

# Relationship of Personality Traits and Patient Satisfaction with Fixed Implant Prosthodontic Treatments

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## Abstract

**Background and Aim:** It is necessary to consider the personality traits of patients to predict their behavior in dental office. This study was performed to determine the effect of patients' personality traits on their degree of satisfaction with prosthetic-implant therapy.

**Materials and Methods:** In this study, 51 partially edentulous patients who had lost 1 to 4 maxillary premolars and 2 months had passed since their prosthetic treatment were selected by convenience sampling. The data collection tool was a researcher-designed questionnaire on satisfaction with fixed implant therapy and NEO five-factor inventory (NEO-FFI), the validity and reliability of which had been proven in previous studies. The relationship between the personality scores and satisfaction was analyzed by t-test and ANOVA. The significance level was set at  $P < 0.05$ .

**Results:** The mean score of satisfaction was  $34.3 \pm 4.37$ . The mean personality score was  $199.96 \pm 20.64$ . There was no significant relationship between the patient satisfaction and age or sex ( $P > 0.05$ ). The less educated patients were significantly more satisfied with their treatment ( $P = 0.041$ ). The highest mean score was found for acceptability and the lowest mean was reported for neuroticism. There was a significant relationship between taking responsibility and satisfaction ( $P = 0.026$ ).

**Conclusion:** The personality traits of individuals affected their satisfaction with the treatment, and the patients who were more responsible were more satisfied with their treatment outcome.

**Key Words:** Personal Satisfaction, Dental Implants, Prostheses and Implants, Surveys and Questionnaires

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## Introduction

Implant treatment is a suitable modality for replacement of the lost teeth. In addition to being an ideal treatment for dentists (1,2), the patient satisfaction with this treatment

modality is also high due to high comfort and optimal esthetics compared with other common prosthetic treatments (3). Many people feel that implant therapy improves their quality of life (4,5). Different studies reported that

implant-supported prosthetic treatments decreased the severity of psychiatric complications in patients (6,7). Meanwhile, Kiyak et al. (4) stated that people with psychological problems had less satisfaction with their implant-supported prosthetic treatments. In another study, Kent and Johns (6) stated that implant-supported prosthetic treatments were superior to common prosthetic treatments and had a greater impact on the mental health of individuals. Chapman et al. (8) also reported that personality assessment of the individuals before treatment could be useful in predicting their behavior after treatment, and might even change their treatment plan. Guckes et al. (9) found that people with neurological disorders had less satisfaction with routine prosthetic treatments. Fixed implant prosthetic treatment requires patients' collaboration and understanding of treatment conditions because this treatment requires special patient care and patients should cooperate with their dental clinician after treatment. This is important to maintain the patient's health (10). In addition, due to physical changes occurring in patients, they need psychiatric care during treatment, and their personality traits must be considered in order for the dentist to provide proper treatments. For example, behavioral features such as extroversion, compatibility with the environment, and anxiety level are factors that can affect the patients' satisfaction with treatment (11,12).

The NEO questionnaire is one tool for evaluation of behavioral characteristics. This questionnaire is one of the most valid questionnaires used in the field of psychology and has many characteristics, including easy scoring and interpretation for researchers and the possibility of including all five personality dimensions (13). Considering the scarcity of studies on the Iranian patient satisfaction with treatment in fixed implant prosthodontics, this study was designed to evaluate the effect of patients' behavioral characteristics on their degree of satisfaction with implant-prosthetic treatments. The null hypothesis was that there would be no significant relationship

between the personality traits and patient satisfaction with fixed implant treatments.

## Materials and Methods

The population of this descriptive-analytical study included patients referring to the clinics of the School of Dentistry of Isfahan University of Medical Sciences. The study protocol was approved by the ethics committee of Isfahan University of Medical Sciences (IR.MVI.REC.1396.3.091).

A total of 51 patients including 34 males (68%) and 17 females (32%) were enrolled using convenience sampling. The inclusion criteria were as follows: (I) All patients were examined by a prosthodontist to ensure that they met the criteria provided by Albrektsson et al, (14), (II) patients between 20 and 60 years, (III) patients with successful implant treatment, and (IV) patients requiring dental implants to replace their lost premolars (between 1 and 4 maxillary implants).

The exclusion criteria were as follows: (I) Patients with mental or physical conditions that were not able to complete the questionnaires and those with prosthetic treatments other than fixed implant therapy, (II) implant failure at any stage before the prosthetic treatment such as lack of osseointegration and mobility of fixture, gingivitis around the fixture, poor marginal adaptation of the tooth crown, inappropriate occlusion, porcelain chipping, or color mismatch, and (III) previous prosthetic implantation, and defect in the prosthetic treatment confirmed by a specialist.

The data collection tool was a questionnaire on satisfaction with fixed implant therapy and NEO five-factor inventory (NEO-FFI). The NEO questionnaire analyzes individuals in terms of neuroticism, extroversion, flexibility, consistency, and accountability. Neuroticism is the most effective area of personality, compatibility, or emotional stability with incompatibility or inferiority. Clinical experts have identified a variety of emotional distresses such as social scares, depression, and hostility in individuals, but those who are prone to one of these conditions may also experience other

conditions. The general tendency is to experience negative emotions such as fear, sadness, indignation, anger, feeling of guilt, and the overwhelming nature of the neuroticism set. Men and women with high neuroticism score are prone to illogical beliefs, are less able to control themselves, and are much weaker than others in struggling with stress (11). The satisfaction measurement questionnaire (15) and the NEO questionnaire (13) are two researcher-made questionnaires that have already been translated to Persian in Iran. The face validity and content validity of these questionnaires have been confirmed by dental practitioners (13, 15). The satisfaction questionnaire consists of two parts, including demographic questions and 15 questions about patient satisfaction. In this questionnaire, the questions are arranged such that the patient satisfaction with different aspects, including the efficiency of implantation, its function, its esthetics, the cleanliness and health of the implant, and the cost and time spent for treatment are analyzed separately. Likert scale was used in order to score and determine the patient satisfaction score. Thus, for each question, three answer choices were considered: (a) I agree, (b) I have no opinion, and (c) I disagree. Patients would be given a score of 3 when choosing (a), score 2 by choosing (b), and score 1 for option (c), with the exception of questions seven and nine where option (a) receives score 1, option (b) receives score 2, and option (c) receives score 3. Thus, scores 15-25 indicate low satisfaction, scores 25-35 represent average satisfaction, and scores 35-45 indicate high degree of satisfaction. After obtaining a written informed consent from the patients (written consent approved by Isfahan University of Medical Sciences), those who had sufficient literacy filled out the questionnaire in presence of the researcher. Subsequently, the researcher read the questions for the illiterate patients, and the necessary information was collected by the researcher. In this study, 51 partially edentulous patients who had lost 1 to 4 maxillary premolars, had undergone implant

surgery, and 2 months had passed since their prosthetic treatment were selected by convenience sampling. After introducing the purpose of the study and answering the questions, written informed consent was obtained and the questionnaires were provided to the patients. Finally, the relationship between the personality scores and satisfaction was analyzed by the related tools. The test-retest method was used to determine the reliability of the questionnaire, and the Cronbach's alpha coefficient was calculated to be  $\alpha=0.78$ .

## Results

The mean age of patients was  $34.56 \pm 6.43$  years, with a maximum age of 53 years and a minimum age of 24 years. Out of 51 patients, 3 were undergraduate (6%), 19 (38%) had high school diploma, 13 (26%) had college degree, 14 (28%) had bachelor's degree, and 1 (2%) had master's degree. The average score of satisfaction was  $34 \pm 4.34$ . The results showed no significant relationship between the patient satisfaction and age ( $P>0.05$ ). There was a significant relationship between patient satisfaction and education. Less educated patients were more satisfied with the treatment ( $P=0.041$ ).

The mean score of satisfaction was  $23.35 \pm 5.4$  in male patients and  $23.35 \pm 5.4$  in female patients; this difference was not statistically significant ( $P>0.05$ ).

Using the NEO questionnaire, the characteristics of the subjects were studied, indicating that the subjects were more extrovert and less neurotic (Table 1).

Assessment of the correlation of degree of satisfaction with treatment and the personality traits was done by the Pearson's correlation test. The results indicated a significant and direct relationship between responsibility and satisfaction ( $P<0.05$ ). No significant relationship was found between patient satisfaction and other personality traits ( $P>0.05$ , Table 2).

The content validity ratio for most questions was  $> 0.79$ , and the content validity index of all questions was  $> 0.79$ . The Cronbach's alpha coefficient was 0.78.

**Table 1.** Mean score of personality traits of patients

Traits	Mean	Standard deviation	Minimum	Maximum
Neuroticism	23.52	7.1	43	3
Extroversion	31.8	5.9	44	21
Responsiveness	26.96	5.64	45	15
Compatibility	28.58	5.76	40	18
Taking Responsibility	29.82	4.17	44	24

**Table 2.** Relationship of satisfaction and personality traits of patients

Personality traits	Correlation coefficient	P-value
Neuroticism	-0.04	0.779
Extroversion	0.25	0.071
Responsiveness	0.177	0.219
Compatibility	0.14	0.328
Taking Responsibility	0.315	0.026*

\*P&lt;0.05

## Discussion

In this study, the null hypothesis was rejected, since there was a significant relationship between taking responsibility and patient satisfaction. The present study examined the relationship of personality traits and individual satisfaction with fixed implant prosthodontic treatments. In this study, five areas of the personality traits, including neuroticism, extroversion, responsiveness, compatibility, and taking responsibility, as well as the satisfaction rate were investigated. According to the results of this study, the overall score of patient satisfaction was  $34.12 \pm 4.37$ , which was in the range of high satisfaction and consistent with the results of Al-Omiri et al (16). Keles and Bos (17) reported the highest level of satisfaction with dental and facial appearance and patient-dentist relationship.

The level of satisfaction with the quality of care was 80% in our study. Pjetursson et al. (18) evaluated the patient satisfaction after implant

therapy in a 10-year prospective study. The results showed that more than 90% of the patients were satisfied with both the implant function and its esthetics. In the present study, there was no relationship between the patient satisfaction and gender, which was in line with the results of a study by Jalayer et al, (19) who evaluated the satisfaction rate of patients referred to the School of Dentistry at Shahed University. This finding suggests that both genders have the same healthcare expectations. Also, the results of our study were in agreement with the findings of Ghaleh et al, (20) who investigated the patient satisfaction with the dental clinics of Islamic Azad University of Tehran. In their study, there was no relationship between the patient satisfaction and age, gender, or socioeconomic status. But the results of our study on education were contradictory to the previously published studies (14,17) Perhaps this contradiction is related to the different socioeconomic classes of

patients referring to the dental clinics (low-income individuals and sometimes university students).

In our study, personality traits were investigated in five areas (neuroticism, extroversion, responsiveness, compatibility, and taking responsibility). Regarding the personality traits of the patients, almost everyone was in the middle of the spectrum, the lowest mean score of personality traits was found for the neuroticism and the highest mean score was reported for responsiveness. According to the obtained results, as the degree of taking responsibility increased, the satisfaction rate also increased. The results regarding the personality traits in the present study agree with the reported literature (16). Kiyak et al. (4) concluded that people with a higher risk of neuroticism had less satisfaction with their treatment. However, there was no significant relationship between the degree of neuroticism and satisfaction in the present study.

Moreover, the study by Al-Omiri et al. (16) showed that individuals with a higher incidence of neuroticism had a lower degree of satisfaction with their treatment, which was not consistent with the results of our study. The findings of our study were not consistent with those of Al-Omiri and Karasneh (21) and Herrera et al (22) either. In the study by Al-Omiri and Karasneh (21), the patient satisfaction was correlated with the neurotic trait. Herrera et al. (22) did not find any significant relationship between any personality trait and satisfaction with treatment. In our study, those who acquired a higher score in taking responsibility were more satisfied with their treatment. This result is probably due to the morale of individuals in being responsible for their own health.

Al-Omiri et al. (16) investigated the relationship between the effect of the anterior maxilla on daily life satisfaction and personality and found that neuroticism might affect the individuals' perceptions of their teeth, which could have an important role in shaping the satisfaction of young individuals.

In the present study, there was no significant

correlation between satisfaction with treatment and gender. However, Shaw (23) who examined the factors affecting orthodontic tendency as well as Sheats et al, (24) who surveyed the students' perceptions of orthodontic treatment believed that women were less satisfied with their orthodontic treatment than men. This difference in studies can be due to the cultural and social differences between the two countries or difference in the age range of patients participating in the studies.

In the present study, the results showed that age and gender did not have a role in patient satisfaction. This finding was consistent with the results of studies by Al-Omiri et al, (16) and Gholizadeh et al, (25) who investigated the factors affecting the patient satisfaction. But this result was contrary to the findings of Bos et al, (26) who examined the patients' expectations from orthodontic treatment, Gosney (27) who examined the factors affecting the tendency toward orthodontics, Noorossana et al, (28) who investigated the satisfaction of patients referring to a dental clinic seeking dental treatment, and Al-Omiri et al (16). This difference could be explained by the differences in the age range of participants because the age range in the current study was from 24 to 53 years.

One of the limitations of this study was poor cooperation of some patients. Another limitation was small sample size. Therefore, further studies are needed on a larger sample size in order for the results to be more generalizable. Furthermore, other items that affect satisfaction can be included and reviewed in a more comprehensive questionnaire.

## Conclusion

The personality traits of individuals affect their satisfaction with treatment, and patients with more responsibility are more satisfied with their treatment. Age and gender have no role in patient satisfaction with treatment. The results of this study can be used to train the dentists. Also, it can be concluded that if this questionnaire is used before the patient treatment, one can somewhat predict patient satisfaction with the treatment and devise

different strategies to increase patient satisfaction.

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