1 considered straight teeth of importance. (Table No.2)

In Group 2, 71.15% children & 68.27% parents rated general health as most important attribute. 12.5% of children& 11.54% of parents rated the attribute of memory of prime importance. The third attribute of eyesight was most important to 10.58% of children & 17.31% of parents and the last attribute of good/straight teeth was of first priority to 5.77% of children& 2.88% of the parents.

In Group 3, 71.56% children & 85.32% parents rated general health as most important attribute. 9.17% of children& 11.01% of parents rated the attribute of memory of prime importance. The third attribute of eyesight was most important to 7.34% of children & 3.7% of parents and the last attribute of good/straight teeth was of first priority to 11.93% of children& 2.76% of the parents.

In Group 4, 72.38% children rated general health as most important attribute. 24.76% of children rated the attribute of memory of prime importance. The third attribute of eyesight was most important to 2.86% and the last attribute of good/straight teeth was of first priority to none of children. All the parents rated general health as most important attribute. None of the parents considered the other three attributes of memory, eyesight or good teeth of prime importance.

**Part III**

Most of the children of all groups seemed to know about fixed orthodontic appliances only. Only more percentage of

children in group 4 knew about removable appliances. Most of the parents in all groups seemed to know about fixed orthodontic appliances only. Very few parents knew about removable appliances. On asking the appliance preference for their child, 91.7% wanted removable appliances in group 1 while 41.1% and 44.8% parents of group 2 and 3 wanted fixed appliances for their children. 98% of group 4 parents wanted removable appliances (Table No. 3)

**Table 3: Knowledge regarding Orthodontic Appliances**

Options		1. Fixed	2. Remov-able	3. others
		No (%)	No (%)	No (%)
School 1 (n=102)	Childr en	75 (73.53)	27 (26.47%)	0
	Parent s	6 (5.88%)	96 (94.12%)	0
School 2 (n=104)	Childr en	84 (82.35%)	20 (17.65%)	0
	Parent s	48 (46.15%)	45 (43.27%)	11 (10.58%)
School 3 (n=109)	Childr en	63 (57.80%)	46 (42.20%)	0
	Parent s	42 (38.53%)	41 (37.61%)	26 (23.86%)
School 4 (n=105)	Childr en	36 (34.28%)	69 (65.72%)	0
	Parent s	11 (10.48%)	94 (89.52%)	0

**Part IV**

Table No. 4 shows that 82.35% of children & 73.53% of parents of group 1, 81.73% of children & 82.35% of parents of group 2, 81.65% of children & 94.12% of parents of group 3 and 81.90% of children & 83.65% of parents of group 4

children knew about orthodontic treatment previously (Table No. 4).

**Table No. 4: Knowledge regarding Orthodontics**

Options		1. yes	2. no
		No (%)	No (%)
School 1 (n=102)	Children	84 (82.35%)	18 (17.65%)
	Parents	75 (73.53%)	27 (26.47%)
School 2 (n=104)	Children	85 (81.73%)	14 (18.27%)
	Parents	84 (82.35%)	20 (17.65%)
School 3 (n=109)	Children	89 (81.65%)	20 (18.35%)
	Parents	96 (94.12%)	6 (5.88%)
School 4 (n=105)	Children	86 (81.90%)	19 (18.10%)
	Parents	87 (83.65%)	26 (16.35%)

### Discussion

The samples were selected randomly to demonstrate the differences in the immediate and general social context of the population. Class differences have been shown to be important in the utilization of Orthodontic services. It had been hypothesized that increased experience with and access to orthodontic services would translate to differences in aesthetic ratings and perceptions of treatment need. The Group 4 school sample did demonstrate a significantly higher direct and indirect experience with and knowledge about Orthodontic treatment, indicating an increased utilization of such services; although the

other three groups also showed a good knowledge about Orthodontics. This suggests that the concepts of dental aesthetics are generally understood and consistently evaluated in the all groups, with the prospect of remediation having little effect. The data collection did not separate the child samples into treatment and non-treatment groups, since it was not anticipated that such a high percentage of children would already have direct experience with orthodontic treatment. A comparison between such subgroups might have identified some differences in values.

When asked to rate the photographs, which were pre-graded by the panel of five orthodontists, contrary to our expectations, children of all the four groups showed an almost equal awareness about the photographs. This approach of using the opinion of clinicians to verify treatment needs is not unique and was used by earlier workers to validate other occlusal indices.<sup>6,7</sup> The Group 1 school children showed the highest score of 68.6 which supported the hypothesis that they had a more positive attitude towards orthodontic treatment. The reason for this almost equal awareness could be that group 1 school which has the lowest fees among the four schools regularly conducts dental checkup camps conducted by the local health body. Thus the children are much aware about their dental health and its relative importance. Parents had a different rating about the photographs. Group 1 parents scored 70.16 which showed a good knowledge about the photographs of various types of anterior occlusion. Group 2 and 3 parents showed a similar knowledge but less than the group 1 parents. Group 4 parents showed the highest knowledge scoring 73.11 which showed their awareness regarding

orthodontics and straight well aligned teeth was the most. This supported our assumption that in the higher income group the importance and awareness is more as compared to the lower income groups.

In the second part of the questionnaire, the group 1 children preferred to have good health as the first thing when given a choice between good health, good eyesight, good memory and straight teeth. No child in group 1 wanted straight teeth while in the other three groups the number of children preferring straight teeth went on increasing with 11.93% children in group 3 opting for it. This supported the fact that with the increasing socio-economic status the preference to have straight/well aligned teeth increases. When the parents of the four groups were asked about this 7.85% parents in group 1 opted for straight teeth while no parent in the group 4 wanted it. Our assumption was that the higher income groups would prefer straight teeth more than other attributes was not supported by the results. General health was the most sought after thing in all the groups with all the parents of group 4 opting for it.

In the literature the importance that facial attractiveness plays in social acceptance by peers is emphasized. A positive relationship exists between facial attractiveness and popularity; which informs the favourable evaluation of one's personality, social behavior and intellectual expression by others.<sup>8</sup> According to Tulloch *et al.* substantiates claims that peer-influence plays a major role in determining orthodontic treatment compared with social class or gender.<sup>9</sup> Therefore professional knowledge about orthodontic perceptions in different age groups may also be useful.<sup>10</sup>

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The knowledge of appliances in all the groups in both children and parents was mostly about fixed orthodontic appliances. Removable appliances were only known by a few parents in the higher income groups which again supported our views.

Another reason for awareness regarding orthodontic treatment in the four groups (maximum in Group 4 children) could be due to the ongoing/past orthodontic treatment in children's peer group or family. Children are most influenced by their nearby ones determining their level of knowledge and opinions regarding different matters. A number of studies have underlined the importance of satisfactory childhood peer relations for successful emotional and social development.<sup>4</sup>

Regarding the awareness about orthodontic treatment, as some authors thought that the higher income groups would be better aware and would have few misconceptions,<sup>11</sup> our results supported this fact. 37.25% parents in group 1 felt that some problems do arise after orthodontic treatment while only 3.81% parent in group 4 thought any problem would arise after treatment. This tells us that our society needs to be made more aware and educated about orthodontics and the treatment and the facts related with it.

The moral need also arises that the general dentist needs to explain to the patient the importance of orthodontics and the fact that it can be done only by a qualified orthodontist. However, assessments of perception of malocclusion are complex and are generally considered to be highly subjective and like all other evaluations are qualitative and subjective, whether by clinicians' or patients' ratings, rankings, or categorization.

### Conclusion

The overall concern and attitude towards general health and well-being is maximum in higher income groups rather than lower income groups who do not have it as the first priority due to their economic limitations. Differences did exist in knowledge about and experience with orthodontic treatment, indicating differences in utilization of orthodontic services in the four groups of the society. The knowledge about orthodontics and its concerned facts would be more in the higher income groups as compared to the lower income groups. The lower income groups are aware of orthodontic treatment but still have many misconceptions prevalent but need more awareness about it.

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