

THE EFFECT OF PAST DENTURE EXPERIENCE ON PATIENTS SATISFACTION WITH THEIR COMPLETE DENTURES

¹RANIA M SAMARA, BDS, MMedSci, JB (Prosthetics)

ABSTRACT

The aim of this study was to assess the effect of past denture experience on patient's satisfaction with new complete dentures, using a self evaluation questionnaire. Eighty patients with no previous denture history, who obtained new complete dentures were selected to form the study group. A numerically equal group of patients with previous denture experience and who received new dentures were selected as the control. The same clinical and laboratory procedures were followed for both groups. Patients were requested to return one week after insertion to fill in a self assessment questionnaire evaluating satisfaction in terms of function, comfort and appearance. Patients in the study group were divided into three subgroups according to their ages to study the effect of age and gender variations on satisfaction.

Mean scores were significantly greater in patients with previous denture experience. Satisfaction was significantly better in patients who were below the age of 60 and who were older than 69 years. Differences in mean scores between genders were not statistically significant.

Past denture experience was an important predictor for success of complete denture therapy, therefore should be considered during assessment. Patients aged 60-69 years were the most difficult group to satisfy. However, gender variation showed little effect on patient satisfaction.

Key words: *past denture experience, satisfaction, complete denture*

INTRODUCTION

One of the ultimate goals of prosthetic treatment is the achievement of the patient satisfaction; defined as "patients' cognitively based evaluation of, and affectively based response to the important aspects of the structure, process and result of their service".¹ It is a highly complex phenomenon influenced by many factors often not strictly related to the stomatognathic system.² These include not only the quality of the dentures and the oral condition, but also patient related factors such as their attitude toward dentures, their personality, and the interpersonal relationship between the patient and the dentist. Many of these factors were examined in separate studies with different results. Some investigators found a significant relationship; others did not.^{3,4} Of the multitude of factors associated with

patient satisfaction are previous denture experience and age. It is reported that experienced patients are generally more satisfied with their new dentures provided treatment has been carefully executed.⁵ On the other hand, it is assumed that as patients grow older, it becomes more difficult for them to adapt successfully.⁶ In addition, several diseases usually associated with the process of ageing such as xerostomia, tissue fragility, muscle weakness, osteoporosis, bone resorption, arthritis, anxiety and depression were all mentioned in the literature as possible causes for failure of prosthetic treatment.⁷ These numerous problems of ageing have led to the conclusion that denture failures increase markedly with age.⁷

This prospective study examines the effect of previous denture experience on patients satisfaction with

¹ Specialist in Prosthodontics, Department of Dentistry, Royal Medical Services, King Hussein Medical Centre, Amman, Jordan.

Correspondence: Dr Rania M Samara C/o Dahiat Al Amir Rashed, PO Box 136, Amman, 11831, Jordan. email; rsamara20@hotmail.com. Tel: 00962-779819433

their new complete dentures in terms of function, comfort and appearance, by using a self evaluation questionnaire. It also looks at the effect of age and gender variation on patients acceptance of their new dentures.

METHODOLOGY

For the purpose of this research, eighty patients (53 males, 27 females with an age range of 36-83 years) who obtained new maxillary and mandibular complete dentures at Princess Aysha Medical Complex / Royal Medical Services, over a period of two years (2003-2005) were selected to form the study group. Selective criteria included lack of previous denture experience and presence of adequate ridge anatomy as judged by the clinician. Criteria also included absence of uncontrolled illnesses, diseases affecting the neuromuscular system, hyposalivation, and diseases with either a strong connection to emotional stress or impairing mental health.

Upper and lower complete dentures were constructed by the same clinician following standardized clinical and laboratory techniques. All dentures were processed by the same technician in the same dental laboratory within the institution. On insertion, dentures were checked in the mouth for adaptation of the borders and denture bearing surfaces using pressure indicating paste and were relieved as needed.

Using the same criteria, a numerically equal group of patients of matching age and gender, but with no previous history with one or more dentures, were selected as the control group. The same clinical and laboratory procedures were performed as per the study group.

All subjects were instructed to wear their dentures during waking hours and to remove them before retiring for the day. Oral hygiene instructions were provided. All patients were requested to return one week after insertion to fill in a self-assessment questionnaire by Weinstein⁷, and to perform any necessary adjustments. The questionnaire was translated into Arabic and reliability and credibility were tested. The questionnaire evaluated patients total satisfaction including 12 factors divided into three categories of function, comfort and appearance. The category of function included questions related to drinking, chew-

ing, biting and speaking. Comfort was assessed using questions related to upper and lower denture tightness, lack of gagging and upper and lower denture comfort when not eating. Appearance was assessed by means of shape and shade of teeth and general appearance. A five-point grade system (poor=1 to excellent=5) was used. The total satisfaction score was calculated for each patient out of a full score of 60 (Function=20, Comfort=25 and Appearance=15).

Patients in the study group were allocated to three subgroups according to their ages (A: ≤ 59 years, B: 60-69 years, C: ≥ 70 years). Using the above mentioned questionnaire, the effect of gender and age variations on patients satisfaction with their dentures was assessed.

An analysis of statistical significance for total satisfaction, function, comfort and appearance was assessed using the Statistical Package for Social Sciences (SPSS 17.0). The t-Test was used to assess the significance for the effect of past denture experience and gender variation on patient satisfaction at $p \leq 0.05$, and the one-way ANOVA test was used to analyze the significance of age variation among the three age subgroups.

RESULTS

The mean age of patients in the study group was 66.2 ± 8.4 years (range 36-83 years) compared to 64.1 ± 7.4 years (range 45-77 years) for the control group. Both groups had equal number of males and females (53 males, 27 females in each group) with a total of 106 males and 54 females participating in this study.

Table 1 shows the mean scores, standard deviation and p -value in both groups for total satisfaction including the 3 categories of function, comfort and appearance. As can be depicted from the table, the average scores in the study group were lower than the control for all tested variables. Analyzing the results using the t-Test, it was found that differences in the mean scores between the two groups in total satisfaction, function, comfort as well as appearance were statistically significant ($p \leq 0.05$).

Table 2 shows the mean patient satisfaction scores and significance level at $p \leq 0.05$ according to age distribution. In general the average scores for patients in subgroups A and C were higher than those for

TABLE 1: SATISFACTION SCORES ACCORDING TO PREVIOUS DENTURE HISTORY

Past denture history						
	Total score	Control Gpn=80		Study Gpn=80		Sig P≤.05
		Mean	SD	Mean	SD	
Total Satisfaction	60	58.54	2.111	54.24	5.328	.000
Function	20	19.30	1.436	17.23	2.546	.000
Drink liquids	5	4.94	.460	4.63	.769	.002
Chew food	5	4.65	.638	3.86	1.088	.000
Bite into food	5	4.80	.513	4.18	1.003	.000
Speak clearly	5	4.91	.363	4.56	.840	.001
Comfort	25	24.40	.836	22.56	2.396	.000
U denture tightness	5	4.88	.369	4.43	.925	.000
L denture tightness	5	4.58	.689	3.85	1.069	.000
Lack of gagging	5	5.00	.000	4.95	.219	.043
U denture comfort when not eating	5	4.99	.112	4.76	.534	.000
L denture comfort when not eating	5	4.98	.157	4.60	.773	.000
Appearance	15	14.84	.561	14.59	.959	.049
Shape of teeth	5	4.93	.265	4.79	.469	.024
Shade of teeth	5	4.98	.157	4.84	.434	.009
General appearance	5	4.94	.291	4.83	.471	.071

TABLE 2: SATISFACTION SCORES ACCORDING TO AGE VARIATION IN STUDY GROUP

Age Groups								
	Total score	≤59 years n=19 mean 53.95 SD 4.49		60-69 years n=36 mean 63.9 SD 2.82		≥70 years n=25 mean 71.96 SD 2.19		Sig P ≤ .05
		Mean	SD	Mean	SD	Mean	SD	
Total Satisfaction	60	56.16	3.55	52.33	5.84	56.0	3.92	.006
Function	20	18.0	2.02	16.28	2.86	18.0	1.87	.009
Drink liquids	5	4.78	.54	4.47	.93	4.72	.61	.266
Chew food	5	4.21	.97	3.5	1.09	4.12	1.01	.023
Bite into food	5	4.26	1.04	4.06	1.08	4.28	.84	.634
Speak clearly	5	4.73	0.45	4.25	1.09	4.88	.33	.008
Comfort	25	23.15	1.80	21.67	2.68	23.4	1.87	.008
U denture tightness	5	4.37	1.01	4.31	0.94	4.64	.81	.368
L denture tightness	5	4.16	.83	3.5	1.19	4.12	.88	.028
Lack of gagging	5	4.95	.23	4.92	.28	5	0	.348
U denture comfort when not eating	5	4.78	.53	4.72	.56	4.8	.5	.832
L denture comfort when not eating	5	4.89	.46	4.22	.97	4.84	.37	.000
Appearance	15	14.68	.82	14.22	1.55	14.6	1.12	.855
Shape of teeth	5	4.84	.37	4.69	.57	4.88	.33	.269
Shade of teeth	5	4.89	.32	4.78	.53	4.88	.33	.541
General appearance	5	4.95	.23	4.75	.55	4.84	.47	.334

TABLE 3: SATISFACTION SCORES ACCORDING TO GENDER VARIATION IN STUDY GROUP

Gender Variation						
	Total score	Male n=53		Female n=27		Sig P≤.05
		Mean	SD	Mean	SD	
Total Satisfaction	60	54.58	5.329	53.56	5.359	.417
Function	20	17.43	2.515	16.81	2.602	.307
Drink liquids	5	4.58	.819	4.70	.669	.517
Chew food	5	3.94	1.082	3.70	1.103	.355
Bite into food	5	4.28	.984	3.96	1.091	.179
Speak clearly	5	4.62	.765	4.44	.974	.373
Comfort	25	22.83	2.146	22.04	2.794	.163
U denture tightness	5	4.49	.800	4.30	1.137	.378
L denture tightness	5	3.96	1.018	3.63	1.149	.190
Lack of gagging	5	4.96	.192	4.93	.267	.487
U denture comfort when not eating	5	4.85	.411	4.59	.694	.041
L denture comfort when not eating	5	4.60	.817	4.59	.694	.952
Appearance	15	14.53	.966	14.70	.953	.449
Shape of teeth	5	4.74	.524	4.89	.320	.169
Shade of teeth	5	4.79	.495	4.93	.267	.195
General appearance	5	4.79	.495	4.89	.424	.390

patients in subgroup B. Analyzing the results using the one-way ANOVA, differences in the mean scores for total satisfaction, function and comfort between the three subgroups were found to be statistically significant. In particular chewing, speaking, lower denture tightness and lower denture comfort when not eating were significantly improved in patients less than 59 years and more than 70 years old.

Table 3 shows a comparison between the satisfaction scores for males and females in the study group. As can be seen, the average scores for most of the studied factors were higher for males than females except in appearance. However, using the t-Test, differences between the two genders were not statistically significant.

DISCUSSION

Often dentists and patients judge the concept of success differently. Dentists consider dentures to be successful when they meet certain technical standards, whereas patients evaluate them from the viewpoint of personal satisfaction.^{8,9} However, to evaluate success in terms of patients satisfaction is critical to the outcome of complete denture treatment.¹⁰ A patient self assessment questionnaire allows patients an op-

portunity for open and revealing evaluation¹⁰, hence it is used in this study.

Several factors can influence satisfaction. They are interrelated and frequently have an associated effect. They include not only factors exclusive to the dental prosthesis, such as comfort, ability to masticate, esthetics and retention³, but also patient related factors⁴. The ability to adapt to new dentures and the prognosis will generally diminish in proportion to the health status.^{11, 12} Some of the diseases that adversely affect patients satisfaction with their dentures include hyposalivation, Parkinson's disease, myasthenia gravis, bulbar palsy and diseases with either a strong connection to emotional stress or impairing mental health.^{6,7} None of the patients participating in this study presented with any of these diseases. In addition, although one might expect to find a positive relationship between the condition of the mouth and the patients appreciation of their dentures, some researchers reported its nonexistence.¹³ Nonetheless, all patients participating in this study had adequate ridge form.

According to Sato¹⁴, overall satisfaction is highly correlated with chewing, speech, pain, aesthetics, fit, retention and comfort. Therefore, these variables were evaluated in this study.

Past denture experience is strongly associated with denture satisfaction.^{3,7} It has been recognized that patients obtaining additional sets of dentures have a more developed neuromuscular control over their dentures, thus enhancing stability and function. Speaking ability appears to be improved and these patients have more realistic expectations regarding aesthetics.^{3,7,13} However, it is recommended that clinicians should be careful in interpreting this association, as past experience could sometimes be negative, thus might not be highly predictive of satisfaction.^{9,11} In accordance with the results documented in the above mentioned studies, the results of this study show that function and comfort appear to be enhanced in patients obtaining additional sets of dentures. Furthermore, patients appear to be more satisfied with their new denture esthetics as well.

Studies on the significance of age on patient satisfaction have contradictory results. While some found age to have an insignificant influence on satisfaction with complete dentures^{3,7,15}, others such as Frank¹¹ reported that patients younger than 60 years expressed twice the amount of dissatisfaction with their dentures than older patients, in particular with aesthetics.⁹ However, as patients grow older, it becomes more difficult for them to adapt successfully.⁶ In addition, several diseases, usually associated with the process of ageing, such as xerostomia, muscle weakness, arthritis and depression appear to be possible causes for failure of prosthetic treatment.⁷ Despite all these disadvantages, age should be looked at as offering advantages as well. Older patients are more likely to draw upon previous denture experiences, whereby their neuromuscular control becomes highly developed enabling them to stabilize their dentures and function better with them. A further point is that older patients may have more realistic expectations in relation to the prognosis of replacement dentures.⁷ However, age is closely associated with the likelihood of previous denture experience, which is found to have a more profound effect on satisfaction.^{6,7} With the exclusion of past denture experience as a factor influencing satisfaction in this study, patients aged between 60 and 69 years were particularly more dissatisfied with their dentures, whilst total satisfaction, function and comfort were significantly improved in those younger than 60 years. These findings are in accordance with the results of previous studies. On the other hand, these

same variables were also improved in patients 70 years old or above, the fact that does not comply with the results of other studies. Although difficult to interpret, this might be related to the fact that most medical conditions that make it harder for patients to adapt were absent, in addition, the sample size might have not been sufficient, which presents a limitation to this research and could be recommended for future studies. Nevertheless, the two groups of patients; less than 60 and 70 years or above appear to chew better and speak more clearly with their dentures; in addition they are more comfortable with the tightness and comfort of their lower dentures in particular.

The effect of gender variation on patients satisfaction with their dentures has also been examined. It was found that men were generally more satisfied with their dentures when compared to women except when it came to esthetics, where women scored higher. Although not statistically significant, this observation is not in accordance with previous studies which demonstrate that females are usually more critical about their appearance.^{16,17} This might be related to the socioeconomic status of involved patients, data about which was not included in this study. This again presents a limitation to this study and should be taken into consideration in future research.

CONCLUSIONS

Past denture experience is considered a predictive factor for success of complete denture therapy as total satisfaction in terms of function, comfort and appearance are significantly improved in patients obtaining additional sets of complete dentures. This fact should be taken well into consideration during assessment and treatment planning. On the other hand, age plays an important effect on overall satisfaction of patients with their new dentures since patients younger than 60 years or older than 69 appear to be generally more satisfied with their dentures. However, gender variation appears to exert little influence on patients acceptance of their new dentures although females appear to be a little more critical with their dentures when compared to males, except with aesthetics.

REFERENCES

1. Gurdal P, Cankaya H, Onem E, Dincer S et al. Factors of patient satisfaction/dissatisfaction in a dental faculty outpatient clinic in Turkey. *Community dental oral epidemiology* 2000; 28: 461-69.

- 2 Pera P, Bassi F, Schierano G, Appendino P et al. Implant anchored complete mandibular denture: evaluation of masticatory efficiency, oral function and degree of satisfaction. *J Oral Rehabil* 1990;25(6):462-67.
- 3 van Waas MAJ. Determinants of dissatisfaction with dentures: A multiple regression analysis. *J Prosthet Dent* 1990;64(5):569-72.
- 4 Gukes AD, Smith DE, Swoope CC. Counseling and related factors influencing satisfaction with dentures. *J Prosthet Dent* 1978;39(3):259-67.
- 5 Owall B, Kayser AF, Carlsson GE. Prosthodontics: principles and management strategies. 1st Ed. Mosby-Wolfe 1996.
- 6 Basker RM, Davenport JC, Tomlin HR. Prosthetic treatment of the edentulous patient. 3rd ed, MacMillan 1992:20-30.
- 7 Weinstein M, Schuchman J, Lieberman J, Rosen P. Age and denture experience as determinants in patient denture satisfaction. *J Prosthet Dent* 1988;59:327-29.
- 8 Smith M. Measurement of personality traits and their relation to patient satisfaction with complete dentures. *J Prosthet Dent* 1976;35(5):492-503.
- 9 Wakabayashi N, Yatabe M, Ali M, Sato M et al. The influence of some demographic and clinical variables on psychosomatic traits of patients requesting replacement removable dentures. *J Oral Rehabil* 1998;25:507-12.
- 10 Jacob RF. The traditional therapeutic paradigm: Complete denture therapy. *J Prosthet Dent* 1998;79:6.
- 11 Frank RP, Brudvik JS, Leroux B, Milgrom P et al. Treatment outcomes with mandibular removable partial dentures: A population based study of patient satisfaction. *J Prosthet Dent* 1998;80:36-45.
- 12 Benson D, Spolski VW. A clinical evaluation of removable partial dentures with I-bar retainers. Part 1. *J Prosthet Dent* 1979;41(3):246-54.
- 13 van Waas MAJ. The influence of psychological factors on patient satisfaction with complete dentures. *J Prosthet Dent* 1990;90:545-48.
- 14 Sato Y, Hamada S, Akagawa Y, Tsuga K. A method of quantifying overall satisfaction of complete denture patients. *J Oral Rehabil* 2000;27:952-57.
- 15 de Baat C, van Aken AAM, Mulder J, Kalk W. "Prosthetic condition" and patients' judgment of complete dentures. *J Prosthet Dent* 1997;78:472-78.
- 16 Baran I, Ergun G, Semiz M. Socio-Demographic and economic factors affecting the acceptance of removable dentures. *Eur J Dent* 2007;2:104-10.
- 17 Silverman S, Silverman SI, Silverman B, Garfinkel L. Self-image and its relation to denture acceptance. *J Prosthet Dent* 1976;35:131-41.