



Clinical Analysis of Complete Denture Satisfaction Factors: Dentist and Patient Perspective

Abdul Razzaq Ahmed¹, Saurabh Chaturvedi¹, Muhammad Usman Munee^{2*},
Sadiq Amin Ahmed Rana³, Muhammad Waqar Hussain³ and Muhammad Farhan Khan⁴

¹ King Khalid University, Abha, Saudi Arabia

² Avicenna Medical and Dental College, Lahore, Pakistan

³ Bakhtawar Amin Medical and Dental College, Multan, Pakistan

⁴ Baqai Medical University, Karachi, Pakistan

*Corresponding e-mail: usmuner@hotmail.com

ABSTRACT

Background: The dilemma of patient satisfaction vs. non-satisfaction with dentures is another never-ending debate in dentistry. The fabrication of optimal dentures is possible with appropriate prosthetic laboratory techniques along with patients' anatomic and physiologic requirements assessed by a dentist. **Objective:** The purpose of this study was to evaluate the patient's priority and mean satisfaction scores of the patient and dentist during complete denture therapy. **Material and methods:** After selecting the subjects based on decided inclusion and exclusion criteria, the patients were asked to fill the proforma with VAS. The proforma contained a questionnaire divided into 3 parts which need to be filled by both the patients and the dentist, independently. The patients rated their dentures using a scale ranging from 1-5 (5=very satisfied; 4=satisfied; 3=neither satisfied, nor dissatisfied; 2=dissatisfied; 1=very dissatisfied), and a dentist rated the quality of the denture and the denture-bearing area. **Results:** According to the patient's priority the majority of the patients preferred mastication (47%). The highest mean dentist satisfaction score was concerned with the extension of a denture (0.97 ± 0.28). There was no statistically significant difference with age and gender for mean denture assessment, aesthetic, phonetics, mastication and comfort satisfaction score ($p > 0.05$). However, the employed patients have aesthetic, phonetics and mastication satisfaction score higher than unemployed patients and the relationship was statistically significant ($p < 0.05$). The educated patients have mean phonetics satisfaction score higher as compared to uneducated patients and the relationship was statistically significant ($p < 0.05$). **Conclusion:** Majority of the patients was concerned with better chewing function with their dentures. Age and gender do not affect patient satisfaction. However, employed patients were less satisfied with their dentures as compare to unemployed patients. In addition, patients who were educated had better phonetics with their dentures as compare to uneducated patients. Strong dentist-patient communication is necessary to be able to satisfy a patient.

Keywords: Complete denture, Satisfaction, Patient communication

INTRODUCTION

According to surveys by WHO, the age group of people more than 50 years is increasing worldwide. A number of agencies are also working on increasing the life expectancy of the population in many countries. In 2014 surveys by the UN, reported that the age group of people above 65 years is increasing day by day in Arab [1]. For a dentist point of view tooth loss is considered as mortality, in other words, it is the ultimate death of a tooth or an end of oral disease in a patient. Worldwide elderly patients are more often presented with a complaint of complete edentulism. In Canada, 17% of the population was edentulous in 1990 and currently is 9.7% in the US among the age group greater than 18 years [2]. The study reported a dramatic increase in edentulism, 33.1% of the population aged 65 years or above was suffering from the condition [2]. Study in Riyadh in 2014 among a sample of 279 female reported that 231 (82.8%) of subjects were completely edentulous in both arches and rest of the patients were having missing teeth in a single arch [3]. In spite of various advances in dentistry and in the era of dental implants complete dentures has

its own significance in Geriatric dentistry. The dilemma of patient satisfaction vs non-satisfaction with dentures is another never-ending debate in dentistry. The fabrication of optimal dentures is possible with appropriate prosthetic laboratory techniques along with patients' anatomic and physiologic requirements assessed by a dentist [4]. The study evaluating patient feedback regarding satisfaction of their dentures found that a large number of patient are completely satisfied with an average denture while in spite of appropriate denture fabrication according to prosthetic criteria, many patients are still not satisfied with functions of their denture [5,6].

Literature review suggests that successful rehabilitation with a complete denture does not only depend on factors modulated by dentist and lab fabrication, patient-dependent factors are also a major concern [7].

Consistency of saliva, anatomical stability of alveolar ridge and overlying soft tissue, depths of sulci and limitations of the neutral zone are the important factors which affect the stability of the denture [8]. Ultimately effects patient's satisfaction negatively. A survey by Bhat VS9 in India evaluated the clinical factors affecting the patient's level of satisfaction with their complete dentures. This questionnaire-based survey grades the patient as very happy, happy and average satisfaction. It is found that 21% of patients were very happy with the retention of upper dentures while 23% were very happy with the retention of lower dentures. Similarly, Fenlon MR, also found that retention and stability are dependent on the condition of the mandibular alveolar ridge and its reproducibility thus supposed to be the major determinant for patient's adaptability and satisfaction with new dentures [9,10]. Facial aesthetics and phonetics are also considered as major determinants of satisfaction considered in the current study and previous literature as well. The same Indian study found that 53% were very happy with a physical change in the face and only 13% were unsatisfied. However, 25% were very happy with adaptation in speech while 35% were not able to attain optimal phonetics with their dentures. Another factor which is considered as an essential requirement for patient satisfaction is proper mastication needs. About 22% were happy with their masticatory needs while 3% were not happy with mastication with new complete dentures [9].

As discussed earlier various psychosocial, psychological and socio-cultural factors are also implemented in assessment of the success of complete denture treatment. Ali, HI, also in a study indicated that literacy rate, individual's perception, mental status and socioeconomic status of the patient also negatively or positively affect the patient's satisfaction with a denture [8]. A study in Saudi Arabia investigated the prevalence of edentulism among females of varying socioeconomic status and demand for prosthetic rehabilitation [3]. It found that 59.1% of the population that belongs to low socioeconomic status are susceptible to tooth loss and demands complete and partial dentures. Moreover in such cases, long term tooth loss and compromised dental hygiene are the factors responsible for anatomical changes in the oral cavity and ultimately lack of satisfaction with prosthetic rehabilitation. For a healthcare provider, it is important to consider that the patient is the one who already suffered the burden of disease and any complications and dissatisfaction increasing the trouble for him [3].

The ultimate goal of any treatment is to provide maximum benefit to the patient. Therefore studies have been done to improve the quality of complete denture by investigating the patient's feedback. The purpose of the current study is to evaluate the satisfactory parameters for both patient and dentist and assess the patient's priority during denture provision. Thus the aim of the study was to enhance the health care quality of patient and ultimately the quality of life after prosthetic replacement of teeth.

MATERIALS AND METHODS

The study was conducted in the Department of Prosthodontics at Avicenna Dental College, Lahore, from the period of September 2017 to April 2019. The sample size was estimated using the WHO sample size calculator taking statistics for patient satisfaction score as 3.98 ± 1.12 [11], the margin of error as 0.205 and 95% confidence level. The calculated sample size came out as 115. Patients were recruited through non-probability sampling technique post-ethical approval and implied consent was obtained. Edentulous patients requiring complete dentures from age 48-65 years of either gender having no systemic disease were included in the study. The patients who were mentally incapacitated and did not provide consent were excluded from the study.

The data was collected through a validated questionnaire having Cronbach's- α validity of 85%. The proforma was divided into socio-demographic, patient's priority, dentist satisfaction through denture assessment and patient satisfaction. This proforma was to be filled by both the patients and the dentist independently. The patients and dentist

rated their satisfaction for dentures using Likert-Scale ranging from 1-5 (5=very satisfied; 4=satisfied; 3=neither satisfied nor dissatisfied; 2=dissatisfied; 1=very dissatisfied).

SPSS version 23 was used to analyze data. Mean and SD was calculated for quantitative variables like age whereas frequencies and percentages were calculated for qualitative variables like gender, employment status, and education. Descriptive analysis for the dentist and patient satisfaction score was also done. The independent t-test was used to compare denture assessment, aesthetic, phonetics, mastication and comfort parameters with age, gender, and employment and education status. The $p \leq 0.05$ was taken as statistically significant.

RESULTS

Total of 115 participants was included in the study. The mean age of the patients was 58.28 ± 7.02 years. The majority of the patients were males (52.2%) whereas 47.8% were females. Most of them were unemployed (73%) and had primary schooling (74.8%) (Table 1).

Table 1 Baseline characteristics of participants

Quantitative Variables	Mean	SD
Age (Years)	58.28	7.02
Qualitative variables	n	%
Gender		
Male	60	52.2%
Female	55	47.8%
Employment Status		
Unemployed	84	73.0%
Employed	22	19.1%
Self-employed	9	7.8%
Educational status		
Uneducated	6	5.2%
Primary schooling	86	74.8%
Postgraduate	23	20.0%

According to the patient's priority, the majority of the patients preferred mastication (47%) followed by aesthetics (28.7%), phonetics (13.9%), and comfort (10.4%) (Figure 1).

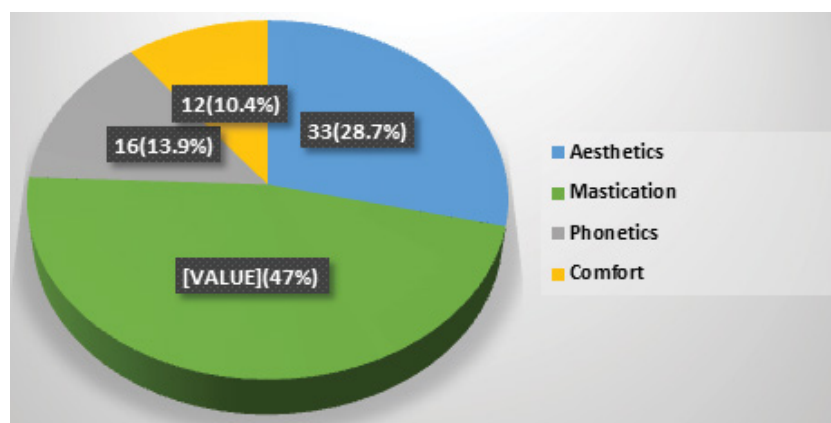


Figure 1 Patient's priority

The highest mean dentist satisfaction score was concerned with the extension of a denture (0.97 ± 0.28), while the lowest mean score was calculated for occlusion (0.79 ± 0.41). The mean satisfaction score for a facial appearance with dentures is high in aesthetic parameters and reported as 4.50 ± 1.09 . The mean satisfaction score for the feeling of confidence when speaking with denture was reported as high in phonetics parameters (4.32 ± 1.05). The mean satisfaction score for dentures helpful in eating food is reported as high in mastication parameters (4.30 ± 1.35). The mean satisfaction score for the absence of sore spots due to a denture is reported as high in comfort parameters (4.91 ± 0.41) (Table 2).

Table 2 Descriptive analysis of satisfaction of dentist and patients

Part A		
Denture Assessment	Mean	SD
Quality Of Fit (Retention)	0.93	0.26
Extension	0.97	0.18
Vertical Relation	0.91	0.28
Occlusion	0.79	0.41
Part B		
Aesthetic		
Have missing teeth made an impact on your profile?	0.76	0.43
Do you avoid laughing or smiling with missing teeth?	0.23	0.43
Do you avoid conversation with others due to missing teeth?	0.24	0.43
Are you afraid to visit an occasion without your teeth?	0.39	0.49
Are you satisfied with your facial appearance with dentures?	4.50	1.09
Are you satisfied with the size, shape, and color of the teeth?	4.46	1.12
Phonetics		
Do you have a speech problem due to missing teeth?	0.56	0.5
Does air blow out during speech?	0.41	0.49
Do you often avoid people due to a speech problem?	0.26	0.44
Has a speech problem affected your profession?	0.45	0.5
Are you satisfied with your speech with dentures?	4.13	1.1
Do you feel confident when you speak with a denture?	4.34	1.05
Mastication		
Has your chewing capability been compromised without teeth?	0.97	0.18
Have your ability to engulf food been affected?	0.74	0.44
Has your diet selection changed?	0.62	0.49
Do you avoid eating with others?	0.20	0.40
Has a loss of teeth affected your digestion and general health?	0.43	0.50
Are your dentures helpful in eating food?	4.30	1.35
Do your upper denture falling down while opening the mouth?	0.19	0.40
Do your lower denture getting displaced on tongue movements?	0.46	0.50
Comfort		
Do you have pain while opening or closing the mouth with dentures?	0.08	0.27
Do you have even contact of teeth on both sides while closing the mouth?	0.78	0.41
Have you had sore spots due to dentures?	4.91	0.41
Have felt that your denture has not been fitting properly?	0.39	0.49

The stratification of the dentist and patient's satisfaction score was done with age, gender, employment status, and education status. There was no statistically significant difference was observed between the age group <60 years and ≥ 60 years ($p>0.05$) for mean denture assessment, aesthetic, phonetics, mastication and comfort satisfaction score. Similarly, there was no statistical significance observed between males and females ($p>0.05$) for mean denture assessment, aesthetic, phonetics, mastication and comfort satisfaction score. The employed patients have aesthetic, phonetics and mastication satisfaction score higher than unemployed patients and the relationship was statistically significant ($p<0.05$). The educated patients have mean phonetics satisfaction score higher as compared to uneducated patients and the relationship was statistically significant ($p<0.05$) (Table 3).

Table 3 Comparison of dentist and patient's satisfaction score with age and gender

Age Groups	<60 years (n=77)		≥ 60 years (n=38)		p-value
	Mean	SD	Mean	SD	
Denture assessment	3.64	0.74	3.53	0.76	0.46
Aesthetic	10.32	2.19	11.11	2.29	0.08
Phonetics	10.19	2.5	10.05	2.32	0.77
Mastication	8.06	1.95	7.61	2.25	0.26
Comfort	6.12	6.26	0.78	0.69	0.33

Gender	Male (n=60)		Female (n=55)		p-value
	Mean	SD	Mean	SD	
Denture assessment	3.57	0.77	3.64	0.73	0.620
Aesthetic	10.60	2.22	10.56	2.29	0.930
Phonetics	10.23	2.40	10.05	2.49	0.690
Mastication	7.95	2.09	7.87	2.04	0.840
Comfort	6.13	0.77	6.20	0.73	0.640
Employment Status	Employed (n=31)		Unemployed (n=84)		p-value
	Mean	SD	Mean	SD	
Denture assessment	3.68	0.75	3.57	0.75	0.502
Aesthetic	9.68	2.55	10.92	2.04	0.008
Phonetics	9.35	2.46	10.44	2.38	0.033
Mastication	7.29	2.18	8.14	1.97	0.048
Comfort	6.16	0.93	6.17	0.67	0.973
Education status	Educated (n=98)		Uneducated (n=17)		P-value
	Mean	SD	Mean	SD	
Denture assessment	3.59	0.77	3.65	0.61	0.780
Aesthetic	10.5	2.38	11.06	1.14	0.345
Phonetics	10.42	2.42	8.59	1.97	0.004
Mastication	7.86	2.15	8.24	1.39	0.486
Comfort	6.16	0.74	6.18	0.81	0.947

DISCUSSION

The study aims to evaluate the patient's priority in the fabrication of a denture and also assess how much satisfied were patients when they receive their denture in terms of aesthetic, phonetics, mastication and comfort. The study also determined satisfaction parameters of a successful denture. Berg E stated that a healthy, constructive, open and practical discussion between the dentist and his patient reflects successful denture provision [12]. Ever since the edentulism has become a legendary tradition of older age, the need for prosthetic rehabilitation is always in demand. It is extremely imperative for a dentist to consider his patient's priorities with regards to denture fabrication. Edentulism and older age add up to increase the level of irritability in the patient's behavior. In accordance with current study results, there were 47% of patients that prioritize to incorporate such features in their denture that could enhance their chewing abilities. This explains that denture provision is one way to improve the overall quality of life as edentulism has a negative impact on the patient's well-being [13,14]. The other parameter in this aspect is aesthetics. It shows that 28.7% of patents chose to have aesthetically pleasing denture over proper mastication and comfort. This is thought-provoking that social embarrassment might play an important role in edentulous patients [15,16]. The other two parameters phonetics and comfort were least noticeable. Only 13.9% of patients needed to have proper phonetics with their dentures. Indeed speech is one of the main factors affected by edentulism however results are self-explanatory and fortunately it is the least reported problem according to most of the patients [17].

With respect to patient's socio-demographic status, the mean age of the patients was 58.28 ± 7.02 years wherein 52.2% were males and 47.8% were females. About 73% of patients were unemployed (73%) whereas 27% were employed. The importance of socio-demographic in assessing patient's satisfaction is one the major strength. It determines whether age, gender or employment status affects the satisfaction of the patient. Satisfaction is variable parameter and it is subjective to patient's demographics however it is worth noticing that regardless of what patient's age and gender, satisfaction is never affected. Hence age and gender do not seem to be a risk factor for satisfaction which is also validated in studies conducted [18-22].

According to the patient's priority criteria, employment is one parameter that affects the patient's satisfaction. In the present study, it is justifiable that patients who were employed had mean aesthetic mean satisfaction score 9.68 ± 2.55 , phonetic mean satisfaction score 9.35 ± 2.46 and mastication mean satisfaction score 7.29 ± 2.18 that is less than unemployed patients. The result showed a statistically significant relation of satisfaction with aesthesis, phonetics, and mastication. Contemplating these results, it is worth noticing that employed patients were less satisfied with their aesthetics post denture therapy, this might be because of their social life. The satisfaction levels of employed patients were higher because they had a higher impact of edentulism in their profile (mean satisfaction score 0.76 ± 0.43);

they had to avoid laughing (mean satisfaction score 0.23 ± 0.43), talking (mean satisfaction score 0.24 ± 0.43) with their colleagues that causes them in great social dilemma affecting their profession also (mean satisfaction score 0.45 ± 0.50). In addition, they had difficulty while speaking (mean satisfaction score 0.56 ± 0.50) and blows air out while speaking (mean satisfaction score 0.41 ± 0.49). The most important factor in these patients that affects mastication was fear of falling upper denture while opening mouth (mean satisfaction score 0.19 ± 0.40) which is a social trauma and has a negative impact on patient's well-being. It is also worth noticing that these patients do not prefer to eat with anyone (mean satisfaction score 0.20 ± 0.40). The results are in agreement with a study of Santos BF as well as with many other studies [18,23-25]. In this study, phonetics is one of the factors related to the educational status of the patient. Patients who were uneducated were not satisfied with their speech with dentures ($p < 0.05$). This shows that educated patients had learned phonetics and speech throughout their schooling as compare to uneducated patients. Therefore, educated patients were able to pronounce alphabets properly. The results of this study regarding the comparison of denture satisfaction with age, gender, employment status, and educational status were not statistically significant. However, the dentist had adequate extension in their denture (mean satisfaction score 0.97 ± 0.28) while there was the least satisfaction with regards to occlusion (mean satisfaction score 0.79 ± 0.41). These results are contrary to Shirani, et al., study [26].

The study was limited to ascertain mean satisfaction scores of patients and dentist. However, it does not evaluate whether better communication had higher satisfaction with denture provision.

CONCLUSION

Successful denture delivery is based upon the patient's satisfaction. In a nutshell, overall patients were satisfied with their dentures. Age and gender do not affect patient satisfaction. However, employed patients were less satisfied with their dentures as compare to unemployed patients. In addition, patients who were educated had better phonetics with their dentures as compare to uneducated patients.

Recommendations

A satisfied patient reflects great dental expertise. Patient's need for their complete dentures should be established. We recommend initiating strong communication with patients to seek for their priorities. Once priorities are sought, patient satisfaction is increased. We also recommend conducting more in-depth studies to assess factors leading to satisfaction.

DECLARATIONS

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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