

Patients' Satisfaction with Partial Denture Therapy

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Summary

The aim of this study was to evaluate patients' satisfaction with their partial dentures in relation to some socio-economic variables. The aim was also to evaluate patients' satisfaction with denture retention, speech, aesthetics, chewing ability and comfort while wearing dentures. The influence of some factors, such as age, sex, marital status, level of education, smoking, chronic diseases, socio-economic status, ordinal number and age of the present dentures, on patients' satisfaction with partial dentures was also evaluated. A total of 165 patients with partial dentures took part in the study. There were 59 males and 106 females aged between 38 and 87 years. Patients graded their satisfaction with their partial dentures in total and then graded aesthetics, speech and retention, chewing ability and comfort while wearing dentures by using a scale from 1 to 5. Following a statistical analysis the following conclusions were made: 1. Patients were mostly satisfied with their partial dentures (the distribution of the scores of the patients' assessments was asymmetrical towards the highest scores in all examined categories). Only 3.2% of the patients were not absolutely satisfied with their partial dentures, 2. More than half of the examined patients scored all the examined variables in the best score category (5), 3. Patients of a higher level of education had higher criteria for the aesthetic appearance, as they assessed their partial denture aesthetics with a lower grades than patients with lower level of education. Males were less satisfied with the chewing ability of lower partial dentures ($p < 0.05$) than females, 4. There was no significant difference in patients' assessments of the quality of their partial dentures between different age groups, ability of self-supporting life, socio-economic and economic status, marital status, smoking, presence of chronic diseases, number of previous dentures and age of present dentures ($p > 0.05$).

Key words: patients' satisfaction, partial dentures, socio-economic factors.

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Introduction

It is generally considered opinion in prosthodontics that missing teeth in the upper and/or lower jaw should be replaced by a prosthodontic appliance. Therefore, for more than half a century, missing teeth have been replaced by fixed or removable prosthodontic appliances (1).

In spite of increasing use of dental implants, the commonest way to treat partial or total edentulousness is still by means of a conventional partial or full denture (2,3).

Beside the therapist's skill and the quality of dentures, subjective factors connected with the patient are very important for the final satisfaction with removable dentures. Patients are sometimes not satisfied with the constructions which are best, according to the therapist's assessment. Knowledge of patients' use of removable partial dentures would be helpful to dentists and patients, as they decide on prosthodontic treatment.

Satisfaction with dentures seems to have multicausal character (4). In addition to the factors directly associated with the functioning of the dentures, presumably patient-related factors also influence the final result. Considering the factors separately, it can be concluded that the quality of dentures is not the only reason for satisfaction or dissatisfaction in patients.

In addition to the patients satisfaction, patient's attitude towards dentures prior to receiving them, appears to play an important role. Those who thought negatively, are more often dissatisfied. Conversely, patients with positive opinions before getting new dentures, more often had positive responses after receiving them (5,6). However, very important factors are the influence of the patient's personality, his/her attitude towards the dentures and motivation for wearing the dentures. Usually, patients with good motivation and neat patients more easily follow the rules necessary for later successful denture wearing.

The most common reasons for the patients' dissatisfaction with partial or full dentures have already been studied, primarily the connection between the patient's satisfaction and demographic factors, including age, sex, prior experience with wearing dentures, socio-economic and clinical factors and the patient's personality (7-10).

Some of these variables were found to have a significant relationship with patient's satisfaction with dentures. According to the Frank's studies (11, 12), dissatisfaction was greater in patients with no prior experience with partial dentures, or in patients who had been wearing only partial upper dentures, which indicates greater dissatisfaction with lower partial dentures compared to upper partial dentures. Patients reported greater satisfaction with their partial dentures if they were younger than age 60, as well as if they were healthier, while patients older than age 60 and patients with poorer health were less satisfied.

Patient's satisfaction or dissatisfaction with their partial dentures is an important part of the treatment. Patients adapt to partial dentures individually, depending on their prior experience, expectations, emotional and general health status, as well as on the status of the oral cavity. For some patients, satisfaction with partial dentures relates primarily to comfort and ability to masticate (8), while aesthetics and retention are more important for others (13).

According to the results of Frank's studies, the most frequent areas of dissatisfaction were as follows: fit (33.6%), mastication (29.5%), natural tooth problems (26.3%), overall perception (26.2%), oral cleanliness (20.4%), speech (17.9%), appearance (17.8%), denture cleanliness (15.3%) and odour (13.2%) (11, 12).

In different studies concerning satisfaction or dissatisfaction with partial removable dentures, more concern was placed on upper partial dentures.

Watson compared the influence of personal factors on patients' satisfaction or dissatisfaction with removable partial dentures (1). His results indicated 10% of dissatisfied patients, which is comparable to the 9% of fully dissatisfied patients in Frank's study (11).

However, previous studies have not included the influence of all the factors together (the quality of the construction, material, the number and the classification of missing teeth and the occluding teeth, the distribution of chewing forces, as well as age, sex, socio-economic factors, health, etc.) on the patients' satisfaction or dissatisfaction with their removable dentures.

Therefore, the aim of this study was to evaluate all the factors together which may have an influence the patient's satisfaction with removable partial

dentures of various classification, construction and quality, including socio-economic variables.

Subjects and methods

A total of 165 patients with partial upper, lower or upper and lower dentures took part in this study. One hundred and ten patients were examined in the Department of Removable Prosthodontics, School of Dental Medicine, and 55 patients were examined in the Geriatric Institution "Trešnjevka", Zagreb.

The study included 59 males and 105 females. Patients were aged from 38 to 87 years.

A questionnaire was devised for the purpose of the study, divided in to two parts which was completed by the patients. In the first part patients were required to answer questions on gender, age, marital status, independent life, smoking habits, chronic diseases, education, socio-economic status, period of tooth loss and the ordinal number of dentures.

In the second part of the questionnaire patients graded their dentures, depending on the level of satisfaction with their partial dentures. They first graded their dentures in total and then they graded separately denture retention aesthetics, speech, mastication and comfort. Patients graded their dentures by using a scale from 1 to 5, as is common in our society and which is used in all schools and Universities.

Statistical analysis was made by using the statistical software SPSS 3.0 for Windows with the following methods:

- a) Distribution of frequencies for testing variables.
- b) Mean, standard deviation, median, mode.
- c) Testing normality of distribution by one-way Kolmogorov-Smirnov test.
- d) Testing the significance of the differences between different variables by the Kruskal-Wallis test.

Results

Subjects who took part in this study were divided into three age groups. Patients younger than 50 years were in the first age group, patients aged from 51 to 70 years were in the second age group and

patients older than 71 years were in the third age group. The majority of the patients were in the third age group (50.3%), in the second age group there were 47.9% and in the first age group 1.8% patients.

Distribution of the frequencies of socio-economic factors of the examined patients is shown in Figure 1.

In this study, there were 36% (59) males and 64% (106) females.

Forty -three percent of the patients were married, 12.7% of the patients were divorced, 10.9% were single and 32% were widows or widowers.

Only 20% of the patients were smokers.

The majority of the patients were able to live by themselves (69%), 7% of the patients received a help from their families, while 32.6% of the patients were unable to live alone and were in the Geriatric Institution.

Most of the patients had at least one chronic disease (67.3%): cardiovascular, degenerative, gastro-intestinal, diabetes mellitus, cancer or any other disease.

The highest percentage of patients had a moderately high level of education (high school) (41.2%), 29.7% of the patients had a low level of education (elementary school), 10.9% of the patients had finished vocational school (elementary school + three years of vocational school) and 18.2% of the patients had the highest level of education (University degree) (Figure 1).

According to the number of previous dentures, 51.5% of the patients had the first partial denture, 32.7% of the patients had the second partial denture, 13.3% had the third partial denture, 1.8% had the fourth and 0.6% had the fifth partial denture.

The examined patients assessed their socio-economic status from 1-5. Only 3.6% of the patients had the best socio-economic status (5), 26.7% graded their socio-economic status as 4, 35.8% graded their socio-economic status as 3, and 33.9% of the patients graded their socio-economic status as 2.

Depending on the age of the existing partial dentures, they were divided into three groups: less than one year, from 1 to 5 years and more than five years. Of the upper partial dentures there were 38.8% less than one year old and 37% lower partial

dentures in the same group. In the second group, which comprised partial dentures from 1 to 5 years in use, there were 41.8% upper and 46.7% lower partial dentures and in the third group (more than 5 years) there were 19.4% upper and 16.4% lower partial dentures (Figure 1).

Histograms of the frequencies, as well as standard deviations (SD), modes and medians for the variables assessed by the patients (scale from 1 to 5), depending on how satisfied they had been with their partial dentures, are shown in.

Patients assessed the following variables: their general satisfaction with upper and/or lower partial denture(s), satisfaction with the aesthetic appearance of their dentures, satisfaction with speech, mastication and comfort of wearing their partial dentures. In assessing comfort, when patients had any problems they were assessed from 1 to 5 according to the problem involved, where 5 represented the greatest problems.

For all of the assessed variables, distribution was completely asymmetrical towards the highest grades (5) with one or two small peaks in the lower grades, apart from comfort, where values were asymmetrical towards the lowest grades. Based on the distribution of the patients' evaluation of their partial dentures it is obvious that the great majority of patients are quite satisfied with their dentures. More than half of the patients assessed all the variables, describing their satisfaction with their partial dentures as the highest grade (5).

With regard to general satisfaction with the partial denture, 74% of the patients gave the highest grade (5) for the upper partial denture and 76.2% for the lower partial denture (Table 1).

For retention of the upper partial dentures 64.6% of the patients gave the highest grade (5) and for retention of the lower partial dentures 60.8% gave the highest grade, while 75.2% of the patients assessed their speech with the upper partial denture as the highest grade and 67.7% of the patients assessed their speech with the lower partial denture as the highest grade (Table 1). Grade five was given for mastication with the upper partial denture by 63.7% of the patients and for mastication with the lower partial denture by 51.5% of the patients. The highest percentage of patients had no problem at all

with the comfort of wearing an upper (89.5%) or lower (76.2%) partial denture (Table 1).

Normality of the distribution for the assessed variables was tested by the one-way Kolmogorov-Smirnov test, which showed out that all of the assessed variables differed from the normal distribution ($p < 0.05$), indicating that with 95% reliability, it can be concluded that the distribution of the assessed variables differed from the normal distribution described by Gauss (14). With regard to the socio-economic variables, only patients' age had normal distribution ($p > 0.05$).

As the assessed parameters did not have normal distribution, non-parametric statistical test had to be applied for the further analysis, i.e. Kruskal-Wallis test, which is the same as the one-way analysis of variance in parametric statistics. Kruskal-Wallis test compares categories of ranks for testing the significance of the differences.

Using the Kruskal-Wallis test, a comparison was made to determine if any significant difference existed between patients' assessment and different socio-economic variables and the results are shown in Table 2, only for the variables which were significantly different, i.e. p was $<$ than 0.05).

Comparing the difference between male and female patients, Kruskal-Wallis test revealed that there was no significant difference between sexes, except for satisfaction with mastication with the lower partial dentures, where women were more satisfied than men ($p < 0.05$).

There was no significant difference for the assessed variables (general satisfaction, aesthetics, mastication, comfort, retention) between patients of different age groups ($p > 0.05$), different marital status ($p > 0.05$), different independent life ($p > 0.05$), different socio-economic status ($p > 0.05$), presence of chronic diseases ($p > 0.05$), smoking habit ($p > 0.05$), different number of previous dentures ($p > 0.05$) and different period of having a partial denture ($p > 0.05$).

Apart from the difference between men and women regarding mastication with a lower partial denture, the only significant difference found was for assessment of the aesthetics with an upper partial denture, where patients of higher education gave lower grades to the aesthetics of an upper partial denture ($p < 0.05$, Table 2).

Discussion

Many different factors may influence patients' satisfaction with their dentures. Apart from psychological factors, other factors that depend upon the patient are as follows: quality of the denture bearing area, quality of the oral mucosa, influence of the surrounding muscles on denture flanges, viscosity of saliva, patient's age and ability to get used to a denture, status of abutments, status of other teeth in the mouth, relation between horizontal and vertical dimension of occlusion, hygiene habits, diet, existence of chronic diseases, position of patient's teeth in the mouth, quality of fixed prosthodontic appliance, etc.

The influence of the patient's age, gender, independent life, number of previous dentures, economic status, marital status, etc. on the patient's satisfaction has already been examined in several studies (15, 16), as well as the influence of denture retention and aesthetics and similar factors.

From the results of this study, it is clear that the distribution of patients' assessment of their partial dentures (using a scale from 1 to 5) is completely asymmetrical towards the highest grade (5), i.e. the majority of the patients (more than 60%) gave the highest grade to their dentures (Table 1). This shows that most of the patients are completely satisfied with their partial dentures.

Comparing the results of this study with those of similar studies, no significant difference was found between patients of different age groups ($p > 0.05$), while Frank et al. (11, 12) found that young patients are less satisfied with their partial dentures, which they ascribe to the fact that young patients are not very happy about the loss of teeth and therefore find it hard to accept their dentures.

In this study no statistically significant difference was found between healthy patients and patients with chronic diseases ($p > 0.05$) regarding their satisfaction with partial dentures.

According to the results of Frank (11, 12), patients with chronic diseases were less satisfied in comparison to healthy patients, which he ascribes to psychological problems in patients with chronic diseases. According to the results of Reifel (8) there was no significant difference between healthy

patients and patients with chronic diseases, which is in agreement with the results of this study.

Aesthetics and speech quality are also very important factors which have an influence on the level of patient's satisfaction with their dentures (7, 8). Factors that also have an influence on the level of patient's satisfaction with aesthetics are: dimensions and form of artificial teeth (17), visibility of some elements of a partial denture which are necessary for retention and stability and also Kennedy classification, i.e. replacement of anterior teeth in a partial denture (18). Some authors found out negative correlation between satisfaction with aesthetics of a denture and getting old (10). The results of this study revealed that the level of satisfaction with aesthetics was significantly different ($p < 0.05$) only between the patients of different levels of education, i.e. higher educated patients were less satisfied with the aesthetic appearance of their partial dentures, which is in agreement with some other studies (19,20).

There was no significant differences between men and women with regard to the level of satisfaction with their partial dentures in general, aesthetics, speech, etc. ($p > 0.05$), except for mastication with the lower partial dentures ($p < 0.05$, Table 2) where men were less satisfied than women, as they had more medium and low ranks.

According to Wong (21), patients who had experience with previous partial dentures were more satisfied than patients with the first partial dentures. In this study, no difference was found in patients' satisfaction with partial dentures between patients with the first partial denture and patients who had previous experience with partial dentures, between patients who had the existing dentures in the mouth for different periods, between patients who were self supporting and those who were not, between patients with different socio-economic status and between patients with different marital status and smoking habits ($p > 0.05$, Table 2).

Conclusions

1. Patients are generally satisfied with their partial dentures (the distribution of the scores of the patients' assessments was asymmetrical towards

- the highest scores in all examined categories). Only 3.2% of the patients are not absolutely satisfied with their partial dentures,
2. More than half of the examined patients scored all the examined variables to the highest score category (5),
 3. Patients of a higher level of education have higher criteria for the aesthetics appearance as they assessed their partial denture aesthetics with lower scores than patients with a lower level of education. Males are less satisfied with the chewing ability of a lower partial denture ($p < 0.05$) than females,
 4. There was no significant difference in patients' assessments of the quality of their partial dentures between different age groups, ability to support themselves, socio-economic and economic status, marital status, smoking, presence of chronic diseases, number of previous dentures and the age of present dentures ($p > 0.05$).