

Assessment of satisfaction in patients with existing complete dentures issued from International Islamic University Malaysia (IIUM) Kuantan Dental Polyclinic

Asrul Romdani Bujang Saili¹, Mohd Aliff Haidin¹, Karimah Wahida Zulkifli^{2*}

¹ Kulliyah of Dentistry, International Islamic University Malaysia (IIUM)

² Prosthodontic Department, Kulliyah of Dentistry, International Islamic University Malaysia (IIUM)

Abstract

Removable acrylic complete dentures are a popular choice of treatment for the edentulous patient in Malaysia because of their cost and affordability. However, dissatisfaction among denture wearers with their complete denture is still very common. The goal of this study is to determine the level of satisfaction among patients who receive complete dentures from the IIUM Kuantan Dental Polyclinic, as well as the factors that impact their satisfaction. 42 edentulous patients wearing complete dentures made in International Islamic University Malaysia (IIUM) Kuantan dental Polyclinic for at least 3 months were included. These patients were interviewed over the phone in Malay or English language regarding their satisfaction towards the complete denture that they received on different parameters like retention, aesthetics, mastication, and phonetic using Visual Analogue Scale (VAS) which uses a Likert scale of 0-4 (0= not satisfied at all; 1= not satisfied; 2=acceptable; 3=satisfied; 4=very satisfied) to express their satisfaction. The overall satisfaction comprises of 90.5% of the subjects are satisfied with their complete denture. The fitting of lower denture and mastication contributed to the highest percentage of dissatisfaction. The retention of lower denture contributed to most dissatisfaction of the patients and female patient are more concerned with aesthetic compared to male. As compared to patients who already have worn dentures previously, first-time denture wearers are more satisfied with the upper denture fitting. Three months of wearing duration influenced the successful or treatment. Majority of patients are satisfied with the dentures provided by student of Kulliyah of Dentistry. However, the dissatisfaction of wearing the complete dentures is mainly because of lower denture is not fit and poor mastication.

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*Corresponding author

Address:

Department of Prosthodontic, Kulliyah of Dentistry, International Islamic University Malaysia (IIUM), Kuantan campus, Pahang, Malaysia

Telephone: +609 570 2952

Email address:

kwsz@iium.edu.my

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Introduction

Teeth loss can have an impact on function, aesthetics, and phonation, so it's usually replaced with a removable or fixed prosthesis. Even in developed countries, demand for prosthodontic treatment is

expected to rise because to an ageing population, despite the fact that preventative dentistry helps to protect teeth. Many countries are struggling with an ageing population, with the proportion of persons over 65 expected to rise by 50% in the next few decades. As a result, the need for removable denture treatment, particularly

full dentures, would increase among elderly patients. However, in order to assess the level of satisfaction of elderly patients who wear complete dentures, it is vital to consider the denture's primary function of eating as well as its adaptability for speech. Removable prostheses have been used widely as treatment for replacement of missing teeth. One of it is complete dentures. Although there are many treatment options that are available for completely edentulous patients especially in today's era of implant-supported complete dentures, conventional complete dentures are usually their first choice because of its simplicity and affordable price according to Bilhan *et al.* (2012) and Deeksheetha *et al.* (2019) in their study conclude that complete denture are important to enhance the mastication, phonetics, and aesthetic appearance of the completely edentulous patients.

However, the dissatisfaction among denture wearers with their complete dentures is still very common even though there have been a lot of improvement that have been created in the construction of complete denture over the years. Satisfaction of complete denture wearer toward their complete denture are influenced by various factors. This includes the patient's personality, patient's expectation, and duration of wearing complete denture, patients' salivary flow, patients' confidence in dentist and clinician experience and prosthetic complications as stated by Fenlon *et al.* (2007), Subramaniam *et al.* (2019) and Wolff *et al.* (2003). These factors are essential for adaptation, acceptance and discomfort of the patients while wearing their complete denture. In addition, on the report of Kovacić *et al.* (2010) and Celebić *et al.*, (2003), the success of these complete denture treatments really depends on the patient's satisfaction towards the denture that they received, and it is does not depend on the clinician's satisfaction as well as the quality of the complete dentures.

Thus, this research aims to assess the level of satisfaction among patients receiving complete dentures from IIUM Kuantan Dental Polyclinic and also the associated

factors that affect the level of their satisfaction.

Materials and Methods

All patients come from a variety of backgrounds, including gender, race and age who received complete denture treatment at IIUM Kuantan Polyclinic were randomly selected from the outpatient section database. Our inclusion criteria for the subjects are being edentulous, having worn the complete dentures made in IIUM Kuantan Dental Polyclinic for at least 3 months and being able to listen, understand and provide their consent verbally. As for the exclusion criteria, subjects that are having speech disorders, and those that having implant-supported complete denture prostheses are not included in this research. A total of 380 denture patients were registered in the database between 2014 and 2019. Besides, 120 patients out of 380 patients have full detail of registration records. However, only 42 edentulous patients that mark all the criteria needed were enrolled. This study was approved by IIUM Research Ethic Committee (IREC 2020-103).

These patients were called one by one over the phone, informed about the research and their consent was taken verbally. The patients' data like age, race, gender, history of wearing denture previously, period of edentulism and age of existing dentures were recorded. The visual analogue scale used in this research was adapted from a validated study by Bilhan *et al.* (2012) and explained to each patient in Bahasa Melayu or English. The questionnaires divided into two parts, which is first part is social demographic data of patients and second part is the patient's satisfaction of the dentures. The second part of questionnaires comprise of the question regarding the fit of upper and lower denture, the color of the denture, the appearance of the denture, the appearance of the face, speech, mastication, smoothness of the denture and the overall satisfaction.

The respondents were asked on their satisfaction of the complete denture based on different parameters and indicated the degree of satisfaction or dissatisfaction of each item based on a Likert scale: 'strongly dissatisfied' =0, 'dissatisfied' =1, 'acceptable' =2, 'satisfied' =3, and 'strongly satisfied'=4. We simplified the results of 5 scales into 3 scales which are not satisfy, acceptable and satisfy by combining the scale not very satisfy at all and not satisfy as one and also the scale satisfy and very satisfy as one.

The patient's satisfaction with these various parameters was assessed and evaluated using IBM SPSS Statistics version 25, Chicago, America. Descriptive statistics were used like mean and percentage for demographic parameters. Besides descriptive statistic, the qualitative data were tested with Mann Whitney U test to relate between gender and the history of current dentures.

There are forty-two patients receiving complete denture treatments from polyclinic of Kulliyyah of Dentistry were included in this study, 26 were females and 16 we males. These patients aged from 49 years old to 77 years old and the majority of our subjects' ethnicity are Malay which are 95.2% and only 4.8% Chinese were included in this study. For history of denture wearer, 11% of the patients are first time complete denture wearer while the other 74% had previously experience wearing complete dentures.

The results of this study pointed out that the ratings of patients' assessments were surprisingly high as shown in Table 2. More than half of the patients rated all the parameters related to complete denture as satisfied. However, two variables were determined to be less than 50% satisfied, namely the fit of the lower denture and mastication, which together scored 42.95%

Results

Table 1. Characteristics of the respondents (n=42)

Variable	Frequency (%)
Sex	
Male	16 (38%)
Female	26 (62%)
Ethnicity	
Malay	40 (95.2%)
Chinese	2 (4.8%)
History of previous denture wearer	
Yes	31 (74%)
No	11 (26%)

Table 2. Distributions of different variables and level of satisfactions.

Variables	Level of Satisfaction (%)				
	Not satisfy at all	Not satisfy	Acceptable	Satisfy	Very satisfy
Fit of upper denture	1 (2.4%)	1 (2.4%)	3 (7.1)	16 (38.1%)	21 (50%)
Fit of lower denture	0 (0%)	6 (14.3%)	7 (16.7%)	11 (26.2%)	18 (42.9%)
Colour of the denture	0 (0%)	1 (2.4%)	4 (9.5%)	9 (21.4%)	28 (66.7%)
Colour of the teeth	0 (0%)	1 (2.4%)	3 (7.1%)	5 (11.9%)	33 (78.6%)
Appearance of the denture	0 (0%)	1 (2.4%)	0 (0%)	8 (19%)	33 (78.6%)
Appearance of the face	0 (0%)	1 (2.4%)	2 (4.8%)	8 (19%)	31 (73.8%)
Speech	0 (0%)	1 (2.4%)	4 (9.5%)	13 (31%)	24 (57.1%)
Mastication	0 (0%)	4 (9.5%)	9 (21.4%)	11 (26.2%)	18 (42.9%)
Smoothness of the denture	1 (2.4%)	1 (2.4%)	2 (4.8%)	9 (21.4%)	29 (69%)
Overall satisfaction	0 (0%)	1 (2.4%)	3 (7.1%)	15 (35.7%)	23 (54.8%)

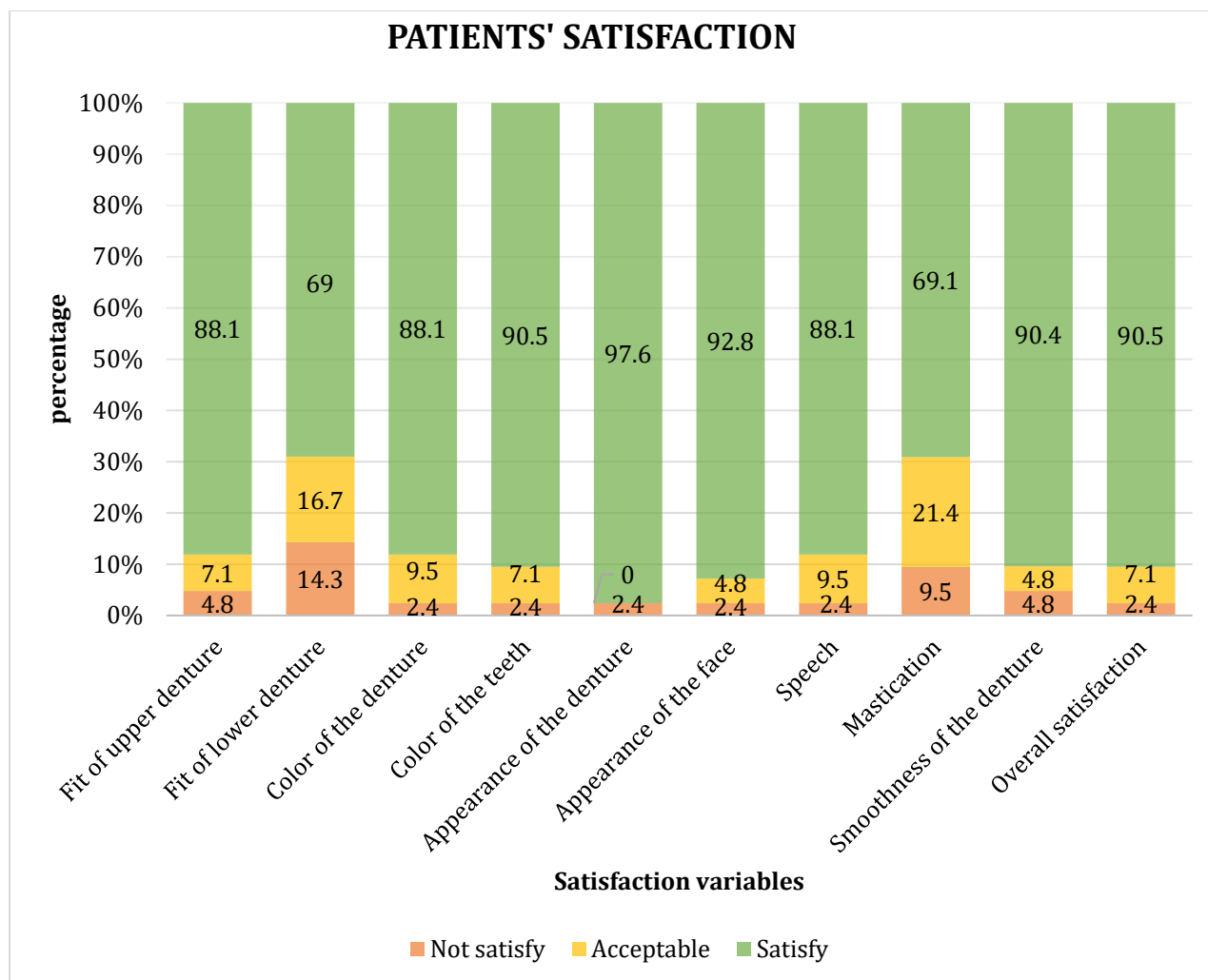


Figure 1. The percentage of patients' satisfaction of each variables.

The satisfaction level on each parameter is presented in Figure I with the best ratings were as follows: appearance of the denture (97.6%); appearance of the face (92.8%); color of the teeth (90.5%); and smoothness of the denture (90.4%). The parameters with the highest percentage of the lowest ratings were: Fit of the lower denture, 14.3% and mastication, 9.5%. The overall satisfaction comprises 90.5% are satisfied with their complete denture, 7.1% rated as acceptable and only 2.4% rated as not satisfied.

Significant difference was found between male and female in terms of the appearance of the denture ($P < 0.05$). Furthermore, it was discovered that the appearance of the face and speech for both genders are nearly

significant to P-values of 0.099 and 0.098, respectively. The others percentage of relationship between VAS score of each variable and gender are presented in Table 3.

Significant difference was found between patient who had previously experience of wearing denture and patient who had no experience in terms of fit of the upper denture ($P < 0.05$). Additionally, because the P-value is greater than 0.05, other variables such as denture colors, appearance of denture, appearance of face, speech, mastication, smoothness of denture, and overall satisfaction are non-significant.

Table 4 shows the association between the VAS score of each variable and the previous history of wearing dentures.

Table 3. The relation between VAS of each variable and gender.

Variables	Level of Satisfaction (n=42)					P-value
	Not satisfy at all, n (%)	Not satisfy, n (%)	Acceptable, n (%)	Satisfy, n (%)	Very satisfy, n (%)	
<i>Fit of upper denture</i>						
Male	2.4	0	4.8	14.3	16.7	0.391
Female	0	2.4	2.4	23.8	33.3	
<i>Fit of lower denture</i>						
Male	0	4.8	4.8	9.5	19.0	0.460
Female	0	9.5	11.9	16.7	23.8	
<i>Color of the denture</i>						
Male	0	0	2.4	9.5	26.2	0.686
Female	0	2.4	7.1	11.9	40.5	
<i>Color of the teeth</i>						
Male	0	0	0	2.4	35.7	0.55
Female	0	2.4	7.1	9.5	42.9	
<i>Appearance of the denture</i>						
Male	0	0	0	0	38.1	0.009**
Female	0	2.4	0	19.0	40.5	
<i>Appearance of the face</i>						
Male	0	0	0	4.8	33.3	0.099
Female	0	2.4	4.8	14.3	40.5	
<i>Speech</i>						
Male	0	0	9.5	11.9	16.7	0.098
Female	0	2.4	0	19.0	40.5	
<i>Mastication</i>						
Male	0	2.4	9.5	7.1	19.0	0.593
Female	0	7.1	11.9	19.0	23.8	
<i>Smoothness of the denture</i>						
Male	2.4	0	0	7.1	28.6	0.524
Female	0	2.4	4.8	14.3	40.5	
<i>Overall satisfaction</i>						
Male	0	0	2.4	16.7	19.0	0.793
Female	0	2.4	4.8	19.0	35.7	

*Significant at P value < 0.05

A Mann Whitney U test

Table 4. The relation between VAS of each variable and previous history of wearing denture.

Variables	Level of Satisfaction (n=42)					P-value
	Not satisfy at all, n (%)	Not satisfy, n (%)	Acceptable, n (%)	Satisfy, n (%)	Very satisfy, n (%)	
<i>Fit of upper denture</i>						
Yes	2.4	2.4	0	23.8	45.2	0.022**
No	0	0	7.1	14.3	4.8	
<i>Fit of lower denture</i>						
Yes	0	11.9	9.5	16.7	35.7	0.463
No	0	4.8	7.1	9.5	7.1	
<i>Color of the denture</i>						
Yes	0	2.4	2.1	14.3	54.8	0.131
No	0	0	7.1	7.1	11.9	
<i>Color of the teeth</i>						
Yes	0	2.4	4.8	7.1	59.5	0.756
No	0	0	2.4	4.8	19.0	
<i>Appearance of the denture</i>						
Yes	0	2.4	0	11.9	59.5	0.735
No	0	0	0	7.1	19.0	
<i>Appearance of the face</i>						
Yes	0	2.4	2.4	8.9	59.5	0.233
No	0	0	2.4	8.9	14.3	
<i>Speech</i>						
Yes	0	2.4	4.8	23.8	42.9	0.778
No	0	0	4.8	7.1	14.3	
<i>Mastication</i>						
Yes	0	7.1	14.3	19.0	33.3	0.652
No	0	2.4	7.1	7.1	9.5	
<i>Smoothness of the denture</i>						
Yes	0	2.4	2.4	14.3	54.8	0.295
No	2.4	0	2.4	7.1	14.3	
<i>Overall satisfaction</i>						
Yes	0	2.4	4.8	21.4	45.2	0.295
No	0	0	2.4	14.3	9.5	

*Significant at P value < 0.05
A Mann Whitney U test

Discussion

The main objective of this study is to assess satisfaction level of complete denture wearer receiving treatment from IJUM Kuantan dental polyclinic. It is expected satisfaction level are high but would be influenced by different determinants.

Among the 10 parameters of satisfaction level, the parameters with the highest percentage of the lowest ratings which score in either category 'Not Satisfy at All' or 'Not Satisfy' are 'Fitting of the Lower Denture' which is 14.3%(n=6) followed by mastication 9.5% (n=4). This is expected due to the fact that residual edentulous ridge of mandible is rapidly undergoing continuous resorption in which according to Kovacic *et al.* (2010) the resorption rate in mandible was almost twice more pronounced than in maxilla and the fastest resorption rate is during the first few years after teeth extractions and gradually would slows down. In addition, the satisfaction of lower denture is described with low satisfaction may also be contributed by neuromuscular adaptation. Long period of neuromuscular adaptation is needed for the muscles of the lips, cheek, and tongue, which surround the lower denture, to adapt their function to the denture flanges. According to Celebic *et al.* (2003) the long period of neuromuscular adaptation will cause the mandibular dentures to move and damage oral mucosa, thus causing discomfort, unfavorable retention, and low levels of chewing ability and general satisfaction. Besides, it is interesting to note that the score of satisfaction for the mastication parameter, it is scored low rating by the same patients who had scored a low rating for 'Fit of Lower Denture'. It is predictable that any breach in retention would compromise stability during mastication.

In this study, female patients reported significantly less satisfaction compared to male in term of the appearance of dentures ($P < 0.05$). This is because female is more willing to report symptoms compare to male as reported by Pan *et al.* (2008) in which female patients score significantly lower

overall satisfaction for both denture and implant supported overdenture for aesthetic component compared to male patients. By knowing this, having a proper satisfaction evaluation with female patient rather than male patient regarding the appearance of the denture during denture construction process would help to improve which parts that are lacking in the treatment and thus increasing the satisfaction level. Furthermore, a study done by Neumann *et al.* (1989) reported that male patients are to score less dissatisfaction with dental appearance although rated poor by dental professional for their aesthetic appearance. Thus, the perception of aesthetic is expected to be less critical for male compared to female and clinician should acknowledge that clinician perception of denture aesthetic alone may not be accurate with the patient's perception. There is systematic review article by Singh *et al.* (2019) concluded that patient-dentist communication in which how confidence the patient with the dentist is more important than the quality of the denture for the success of the denture.

There is significance elicited among first time denture wearers in our study showing that they were not satisfied with the retention of upper denture compared to patient who had experience with previous denture ($p < 0.05$). This is because first-time wearers probably still needed time for adaptation to the dentures. It might also be due to the fact that their perceptions regarding new complete dentures were not influenced by previous denture experience as investigated by Miranda *et al.* (2014). So, they probably have expectation that the experience of wearing denture is the same as with dentition. However, our result is in opposition to Celebic *et al.* (2003) which shows that patient who wears complete denture for the first time are more satisfied with the retention of maxillary complete denture.

It is found that some patients from our study were excluded from participating in this research because they did not continue to wear the complete denture for at least 3 months. This is mainly because of uncomfortable and pain. Other than that, it

was also noted that some patients who just got their complete denture refuse to wear the denture immediately because of mastication problem, unaesthetic, and ill fitting. We believe this is because of insufficient period of neuromuscular adaption which influence the satisfaction level. This finding is supported by Musavi *et al.* (2017) in which patients' satisfaction with the complete denture showed 67% satisfaction after 3 months delivery compared to only 38.4% during first month of delivery.

It is important for clinician to motivate patients and educate them to increase success of complete denture rehabilitation requires adaptation time which involve multiple reviews and commitment.

Conclusion

Overall, our study indicates that majority of patients receiving complete denture treatments from IIUM Kuantan Dental Polyclinic are satisfied in all 10 parameters ranging from 69% to 90.5% who scored at least satisfied or very satisfied. Only minimal number of patients who were not satisfied with their denture and mostly due to fitting of lower denture 14.3% and mastication 9.5%.

Within limitation of our study, we can conclude female patients are more concerned with aesthetic appearance of denture compared to male patient. We also find out that first-time denture wearer is significantly more satisfied with retention of upper denture. Furthermore, the study's findings revealed that patients who met the exclusion criteria did not continue to wear complete dentures due to discomfort and most of them did not return for follow-up visits.

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