ORIGINAL ARTICLE

IMPACT OF MALOCCLUSION ON QUALITY OF LIFE IN A GROUP OF ADULTS

[1]ALIZEH ABBAS GARDEZI
[2]ARFAN-UL-HAQ
[3]KHALID HUSSAIN
[4]SAMEEN IRFAN

ABSTRACT

Malocclusion has a negative impact on oral health related quality of life. Orthodontists in routine have focused on the clinical-centred measures of outcome for orthodontic treatment, but now, attention to patient-based assessment has greatly increased in dental research.

The purpose of study was to determine oral health-related quality of life in adults with malocclusion and its relationship with perceived oral health status and satisfaction. This crossectional study was conducted at orthodontics department, de'Montmorency College of Dentistry, Lahore from January 2015 to May 2015. The sample comprised of 100 adults (34 males and 66 females) with age range of 18 – 25 years and willing to participate in the study. The oral examination was done by three examiners to assess severity of malocclusion according to Dental Aesthetic Index (DAI). Information regarding oral health-related quality of life was collected by using a self-administered questionnaire. The results of study showed that males have highest Oral Health Impact Profile related to psychological problems followed by social and physical impacts whereas in females the highest impact profile was observed on social impacts followed by physical and psychological impacts. Body Satisfactory Scale was almost double in females as compared to males. Mean values from grade 1 to 1V DAI for females were non- significantly increased as compared to males. It was concluded that most common Oral Health Impact Profile of malocclusion was psychological and social followed by physical discomfort in males whereas females show highest impact profile on social followed by physical and psychological impacts.

Key Words: *Oral Health Impact Profile, Malocclusion, Dental Aesthetic Index.*

INTRODUCTION

Malocclusion is the second most common dental disease in children and young adults next to dental caries.[1] The prevalence of malocclusion varies among different age groups, gender and area of residence. The incidence of malocclusion has been reported to vary from 11% up to 93%.[2,3] High prevalence of malocclusion negatively affect individual's quality of life, especially in children and adults.[4]

[1] Dr Alizeh Abbas Gardezi, BDS, FCPS Resident, Department of Orthodontics, de,Montmorency College of Dentistry / Punjab Dental Hospital, Lahore. Cell: 0334-4121087
Email: dr_alizehgardezi@hotmail.com
[2] **Corresponding Author:** Dr Arfan-ul-Haq, Associate Professor. Department of Orthodontics, de,Montmorency College of Dentistry / Punjab Dental Hospital, Lahore, 385/F-2, Johar Town, Lahore Cell: 03334207669 Email: Ortho.irfanulhaq@gmail.com
[3] Dr Khalid Hussain, BDS, MCPS, Assistant Professor, Community Dentistry, de,Montmorency College of Dentistry, Lahore
Cell: 0333-4216862
[4] Dr Sameen Irfan, BDS, Clinical Observer, Irfan Dental Clinic, 3-Race Course Road, Lahore Email: sisameen@gmail.com

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Malocclusion based on developmental anomalies, crowded, irregular and protruding teeth collectively as well as anomalies in tooth number, shape, and position may lead to the disturbances in maxillary and mandibular arch length and occlusion complicating orthodontic treatment planning. Malocclusions and dentofacial deformities not only affect oral function and appearance but also have an influence on physical, social, and psychological aspects.[5]

Malocclusion has a negative impact on oral health related quality of life. Questionnaires based on quality of life (QOL) may help to provide information on specific aspects like psychological, social and physical problems which may affect routine pattern of life of orthodontic patients.[6,7] The most frequent impacts in the patients were "painful aching" and "been self-conscious," respectively.[8]

Oral health related quality of life (OHrQOL) based on orthodontic problems associated with poor periodon-

tal condition, impaired masticatory function, increased fear for dental look based on physical appearance are considered as health problems.[9,10] An impact of malocclusion on oral health-related quality of life of especially young adults is also reported. Furthermore, the subjects with more severe malocclusion and dentofacial deformities are more likely to report oral impacts on quality of life than those with milder malocclusion.[11,12]

Demand for orthodontic treatment is motivated by personal concerns including appearance, social and psychological factor as well as dental disorders. Dental disorders include eating restrictions, pain, discomfort, and aesthetic dissatisfaction. Similarly the impact of oral and facial pain on quality of life is exhibited by work loss, sleep disturbances, change in dietary habits, staying home and reduction of social contact. Such measures on oral health related quality of life may need a proper treatment.[13]

The neglect of oral health strengthens the impact of social deprivation on the health of an individual. Interest in the outcome of oral health related problems has been the subject of interest over the past ten years. Researchers related to health care have recognized that the assessment of oral health outcomes is necessary for planning oral healthcare programs. Changes in quality of life with relation to orthodontic treatment have been studied more in children and adolescents than in adult people. Assessment of patients own perception regarding their oral health is of prime importance as it markedly differs from the opinion of the treating clinician.[13]

Orthodontists in routine have focused on the clinical-centred measures of outcome for orthodontic treatment, but now, attention to patient-based assessment has greatly increased in dental research.[14] However it is suggested that health problems may affect quality of life but such a consequence is not inevitable. Studies found that poor health does not inevitably mean poor quality of life, individual attitudes are not constant; vary with time by coping expectancy and adaptation.[13]

As the malocclusion with various levels of severity has remarkable effect on oral health-related quality of life in adults and relationship with perceived oral health status and satisfaction. Hence, an attempt was made to assess oral health-related quality of life in adults with malocclusion and to determine its relationship with perceived oral health status and satisfaction. However, further studies are required on larger sample with more detail.

METHODOLOGY

This cross sectional study was conducted on a sample of 100 adult patients who were attending orthodontic department, de,Montmorency College of Dentistry/ Punjab Dental Hospital, Lahore. Duration of study was January 2015 to May 2015. Sample was collected by using non probability convenience sampling technique.

Inclusion Criteria: Adult patients aged 18-25 years, willing to participate in the study, had undergone no prior orthodontic treatment and with all permanent teeth present except third molars were included in the study.

Exclusion criteria: Patients with missing first molars due to congenital/ pathological reasons, requiring surgical intervention, with chronic medical conditions, with very poor periodontal status, with untreated deep carious lesions and patients with dentofacial deformities.

The oral examination was done by three examiners using sterile mouth mirror and WHO probe on a dental unit. Dental Aesthetic index (DAI) recommended by WHO, was used for assessing the severity of malocclusion. 15 Information was collected using a self-administered questionnaire. Questionnaire based on Oral Health Impact Profile (OHIP) including social, physical and dental impact was filled by each participant. The questionnaire was divided into two sections. Section A dealt with the subject's perceived oral health status

TABLE 1: MALOCCLUSION AND ITS SEVERITY ACCORDING TO DENTAL AESTHETIC INDEX (DAI) SCORE

DAI score	Severity of malocclusion
<25	No malocclusion or minor malocclusion
26-30	Definite malocclusion
31-35	Severe malocclusion
36 and above	Very severe malocclusion

Table courtesy from Annarosa Scapinia et al[15]

TABLE 2: ASSESSMENT OF OHIP AND BSS IN MALE AND FEMALES

Parameters	Male (34)	Females (66)
OHIP		
Social aspects	28.57%	35.41%
Physical aspects	31.93%	32.5%
Psychological aspects	39.49%	32.8%
BSS scale	47%	90%

TABLE 3: DENTAL AESTHETIC INDEX (DAI) SCORE IN MALE AND FEMALE SUBJECT

DAI score	Males (34) (Min-Max)	Males Mean (SD)	Females (66) (Min-Max)	Females Mean (SD)
Grade 1 (<25)	17-25 (18)	21.70±2.8	18-25 (25)	23.05±2.1
Grade 11 (26-30)	26-29 (9)	27.83±2.14	26-30 (16)	27.90±2.4
Grade 111 (31-35)	31-35 (4)	33.75±1.7	31-35 (15)	31.20±1.4
Grade 1V (>35)	36-43 (3)	40.33±2.1	36-60 (10)	43.67±2.81

No. of cases in parenthesis (Total 100)

TABLE 4: DENTAL AESTHETIC INDEX (DAI) SCORE IN MALE AND FEMALE SUBJECT

DAI score	Males Mean (SD)	Females Mean (SD)	DF (Males) (n-1)	DF (Females) (n-1)	t-value	P-value
Grade 1 (<25)	21.70±2.8	23.05±2.1	17	24	1.28	>0.05
Grade 11 (26-30)	27.83±2.14	27.90±2.4	08	15	0.06	>0.05
Grade 111 (31-35)	33.75±1.7	31.20±1.4	03	14	3.4	<0.001
Grade 1V (>35)	40.33±2.1	43.67±2.81	02	9	0.95	>0.05

P>0.05= Non significant difference
P<0.001= Significant difference
No. of cases in parenthesis (Total 100)

while Sections B was related to their satisfaction with oral health as Body Satisfactory Scale (BSS scale).[16,17] An informed consent was taken from each patient.

DATA COLLECTION PROCEDURE

The data on malocclusion was collected using the criteria of Dental Aesthetic Index (DAI). Based on the DAI score, the subjects were assigned one of the four categories suggesting a severity grade as shown in (Table 1). The data on Oral Health Impact Profile (OHIP) and Body Satisfactory Scale (BSS) was collected using a self-administered questionnaire filled by each patient.

STATISTICAL ANALYSIS

Data analysis was carried out using SPSS version 18. Frequency, percentages, mean and standard deviation were calculated. Paired t-test was used to analyze the data and the level of significance was at <0.05.

RESULTS

Oral health impact profile (OHIP) was based on social, physical and psychological factors associated with 34 male and 66 female patients. The male sample showed 28.57% social problems, 31.93% physical problems based on pain, sore jaws etc. and 39.49% psychological problems including embarrassment, mental disturbance etc. Body Satisfactory Scale (BSS scale) was 47% in males. On the other hand, it was observed that among females, social problems 35.41%, physical problems based on pain, sore jaws etc. 32.5% and psychological problems including embarrassment, mental disturbance etc. were 32.08%. Body Satisfactory Scale was 90% in females, which means that females show more un-satisfaction due to malocclusion (Table 2).

Table 3 shows frequency of male and females distribution according to Dental Aesthetic index (DAI) score with minimum and maximum values along with their mean and standard deviations (SD). Table 4 represents descriptive statistics including mean±SD, degree of freedom, t-value and p-value for male and females according to DAI grade I to IV. Mean values from grade 1 to grade 1V of females except grade 111 were non- significantly increased as compared to mean values of these DAI grades for males. On the other hand mean value of grade 111 DAI for males was significantly increased (P <0.001) as compared to grade 111 DAI of females.

DISCUSSION

Oral health-related quality of life measures are being used in research on both children and adults. Younger people and university students report higher levels of impact. Their perceptions of general and oral well-being, physical, social, and psychological functioning are correlated with overall oral health-related quality of life.[18]

Present study observed that oral health impact profile including social problems, physical problems based on pain, sore jaws etc. psychological problems including embarrassment, mental disturbance etc. were less in males than females. Another study conducted by Gift and Atchison reported that the prevalence of definite and severe malocclusion and higher DAI score was more in females than males.[19]

Perceived psychosocial impact of dental aesthetics is related to severity of malocclusion. Questionnaires based on oral health impact profile may provide useful information on specific aspects of orthodontic patient's psychological state.[20] Present study showed that in males there is highest impact related to psychological problems followed by social and physical impacts where as in females the highest impact was observed on social followed by physical and psychological impacts. According to another study the socio-dental approach combines normative and psychosocial perception of occlusion and there is a need to measure patient's views based on OHIP.[21] Another study conducted by Kolawole, Agbaje and Otuyemi concluded that social interactions having negative effect on self- image, career advancement, and peer-group acceptance; all been associated with an unacceptable dental appearance.[22]

Differences in the quality of life of individuals with varying degrees of dental aesthetics and different levels of treatment need were identified by the PIDAQ (Psychosocial Impact of Dental Aesthetics Questionnaire, which is based on dental self-confidence.[23] According to our study Body Satisfaction Scale was almost double in females as compared to males i.e. females were more unsatisfied with their oral health. It is reported that changes in oral health-related quality of life components of severity, psychological discomfort, and psychological disability correlated positively with the changes in aesthetic satisfaction.[24]

Our study is in agreement with the studies which reported that malocclusion is a key factor associated with poor quality of life caused by limited oral function, pain, and social disability in young adults.[25] Another study observed that malocclusion has a significant negative effect on OHIP. This is greatest for the psychological discomfort and psychological disability domains.[26] However, another study reported that among women the occlusal characteristics were not directly associated with oral health-related quality of life or facial pain while, the occlusal characteristics were directly associated with oral health-related quality of life among men.[27]

CONCLUSION

The most common oral health impact profile of malocclusion was psychological and social discomfort followed by physical discomfort due to food getting stuck in males whereas females showed highest impact profile on social followed by physical and psychological impacts. However, effects of malocclusion on quality of life, has yet to be clearly demonstrated. Further studies are required to verify the claim based on outcomes of oral disorders as perceived by patients.

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CONTRIBUTION BY AUTHORS

1 Alizeh Abbas Gardezi:	Main article writer.
2 Arfan-ul-Haq:	Title selection, helped in data collection.
3 Khalid Hussain:	Helped in data analysis.
4 Sameen Irfan:	Helped in proof reading.