

Psycho-social effects of malocclusion in patients seeking orthodontic treatment- A cross-sectional study in Kashmiri population

Sneh Kalgotra^{1,*}, Mohammad Mushtaq²

¹Registrar, ²Professor & Head, Dept. of Orthodontics & Dentofacial Orthopedics, Govt. Dental College & Hospital, Srinagar

***Corresponding Author:**

Email: drsnehkalgotra@gmail.com

Abstract

Introduction: While treating a patient with malocclusion most of the focus is directed towards chief complaint, biomechanics, materials to be used, majority of the times ignoring the pre and post treatment psychological aspect of the malocclusion. So, it becomes of utmost importance to address this aspect in patients in particular and population in general.

Material & Methods: A specially designed questionnaire was filled by 100 patients seeking Orthodontic treatment. Patients were allowed to mark multiple answers. Also, aesthetic component of IOTN was used for comparison of perception of treatment need for malocclusion between Orthodontist (professional) and patient.

Results: The patients ranged from 13-35 years of age with 43 male and 57 female patients. No statistically significant difference was found in perception of treatment need by the patient and the Orthodontist. 80% of all subjects reported for orthodontic treatment for aesthetic reasons. 57% of the patients were concerned with the problem, whereas 20% were unconcerned. 58% of the patient felt less confident as they were found to fall below the score of 5 on a scale of 10, whereas 65% patient felt that the malocclusion had a negative impact on their facial appearance. 10% patients limited their activities such as holding away their smile, 10% hid their teeth while smiling, 55% were concerned about what the opposite sex thought of their smile, 60% envied others with better smile, 47% wished they had a better smile. 90% felt an improvement in their self-esteem at the mere thought of getting braces.

Conclusion: Malocclusion has serious psycho-social effects on an individual, so during patient counseling and treatment planning, this aspect should be considered by the Orthodontist.

Keywords: Psycho-social, Malocclusion, IOTN (AC) Component.

Introduction

Malocclusion represents an important health problem worldwide.⁽¹⁾ Epidemiological surveys of malocclusion in several countries have reported that this oral disorder is highly prevalent.⁽²⁾ At first glance, the disciplines of social psychology and clinical orthodontics would seem to be as separate as any two disciplines one could find. Dr. Graber notes that *“One is mental, the other is dental”*. One involves clinical treatment; the other is a social science. The clinician measures physical characteristics with direct precision in terms of millimeters and degrees; the psychologist measures less specific entities, such as verbal social actions and attitudes. Yet there are areas of overlap which are both useful and necessary. *‘Social psychology: The scientific study of the way in which people’s thoughts, feelings and behaviors are influenced by the real or imagined presence of other people’*. According to Hassebrauk, the smile is the second facial feature, after eyes that people tend to notice when evaluating another’s attractiveness. Considering the impact that alterations in facial appearance can have on a patient’s overall wellbeing in life, it is imperative that the practicing orthodontist has an understanding of the social psychological underpinnings of facial attractiveness theory.⁽³⁾ The face is the most readily apparent feature and thus is said to be the most important physical characteristic in the development of self-image and self-esteem, as positive social interactions have been shown to result in better interpersonal relationships and more

self-confidence.⁽⁴⁾ The tendency to make more positive trait inferences and behavioral attributions to those who are more attractive has been posited as reflecting a rather pervasive, underlying “what is beautiful is good” mindset.⁽⁵⁾ Orthodontists traditionally have considered oral health and function as the principal goals of treatment.^(6,7) However, there has been recently growing acceptance of aesthetics and its psychosocial impact as an important treatment benefit.^(8,12) Not infrequently, orthodontists hear of patients reluctance to smile due to self-consciousness about their teeth. Knowledge about patients perception and professional perception in treatment of patients is of paramount importance today, therefore, the aim of this study was to assess the psychosocial effects of malocclusion among the patients seeking orthodontic treatment and assess self-perceived and Orthodontist’s perception of dental appearance using aesthetic component (AC) of the Index of Orthodontic treatment need (IOTN) & a questionnaire.

Material & Methods

A cross-sectional study was carried out to assess the psychosocial effects of malocclusion among the patients seeking orthodontic treatment and assess self-perceived and Orthodontist’s perception of dental appearance using aesthetic component (AC) of the index of Orthodontic treatment need (IOTN), reporting to the Post- Graduate department of Orthodontics & Dentofacial Orthopaedics, Government Dental College & Hospital, Srinagar, India. 100 patients were selected,

all subjects between the age of 15 and 35 years old were willing to participate and gave their consent. Patients in mixed dentition, with history of orthodontic treatment, students & dentists, young children incapable of comprehending the questionnaire and uncooperative patients were excluded. Study was conducted from November 2106 to January 2017.

A specially designed questionnaire was self-administered to 100 patients reporting to the outpatient department explained in detail in Fig. 1. It was translated to local language for better patient understanding. The perceived orthodontic treatment need by the patient was assessed using the AC of IOTN and perceived orthodontic treatment need for the patient was assessed

using the AC of IOTN by Orthodontist. Each subject was shown 10 colored photographs depicted in the AC of IOTN (Fig. 2) and was asked to choose the one with the closest resemblance to their actual smile, and the same was then evaluated by the Orthodontist, to check if the perception of a layman and a professional matched. All readings were recorded on specially prepared form. A definite need of treatment was represented by photos 8-10, while borderline and no need for orthodontic treatment were represented by photos 5-7 and 1-4 respectively.

POST GRADUATE DEPARTMENT OF ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

GOVERNMENT DENTAL COLLEGE & HOSPITAL, SRINAGAR.

Name: Gender: Profession:

IOTN (AC) SCORE AS PER PATIENT:

1. Age distribution of the subjects:
a) 13-20 b) 20-25 c)25-30 d)30-35
2. Areas of concern:
a) Aesthetic b) Functional c) TMJ d) Others
3. Feelings associated with the problem:
a) Sad b) Depressed c) Unconcernedd)Concernede)Uncomfortable.
4. Effect of malocclusion on self – confidence. Grade from 1-10 (10 being the most confident).
5. Effect of malocclusion on facial appearance. Grade from 1-10 (10 being the most beautiful).
6. Psychosocial impact regarding malocclusion
 - a) Hold back your smile.
 - b) Concerned what other people think
 - c) Afraid of other people making offensive remarks
 - d) Inhibit in social contacts
 - e) Hiding teeth
 - f) Think that people stare at your teeth
 - g) Worried about what opposite sex think about your teeth
 - h) Envy other people with better smile
 - i) Wish to have better smile
7. Do you think getting braces would improve your self-esteem?? Grade from 1-10 (10 being the most confident).
8. What are the concerns about taking up of Orthodontic treatment?
a) Time b) Appliance visibility c) Cost

IOTN (AC) SCORE AS PER THE ORTHODONTIST:

Fig. 1: Questionnaire used in study



Fig. 2: IOTN (AC) component

Results

A total of 100 patients participated in the study, 43 male subjects and 57 female subjects showing that there was a gender predilection for seeking Orthodontic treatment. IOTN (AC) patient's perception and Orthodontists perception were analyzed using Kendall's coefficient of concordance, was not statistically significant (P value 0.564) (Table 1). Most participants sought orthodontic treatment for aesthetic reason 80% (Table 2). Majority of the participants were concerned 57% (Table 3), with the problem of malocclusion. 58% of patients felt less confident because of malaligned teeth falling below 5 on a scale of 10. Similarly, 65% of patient felt that malocclusion had a negative impact on the facial appearance falling below 5 on a scale of 10. The biggest psychosocial effect was felt by 60% patients who felt sense of envy for other people with better smile followed by 55% who worried about what the opposite sex thought about their teeth whereas, 47% wished they had a better smile (Table 4). Majority 90% subjects believed that getting orthodontic treatment would improve their self-esteem fell above 5 on a scale of 10. 70% & 50% patients were concerned about cost & time respectively while taking up orthodontic treatment whereas only 20% were worried about the appliance visibility (Table 5).

Table 1: Comparison of IOTN (Ac) score as recorded by patient & orthodontist

Patients score	Orthodontist perception			Total
	1-4	5-7	8-10	
1-4	30	0	0	30
5-7	1	42	2	45
8-10	0	0	25	25
Total	31	42	27	100

P value =0.564

Table 2: Areas of concern

Parameter	Number	Percentage
Aesthetics	80	80
Functional	8	8
TMJ	10	10
Others	2	2

Table 3: Feelings associated with problem

Parameter	Number	Percentage
Sad	2	2
Depressed	3	3
Unconcerned	20	20
Concerned	57	57

Table 4: Psychological impact of malocclusion

Parameter	Number	Percentage
a) Hold away your smile	10	10
b) Worried about what opposite sex think about your teeth	55	55
c) Afraid of other people making offensive remark	10	10
d) Inhibit in social contacts	15	15
e) Hiding teeth	10	10
f) Think that people stare at your teeth	6	6
g) Envy other people with better smile	60	60
h) Wish to have better smile	47	47

Table 5: What are the concerns about taking up of orthodontic treatment

Parameter	Number	Percentage
a) Time	50	50
b) Appliance visibility	20	20
c) Cost	70	70

Discussion

A questionnaire was framed comprising psychological dimensions was randomly administered to patients seeking orthodontic treatment in the out-patient department of Post Graduate Department Of Orthodontics & Dentofacial Orthopaedics, Government Dental College & Hospital, Srinagar, India. The age ranged from 13-35 years with 43 male patients and 57 female patients. In recent times orthodontic treatment has been sought equally by children and adults, that is why the range of 13-35 years was selected in this study. Our study showed that more females sought orthodontic treatment than males. This is in agreement with the study conducted by Peres et al in Brazilian children in which nearly half of the girls and one third of the boys wanted to undergo orthodontic treatment.⁽⁹⁾ Gender has a significant variable in predicting the psychosocial impact of dental esthetics, and this come in accordance with other studies that found, women are more critical of their perception of impacts related to dental

esthetics.^(10,11) This might be a result of the commonly reported greater concern about health in women than in men, as expressed by higher attention to health care and greater awareness of oral health impacts, attractiveness of facial appearance, and quality-of-life considerations,⁽¹²⁾ on the other hand. Delcides revealed that Gender was not an important variable but they incorporate other variables as Self-Image, Subjective self-perception of dental esthetics in adolescents is influenced by occlusal conditions, oral health-related quality of life, and self-image.⁽¹³⁾

The IOTN is a scoring system that ranks malocclusion based on occlusal traits for oral health and aesthetic impairment.⁽¹⁴⁾ The Aesthetic Component (AC) of the IOTN has commonly been used to evaluate treatment need on aesthetic grounds assessed by dentists (operated-rated) or patients (self-rated).⁽¹⁵⁾ However, since it is an accepted fact that psychosocial consequences due to unacceptable dental aesthetics may be as serious, or even more serious, than the biologic problems, the indices currently in use have been criticized as lacking a psychosocial component.^(16,17) So it becomes important to evaluate if the perception of an Orthodontist & patient towards malocclusion is same or different, for better psychological outcome of the treatment. In our study, we found that this perception is similar giving an Orthodontist a fair insight into patients psychological needs.

This study showed that 80% of patients sought Orthodontic treatment due to aesthetic reasons & only 8% patients had a functional cause for seeking Orthodontic treatment. Patient's concerns with esthetics and social acceptance may not be surprising in light of the social stigma faced by individuals whose appearance is outside the norm, even if they do not have craniofacial anomalies. In particular, children with visible malocclusions are often teased & socially ostracized. Patients who seek orthodontic treatment are concerned with improving their appearance and social acceptance, often more than they concern with improving their oral function or health. Results confirm the view that adolescents attribute high importance to an attractive dental appearance.^(18,19) Only 57% of the patients were concerned with the malocclusion, 20% were unconcerned. The guidelines produced by the British Psychological Society on clinical psychology in dentistry estimates, from the work available and the epidemiology of psychological disorders in children, that about 10% of children with malocclusions would have significant anxieties or other emotional or behavioural problems. The ratings of attractiveness, intelligence, conscientiousness, agreeableness, and extraversion differed significantly depending on the occlusion status depicted. Persons with normal occlusion were rated as most attractive, intelligent, agreeable, and extraverted, whereas persons with an underbite were rated as least attractive, less intelligent.⁽²⁰⁾

According to Heldt et al patients with dentofacial deformities, regardless of severity, are frequently the victims of ridicule, teasing and jokes, the emotional trauma being evident, thus affecting the confidence of the individual. In the present study we found that 58% of patient felt less confident because of mal-aligned teeth & 65% of patient felt that malocclusion had a negative impact on the facial appearance. Similar results were found by Pietila et al where Patients' expectations from orthodontics are primarily improved in terms of appearance, self-image and social functioning.⁽²¹⁾

Contemporary researchers have continued to pursue a deeper understanding of the critical interplay of a patient's psychological profile, orthodontic treatment objectives, and psychological outcomes. In general, the impact of oral health conditions on quality of life, especially in term of satisfaction with appearance, may result in feelings of shame in social contacts and those who are psychosocially disadvantaged.^(22,23) Therefore, the expected benefits of orthodontic treatment would include an enhancement of self-esteem and a reduction in social anxiety.⁽²⁴⁾ In the present study, while evaluating the psychological & social impact of malocclusion, it was found that 60% envy other people with better smile, whereas 55% worried about what the opposite sex thought about their teeth, emphasizing the basic human tendency of approval of others. 47% wished to have better smile, again showcasing basic human need for improvement. 10% hide their teeth & held away their smile indicating being conscious of malocclusion. A study conducted by Mahmood & Kareem Patients who seek orthodontic treatment are concerned with improving their appearance and social acceptance, often more than they concern with improving their oral function or health.^(18,19) The mere thought of initiating Orthodontic treatment improved self-esteem of a person,⁽⁸⁾ we found similar results in our study where the mere mention of initiating Orthodontic treatment improved self-esteem of 90% patients who above 5 on scale of 10,10 being the highest score.

Contrary to popular belief the major concern a common man has about taking up Orthodontic treatment is appliance visibility, in our study we found that only 20% were concerned about the appliance visibility this could be attributed to the fact that over a period of time, very rich and famous personalities have undergone Orthodontic treatment and have openly shared it, making it more of a fashion trend. 70% patients were concerned about the cost, this could be based on the fact that the study was conducted in region of developing country, where health care insurance does not cover Orthodontic treatment and where 21.9% population still lived below poverty line & 50% were concerned about time involved in completion of treatment.

Additional studies are needed to assess the predictive value of other clinical and sociodental variables on perceived esthetic impacts in population, focusing on representative samples of normal

populations. The specific socio-demographic characteristics of this convenience sample may have resulted in potential bias when clinical and epidemiologic inferences are considered. There is lack of studies & data related to the impact of malocclusion on the psychology of the patient especially in developing countries like India. It maybe necessary to use more than one index & more parameters to gather required information. Those responsible for planning Orthodontic treatment should concern themselves with the desires of the individual in particular and community in general. Further studies are required to improve our understanding of self-perceived need for Orthodontic treatment and psycho-social impact of malocclusion.

Conclusion

In 1948, Sixty eight years ago the World Health Organization defined health as the "complete state of physical, mental, and social well-being and not merely the absence of infirmity". It seems prudent to endorse the benefits of Orthodontic treatment based on the need as assessed normatively by the Orthodontist & subjectively as perceived by the patient. The results confirm that the malocclusion has a great psycho-social impact on an individual. Although it might not directly be proportional to the mount of anatomic severity but the impact cannot be overlooked and neither can the psycho-social impact be ignored while making the diagnosis and treatment planning.

References

1. World Health Organization (WHO). The World Oral Health Report, Continuous Improvement of Oral Health in the 21st Century: The Approach of the WHO Global Oral Health Programme. Geneva: WHO; 2003.
2. Chen M , Andersen M, Barmes DE, Leclercq M, Lyttle C S. Comparing Oral Health Systems. A Second International Collaborative Study. Geneva: WHO; 1997.
3. Graber T. In: Lucker GW, Ribbens KA, McNamara JA, eds. Psychological aspects of facial form. Craniofacial Growth Series. Michigan: Ann Arbor, 1980.
4. Hassebrauck M. The visual process method: A new method to study physical attractiveness. *Evolution Hum Behav.* 1998;19:111- 23.
5. O'Brien K, Kay L, Fox D, Mandall N. Assessing oral health outcomes for orthodontics – measuring health status and quality of life. *Community Dental Health.* 1998;15:22–36.
6. Cunningham S J, Hunt N P. Quality of life and its importance in orthodontics. *J Orthod.*2001;28:152–158.
7. Hunt O, Hepper P, Johnston C, Stevenson M, Burden D. The aesthetic component of the Index of Orthodontic Treatment Need validated against lay opinion. *Eur J Orthod.* 2002;24:53–59.
8. Rahbar F. Changes in self-esteem and self-concept as a result of orthodontic treatment: Master's thesis, University of Southern California, 2001.
9. Peres KG, Barros AJD, Anselimi L, Peres MA, Barros FC. Does malocclusion influence the adolescent's satisfaction with appearance? A cross-sectional study nested in Brazilian birth oirth cohort. *Community Dent Oral Epidemiol.* 2008;36:137-143.
10. Hunt O, Hepper P, Johnston C, Stevenson C, Burden D. Professional perceptions of the benefits of orthodontic treatment. *Eur J Orthod.* 2001;23:315–323.
11. Cash T F, Fleming E C. Body image issues and social relations. Body image: a handbook of theory, research, and clinical practice. Guilford, New York. 2002; pp. 277–286.
12. Zhang M, McGrath C, Hägg U. Who knows more about the impact of malocclusion on children's quality of life, mothers and fathers? *Eur J Orthod.* 2007;29:180–185.
13. Delcides F, Júnior de Paula, Nádia C M S, Érica T, Mariade F N, Cláudio R L. Psychosocial Impact of Dental Esthetics on Quality of Life in Adolescents. *Angle Orthod.* 2009;79(6):1188-1193.
14. Brook PH, Shaw WC. The development of an index of orthodontic treatment priority. *Eur J Orthod.* 1989;11:309-20.
15. Grzywacz I. The value of the aesthetic component of the index of orthodontic treatment need in the assessment of subjective orthodontic treatment need. *Eur J Orthod.* 2003;25:57-63.
16. Soh J, Chew MT, Chan YH. Preceptions of dental esthetics of Asian orthodontists and laypersons. *Am J Orthod Dentofacial Orthop.* 2006;130:170-6.
17. Jarvinen S. Indexes for orthodontic treatment need. *Am J Orthod Dentofacial Orthop.* 2001;120:237-9.
18. Kareem FA, Mahmood TM. Psychological impact of dental aesthetics for Kurdish young adults seeking orthodontic treatment. *Iranian journal of Orthodontics.* 2013;vol 2 issue 1.
19. Mahmood TM, Kareem FA. Psychological impact of dental aesthetics for Kurdish young adults seeking orthodontic treatment. *International journal of health and rehabilitation sciences.* 2013;2(1):28-37.
20. Olsen JA, MR Inglehart. Malocclusions and perceptions of attractiveness, intelligence, and personality, and behavioral intentions. *Am J Orthod Dentofacial Orthop.* 2011;140(5):669-79.
21. Pietilä T, Pietilä I. Dental appearance and orthodontic services assessed by 15–16-year-old adolescents in Eastern Finland. *Community Dental Health.* 1996;13:139–144.
22. Klages U, Bruckner A, Zentner A. Dental aesthetics, self-awareness, and oral health-related quality of life in young adults. *Eur J Orthod.* 2004;26:507–514.
23. Phillips C, Beal K N E. Self-concept and the perception of facial appearance in children and adolescents seeking orthodontic treatment. *Angle Orthod.* 2009;79:12–16.
24. Gherunpong S, Tsakos G, Sheiham A. A socio-dental approach to assessing children's orthodontic needs. *Eur J Orthod.* 2006;28:393–399.