ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 07 | July - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# PHYCHOSOCIAL IMPACT OF MALOCCLUSION ON PATIENTS SEEKING ORTHODONTIC TREATMENT AMONG GUJARATI POPULATION

Orthodontics

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## ABSTRACT

**Objective:** To evaluate the psychosocial impact of malocclusion on a patient seeking orthodontic treatment among Gujarati population. **Methods:** A sample of 190 patients (100 female and 90 male) presenting for orthodontic treatment were selected prospectively from Gujarat. intraoral examination was done by calibrated examiners, The Psychosocial effect of Dental Aesthetics was measured by using the Psychosocial impact of Dental Aesthetic questionnaire (PIDAQ). patients were requested to complete the Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ), which was added by a few additional items. The data were analysed using Chi-square, Student's t-tests and ANOVA. **Result:** The questionnaire demonstrated good reliability, Total psychological impact and particularly social impact were significantly greater among those older than 18 years (p =0.017) and dental self-confidence was significantly higher among females than males (p = 0.052). Self-perceived malocclusion had a significant positive association with aesthetic concern. **Conclusions:** Malocclusion has a Negative impact on psychosocial well-being of patients; The psychological impact is greater in females as compared to males.

## KEYWORDS

Phychosocial Impact, Malocclusion, Orthodontic Treatment

## INTRODUCTION

Although malocclusion in itself is neither a life-threatening condition nor a disease, there has long been a marked demand for orthodontic care.[1,2] In an attempt to prioritize the treatment of malocclusion, various occlusal indices have been developed based on the severity of malocclusion and/or the destruction it may cause to the oral health if left untreated.[3-6] However, it has long been recognized that people seek and undergo orthodontic treatment not because of the anatomic irregularities or to prevent the destruction of tissue within the oral cavity, but because of the consequences of the aesthetic concern caused by malocclusion[7]. Orthodontic treatment is undertaken most commonly during adolescence and young adulthood. Coincidentally, patients in these age groups are acutely aware of their appearance, recognise any physical deviation from normal, and are more concerned about their social position and independence.[8] Hence the expectation that adolescents and youth with untreated malocclusion will experience psychological and social impact and poor oral health-related quality of life. The psychosocial impact of Dental Aesthetic Questionnaire (PIDAQ) is a tool that provide information on one aspect of Quality of life (OHRQoL) and this self-rating instrument was designed to assess the Psychosocial Impact of Dental Aesthetics in Young adults.[9,10,11] The aim of this study is therefore to evaluate the psychological impact of malocclusion on a patients seeking orthodontic treatment on Gujarati population.

## MATERIALS AND METHODS

The study was composed of 190 participants aged group of 13-28, participants were selected from 200 patients undergoing orthodontic treatment from different colleges of Gujarat.

### Assessment Of Normative Malocclusion And Self-perceived Malocclusion

The clinical assessments of patients were undertaken by calibrated orthodontist. The normative assessment for malocclusion was done using clinical examination, model Analysis and cephalometric radiographs. Any missing teeth in the oral cavity were excluded from the study. Following this assessment, patients were classified into mild, moderate or severe malocclusion, and as needing simple to complex clinical intervention. To evaluate self-perceived malocclusion, few previously tested questions from different questionnaires were incorporated into the PIDAQ which was then completed by the study participants,[10,11] The PIDAQ questionnaire was specifically designed to assess the psychosocial impact of dental esthetics In young adults.[9] This psychometric instrument is composed of 23 items and four subscales one of them is positive and three are negative. The Dental Self Confidence Index (DSC:6 items), Aesthetic Concern (AC:3 items), Psychological Impact (PI:6 items) and Social Impact (SI:8 items). Questions such as: "how do you feel about appearance of your teeth" and "do you cover your mouth because of appearance of your teeth" were applied to evaluate the perception of participants of their malocclusion.[12]

The responses were recorded using a five-point Likert scale as 0=not at all, 1=a little, 2=somewhat, 3=strongly and 4=very strongly.[12] PIDAQ was translated into Gujarati by one orthodontist and one psychologist who were experts in English and it was translated back into English by two English teachers after modification and comparison, the final Gujarati version was prepared. Written informed consent was taken from all the participants for intraoral examination and the questionnaire survey.

### Statistical Analysis

Data were analysed using SPSS version 23.0. The participants were categorised into three groups according to the severity of malocclusions, mild, moderate and severe. Subscales and Additive scales for PIDAQ -23 were calculated by summing the responses to the various items. student's t-test was used to compare the psychosocial impact of malocclusion between two group mean differences, Analysis of variance was used for the mean difference between three or more groups ($p<0.05$) and chi-square was used to measure the proportions of the groups.

## RESULTS

A total of 190 participants agreed to undergo clinical examination and completed a structured questionnaire. By gender, (100) were female (52.63%) and 90 were male (47.3%), in terms of age, 51.5 %( 98) were younger than 18 years, with a mean age of 15.25. Based on normative evaluation of malocclusion, 72.1% (137) of participants were classified as having moderate to severe malocclusion and 28 % (53) of participants were classified as having mild malocclusion. A similar proportion (74,7%; n=142) of the study participants self-perceived their malocclusion to be moderate to severe and (25.3%; n=48) had mild malocclusion.

Table-1.Association between total PIDAQ scale and phychological impact sub scale and normative malocclusion and self -perceived malocclusion

| VARIABLE | CATEGORIES | DCS | SI | PI | AC | PIDAQ TOTAL |
|---|---|---|---|---|---|---|
| Age group | >18 | 10.12(6.70) | 12.73(7.22) | 15.43(6.37) | 7.67(4.35) | 43.63(12.89) |
| | <18 | 8.96(6.92) | 16.12(8.97) | 15.98(6.94) | 9.13(5.48) | 50.10(19.23) |
| P value | | 0.017* | 0.019* | 0.17 | 0.16 | 0.07* |
| Gender | Male | 9.23(7.65) | 12.86(7.87) | 14.25(6.21) | 7.63(4.96) | 42.31(15.67) |
| | Female | 11.34(6.97) | 14.64(8.54) | 15.56(7.10) | 8.51(5.42) | 49.47(18.37) |
| P value | | 0.052* | 0.24 | 0.16 | 0.22 | 0.05* |

| | | | | | | |
|---|---|---|---|---|---|---|
| SPM | Mild | 9.98(5.97) | 12.14(7.86) | 15.12(5.67) | 7.32(4.32) | 47.87(13.62) |
| | Moderate | 9.27(6.89) | 13.89(8.74) | 15.96(6.11) | 8.64(5.21) | 45.72(16.34) |
| | Severe | 8.33(6.85) | 14.98(8.10) | 16.45(6.47) | 8.95(4.91) | 46.26(15.28) |
| P value | | 0.34 | 0.29 | 0.57 | 0.043* | 0.86 |
| NM | Mild | 10.56(7.11) | 13.86(7.23) | 16.53(6.23) | 7.25(4.41) | 49.11(14.56) |
| | Moderate | 9.26(6.21) | 13.21(8.78) | 15.86(5.97) | 8.32(5.32) | 46.54(18.14) |
| | Severe | 8.89(6.10) | 13.10(7.22) | 16.12(6.89) | 7.83(5.76) | 44.62(15.75) |
| P value | | 0.31 | 0.91 | 0.33 | 0.78 | 0.54 |

*Statistically significant group differences $p \leq 0.05$. ; PIDAQ, Psychosocial Impact of Dental Aesthetics Questionnaire; DSC, dental self-confidence; SI, social impact; PI, psychological impact; AC, aesthetic concern; SPM, self -perceived malocclusion; NM, Normative malocclusion

The present study shows no statistically significant association between age and the Psychological impact except for total PIDAQ score, Dental self-confidence sub scale score and social impact sub-scale, For which those older than 18 had higher scores compared to age less than 18 years. No significant differences were also noted by gender in the total and sub-scales, except for DSC (Dental self-confidence) for which female reported significantly worse scores than male (p =0.052),(Table-1).

The mean score of the PIDAQ and its Sub-scales across the three categories of self-perceived and normative determined malocclusion were compared by one-way ANOVA. A significant association was found between categories of self-perceived malocclusion and aesthetic concern sub-scale (p=0.043). Aesthetic concerns were reported significantly lower in participants with mild self-perceived malocclusion as compared with moderate to severe self-perceived malocclusion. There is no significant difference between the total PIDAQ and its sub-scale with normative malocclusion.

## DISCUSSION

The present study included a representative sample, good reliability of the examiners, and a validated questionnaire to measure the psychosocial impact of malocclusion on patients seeking orthodontic treatment in Gujarati population.

Sardenberg et al.[10]and Lin et al.[11] have used PIDAQ to analyze the psychosocial impact of malocclusion in adolescents, The PIDAQ is a questionnaire specifically designed for assessing the psychosocial impact of dental aesthetics in young adults. Our study, similar to many, has evaluated the psychological impact of malocclusion on young adults.[9,13] This instrument was developed and tested on similar population groups and is composed of 23 items and four subscales.[10,11]This supports the present study related to PIDAQ. We found heightened perceptions of severe malocclusion by younger participants, similarly reported by Peres et al,[14] It has been found that increasingly, adolescents and the young report for orthodontic care primarily to address the aesthetic and social effects of malocclusion, and secondarily to manage functional problems.[15] The present study shows statistically significant differences in self-perception of malocclusion between genders. This result supports findings by Peres[15] but contradicts Other studies.[16] The literature that support present study results is that total PIDAQ and its subscales do not differ significantly by gender except DSC, The psychosocial impact of malocclusion is significantly greater in women than in men and affects their quality of life.

## CONCLUSION

Malocclusion has a significant negative impact on the psychosocial well-being of patients, especially for those older than 18 years. The psychological impact is greater in females as compared to males. The individual perceptions of their malocclusion had a greater impact on their psychosocial well-being,

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