

## THE INFLUENCE OF PERSONALITY TYPE IN THE PSYCHOLOGICAL ASSIMILATION OF PARTIAL AND FULL DENTURES

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*Abstract: Edentulism, as a physiopathological state of the organism, has a sustained impact on the quality of life of denture wearers through biological, physiological and esthetic disorders, with direct influence over the patient's psychic. Patient's expectations from the future prosthetic represent important criteria in accepting and psychically integrating it.*

*The main purpose of the present study was to determine the impact of the personality type over partial or complete denture wearers' satisfaction.*

*In a group of 150 patients, 69,33% (104) women and 30,66% (46) men, aged between 30 and 98, wearing complete or partial dentures, a questionnaire was used to determine the type of personality and degree of satisfaction regarding the prosthetic. Objective evaluation of the personality type was made using a modified version of the Type A Behavior Pattern Test. The psycho-cortical assimilation was determined indirectly by measuring the degree of satisfaction regarding the main functions restored by the denture, using a modified version of the Oral Health Impact Profile.*

*Statistically significant high levels of dissatisfaction resulted in Type A personality and women's group regarding aesthetics. Also, speaking and mastication determined statistically significant results in type B compared to types A and AB for patients over 64 years.*

*Knowing the personality type may predict the appearance of psychic and psychological symptoms in dental patients, drawing attention to modifications of the degree of satisfaction shown.*

*Keywords: type A behavior pattern test, type of personality, patient satisfaction*

### Introduction

Edentulism, as a physiopathological state of the organism, has a deep impact on the quality of life of denture wearers through biological, physiological and aesthetic disorders, with direct influence over the patient's psychic.

Patient's expectations from the future prosthetic (regardless of the type, partial or complete) represent an important criteria in accepting and psychically integrating it. Most frequently, it is compared with natural teeth regarding stability, aesthetics and mastication. Different factors such as age, gender, education, profession, social status and environment, localization of edentulism and the type of personality seem to have an important effect on the patients' expectations. Psychic alterations, either physiological or pathological, have a positive or negative effect on the possibility of denture mental integration and on patient satisfaction regarding the prosthesis [1]. The evaluation of these alterations can be based on personality tests. These tests may suggest a possible pattern in the patient's reaction to the practitioner. The most frequent test – the Type A Behavior Pattern Test – was introduced by two cardiologists, Rosenman and Friedman, in 1974 [2]. Its main purpose was to correlate types of personality and their susceptibility to stress. Patients were divided in two large categories: type A – very sensitive to stress and type B – not sensitive to stress. Because of

the large gap and variations between these two groups, a middle category was introduced, type AB. This idea was widely used in research papers [2,3,4,5,6,7,8,9].

Denture wearers` satisfaction can be also evaluated. Slade and Spencer [10] first introduced the Oral Health Impact Profile (OHIP) as a standard and it represented, even from the start, an important instrument in evaluating the effects of denture wearing. Recent studies have used it in the quantification of insatisfaction regarding dentures from the patient`s point of view, proving that it is a superior quality test regarding validity and sensibility to change [3]. Using a shortened modified version (OHIP-14) is more indicated, because it reduces the source for errors and emphasises the test`s authenticity [11,12].

### **Matherial and method**

In a group of 150 patients, 69,33% (104) women and 30,66% (46) men, aged between 30 and 98, wearing complete or partial dentures, a questionnaire was used to determine the type of personality and degree of satisfaction regarding the prosthetic.

The patients were questioned between 2009 and 2010, before and during treatment to determine personality type, and during recalls to determine the degree of satisfaction.

Modified versions of different well known indicators were used to evaluate the questions:

- For type of personality, a modified version of the Type A Behavior Pattern Test;
- To determine discomfort, dissability and disfunction regarding oral health, a modified version of OHIP, the OHIP-14, was used, from which we selected and evaluated questions regarding satisfaction by aesthetics and mastication.

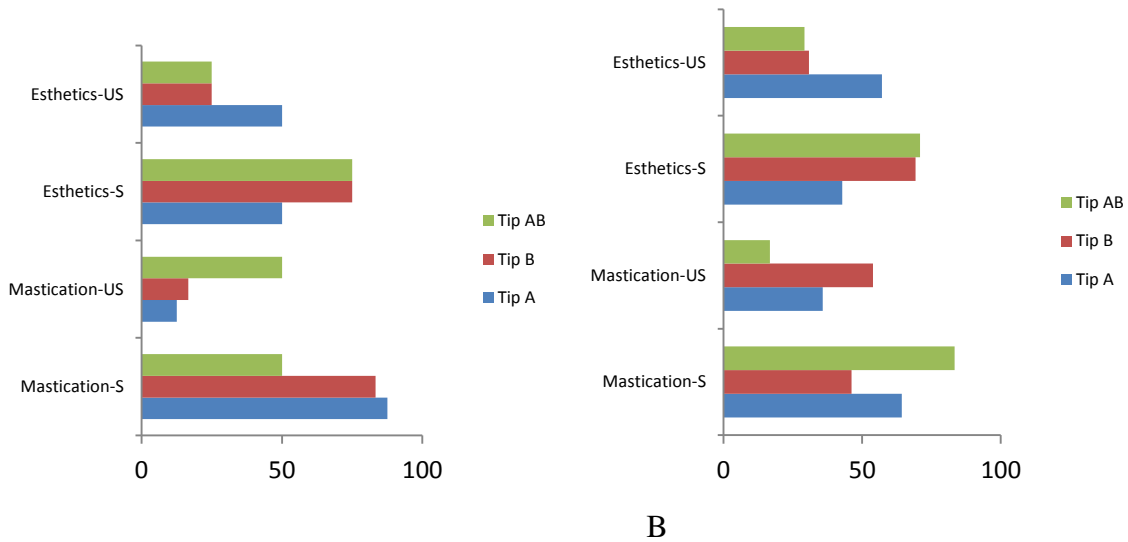
The type of personality was determined by direct evaluation of the patient`s answers. The questions used to evaluate the satisfaction regarding aesthetics and mastication were graded, a positive answer equaled value of 1, and a negative one, 2. Through systematization and data analysis, the OHIP was evaluated for each individual subject. Microsoft® Excel Enterprise 2010 and GraphPad Prism® 5 were used to analyze the data. The analysis consisted of contingency tables, using data from the questionnaire as variables, thus obtaining data distributed by the quality of the observed effects.

### **Data analysis**

To determine the type of personality, the subjects were asked to choose from a series of random characteristics, equally distributed between the two extremes. Based on these answers, each individual was linked to the proper type of personality. Moreover, satisfaction or insatisfaction regarding aesthetics and mastication were evaluated. These variables were compared using contingency tables, using Chi<sup>2</sup> test for validity. A p-value < 0.05 was considered as statistically significant.

### **Results**

The personality type distribution and satisfaction can be found in figure I. From a total of 150 interviewed subjects, 46 (30,66%) were type A personality, 38 (25,33%) type B and 66 (44%), type AB. In conformity with this data, patient satisfaction regarding dentures varies among different types of personality. Statistically significant differences were seen between type AB and types A and B, when referring to aesthetics ( $P= 0.04$ )



A Figure I. Relationship between the degree of satisfaction and type of personality in men`s group (A) and women`s group (B)

Gender separation (table I) for men did not produce statistically significant differences regarding aesthetics and mastication ( $P = 0.02$ ) showed big differences in all types of personality (type A and type B besides type AB,  $P < 0.05$ ). In the women`s group, aesthetics and mastication produced statistically significant results (type A besides type B and type AB, type A and type B besides type AB,  $P < 0.05$ ).

Type of personality	Aesthetics		Mastication	
	S* No. (%)	US** No. (%)	S No. (%)	US No. (%)
<b>Men</b>	$P > 0.05$		$P = 0.02$	
<b>A</b>	8 (50)	8 (50)	14 (87.5)	2 (12.5)
<b>B</b>	8 (75)	4 (25)	10 (83.3)	2 (16.7)
<b>AB</b>	16 (75)	4 (25)	10 (50)	10 (50)
<b>Total</b>	<b>32 (66.6)</b>	<b>16 (33.4)</b>	<b>34 (70.8)</b>	<b>14 (29.2)</b>
<b>Women</b>	$P = 0.03$		$P = 0.004$	
<b>A</b>	12 (42.8)	16 (57.2)	18 (64.3)	10 (35.7)
<b>B</b>	18 (69.3)	8 (30.7)	12 (46.2)	14 (53.8)
<b>AB</b>	34 (70.8)	14 (29.2)	40 (83.4)	8 (16.6)
<b>Total</b>	<b>64 (62.7)</b>	<b>38 (37.3)</b>	<b>70 (68.6)</b>	<b>32 (31.4)</b>

\* – satisfied; \*\* - unsatisfied

Table I. Gender groups and degree of satisfaction of the different personality types

Dividing the patients in age groups (table II), in relation to de median age of 64, produced slightly different results. There were no statistically significant results for any of the four parameters in subjects aged under 64. Speaking and mastication determined significant results in the over 64 years group ( $P < 0.05$ ). Notable differences were observed between type B personality and types A and AB ( $P < 0.05$ ).

Type of personality	Aesthetics		Mastication	
	S No. (%)	US No. (%)	S No. (%)	US No. (%)
<b>&lt; 64 years</b>	$P > 0.05$ US		$P > 0.05$ US	
<b>A</b>	8 (40)	12 (60)	14 (70)	6 (30)
<b>B</b>	12 (75)	4 (25)	10 (62.5)	6 (37.5)
<b>AB</b>	14 (58.4)	10 (41.6)	14 (58.4)	10 (41.6)
<b>Total</b>	34 (56.6)	26 (43.4)	38 (63.4)	22 (36.6)
<b>≥ 64 years</b>	$P > 0.05$ US		$P = 0.04$	
<b>A</b>	12 (54.5)	10 (45.5)	16 (72.7)	6 (27.3)
<b>B</b>	14 (63.6)	8 (36.4)	12 (54.5)	10 (45.5)
<b>AB</b>	36 (78.3)	10 (21.7)	38 (82.6)	8 (17.4)
<b>Total</b>	62 (68.8)	28 (31.2)	66 (73.4)	24 (26.6)

Table II. Age groups and degree of satisfaction of the different personality types

## Discussion

Denture assimilation is a completely subjective process depending on the developmental composition of each patient's personality [13]. Searching for this direct link, the present study started by focusing on the personality type, and its main characteristics, which were mainly discussed in similar studies. Carlsson et al [14], found a mild correspondence between the denture satisfaction and overall evaluation of oral health. The only notable correspondences have appeared between patient satisfaction and personality type, and also with their social adaptation. Brunello and Mandikos [15] have compared age, gender and medical and psychological status with the number and type of complaints about the dentures, not finding a significant relation between these parameters. Also, they have stated the fact that age and disease were not factors that would stop patients to successfully use their prosthetics [16,17].

Taking in mind the median age of 64 years, two subject groups were created; the values obtained from them regarding aesthetics and mastication were then related to the type of personality, which concluded once more that type A personality peaked at dissatisfaction values, with statistically significant values regarding speaking over the age of 64. Type B remained less satisfied by mastication, for patients over 64 years. These results confirm prior statements, moreover stating that higher age became a factor in preventing prosthetic therapy failure.

Murthy et al. [18] discussed the behavioral pattern by using the House classification (philosophic, indifferent, exacting and hysterical) with data supplied by the questionnaires and by graphoanalysis and found out that using a combined method may lead to good results in identifying difficult patients. Although this method reveals a complex range of causes in failure of denture assimilation, it can be stated that the high level of specificity overpasses the needs of the dental practitioner. Al-Omiri et al. [1] have used the Dental Impact on Daily Living (DIDL) questionnaire to assess satisfaction with prostheses and impacts on daily living, alongside NEO Five Factor Inventory (NEO-FFI) for patients' personality profiles. Psychological profiles (e.g. neuroticism, extraversion, openness and conscientiousness) might play a role and explain prosthetic impacts on daily living and patients' satisfaction with prostheses.

Throughout literature, the link between factors related to time of denture wearing and OHRQoL could not be determined, contradicting in a way the hypothesis from which the present study started. Some studies have evoked positive results in keeping the degree of satisfaction after prosthodontic therapy. For example, Magnusson [19] enunciated that patient satisfaction 5 years after a new denture was still sufficient. In a study by Toolson et al [20], regarding the satisfaction of patients who maintained a recall 5 to 10 years after prosthodontic therapy by overdentures, a great majority were still satisfied, although clinical situations becoming poorer (loss of periodontal support, loss of a number of teeth). This statement may prove the difference between clinical status (regarding a new denture or a prior prosthetic) and patient expectations, which has a deep impact over satisfaction.

John et al [21] stated that subjects who maintained a recall over a period of 4 years did not present any influence by factors regarding time of wearing the denture upon the degree of satisfaction. This study was used as a model for a part of the present study, though our results turned out contradictory. Certain factors can be enunciated, the most important being the time that patient maintained recalls. In the prior study, subjects maintained a shorter recall period (4 years in comparison with a maximum of 20 years). Another difference may be considered the method of evaluating patients, the instruments used to determine OHRQoL. Moreover, we considered, by means of shortening the number of questions and implying a larger number of indexes, to use as a model the short version, OHIP-14.

For starters, the linear and non-linear (Lowess) associations did not show the existence of a tendency in this function. The variables' statistic analysis demonstrated the possibility of a direct connection between the number of dentures and the degree of dissatisfaction, but also between the age that the patient got their first dentures, the time of wearing for the current one and the degree of satisfaction. The data obtained by the present

study, in conjunction with the literature review tend to direct, though, the attention to the more important psychic and psycho-somatic influences.

Further study about the relationship between personality traits and patient complaints about dentures have yet to come to a conclusion. Most criticism brought to the authors' attention regarded global evaluation of the discomfort [12] and the use of unspecific tools for the investigation [19]. Klages et al [22] pointed out possible solutions for the criticism; the first problem can be fixed by using OHIP, a secure and comprehensive mean that reaches out to a great variety of oral health problems [10,20,23]. For the second one, the solution came from using the concept of somatization to explain the lack of satisfaction regarding one's denture.

Pain sensitivity, proprioception and somatization predict the onset of psychic symptoms. According to literature data, drawing attention to the physical sensations interferes with the data processing mechanisms that lead to problem solving; and so, denture wearers with high proprioceptive levels may experience these problems, becoming tense, irrational and less able to perform every-day routine tasks. The appearance of these hypotheses raises question marks, leading to uncharted territory for further research.

The present study uses a median between the prior noted information. We joined the prior stated concepts regarding the lack of specificity of the psychological evaluation, but still keeping them as a model, adapted to the present cases. Moreover, it was preferred to elude certain psychological information with the purpose of using more simultaneous evaluation instruments, completing the idea that the conjunct result would be more accurate and significant

The success criteria for prosthodontic treatment are hard to define. Self evaluations of the prosthetics are influenced by psycho-somatic factors and general health. The literature confines well documented cases of dentures that were easily integrated by the patient, although not being of high quality by the practitioner's point of view [24]. From this we can conclude that the clinical opportunity for using a certain denture does not always concur with the patient's satisfaction regarding it [25].

In the light of these data, it was considered that the present study confirmed a part of the noted hypotheses, leaving a path for further study regarding different considerations.

## **Conclusions**

1. The type of personality affects patient satisfaction regarding dental prosthetics, with a higher degree of dissatisfaction linked to aesthetics in type A personality, mastication in type B personality and almost constant findings in type AB personality.
2. Psycho-somatic factors may predict the appearance of psychic and psychological symptoms, drawing attention to modifications of the degree of satisfaction shown by the patient, as a main factor in the assimilation of the prosthetic.
3. Higher age represents a cause that must be taken in account while preventing the prosthetic treatment failure.
4. Patient gender does not seem to be decisive in this case, although the women's group showed significant results comparing different types of personality.

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