Perception of Esthetics of Different Malocclusion Traits by Laypersons

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ABSTRACT

Aim: Perception of beauty is a subjective phenomenon and varies from individual to individual. The aim of this study was to find out the least acceptable malocclusion trait among crowding, spacing with overjet, open bite and deep bite.

Materials and methods: The one hundred and nine college students were shown frontal photographs of four patients having severe crowding, spacing with increased overjet, open bite and deep bite. They were asked to rate their perception on visual analog scale. The data obtained was analyzed by SPSS.

Results: In this study it was found that crowding of teeth was the least acceptable malocclusion trait followed by spacing and increased overjet, open bite and deep bite.

Conclusion: Crowding malocclusion and spacing with increased overjet created the worst impression and were among the most disliked malocclusion traits. People having these malocclusion traits are easily noticed for their compromised esthetics and have to face discrimination.

Keywords: Esthetics, Deep bite, Open bite, Visual analog scale, Crowding, Spacing with increased overjet.

INTRODUCTION

Physical appearance is of prime importance in the construction of personal identity which is one of the reasons for adolescents being conscious of their esthetics. Dental esthetics is significant in improving the overall facial appearance which must be worked upon to improve the dentofacial beauty. The other methods of correcting the dentofacial esthetics, like reconstructive surgery, are more invasive as compared to dental cosmetic procedures and smile enhancement.

Patient having malocclusion do not pose a full smile as they are conscious of the compromised esthetics of their dentition. It is believed that the smile of a person plays an important role in creating a positive impact on the psyche of the beholder. Smile is only second to the eyes in evaluating an attractive face.1

Children having crooked teeth are called by various nicknames by their peers. Shaw et al found that children in the age group of 9 to 13 years are commonly teased, if their dental appearance is compromised.2 People who got their malocclusion treated orthodontically had a more positive assessment of their appearance.3 Dentofacial attractiveness is the main motivating factor in taking orthodontic treatment both surgical and nonsurgical.4-6 An evaluation of dental esthetics and smile after orthodontic treatment showed a marked improvement in the smile and facial appearance.7

The main reason for the patient to take orthodontic treatment is mainly to improve the esthetics. Rarely, patient takes orthodontic treatment because of functional problems or declining oral conditions. Longitudinal studies have provided little evidence to support the view that orthodontic treatment can reduce oral disease.8-9 In the present times the most important reason to seek orthodontic treatment is for improvement in facial appearance.10

Patients have their own perception of likes and dislike for various malocclusion traits, like crowding, spacing, overjet and open bite. To understand the perception of patient is important for the success of orthodontic treatment. Highly variable association exists between self-perception of orthodontic needs by laypersons and orthodontist assessment.11 This study endeavors to understand more closely the most striking malocclusion trait from a laypersons point of view. The aim of this study was to compare different malocclusion traits with each other and to determine the least accepted malocclusion trait.

MATERIALS AND METHODS

Intraoral and extraoral photographs of four patients were retrieved from the records of the patient being treated in the
Department of Orthodontic of Rama Hospital. The extraoral photographs of the patient were taken by digital camera from a fixed distance. The photographs were taken with maximum focus on the subject and landscape was kept to minimum. Similarly, intraoral photographs were also taken with maximum focus on the field. No tampering of the photographs was done and hard copies were made with colors closest to natural. All photographs were made in four by six inches hard copy. Patients consent was taken prior to showing the photographs to the participants. Patient whose photographs were selected had severe crowding (Figs 1 and 2), spacing with increased overjet (Figs 3 and 4), open bite (Figs 5 and 6) and deep bite (Figs 7 and 8).

Frontal intraoral and frontal extraoral photographs were shown to a hundred laypersons with an age group ranging from 17 to 21 years. Only frontal photographs were included in the study to avoid confusing the participants with too much technical details of other views, which is more meaningful for trained orthodontist. Apart from photographs of the patient, photograph of a person having normal occlusion were also shown to participant to serve as control.

Participants were asked to rate their perception on visual analog scale (VAS). All the photographs were shown simultaneously and not in succession before rating. Hundred millimeter VAS were constructed with ends of the scale marked least attractive and most attractive. Participants were asked to see each photograph carefully and to place a mark on the horizontal line on hundred millimeter VAS. The rating recorded on the VAS was measured using a digital vernier caliper accurate to 0.01 mm.

**Statistical Analysis**

Data obtained was subjected to statistical analysis using SPSS. The groups were tested with each other and in pairs using ANOVA and Z test. The null hypothesis proposed that there is no difference between the groups and that all the malocclusion traits are equally acceptable. Alternate hypothesis proposed that there is a difference between the groups (Table 1).

**RESULTS**

The results of the statistical analysis rejected the null hypothesis and showed that there is significant difference between the groups when compared to the control group.
Crowding was rated to be the least acceptable malocclusion trait followed by spacing with increased overjet. Deep bite and open bite malocclusion were more tolerable. Statistical analysis showed that there was no significant difference between crowding and spacing groups. Similarly the difference between the open bite and deep bite also was not significant (Graph 1).

**DISCUSSION**

Malocclusion is considered to be a public health problem due to its high prevalence. The possibility that malocclusion can be prevented and treated successfully puts it in the oral health priority list of the World Health Organization. Studies have demonstrated that malocclusion has got a significant impact on the quality of life.12,13

Considering the impact of malocclusion on the quality of life and the possibility of prevention and treatment, World Health Organization ranked it as the third highest oral health priority.14 Field of social psychology provides evidence to support psychological benefits of orthodontic treatment. Unattractive physical appearance may evoke unfavorable social response.15 In early periods of development of orthodontics the importance of orthodontic treatment in improving oral function and reducing susceptibility to dental caries and periodontal disease was often emphasized.16

It is more commonly believed nowadays that malocclusion has negligible effect on the disease of the teeth or of their supporting structures.17 For the vast majority of the patients

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**Table 1: Statistical summary**

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<th>Code</th>
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<th>Average</th>
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<th>Standard error</th>
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<tr>
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<td>24.9283</td>
<td>93.6044</td>
<td>8.96567</td>
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<tr>
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<td>14.8609</td>
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<td>50.2661</td>
<td>51.6524</td>
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</table>

**Graph 1:** Comparing the malocclusion trait
Perception of Esthetics of Different Malocclusion Traits by Laypersons

The main reason for the patients to seek orthodontic treatment is to minimize psychosocial problems related to their dental and facial appearance. The most important factor in determining the need for orthodontic treatment is self-perception of one’s own beauty. Such perception may be influenced by cultural and ethnic characteristics as well as by norms for dental attractiveness and individual psychological characteristics. Unattractive individuals view themselves as less effective in social situation than their attractive counterparts. Well-aligned teeth and a pleasing smile carry positive status at all social levels whereas irregular or protruding teeth carry negative status.

In this study the malocclusion traits like crowding, spacing with increased overjet, open bite and deep bite were compared. It was found that crowding and spacing created the most negative impact on the minds of the participants. Crowding was ranked to be the least attractive and was rated with lowest scores on the VAS. Malocclusion traits were compared because laypersons are able to identify specific malocclusion traits rather than malocclusion types based on the Angles classification.

Laypersons as well as the patients are unable to understand the importance of proper occlusion. Almost every orthodontist encounters patients who are unwilling to continue treatment after initial leveling alignment and anterior space closer. The reason behind such restless attitude of the patient is probably their aim of improving dentofacial esthetics, which is to some extent fulfilled after taking intial orthodontic treatment. Malocclusion traits are easily identified by children also. Children having facial disfigurement are subjected to teasing, nickname calling and social discrimination.

There are many orthodontic indices that combine physical and visual elements to provide a measure of the extent of malocclusion. Indices have been developed with intention of categorizing malocclusion into various groups according to urgency and need for treatment. Indices can be of help in decision making about where government resources can be utilized for the treatment of urgency and need for treatment. Indices can be used only by trained professionals and is of little help for laypersons in determining the need for orthodontic treatment.

The most important factor in determining the need for orthodontic treatment is self-perception of one’s own beauty. It is very important on the part of an orthodontist to understand what is patients’ self-perception of malocclusion and whether his demands are realistic or unrealistic. If the care provider orthodontist fails in this he may not be able to satisfy his patients even after doing an excellent job.

Prevalence studies on malocclusion have reported the malocclusion according to Angles classification but this method does not target the specific malocclusion trait which is of more concern from the patients’ point of view. Studies have shown that language of clinical orthodontic diagnosis is imprecise and variation does occur in reporting of a malocclusion trait even by orthodontists. It is reported that acceptable reliability existed for mandibular anterior crowding, facial convexity, overbite, overjet and molar relation. The reliability of maxillary and mandibular anteroposterior position, incisor exposure and maxillary crowding was poor.

Zuhere et al reported that about 29.9% of the population felt their dental esthetics to be compromised because of crowding of anterior teeth. According to Samorodnitzky esthetics has become an important issue in the modern society and 36% of people were unhappy with their dental appearance because of malaligned teeth.

Soh et al found that increased overjet of more than 6 mm and severe dental crowding of more than 8 mm were found to be most disliked by laypersons. In this study also we found that crowded appearance of the teeth and spacing with overjet were ranked to be among the least acceptable malocclusion traits.

The most common location of malalignment and malocclusion, for which guardians and children take orthodontic treatment, was the upper and lower anterior teeth. Crowding of the anterior teeth is easily noticed by children and their guardians prompting them to seek advice and treatment.

Frontal photographs were shown to the participants because mostly people evaluate esthetics when confronted face to face. Intraoral frontal photograph was shown to help the participants have a closer look at malocclusion trait. Other views although available were not shown to any participants as it could confuse the participants by to many details.

VAS is an effective method of converting qualitative data into quantitative data, which further helps in statistical analysis. The reason VAS was used in this study was because of its simplicity. VAS has been used by various other researchers also. Melzak highlighted the advantage of VAS particularly their simplicity, sensitivity and reproducibility.

Perception of beauty is multifactorial and age is an important factor. In general, most of the orthodontic patients are of younger age group so the participants of this study were also between the age group of 17 to 21 years as they are more conscious of their esthetics.

CONCLUSION

In this study, crowding was rated to be the least acceptable malocclusion trait whereas spacing with increased overjet was rated to be the second least acceptable trait. The rating of open bite and deep bite were comparable with each other and showed a better tolerance with respect to the perception of beauty by
laypersons. People having malocclusion traits of crowding are easily noticed and have a higher chance of being discriminated socially. Orthodontic treatment is most desirable for individuals having crowding and spacing malocclusion trait to avoid unfavorable psychological impact.

REFERENCES