



Complete denture parameters reflecting the satisfaction of dentists and patients

Parametri totalne proteze koji odražavaju zadovoljstvo stomatologa i pacijenata

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Abstract

Background/Aim. Patients' expectations with regard to their complete dentures are usually high. It is quite challenging to meet the patient's criteria for denture satisfaction. Moreover, it also becomes a challenging task when the patient's expectation exceeds the patient's satisfaction regardless of the denture quality. The aim of this study was to determine the correlation in the denture satisfaction levels between the dentist and complete denture wearers. **Methods.** The study included 134 completely edentulous participants, between 48 and 65 years of age. The data were recorded through a validated questionnaire having a Cronbach α validity of 85%. Sociodemographic data, patients' priorities, dentists' and patients' satisfaction with the dentures were recorded and rated on a Likert scale (1 to 5). Spearman's correlation was applied to measure the similarity between the dentist's and patient's satisfaction score. **Results.** The mean dentists' and patients' overall satisfaction scores were calculated as 3.58 ± 0.74 and 3.538 ± 0.521 , respectively. Participants ≥ 60 years of age and females showed a higher correlation than younger pa-

tients and men, while the employed participants showed a stronger correlation between dentist's and patient's satisfaction, compared to the opposite. In the educated participants a positive, moderate correlation between dentist's and patient's satisfaction was shown. The correlation between dentist's satisfaction with occlusion and patient's satisfaction with comfort was moderately strong ($p < 0.05$); weakly positive correlation ($p < 0.05$) was found between dentist's satisfaction with the quality of denture and extension and patient's satisfaction with aesthetics, mastication, phonetics, and comfort. **Conclusion.** A positive correlation between the dentists' and patients' satisfaction regarding denture quality was shown in older-age patients, females, as well as employed and educated patients. Improving dentist-patient communication is the most useful strategy to improve patients' satisfaction with their dentures.

Key words: dentists; denture, complete; tooth, aesthetics; mastication; edentulism; patient, satisfaction; speech, production, measurement; surveys and questionnaires.

Apstrakt

Uvod/Cilj. Očekivanja pacijenata u pogledu totalne proteze obično su visoka i ispunjavanje njihovih kriterijuma predstavlja izazov. Kada, bez obzira na kvalitet proteze, očekivanje pacijenta prevazilazi njegovo zadovoljstvo, to postaje i izazovan zadatak. Cilj rada bio je da se utvrdi korelacija u nivou zadovoljstva protezom između stomatologa i korisnika zubnih proteza. **Metode.** Studijom su obuhvaćena 134 kompletno bezuba ispitanika, starosti 48–65 godina. Podaci su prikupljeni validiranim upitnikom koji je imao Cronbach-ov α koeficijent pouzdanosti od 85%. Sociodemografski podaci, prioriteti pacijenata, zadovoljstvo stomatologa i zadovoljstvo pacijenata protezama beleženi su i ocenjivani prema Likertovoj skali, od 1 do 5. Za merenje sličnosti između zadovoljstva stomatologa i pacijenata primenjena je Spirmanova korelacija. **Rezultati.** Prosečni skorovi ukupnog zadovoljstva

stomatologa i pacijenata iznosili su $3,58 \pm 0,74$ i $3,538 \pm 0,521$, redom. Kod ispitanika starijih od 60 godina i osoba ženskog pola ustanovljena je veća korelacija između zadovoljstva protezom pacijenata i stomatologa u odnosu na mlađe pacijente i ispitanike muškog pola. Jača korelacija između zadovoljstva stomatologa i pacijenata protezom pokazana je i kod zaposlenih ispitanika, u poređenju sa nezaposlenim ispitanicima. Kod obrazovanih ispitanika ustanovljena je umerena, pozitivna korelacija između zadovoljstva protezom stomatologa i pacijenta. Korelacija između zadovoljstva stomatologa okluzijom i komfora pacijenta bila je umereno jaka ($p < 0,05$). Nađena je slabo pozitivna korelacija ($p < 0,05$) između zadovoljstva stomatologa kvalitetom proteze i ekstenzijom i zadovoljstva pacijenta protezom s obzirom na estetiku, žvakanje, fonetiku i komfor. **Zaključak.** Utvrđena je pozitivna povezanost između zadovoljstva protezom pacijenata i stomatologa kod ispitanika starijeg životnog doba, kod

žena, kao i kod zaposlenih i obrazovanih pacijenata. Poboljšanje komunikacije između stomatologa i pacijenta je najkorisnija strategija za poboljšanje zadovoljstva pacijenata njihovim protezama.

Ključne reči:

stomatolozi; zubna proteza, totalna; zub, estetika; žvakanje; bezubost; pacijent, zadovoljstvo; govor, produkcija, merenje; ankete i upitnici.

Introduction

Edentulism affects oral health in a diverse manner. However, phonetics, mastication, comfort, and aesthetics are the major constraints disturbing the quality of life¹. Al Hamdan and Fahmy² reported around 82% of edentulism in Riyadh, Saudi Arabia. It is highly challenging to meet patient's criteria of denture satisfaction. With older age, the satisfaction level becomes very high, making it difficult to convince the patient to adapt to their artificial dentures³. Different parameters affecting a patient's satisfaction with a new complete denture and satisfaction of the dentist have been investigated⁴.

It has been evident that implant-supported overdentures gain higher satisfaction compared to complete dentures⁵. However, most patients prefer complete dentures over the costly prosthesis. It is also noted that the satisfaction levels are highly associated with age, and that physiological and neurological factors greatly impact patient's satisfaction⁶. When patients present with resorbed ridges, it becomes difficult to provide retention in a denture and, hence, patient's and dentist's satisfactions are compromised⁷. Moreover, saliva and other systemic conditions also play an important role⁸. Bilhan et al.⁹ concluded that 85% of patients lack denture retention, whereas the highest mean satisfaction score for speech was 77.27 ± 29.04 .

It becomes a challenging task when the patient's expectation exceeds the patient's satisfaction regardless of the denture quality. Hence, the dissatisfied patient reflects the failure of the treatment plan¹⁰. Smith¹¹ and Berg¹² also revealed that prediction of patient's satisfaction does not correlate with the quality of the denture. In a Brazilian study, most patients complained about phonetics and mastication being very challenging to them post edentulism¹³.

It is therefore very important to establish open communication with a patient and to become familiar with the patient's expectations regarding dentures. Having one-to-one interaction with patients and highlighting all the possible outcomes for denture fabrication will help patient's expectations become more realistic and practical, reflecting a positive impact on their overall satisfaction¹³. Another study conducted in 2003 in Croatia, measured using Spearman's rank correlation, ascertained the strongest correlation between dentist's satisfaction and patient's satisfaction, as well as with the retention of complete dentures¹⁴.

Literature has revealed that the success of the treatment is a reflection of the patient's satisfaction and should be evaluated by the patient himself/herself. The chief purpose to accomplish successful treatment is to prioritise and fulfil the patient's demands. However, the assessment criteria lack patients' needs and priorities, and are attributed to the existing

criteria¹⁵. Unfortunately, due to the paucity of local data, most studies have found out the association between patient's satisfaction and complete denture therapy with different factors influencing satisfaction levels. Nevertheless, this study has attempted to prioritise patients' needs in terms of four important parameters that are likely required and to discover the correlation between patient's and dentist's satisfaction levels. The aim of this study was to determine the difference in the denture satisfaction levels between the dentists and complete denture wearers in order to draw a paradigm of satisfaction parameters that could be incorporated in future denture fabrications.

Methods

The present study was a cross-sectional study conducted at the Department of Prosthodontics at King Khalid University in the period from 2016 to 2018. The patients were enlisted through a nonprobability consecutive sampling technique. The sample size was estimated using a sample size calculator for the correlation between the quality of the mandibular denture-bearing area and retention as -0.301 ¹⁴, power of test as 80% and 99% confidence level. The estimated sample size was 124. After inflating the sample size by 8% for the lost to follow-up, we included 134 participants in the present study. Ethical approval and implied consent were obtained. Edentulous patients aged between 48 and 65 years of either gender participated in the study. The patients had their blood pressure under control. Also, diabetic patients, with no other systemic disease, were included in the study. The patients who were mentally incapacitated were excluded from the study.

The data were collected through a validated questionnaire having a Cronbach α validity of 85%, which were divided into sociodemographic, patient's priority, dentist satisfaction through denture assessment, and patient satisfaction. Dentist's and patient's satisfactions were rated on a Likert scale (1 to 5), with 5 = very satisfied, 4 = satisfied, 3 = neither satisfied nor dissatisfied, 2 = dissatisfied, and 1 = very dissatisfied.

SPSS version 23 was used to analyse the data. Mean and standard deviation (SD) were calculated for quantitative variables, whereas frequencies and percentages were calculated for qualitative variables. The Spearman's correlation was applied to assess the strength of the relationship between dentist's and patient's satisfaction scores. Furthermore, stratification with respect to effect modifiers such as age, gender, employment, and educational status was done. Poststratification Spearman's correlation was applied to assess the strength of the relationship between dentist's and patient's satisfaction score. $P < 0.05$ was taken as statistically significant.

Results

There were 134 participants included in the study. The average age was 58.75 years; most patients were males (56.7%), whereas 43.3% were females. About 98 participants were unemployed and 8 participants were uneducated. According to patient's priority, most of them preferred mastication, followed by aesthetics, phonetics, and comfort prior to fabrication of dentures (Table 1).

The mean dentist's and patient's overall satisfaction scores were calculated as 3.58 ± 0.74 and 3.538 ± 0.521 , respectively. Weak, positive correlations were found between dentist's satisfaction with the quality of denture and extension, and patient's satisfaction with denture characteristics such as aesthetics, mastication, phonetics, and comfort ($p < 0.05$). A weak, positive correlation was found between the dentist's satisfaction with denture extension and patient's satisfaction with denture aesthetics, mastication, and phonetics, whereas no meaningful correlation was found between dentist's satisfaction with denture extension and patient's satisfaction with denture comfort (Table 2). A weak, positive correlation was found between vertical relation and patient's aesthetics, mastication, and comfort, whereas no meaningful correlation was

found between vertical relation and patient's phonetics. A very weak, positive correlation ($r = 0.171$), although significant ($p < 0.05$) was found between dentist's satisfaction with denture occlusion and patient's satisfaction with aesthetics, whereas weak, positive correlations were found between dentist's satisfaction with denture occlusion and patient's satisfaction with mastication and phonetics ($r = 0.353$ and $r = 0.269$, respectively). The correlation between dentist's satisfaction with denture occlusion and the patient's satisfaction with comfort was moderately strong ($r = 0.444$, $p < 0.001$) (Table 2).

With respect to age, the participants ≥ 60 years of age showed a higher value of correlation between the dentist's satisfaction and patient's satisfaction with denture, compared to the participants younger than 60 years. With respect to gender, females showed a higher value of correlation between dentist's and patient's satisfaction, compared to males. With respect to the employment status, the employed participants showed a stronger correlation between dentist's and patient's satisfaction, compared to the unemployed patients. Lastly, the educated participants showed a positive, moderate correlation between dentist's and patient's satisfaction, whereas this correlation in the uneducated participants was insignificant (Table 3).

Table 1

Baseline features of participants (n = 134)	
Variables	Values
Age (years), mean \pm SD	58.57 \pm 7.25
Gender, n (%)	
male	76 (56.7)
female	58 (43.3)
Employment status, n (%)	
employed	36 (26.9)
unemployed	98 (73.1)
Educational status, n (%)	
educated	126 (94.0)
uneducated	8 (6.0)
Patient's priority, n (%)	
aesthetics	40 (29.9)
mastication	62 (46.3)
phonetics	18 (13.4)
comfort	14 (10.4)

SD – standard deviation.

Table 2

Correlation analysis between dentist's and patient's satisfaction with denture parameters

Dentist's satisfaction parameters	Patient's satisfaction parameters, r (<i>p</i>)			
	Aesthetics	Mastication	Phonetics	Comfort
Quality of denture	0.223 (0.010)	0.245 (0.004)	0.368 (0.000)	0.205 (0.018)
Extension	0.268 (0.002)	0.218 (0.011)	0.301 (0.001)	0.155 (0.074)
Vertical relation	0.277 (0.001)	0.355 (0.001)	0.056 (0.521)	0.260 (0.002)
Occlusion	0.171 (0.049)	0.353 (0.000)	0.269 (0.002)	0.444 (0.001)

r – Spearman's coefficient of correlation (rho).

Table 3
Stratification of patients with respect to age, gender, employment and educational status

Variables	Correlation between dentist's and patient's satisfaction overall score, r (p)
Age group	
< 60 years (n = 89)	0.553 (0.001)
≥ 60 years (n = 45)	0.577 (0.001)
Gender	
male (n = 76)	0.551 (0.001)
female (n = 58)	0.586 (0.001)
Employment status	
unemployed (n = 98)	0.563 (0.001)
employed (n = 36)	0.635 (0.001)
Educational status	
uneducated (n = 8)	0.115 (0.393)
educated (n = 126)	0.581 (0.001)

r – Spearman's coefficient of correlation (rho).

Discussion

In the present study, the Spearman's correlation was applied between the dentist's and patient's satisfaction parameters. The patients in this study preferred chewing as the main reason to visit the dentist for complete denture treatment, as old patients are likely to consider that treatment is required if they experience difficulty in chewing, or a social embarrassment, which is also validated by de Souza et al.¹⁶ and Kossioni and Bellou¹⁷.

A study evaluated problems experienced by patients after denture insertion. The most common complaint was inability to chew appropriately, and when the denture was examined, it was short of retention, which is a possible cause of dissatisfaction for both dentist and patients⁹. Hence, the present study showed that, nevertheless, a weak but positive correlation existed between the dentist's satisfaction with denture quality and extension and patient's satisfaction with aesthetics, mastication, and phonetics ($p < 0.05$).

Yoshida et al.¹⁸ evaluated the correlation between the satisfaction with daily life and satisfaction with complete denture. The study showed that patients who were satisfied with their life were also satisfied with their complete dentures (a strong positive correlation, $p < 0.05$). This can be explained in terms of social and cultural factors, which had a great impact on denture satisfaction; a stress-free life led to higher denture satisfaction scores. In a study by Sato et al.¹⁹, the multivariate regression analysis and χ^2 test were used to assess the relation between denture satisfaction and contributing factors. The study showed significant results and the findings were in complete agreement with the results of the present study showing a strong association between satisfaction and retention of upper dentures, followed by a positive correlation with speech and tasting.

The results of the present study also concur with those reported by Epifania et al.²⁰. They studied the quality of complete denture and the satisfaction of patients, and concluded that there was a strong relationship between the quality of denture and patient's satisfaction. In short, the adequate extension and retention of the denture was associated with patient's satisfaction. Other researchers also found a positive correlation between the denture quality and patient's satisfaction²¹⁻²³. Con-

versely, Anastassiadou et al.²⁴ have found a weak correlation between denture quality and patient satisfaction. Furthermore, the studies carried out by Erić et al.²⁵ and Fenlon and Sherriff²⁶ found absolutely no correlation between the denture quality and patient's satisfaction.

In the present study, with respect to gender, females displayed a high value of association between dentist's and patient's satisfaction, compared to males. Similarly, females were more likely to be satisfied with their aesthetics. However, females were less satisfied with mastication, which might be due to their need to seek treatment solely for aesthetic purposes²⁷⁻³⁰. In another study, the results showed that most patients were satisfied with their aesthetics and that there was no difference between men and women. However, that study also assessed the expectation levels and found that men had higher expectations of their dentures, compared to females³.

Within the limitation of this study, we recommend evaluating more in-depth contributing factors and their correlation regarding patient's and dentist's satisfaction. Furthermore, a large sample size for future studies would also help to obtain more accurate results.

Conclusion

Generally, the patients were satisfied with the quality of their complete dentures. Positive correlations existed between dentist's satisfaction with denture quality, vertical relation and occlusion on the one hand, and patient's satisfaction with aesthetics, mastication, phonetics, and comfort on the other. A positive, higher correlation existed between dentist's and patient's satisfaction in old-age patients, females, employed and educated patients. Thus, improving dentist-patient communication is the most useful strategy to improve patients' satisfaction with their dentures.

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