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Estimation and Evaluation of Prosthetic Status and Post Treatment Satisfaction of Institutionalized Complete Denture Patients in North Indian Region: A Questionnaire Based Original Study

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ABSTRACT

Background: In order to determine the relative oral health care requirements in edentates, a systematic evaluation of prosthetic treatment is necessary. Complete denture therapies (CDs) have been the treatment of choice for the replacement of missing teeth since many decades. The present questionnaire based study was conducted to evaluate the prosthetic status, difficulties and satisfaction levels in complete denture wearers of institutionalized patients in north Indian province.

Materials & Methods: The present study was conducted in the department of Prosthodontics of the institute wherein it included 100 patients who received complete dentures. At first, patients were selected from the regular OPD of the department for whom complete dentures were fabricated by students and faculties. After 2 months of the denture delivery, patients were recalled for routine checkup. A questionnaire was provided to patients which comprised of 12 questions pertained to the nature of complaint, satisfaction and other parameters of prosthesis. Responses were compiled and data was processed statistically to approximate results.

Results: Statistical evaluation was done using statistical software Statistical Package for the Social Sciences version 21. The resultant data was subjected to applicable statistical tests to attain p values, mean, standard deviation, Chi Square test, standard error and 95% CI. Out of 100 patients, males were 55 and females were 45. Regular complaints were noticed such as pain during mastication (24%), looseness of prostheses (23%), ulcerations (17%). P value was significant for these parameters. The overall level of satisfaction was estimated to be moderate.

Conclusion: Complete dentures are the most popular treatment of choice for edentates since decades. In our studies population, denture wearers had usual complaints (pain during mastication, looseness of prostheses, ulcerations) with moderate level of satisfactions.

Keywords: Complete Dentures, Pain, Retention, Questionnaire, Satisfaction.

INTRODUCTION

As we all know that complete loss of natural teeth has a important impact on overall functioning and esthetics. In 1980, the World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity”. Health reports

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of World Health Organization and other evaluation agencies have estimated that the prevalence of edentulism (in 65 years and above age group) was 58% in Canada, 41% in Finland and 46% in the United Kingdom.[1] Complete denture therapy is the most important aspect of dentistry as it artificially replaces the dentition and other related oral structures those are missing due to various etiologies. The overall excellence of a denture are solely depends upon a number of factors including retention, stability, correct jaw relation, occlusion, esthetics, speech, difficulty in chewing and so on.[2] Usually complete denture patient think that soon after the insertion, the denture will start behaving and functioning like natural teeth however, it is not true. Adjusting and getting habitual to the complete denture is a very cumbersome process. It usually takes few months wherein patients experience a variety of difficulties and problems. These dilemmas may be of short term or long term depending on their nature of origin and management. The common complaints could be lack of retention and stability, pain, altered speech, difficulty in chewing and unacceptable esthetics. Literature has well evidenced that patient satisfaction surveys facilitate to recognize the lacunae in executed treatment modalities.[3] It also helps in evaluating the level of satisfaction in such patients. Few researchers have stressed on the significance of estimating patient's satisfaction aspects through the usage of a uncomplicated questionnaire.[4-5] During literature searches, we found that very few studies have been conducted in northern India, regarding the prosthetic status, difficulties and satisfaction levels in complete denture patients. Therefore, the present study was conducted to evaluate the prosthetic status, difficulties and satisfaction levels in complete denture wearers of institutionalized patients in north Indian province. Here authors have genuinely attempted to explore the existing outcomes by processing their responses generated through pre-framed questionnaire.

MATERIALS & METHODS

The present study was conducted in the department of Prosthodontics of the institute wherein it included 100 patients who received complete dentures. Patients suffering from any acute illness were excluded from the study. Firstly, patients were selected from the regular OPD of the department for whom complete dentures were fabricated by students and faculties. After 2 months of the denture delivery, patients were recalled for routine checkup. All were informed in detail concerning the study and written consent was obtained. A self prepared, close ended questionnaire was provided to patients. It comprised of 12 questions pertained to the nature of complaint, satisfaction and other parameters of prosthesis. We have decided to proceed with questionnaire based study model as they are remarkably useful to obtain detailed information regarding personal and group perceptions and outlooks. These types of studies are also competent of saving time and money while comparing subjects at individual levels. Additionally, they also provide a broader range of information with enhanced transparency. The importance of this study was explained to all patients. The privacy and other related rights of the respondents along with their freedom of expression were completely ensured. To ensure absolutely hassle-free and uninterrupted responses, the study was completed in a complete anxiety free atmosphere. Typically we tried to complete the questionnaire in the area away from the working stations of the department. This was attempted to ensure unbiased responses those may be seen if done irregularly. Results thus obtained was tabulated and subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant ($P < 0.05$). The recorded data was subjected to suitable statistical tests to obtain p values, mean, standard deviation, chi- square test, standard error and 95% CI. P values less than 0.05 was considered as significant.

RESULTS

All the noticeable findings were gathered and sent for statistical evaluation using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The achieved data was subjected to applicable statistical tests to obtain p values, mean, standard deviation, chi-square test, standard error and 95% CI. Table 1 shows that there were 55 males and 45 females with mean values of 2.23 and 2.15 respectively. The p value was non significant. Table 2 shows the patients distribution according to their age groups. Evaluation of level of significance was also completed using ANOVA test. Group I patients were

Table 1: Patients distribution according to gender: statistical Evaluation using STUDENT'S t-test.

Sex	Number [n]	Mean	SD	P value
Male	55	2.32	1.450	0.960
Female	45	2.15	1.230	

***p<0.05 significant**

Table 2: Patients distribution according to age groups: Evaluation of level of significance using ANOVA test.

	Patients distribution according to age groups					
Group	Age Range	n	Mean	SD	P value	Significance
I	45-54 Yrs	23	2.54	1.070	0.000*	
II	55-70 Yrs	46	2.23	1.500		
III	>70 Yrs	31	2.87	2.224		

***p<0.05 significant**

Table 3: Questionnaire used for the study.

Clinical Queries		Inferences
Question 1	Do you ever feel pain during Prosthesis's wearing ?	Yes/No
Question 2	Do you ever feel pain during mastication with Prosthesis ?	Yes/No
Question 3	Do you ever feel Looseness of Prosthesis ?	Yes/No
Question 4	Do you ever feel muscular pain in TMJ region ?	Yes/No
Question 5	Have your prosthesis ever caused ulcerations?	Yes/No
Question 6	Do you ever feel altered speech/speaking difficulties while wearing Prosthesis ?	Yes/No
Question 7	Did your prosthesis ever break/fracture in its long term usage ?	Yes/No
Question 8	Are you esthetically satisfied with your Prosthesis ?	Yes/No
Question 9	Do you ever feel chewing inefficacy in prosthesis ?	Yes/No
Question 10	Do you ever sense bad smell associated with prosthesis ?	Yes/No
Question 11	Do you think that marinating hygiene of prosthesis is a difficult task ?	Yes/No
Question 12	Are you satisfied with overall performance of Prosthesis ?	Yes/No

Table 4: Fundamental statistical description with level of significance evaluation using Pearson Chi-Square Test .

Question No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (p value)
1	2.43	0.232	0.140	1.96	2.433	1.0	0.086
2	2.65	0.263	0.000	1.96	2.242	2.0	0.030*
3	2.11	1.00	0.040	1.96	2.498	1.0	0.030*
4	2.98	0.443	0.038	1.96	1.556	1.0	0.080

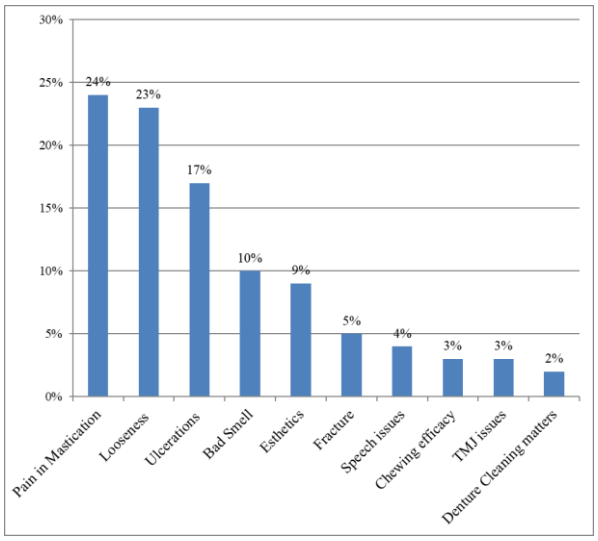
5	2.55	0.234	0.022	1.96	2.550	3.0	0.000*
6	1.34	0.345	0.025	1.96	2.463	1.0	0.435
7	1.32	0.163	0.015	1.96	1.231	1.0	0.341
8	2.77	0.346	0.033	2.33	1.219	1.0	0.324
9	2.32	2.363	0.132	1.96	2.145	3.0	0.371
10	2.44	1.442	0.300	1.96	0.413	4.0	0.937
11	2.24	0.233	0.048	1.96	1.663	1.0	0.235
12	2.83	2.00	0.090	1.96	1.921	1.0	0.541

***p<0.05 significant**

Table 5: Evaluation of satisfaction levels.

Satisfaction Grades	No of participants [n]	Male	Female	Percentage	P value
Low	24	15	9	24 %	0.120
Average	44	28	16	44 %	
High	32	21	11	32 %	
Total	100	64	36	100 %	

***p<0.05 significant**



Graph 1: Post denture insertion complaints.

in range of 45-54 Yrs [n=23, mean 2.54], Group II patients were in range of 55-70 Yrs [n=46, mean 2.23], Group III patients were older than 70 Yrs [n=31, mean 2.87]. The p value was significant [p<0.05 significant**].** Responses of the questionnaire revealed some interesting inferences (Table 3). The questions was related to the following factors: Pain, Pain in mastication, Looseness, Bad Smell, Fracture, Speech issues, ulcerations, Esthetics, Chewing efficacy, TMJ issues, Denture Cleaning matters. Significance differences [*p<0.05 significant] were noticed when they were enquired about a. pain during mastication b. feeling of prosthesis's looseness c. ulcerations due to complete denture (Graph 1). The observed p values were 0.030**,** 0.030 and 0.000 for above mentioned parameters respectively. Other statistical inferences were also tabulated in Table 4. P values less than 0.05 was considered as significant. Question to assess the overall satisfaction was also included in the questionnaire. Patients were asked to answer this question in relation to 1) social acceptance 2) ability to function with the prosthesis 3) overall clinical handling by the operator. It was separately recorded in the form of three scoring grades: Low, average, and high inferences (Table 5). Results clearly revealed that majority of patients [n=44] were moderately satisfied with the overall performance of complete denture. The measured p value was non significant for this parameter [p>0.05**].**

DISCUSSION

Fabrication of a good quality complete denture largely depends on technical, biological and physiological interactions between the patient, dentist and technician. In the literature, several pioneer workers have shown that majority of the complete denture complaints are because of their inaccurate fabrication and processing (Nadgere et al & other researchers).[6-8] It also occurs when its being fabricated by inexperienced or unskilled operator. However problems might be arising because of defective impressions, jaw relations and inadequate

laboratory processes. Literature has well evidenced many questionnaire based surveys those had intricately analyzed patient's response data (Pan et al & other researchers).[9-13] Hence, these patients responses act as a genuine source of information that can guide clinician to execute right prosthodontic procedures exactly according to patient's prospects and needs. Any kind of dental or facial in-competencies are well known to negatively affect patient's outlook and satisfaction. In terms of complete denture therapy, they chiefly affect it's esthetics, performance and function. The present study was conducted to evaluate the prosthetic status, difficulties and satisfaction levels in complete denture wearers of institutionalized patients in north Indian province. In our study, we excluded the patients suffering from any acute illness. As soon as a patient start wearing complete denture, it frequently associated with some common complaints particularly immediately after the insertion of the denture (Celebic et al).[14] The complaints may be about denture loosening, pain or discomfort in mastication, chewing problems, altered speech, bad smell, etc. Retention is the property inherent of the prosthesis that resists its removal against its original path of insertion. Diminished retention of dentures was also normally noticed in this study which is in agreement with previous workers (Aghdaeea et al, Laurina et al, Tyson et al and Ogunrinde et al).[15-18] Moreover, compromised retention also causes disappointment and dissatisfaction of patients particularly in terms function. Weakened retention of the dentures may have deleterious effects on the patient's ability to chew. Our study results showed that most of the patients were complaining of mastication pain, denture induced ulcerations and looseness of dentures. These findings were in agreement to the results of Bliss and Wong.[19-20] It's a general opinion that the quality of the denture bearing area imparts in complete denture satisfaction however, it is not like that. Researchers have shown that the denture wearing experience is more important in determining patient satisfaction with complete dentures (Heydecke et al, John et al, Steele et al, Bhat et al and others).[21-25] Their study results also showed that along with denture bearing area, denture wearing experience is also imparting greatly in generation of complete denture satisfaction. However, there are certain other imperative factors also that affect satisfaction levels tremendously. Those are chiefly social responses, operator and other auxiliary staff behaviors, change in dietary patterns with denture wearing and number of post insertion visits etc (Berg et al, Ellis et al & other researchers).[26-28] Here in this study, although we have attempted to cover almost every aspect of complete denture complaints and satisfactions, still we had mealy talked about technical aspects of complete denture that could severely affect the above mentioned measured parameters. They include the processing techniques, type of material (acrylic resin) used, skills of laboratory personal etc. Therefore we look forward for some other future large scale studies that could further explore these factors to attain more precise results.

CONCLUSION

In our studies population, denture wearers had usual complaints and difficulties. The most common complaints were regarding pain during mastication, looseness of denture and ulcerations caused by wearing of complete denture. Other complaints reported by some of the respondents were bad smell, denture esthetics, denture fracture, speech and denture cleansing issues. The overall estimated level of satisfaction was moderate. Our study results can be considered as evocative for predicting clinical outcomes for such clinical situations. Nevertheless, we expect other large scale demographic studies to be conducted that could further establish certain concrete guidelines in this field.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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