



RESEARCH ARTICLE

ORAL HEALTH RELATED QUALITY OF LIFE IN PRE AND POST ORTHODONTICALLY TREATED STUDENTS OF A DENTAL COLLEGE- A CROSS-SECTIONAL LONGITUDINAL STUDY

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ABSTRACT

Objective: Malocclusion is a common oral disorder and can cause negative impact on oral conditions, social life and a person's self-confidence; more so in dentists. The objective of this study was to determine whether orthodontic treatment influences Oral Health Related Quality Of Life (OHRQoL) in dental students.

Materials and Methods: Cross-sectional design with self-reported data were collected from 30 dental students in a dental college in Pune city (mean age-21.71 years) in "pre- orthodontic treatment" and "post- orthodontic treatment" groups. The measure namely (Oral Health Impact Profile) OHIP-14 questionnaire was used to assess the students' OHQoL.

Results: A significant difference in impact was found in seven questions and four domains (Psychological discomfort, Psychological Disability, Social Disability and Handicap) of OHIP-14 between the two groups ($P < 0.05$). It was found that there is improvement in patient satisfaction after orthodontic treatment. ($\approx 21.43\%$)

Conclusion: Patients who had completed orthodontic treatment had a better OHRQoL in psychological and physical aspects than before the treatment.

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INTRODUCTION

Amongst all the dental disorders, malocclusion is one of the most common dental anomalies, which are difficult to measure (Cohen and Jago, 1976). Malocclusion results in various problems in the affected individuals, including lack of satisfaction with facial appearance, problems associated with the function of the masticatory system, dysfunction of the temporomandibular joint, problems with swallowing and speech, susceptibility to facial traumatic injuries and development of caries and periodontal problems. In addition, the individuals with malocclusion are not satisfied with their facial appearance, resulting in inappropriate social responses and development of emotional and mental problems. In other words, Oral Health-Related Quality of Life (OHRQoL) is disturbed in a large proportion of affected individuals. The quality of life is defined as a subjective judgment of an individual of his/her health status and in fact satisfaction or dissatisfaction with specific aspects of life, which are important for the individual (Locker, 1997).

At present, disturbances in the normal somatic, psychosomatic and social functioning of individuals are considered important considerations in the evaluation of oral health. Inability of commonly used tools to evaluate and quantify oral health, such as evaluation of the ability of patients to chew food and enjoy the taste of food items, has resulted in a new direction and attitude toward evaluation of oral health by new quantification tools such as OHRQoL (Locker, 1997; Kiyak et al., 1984). Evaluation of the need for orthodontic treatment should include quantification of the effect of malocclusion or dental deformities on clinicians who themselves may require orthodontic treatment, more so dentists, since their area of work primarily deals with facial aesthetics and function. Patients and dentists differ in their perception of treatment of dental disorders. While not all patients might stress on the need for proper functionality, clinical outcome measures for a dentist maybe more function-based. The oral health impact profile (OHIP) was developed by Slade and Spencerto measure the dysfunction, discomfort, and disability attributed to oral conditions in older adults and elderly populations. OHIP-14 is a short form of the Oral Health Related Quality of Life questionnaire which measures all the above mentioned attributes in two dimensions, each (Locker, 1997).

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The following study was done with the aim to assess the the impact of orthodontic treatment in students using the OHIP-14 questionnaire of a dental college in Pune city. Patients (dental students) in 2 distinct phases were assessed in their pre- and post-orthodontic treatment phase during their dental program course in the college.

MATERIALS AND METHODS

The study was carried out in the Department of Orthodontics and Dentofacial Orthopedics in the dental college. A total of 30dental students satisfying the inclusion criteria were selected for the study.

Table 1. Distribution of sample based on phase of treatment according to OHIP-14 scores

Q NO	Daily activity	Pretreatment		Post treatment	
		Impact	No impact	Impact	No impact
Q1	Had problem pronouncing words	12	18	7	23
Q2	Felt their sense of taste has worsened	5	25	3	27
Q3	Had a painful aching in the mouth	9	21	11	19
Q4	Found it uncomfortable to eat any food	11	19	11	19
Q5	Have been self-conscious	27	3	14*	16
Q6	Felt tense	23	7	9*	21
Q7	Had an unsatisfactory diet	5	25	3	27
Q8	Had to interrupt meals	5	25	3	27
Q9	Found it difficult to relax	14	16	6*	24
Q10	Have been a bit embarrassed	24	6	9*	21
Q11	Have been irritable with other people	18	12	8*	22
Q12	Had difficulty doing usual jobs	15	15	5*	25
Q13	Felt life in general less satisfying	14	16	4*	26
Q14	Have been totally unable to function	5	25	4	26
TOTAL		44.52 %	55.48%	23.09%	76.91%

*- Shows statistically significant change between scores (p<0.05)

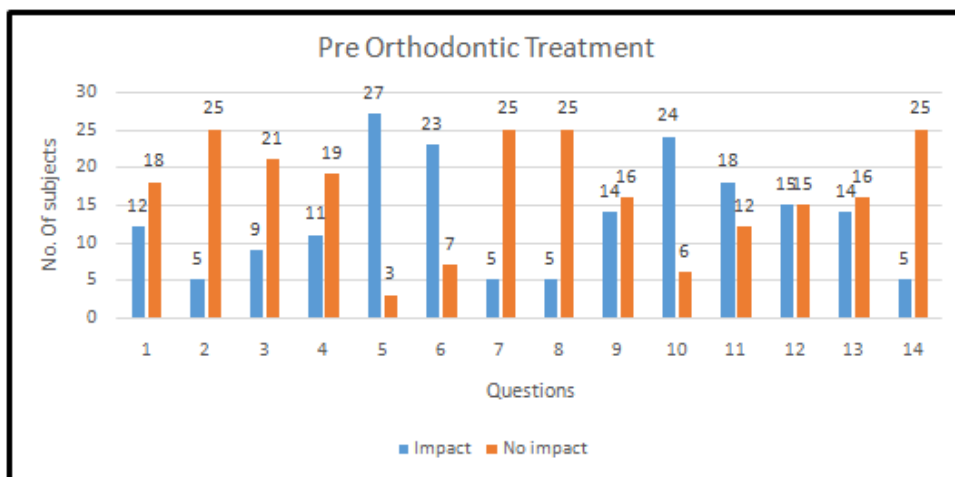


Figure 1. Graph showing the response rate of subjects in the pre-orthodontic treatment group.

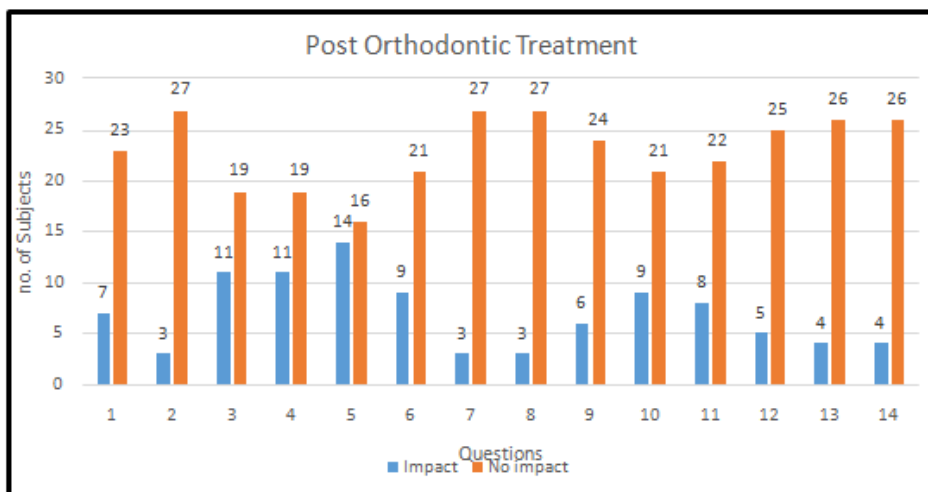


Figure 2. Graph showing the response rate of subjects in the post-orthodontic treatment group

Participants were informed of the plan of the study and those willing to participate with an informed consent were then included in the study. The participants were not selected on the basis of any gender, age, race or the type of malocclusion they had. The participants were selected on the basis of non-probability sampling (convenience sampling). The study participants were included in the study only if they fulfilled the following selection criteria: those in the pre-orthodontic group had no previous experience of orthodontic treatment and treatment was to be provided to them by any dental professional from the Department of Orthodontics of the parent college or of any other college or from a private practitioner. Dental students already undergoing orthodontic treatment and students who would not be able to complete their treatment within the stipulated time of the present study were excluded. The study participants were then provided with a pre-tested, pre-validated English version of the OHIP-14 questionnaire consisting of questions assessing their functional limitations, physical pains, psychological discomfort, physical disability, psychological disability and handicap. The questionnaire was self-administered and the participants were made to fill the details of the questionnaire in the Department of Orthodontics. Details of the dental students were noted and the students were recalled after their orthodontic treatment was complete and they were made to answer the same questionnaire again.

Statistical Analysis

OHIP-14 (Oral Health Impact Profile-14) questionnaire, which is the most valid tool to evaluate OHQoL in all the age groups, was filled out for all the study parts in one session in the form of an interview. The Questionnaire was filled twice by the subjects as pre and post treatment questionnaire. OHIP-14 consists of 14 questions, which measures the quality of life in seven fields of functional limitations, physical problems, mental and emotional problems, physical handicaps, mental and emotional handicaps, social handicaps and complete handicap. In this questionnaire, question 1 of each two questions evaluates one of those fields. The interviewee answers each of these questions in relation to experiencing a problem arising from the teeth and the oral condition during the past twelve months. The subject's answers are scored in the Likert's scale as "zero" for "never", "1" for "seldom", "2" for "sometimes", "3" for "mostly" and "4" for "almost always". In the present study, in the final evaluation of answers, the "zero" response was considered a lack of effect and answers 1 to 4 were considered an effect so that the comparisons would be more comprehensible. The comparison between the impact factors of pre and post orthodontically treated subjects were analyzed using paired t test. ($P < 0.05$) The statistical analysis was done using SPSS version 21.0

RESULTS

A response rate of 100% was found in the present study. The mean age of the participants was 21.71 ± 3.49 years. The paired *t*-test revealed significant changes in the pre-orthodontic and post-orthodontically treated group. The mean percentage of OHIP-14 parameters that showed an impact in the pretreated group was 44.52% whereas in post-orthodontically treated group they showed a mean percentage of 23.09%. Higher scores indicate a lower quality of life for the subjects (Table 1).

DISCUSSION

Over the past few years, there have been many studies conducted to evaluate the impact of orthodontic treatment on the oral health related quality of life of patients (Cunningham and Hunt, 2001; Ahmed *et al.*, 2001; Zhang *et al.*, 2006; Hunt *et al.*, 2002). However, there is limited data assessing the impact of the orthodontic treatment on dental clinicians themselves. The present study was conducted to find out whether dental clinicians lay more importance to the functional aspect of orthodontic treatment or the aesthetic component of it or both. The use of a standardized instrument such as the OHIP-14 questionnaire allowed us to evaluate whether clinical procedures performed on dental professionals have a real benefit on their lives- functionally, aesthetically and psychologically. In studies that were conducted on patients undergoing orthodontic treatment, most researchers found that patients benefit psychologically from treatment that resulted in improved dental and facial appearance, social well-being and oral function (Locker, 1997; Bedi *et al.*, 2005; McGrath and Bedi, 1999). Patients undergoing orthodontic treatment scored higher on the facial and dental image components and self-esteem. It can be stated that post-treatment satisfaction is generally high resulting in a more positive self-image (Inglehart and Bagramiane, 2002).

This is consistent with our study findings, wherein the pre-orthodontic study group reported a more negative impact of their oral condition on quality of life when compared with the post-orthodontic treatment group. A limitation of this study could be the smaller sample size, resulting in a low power of the study. Also, an associated response bias of the participants could be a limiting factor for the study. Although participants were not analyzed according to the type of malocclusions they were getting treated for, it is noteworthy that there is little variation in the pre-orthodontic group. These findings suggest that irrespective of the kind of treatment required, malocclusion of any type does affect individuals similarly. Future clinical longitudinal studies are required to assess the impact of orthodontic treatment on the quality of life of dental professionals who are undergoing surgical orthodontic treatment with that undergoing conventional orthodontic treatment. Utilization of the Index of Orthodontic Treatment Needs along with OHRQoL can help us correlate changes in malocclusion along with changes in the quality of life of individuals (Inglehart and Bagramiane, 2002). With a larger sample size, subgroups can be analyzed and compared based upon the type of malocclusion and the treatment they are undergoing along with its impact on the quality of life. Such an approach might aid in developing a better patient-doctor relationship.

Conclusion

Orthodontic treatment has an impact on aesthetic as well as the functional component of the quality of life of dental professionals (Inglehart and Bagramiane, 2002). The current study highlights the importance of malocclusion on the QHRQoL in dental professionals and emphasizes the importance of clinical-based and aesthetic-based outcome measures of orthodontic treatment in dental professionals alike.

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