

CORRELATION BETWEEN PSYCHOLOGICAL FACTORS AND THE PATIENT'S ADAPTATION TO REMOVABLE DENTURES

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ABSTRACT

The aim of the present study was to find out the correlation between the psychological factors of personality and the patients' ability to tolerate clinically satisfactory complete dentures.

Patients were chosen from those who had received new sets of complete dentures that were constructed in the prosthodontic clinic of Queen Alia Hospital within a two-year period. Personality evaluation was conducted via the personality questionnaire (NEO-FFI), which is a 60 item profile covering five domains of personality, and was completed by the psychologist at the same hospital. Denture satisfaction, on the other hand, was graded using a five item scale with five- Likert type responses each, and was completed by the prosthodontist. Correlation between the two factors was determined using Pearson's correlation analysis.

Weak statistical correlation was found between the two main elements of study: personality factors and denture satisfaction.

This study suggests less concentration on personality type during a denture satisfaction procedure.

Key Words: *psychological factors, removable dentures, adaptation.*

INTRODUCTION

The main objectives of complete denture construction are to provide the patients with pleasing appearance prosthesis, preserve their normal speech, supply them with adequate means of the mastication, and to provide sufficient occlusal support. Additionally, dentures should be comfortable and should maintain the health of the residual hard and soft tissues.¹ While most patients will usually express their satisfaction with their complete dentures, others can have a list of complaints and make very frequent recall visits to their dentists.^{2,3} Common complaints are generally in the area of pain, pressure, looseness, and appearance.⁴

The roles of both psychological and technical factors in the acceptance of complete dentures have been studied⁵⁻⁸ for long periods of time. The relationship between the personality type and the patient satisfaction has always resulted in contradictory outcomes. This might be due to the fact that many personality tests that are used in these studies might be criticized for their reliability and/or validity. Reliability, defined as the extent to which the outcome of a test remains unaffected by irrelevant variations and procedures of testing, addresses the extent to which test scores obtained by a person are the same if the person is re-examined by the same test on a different occasion. While validity refers that the test actually does measure what it claims to assess. In other words, it can be considered as a measurement of the appropriateness and usefulness of the test.⁹

The NEO Personality Inventory (NEO-PI-R) which was first developed by Costa & Mc Crae in 1992 describes the five basic personality domains using a 240 item questionnaire, each of these five personality domains, is further described using six specific facets. In personality research, facet analysis provides a useful way to characterize the scales or the factors this inventory has been widely utilized in interpreting the nature of personalities for research and clinical pur-

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poses.⁹ The NEO-FFI personality inventory which is a 60 item questionnaire (12 items per domain), has been then directly taken from the NEO-PI-R, and provides a quick, reliable, and precise measure of the five major personality traits, using a five point Likert format.¹⁰

The five domains (factors) which are assessed by the NEO-FFI and give a general description of personality include:

- Neuroticism (NEO N).
- Openness to Experience (NEO O).
- Agreeableness (NEO A).
- Extraversion (NEO E).
- Conscientiousness (NEO C).

NEO-FFI is designed to take 10-15 minutes to complete rather than 45-60 minutes for the original one. It is therefore practicable when time is limited. It is also appropriate for both sexes and all ages, and has been proven to be practical and valid in many clinical and research applications.¹¹⁻¹³ The NEO-FFI has been translated into several different languages and shown validity and utility in a number of different fields. It was selected for this survey due to its comprehensiveness, validity, reliability, and simplicity.

METHODOLOGY

Ethical approval for this study was given by the Research Ethical Committee, Royal Medical Services, Jordan. Patients were informed and assured that all information they will give are strictly confidential and will only be used for research purposes.

All patients had been provided with their complete dentures within the period between October 2012 and March 2014 by the prosthodontic clinic in dental department of Queen Alia Hospital, and given at least three months period to adapt to them. All selected patients were carefully chosen to be medically fit to avoid that their general health will adversely affect their satisfaction with dentures. 102 patients were contacted at the beginning, 83 of them showed to be in a good medical condition by taking thorough medical and drug history. They were further examined by the prosthodontic specialist who evaluated their oral conditions and the quality of their dentures in terms of retention, stability, border extension, the vertical dimension, jaw relationship, occlusion, finishing, and esthetics. Accordingly, 23 patients of these were excluded as the examination brought out some unacceptable technical mistakes, getting the final study group to be consisted of 60 medically fit patients with dentures that are clinically satisfactory.

Subsequently, denture satisfaction by the patients was evaluated using a denture satisfaction questionnaire which covers five denture criteria: retention of the maxillary denture, retention of the mandibular denture, ability to chew, speaking, and general appearance. It is a five-point Likert-type scale, meaning that the

patient had to grade his satisfaction into five grades: very good, good, medium, bad, and very bad. Side by side, NEO-FFI form was filled to evaluate the five major personality domains in the patients' personality.

Both forms; the NEO-FFI and the denture satisfaction questionnaire were completed by the research team (prosthodontist and psychologist) as a large percentage of patients had little acquaintance with reading and writing.

Pearson's correlation was chosen for this study to find the relation between the two resulting scores; denture satisfaction scores and NEO-FFI score. It is a widely used statistical method of the linear correlation between any two variables, resulting in a quantity between +1 and -1, where +1 is where a totally positive correlation exists, 0 where there is no correlation at all, and -1 is a totally negative correlation between the variables.

RESULTS

Of the sixty patients who were medically fit to participate and owned clinically acceptable complete dentures, 27 were females and 33 were males. T-test was used to study the difference in means between the males and the females regarding their satisfaction, and it was found to be insignificant, although the mean was higher for the females as shown in Table 1.

The ages ranged between 46 and 72 years. Pearson's correlation was calculated and was 0.095 between the denture satisfaction and the patient's age, which is considered statistically insignificant.

The frequencies of the five domains of personality in the sample patients were shown in Table 2; and can be summarized as follows: In the Neuroticism domain 77% of patients scored within the lower area of the score, meaning that they are calmer and relaxed, they showed less emotional reactions, and were generally free from persistent negative feelings. At the other end of the scale those who scored high, are emotionally reactive and obviously more vulnerable to stress, their negative emotional reactions tend to persist more, which leads to being more often in a bad mood.

For Openness, 47% of the sample fell within the normal range, meaning that they are intellectually special, open to emotions, and more aware of the others feelings. They are often more likely to hold unconventional beliefs, generally interested in art, and willing to try new things, while the other 53% tended to have more conventional and traditional concerns. They used to prefer the straightforward, clear options in their lives over the complex and subtle ones. They may regard the arts with suspicion or view it as uninteresting.

For Extraversion domain, All the patients were inside the normal range which is characterized by breadth of activities (as opposed to depth), and a noticeable engagement with the surrounding world. They liked interacting with individuals, talking to them, and possessed high group visibility.

TABLE 1: T-TEST FOR THE GENDER

Group	Number	Mean	Standard deviation	T value	Significance
Females	27	19.5	5.5	0.16	0.34
Males	33	19.3	5.2		

TABLE 2: FREQUENCIES OF PERSONALITY DOMAINS IN PATIENTS

Neuroticism (NEO N)	23%	Nervous, sensitive: Have the tendency to easily experience longer term unpleasant emotions. Like anger, depression, and anxiety.
	77%	Confident, Secure: Emotionally stable, calm and relax. free from persistent unpleasant feelings,
Openness to experience (NEO O)	47%	Inventive and Curious: Imaginative. Appreciate art, adventure, unusual ideas over strict routine.
	53%	Consistent, Cautious: have more consistent and traditional interests. Not interested in arts.
Extraversion (NEO E) الانبساط	100%	Outgoing, Energetic: have positive emotions, assertiveness, and tendency to seek stimulation in the company of other people.
	0%	Introvert: take pleasure in solitary activities, more analytical before speaking; prefer a quiet, minimally stimulating external environment.
Agreeableness (NEO A) الطيبة	98%	Compassionate, Cooperative: tend to be well-tempered friendly, trusting, and helpful.
	2%	Detached, Analytical: antagonistic and suspicious toward other people.
Conscientiousness (NEO C) الضمير	100%	Efficient, Organized. Organized and dependable. aim for achievement, act dutifully, and plan for work
	0%	Easy-going, Careless: tend to behave spontaneously.

TABLE 3: PEARSON'S CORRELATION BETWEEN PERSONALITY DOMAINS AND DENTURE SATISFACTION

Personality domain	Correlation with satisfaction
Neuroticism	-0.034
Extraversion	0.207
Openness	0.087
Agreeableness	-0.086
Conscientiousness	-0.002

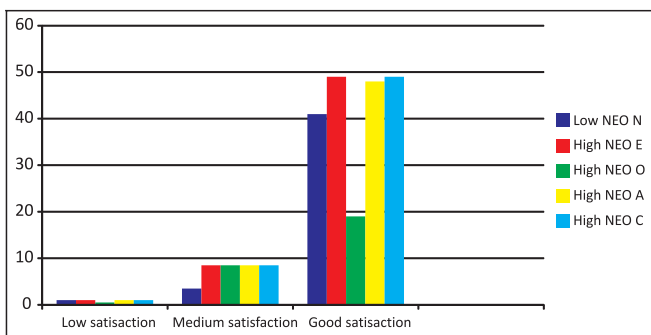


Fig 1: Frequencies of acceptance according to personality types

Ninety eight percent were within normal for Agreeableness, meaning that they evaluate getting along with people, and generally consider their rights and feelings; they are generally kind, generous, trustful and trustworthy. The remaining 2%, on the contrary, place self-interest above getting along with others. They are generally less concerned with other people.

100% scored high within the Conscientiousness domain indicating an absolute tendency towards planning and oriented behavior rather than a spontaneous or unorganized one.

It can be pointed out from the previous table that most of the patients in the sample had got high levels of Agreeableness, all of them had high levels of Extraversion, and Conscientiousness, and a small percentage had got Neuroticism. And regarding the Openness to experience, more than the half of the sample have more traditional and conventional thoughts.

Denture satisfaction scores were calculated for each patient according to the five criteria: retention of the upper denture, retention of the lower denture, speaking, the ability to chew, and appearance. According to these criteria, the lowest satisfaction score marked between the patients was 5, while the highest one was 25 (full score) with a mean of 19.

Percentages of patient's satisfaction were calculated for the patients, and it was found out that most of

them were satisfied 83.3% with a percentage of, while 15% had medium satisfaction, and 1.7% had scored low in the denture satisfaction score. This indicates a high satisfaction rate in general from the side of the patients.

Pearson's correlation was used to correlate the different personality domains and general denture satisfaction scores. The results are shown in Table 3 and can be summarized as follows: Negative correlations were found between the general denture satisfaction and each of Neuroticism (NEO-N), Agreeability (NEO-A), and Conscientiousness domains (NEO-N), and positive ones with Extraversion (NEO-E) and Openness (NEO-O). Still, all of these are considered weak correlations, and lack significance.

DISCUSSION

Loss of teeth can lead to adverse esthetic, nutritional, and biomechanical sequelae. In addition, and as edentulousness had always used to be linked with elderliness, the loss of youth, femininity, and virility, patients usually seek for solutions for this condition, this necessitates a satisfactory treatment for this condition to always be available.¹⁴⁻¹⁶

Despite the fact that implant dentistry had gained a worldwide acceptance as a successful treatment for edentulousness and proved to significantly reduce stresses of a removable restoration on the patients, the high costs of this treatment, and the possible poor medical condition combined with the need for surgical steps might prevent many to seek such an option, this indicates that they still need the conventional dentures to meet their needs.¹⁷ In addition to that, Douglass et al suggested that the number of adult individuals in need for one or two ordinary complete dentures is increasing from 33.6 million adults in 1991 to 37.9 million adults in 2020 in USA with the continuous increase in population, pointing to staying in need for studying and investigating this less time-consuming, less expensive, and minimal risks treatment modality: complete dentures.¹⁸

Consequently, lots of research has been undertaken in attempts to explain why some patients face more difficulties wearing complete dentures than the others, in attempts to avoid the cases or factors that prove to lead to dissatisfaction or try to correct them, and reinforce any positive elements that might help ahead. To start with, research is divided on the importance of medical and psychological factors into two groups.

With the first group of researchers, considering personality factors with their different components and traits as significant factors affecting denture satisfaction. Reeve et al studied patients treated by students and found that dissatisfaction links to the personality traits that generally are less smart, more self-centered and are more meticulous¹⁹, in addition, Bolender et al researched a sample containing patients from a teaching hospital and a number of referred patients and found out that the dissatisfied patients frequently go through

negative feelings and moods.²⁰ Other researchers even added that founding a good relationship with the patient seems to be more important than a technically perfect denture construction for attaining patients' satisfaction.^{21,22}

Shaimaa M. Fouda concluded that personality traits had a significant effect on patients' satisfaction with their relined complete dentures with increasing their vertical dimension, with Neuroticism high scores associated with less satisfaction.²³ Ali Kemal Ozdimir, using Type A Behavior Pattern Test, found an effect of the personality type on the acceptance of complete dentures, with lowest satisfaction scores with a group of patients with stress-sensitive characteristics in their personalities.²⁴ Mircea Suciuc reached to the same conclusion using the same personality test.²⁵ Nairn et al using The Cornell Medical Index (CMI) found that patients who scored higher for Neuroticism, were more difficult to satisfy and had more complains.²⁶ Additionally, Watson CJ et al used a different questionnaire: Cattells 16 PF and concluded a significant relationship between denture dissatisfaction emotional instability, depression, and apprehensiveness.²⁷

The other group of researchers found out that the satisfaction with dentures for most patients is unpredictable and suggests that the personalities of patients have nothing to do with treatment success and patients adaptation to their dentures. Smith et al and using a shortened version of the Minnesota Multiphasic Personality Inventory (MMPI) to measure personality traits that included hysteria, depression, and anxiety in patients just prior to receiving their dentures. There was no significant relation between any of the mentioned traits of MMPI and the patient's satisfaction with their dentures.²⁸ Brunello et al found no significant relationship between medical and psychological status of the patient with denture satisfaction, they noticed significant relationship instead, with denture design faults and/or poor mucosal conditions, and they proposed that the technical quality of the denture is the most important factor.²⁹ Marinus AJ et al and using a neurotic liability scale stated that, the patient's personality appear to be an unimportant factor, and he linked the variability in satisfaction with complete dentures to the patients attitude toward their new dentures (at fitting stage), oral health and conditions, the quality of the fitted dentures, and to the number of former dentures worn.³⁰ Furthermore, Girish Galagali et al concluded a positive correlation between patient's attitude before and at the time of receiving the denture and their satisfaction with the new denture, rather than their personality type.³¹ Guckes et al found no relation between the patients' satisfaction and their dominant personality traits using the Eysenck personality inventory.³² A great part of this contradiction might be related to the nature of the questionnaires used for personality analyzing, whether they are suitable for the studied population or not, or they might be designed for clinical purposes rather than personality testing, moreover some personality tests lack validity and /or

reliability. Another possible cause for this opposition is the different pain threshold or esthetic perception between different patients.

The results of this study, using NEO- FFI found out a weak correlation that is statistically insignificant between each of the personality traits, age, or gender and the acceptance of the complete dentures.

CONCLUSION

Relying on the results of this study, it is found that little correlation is present between the denture satisfaction and the personality of the patient, this suggests less concentration on this part at pre treatment planning stage, more emphasis might be directed towards the technical quality, or the patients education trying to enable them to adapt to this new manner of mastication and function before and through the treatment stages. And even giving some more concentration on the recall visits, which can be sometimes underestimated by some practitioners.

Future studies are suggested to be towards pre-treatment education, management of unfavorable intraoral conditions, and the quality and time spent with the patient at his first recall visit.

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It is sincerely regretted that due to international compulsions "People & Events" column could not be published in this issue.

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