

Role of Different Functional Parameters in Gratification of Denture Wearing Patients

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ABSTRACT:

Objective: To assess the overall satisfaction and to evaluate complications in removable denture patients, during different functional movements.

Materials and Methods: This descriptive study was done on 180 patients who were restored with removable complete and partial prosthesis. They were analyzed on the basis of a specific questionnaire related to the use of denture and post-insertion follow-ups. For each patient, relevant history was recorded along with oral and a thorough examination of prosthesis they were using. A four-grade scale criteria was used for evaluation and standardization of the study, in terms of different functions and level of comfort.

Result: Most of the examined patients showed their satisfaction from their prosthesis. The degree of satisfaction seemed to be directly related to the duration of denture wearing that is the older the denture got, more satisfactory the results were shown. Patients with shorter duration of treatment or those who were recently given the prosthesis, presented with more dissatisfaction and complain about their functional abilities with dentures, while the complains were gradually resolved with passage time as patients got used to them.

Conclusion: Majority of the patients showed their gratification with their dentures, which were judged as satisfactory by the dentist. There was a difference between the retention of the upper and lower dentures however in a level of satisfaction with their dentures in different functions like chewing and speaking.

Keywords: Prosthesis, Mastication, Speech, Patient's satisfaction, Prosthetic complications

INTRODUCTION:

In earlier days, it was believed that the increase in the prosthetic restorations of elderly individuals due to longer life expectancy meant that the demand for prosthodontic treatment will increase in the next few decades. This is due to a higher frequency of edentulism, even in countries with a high standard of dental health care.^{1,2} But in contrast to this, due to increase in standard of living, people increasingly wish that their natural teeth should continue to function, rather than using a denture, degree of fear and uncertainty against dentures

appears to exist among them. This kind of attitude may lead the denture fabrication, a challenging job, to meet the expectation of partially or fully edentulous patients. A study has documented that over 60% of people who relied only on natural teeth stated that they would be very upset if their oral function had to rely on complete dentures³.

There are many functional factors like mastication and speech which may influence the success of any denture and play a key role in satisfaction of the wearer. Many patients can experience difficulty in carrying out functional activities when wearing a denture¹ and that may adversely affect their expectations from it, leading to the failure of prosthesis. Patient's expectations from future prosthesis represent important criteria in accepting and physically integrating it⁴. For this it is very mandatory to evaluate and diagnose the patient's expectations from that denture which a clinician is going to deliver. The literature confines well documented cases of dentures that were easily integrated by the patient, although not being of high quality by the practitioner's point of view, thus, the success criteria for prosthodontic treatment are hard to define^{5,6}. We can assume that the clinical opportunity for using a certain denture does not always concur with the patient's satisfaction regarding it⁷. These expectations for satisfaction vary as from clinician and patient's point of view. Patient always expects pearly white teeth which enhance his/her aesthetics and secondly, he/she can eat and speak well with it. On other hand clinician's priority is to design such a denture which will damage lesser of remaining tissues, while performing most of patient's expected functions, like mastication and speech mainly. The technical quality of dentures is certainly important but medical and psychological factors are also considered to be contributory^{8,9}. However textbooks have pointed out the importance of the tooth setup for achieving denture

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stability^{10,11}. It's important for the clinician to be aware of this situation, as it can have a significant impact on how patients respond to receiving denture when the time comes.¹ Prosthodontists have sought to improve the quality of denture treatment through an understanding and application of the factors involved in retention^{12,13}. To achieve this goal coordination between the clinician and patient is very important and this can be achieved through a thorough examination of oral tissues and a very detailed interview of the patient in a very suitable and comfortable environment. This interview should address all the expectations of patient and a detailed discussion about what can be achieved in resulting denture and what cannot be. Many reports have been published evaluating patient satisfaction with complete dentures and to identify the reasons of dissatisfaction with their dentures^{14, 15}. The expectations of patient which are beyond reality or of lesser priority must be explained to patient rather than explaining later, once denture is delivered.

MATERIALS AND METHODS:

Patient selection: This descriptive study was carried out on denture wearing patients visiting at two different hospitals Altamash Institute of Medicine & Dentistry (OPD) Karachi and Dental OPD of Isra Medical & Dental College Hyderabad from June 2013 to March 2014 following a verbal approval from the ethical committees of both institutes. A total number of 180 patients with removable partial and complete dentures were examined at two different dental hospitals of Karachi and Hyderabad. Detailed history and oral examination, along with denture examination was carried out under specially trained dentists, most of them were house officers. All the patients who have already been restored with removable prosthesis were included in this study, without any age or gender restrictions. Both the complete and partial acrylic dentures wearing patients were examined, excluding the ones with cast dentures and medically compromised patients with any disabilities, as they may have affected the results due to difference in their functional abilities.

Evaluation Procedure: A specially and purpose designed detailed and easy to understand, questionnaire (Annexure I) was used in the study, to facilitate the ease of understanding the depth of question for the patients. The questionnaire consisted of four point scale 13 questions, along with a written consent. The questionnaire also consisted of personal information of the patient, such as age, gender, marital status, education level and related medical history. Data was analyzed by using Statistical Package for Social Sciences version-16. Mean and Standard Deviations were calculated for continuous variables like age. Frequencies and percentage were calculated for categorical variables like degree of satisfaction during different functions and other related issues like aesthetics and comfort level.

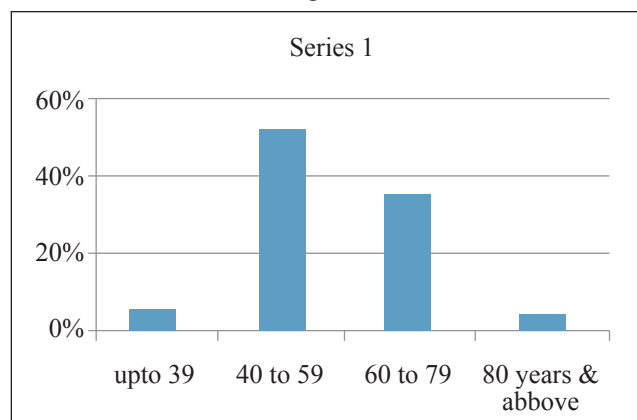
Patients were examined by two different qualified clinicians who were not aware about the rationale of

study and then the questionnaires were filled accordingly. Patients were asked to grade their experiences with their prosthesis; mainly with retention, aesthetics and comfort of the denture. The four point scale used was: very satisfactory, satisfactory, unsatisfactory and very unsatisfactory. Both the lower and upper dentures were examined and analyzed separately. Apart from this, they were also enquired about, if they were given proper instructions regarding their treatment; whether it was given verbally or in written form. Not only this but they were also checked how well they understood and followed the post-operative instructions given to them, by asking them related cross questions. For better understanding of results, all patients were categorized according to their gender, age groups, duration of treatment and place of treatment.

RESULTS:

Out of total 180 patients, there were 115 (64%) male and 65 (36%) female patients, aged between 40 & 98 years, with mean age of 67 years. They were categorized in four different age groups, below 40, 40 to 59, 60 to 79 and lastly, 80 and above. Majority of the patients 82 (46%) belonged to age group of 40 to 59 years (Figure 1), while on other hand, 68 (38%) patients were from 60 to 79 years of age, while remaining 30 (16%) patients belonged to remaining two categories. 80% of them showed their satisfaction with their prosthesis. The degree of satisfaction seemed to be directly related to the duration of denture wearing (Figure 2) that is the older the denture got, more satisfactory the results were shown. Patients with shorter duration of treatment or those who were recently given the prosthesis, presented with more dissatisfaction and complain about their functional abilities with dentures, while the complains were gradually resolved with passage time as patients got used to them. There were more complains with lower dentures as compared to upper ones, probably due to the lesser bony support and presence of tongue in lower arch. (Figure 3) Results of this study also proved that a patient with proper post-insertion instructions in both the written and verbal form, produced better results and they came up with fewer complains after insertion.

Figure: 1



Survey on Satisfaction in Denture Wearing Patients

Patient's name: _____ Age: _____ Sex: M/F: _____

Address: _____

Occupation: _____ Telephone: _____

Institution: _____

Type of Denture: _____ Duration: _____

Place of insertion of denture: _____

1.	When do you wear your denture? <input type="checkbox"/> While eating <input type="checkbox"/> While going out <input type="checkbox"/> All the time
2.	Do you wear your dentures at night? <input type="checkbox"/> Yes <input type="checkbox"/> No
3.	Were post-operative instructions given to you? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes: <input type="checkbox"/> Verbal <input type="checkbox"/> Written
4.	How well did you follow the post-operative instructions? <input type="checkbox"/> Very well <input type="checkbox"/> Well <input type="checkbox"/> Poorly <input type="checkbox"/> Very Poorly
5.	How well does your upper denture stay in position? <input type="checkbox"/> Very well <input type="checkbox"/> Well <input type="checkbox"/> Poorly <input type="checkbox"/> Very Poorly
6.	How well does your lower denture stay in position? <input type="checkbox"/> Very well <input type="checkbox"/> Well <input type="checkbox"/> Poorly <input type="checkbox"/> Very Poorly
7.	How comfortable is your upper denture? <input type="checkbox"/> Very comfortable <input type="checkbox"/> Comfortable <input type="checkbox"/> Uncomfortable <input type="checkbox"/> Very uncomfortable
8.	How comfortable is your lower denture? <input type="checkbox"/> Very comfortable <input type="checkbox"/> Comfortable <input type="checkbox"/> Uncomfortable <input type="checkbox"/> Very uncomfortable
9.	How well can you chew with your upper denture? <input type="checkbox"/> Very well <input type="checkbox"/> Well <input type="checkbox"/> Poorly <input type="checkbox"/> Very Poorly
10.	How well can you chew with your lower denture? <input type="checkbox"/> Very well <input type="checkbox"/> Well <input type="checkbox"/> Poorly <input type="checkbox"/> Very Poorly
11.	How well do you like the appearance of you dentures? <input type="checkbox"/> Very well <input type="checkbox"/> Well <input type="checkbox"/> Poorly <input type="checkbox"/> Very Poorly
12.	How satisfied are you with your dentures? <input type="checkbox"/> Very well <input type="checkbox"/> Well <input type="checkbox"/> Poorly <input type="checkbox"/> Very Poorly
13.	Was your speech affected after the insertion of the dentures? <input type="checkbox"/> Completely <input type="checkbox"/> little bit <input type="checkbox"/> unchanged

I hereby authorize the author of this study and his associates to use this date in his study

Patient's signature: _____

Figure: 2

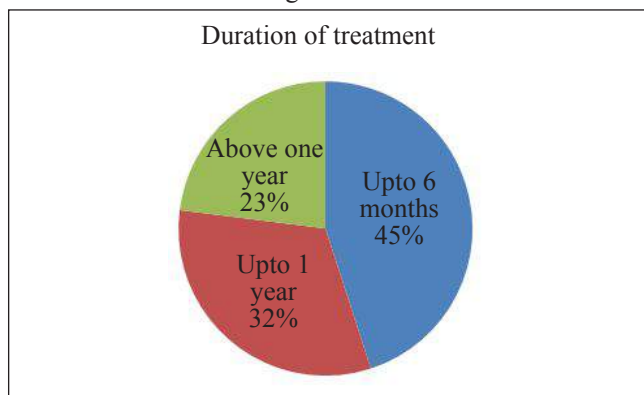
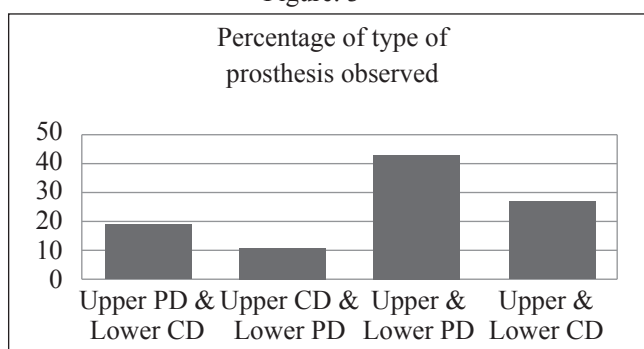


Figure: 3



DISCUSSION:

The recognition, understanding and incorporation of certain mechanical, biological and physical factors are necessary to ensure optimal complete denture treatment. These factors are the determinants that promote the properties of retention, stability and support in complete dentures.¹⁶ Majority of patients are satisfied with complete dentures that are well designed and constructed well, however few patients show dissatisfaction in spite of the clinical perfection of their prosthesis.¹⁷ Edentulism, as a physio-pathological state of the organism, has deep impact on the quality of life of denture wearers through biological, physiological and aesthetic disorders, with direct influence on patient's psychic.¹ The influence of different factors on the patient's satisfaction has already been studied by several authors. Brunello and Mandikos have compared age, gender and medical and psychological status with the number and type of complaints about the dentures, not finding a significant relation between these parameters.^{9,18} Many of them have agreed upon some factors influencing on denture wearing patient's satisfaction which include: aesthetics, retention, speech and number of missing teeth, oral hygiene habits and the ability to follow the post-operative instructions. It is seen that most edentulous patients over the age of 65 were wearing dentures for more than 10 years old and as a result mucosal changes are present in 44-63% of cases.⁴ Present study focused on the factors that play a key role in the evaluation of satisfaction in denture wearers and found them to be mostly interrelated. Denture assimilation is a completely subjective process

depending on the developmental composition of each patient's personality.¹⁹ As discussed earlier, majority of patients were satisfied with complete dentures that were well designed and constructed, however few patients showed dissatisfaction in spite of the clinical perfection of their prosthesis.¹⁷ Denture retention and stability is a major requirement for patient satisfaction, especially in lower arch. In present study stability, retention and comfort level of upper and lower prosthesis were compared, as a result, stability of upper denture was relatively found to be better (64%) as compared to lowers which was 48% (many of the patients wore a single denture). Even when it came to comfort level patients had better responses to upper dentures, although there were reports with problem of speech due to interference of the tongue with the upper denture as well. The incidence of insufficient retention of mandibular dentures increases with time due to influence of accelerated residual bone resorption and decreased chewing ability is the main complaint reported by patients.^{3,9} Hakan⁴ in his study has stated that the high prevalence of retention loss and mucosal irritation may have been due to ongoing bone atrophy. Such atrophy occurs not only on the surface but also involves height loss of the alveolar crest. Dentures tend to have long border extension that have to be reformed by a relining procedure, since impaired adaptation can cause ulceration and loss of retention⁴ the denture base is an important factor influencing patient comfort as well, it should not mechanically traumatize the mucosa or interfere with the normal function of the tongue, lip and cheeks, thus impairing the retention and interfering with speech and esthetics.^{20,21,22} These complications may decrease the satisfaction level of patient. Patients' dissatisfaction with complete dentures has been attributed to many factors. Patients who are not satisfied with their dentures return more frequently for follow up visits than patients who are satisfied with their dentures.¹⁵ This study also assessed the role the patient's personality, age and duration and dependency the patients had on their prosthesis. Higher age represents a cause that must be taken in account while preventing the prosthetic treatment failure⁵. Brunello and Mandikos have compared age, gender and medical and psychological status with the number and type of complaints about the dentures, not finding a significant relation between the parameters.¹⁸ It is also documented that age and disease are not factors that would stop patients to successfully use their prosthesis.^{21,22} Patient gender does not seem to be decisive in this case, although the women group showed significant results comparing different types of personality¹, most of the women had more esthetic concerns regarding the denture. Murthy¹⁹ discussed the behavioral pattern by using the House classification (philosophic, indifferent, exacting and hysterical) with data supplied by the questionnaires and by graphic analysis and found out using a combined method may lead to good results. The type of personality affects patient satisfaction regarding dental prosthetics, with a higher degree of satisfaction linked to aesthetics

in type A personality, mastication in type B personality and almost constant findings in type AB personality.²³ Throughout literature the link between factors related to denture wearing and satisfaction could not be established but this study has showed positive results in a degree of satisfaction after Prosthodontic therapy. Psychic alterations, either physiological or pathological, have a positive or negative effect on the possibility of denture mental integration and on patient satisfaction regarding the prosthesis.²⁴ Initially the patient is getting used to the idea of the dentures and with that a sort of helplessness comes with it due to which they have a negative response to it, with time they start adjusting and become comfortable. In this study most of the patients who were wearing dentures for 6 months had mixed responses but their responses became better on follow-ups. This was also linked to how well the patients followed the postoperative instructions, most of them were given verbal instructions but those who remembered them well followed them, while those who had written instructions followed them very well and were hence highly satisfied.

The variable statistical analysis showed the possibility of a direct connection between the number of dentures and degree of satisfaction but also between the age that the patient got their first dentures, the time of wearing for the current one and degree of satisfaction. The data obtained in conjunction with the literature review tends to direct though the attention to the more important psychic and psycho-somatic influences.¹

CONCLUSION:

In our study it has been evident that majority of the patients were not satisfied with their dentures initially but as the time passed, patients get accustomed to their prosthesis and the degree of complains started decreasing. This was found to be the result of poor counseling before start of treatment as stated by many patients. A proper briefing before start of treatment could have resulted in better prognosis, less complains and more satisfaction of patients with their dentures.

Most of the patients remained more satisfied with their maxillary dentures as compared to the mandibular ones and an understandable reason was the difference in quantity of supporting bones in both the dentures. Maxilla offers a broader supporting base as compared to lower jaw, while tongue also creates hurdles in stability of lower denture. It was revealed that proper post-insertion instructions were not given to many patients, which played a key role in complains even in a properly designed prosthesis. Female patients complained more about aesthetics of their dentures while males were found to be more concerned about the functional abilities of their dentures.

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