

Patient Satisfaction and Periodontal Status in Patient with Removable Partial Dentures

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ABSTRACT

Aim: To evaluate patient satisfaction and periodontal status in patients with RPDs in Patna, India.

Material and methods: Patients who received RPD in between 2016 to 2019 were recalled. The satisfaction level were assessed with the help of questionnaire on a 10 point Likert scale for four categories viz (1) Mastication, (2) appearance, (3) speaking, (4) level of comfort. This was followed by recording of plaque index (PI), gingival inflammation (GI) and probing depth (PD) as a part of periodontal examination. Unpaired 't' test and one way ANOVA was applied to determine the statistical differences between demographic variables for satisfaction and periodontal status as applicable. The significance level was set at below 0.05.

Results: A total of 126 patients participated in the study, out of which, 64.9% were above 50 years of age. For mastication and speak no significant differences was observed between male and females whereas for facial aesthetics and comfort females were less satisfied than the males. Only in terms of speak more significant satisfaction was found in RPDs of the mandibular arch than maxillary RPDs ($P < 0.05$). Patients who were below 50 years had low score of PI, GI and PD as compared to patients above 50 years or older. Similarly, females had low mean scores for all the variables than males which were statistically significant for PI ($P < 0.05$).

Conclusion: If the expectations of patients are met with a suitable design and desirable oral hygiene is maintained, the periodontal status of such patients can improve along with their satisfaction.

Keywords: Dentures, Patient expectations, periodontal diseases.

INTRODUCTION

In a developing country like India, a problematic tooth is often opted for extraction and not tried to save due to lack of awareness and financial constraints which in turn causes poor facial aesthetics, speech and masticatory problems.¹ One of the suitable treatments to replace the lost teeth is Removable partial denture therapy (RPD). The acceptability and economic feasibility, along with enhanced quality of life of elderly people has led to increased demand of RPDs, in developing countries

also.^{2,3} Thus thorough understanding of diagnosis and treatment using suitable design of RPDs is necessary to the dentists.⁴ An ideal prosthetic restoration besides improving facial aesthetics of the patient must also be biocompatible in the oral surroundings. Accurately planned and fabricated dental prostheses satisfying physiological needs can be beneficial to the patient for a long time.⁵ Marxkors emphasised regarding hygienic design principles where the marginal gingival is free for

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reducing the dental plaque for preventing dental caries and periodontal diseases.⁶ Literature reports that wearing RPDs can potentially add to plaque development on tooth, this is particularly noted in abutment teeth, to which clasps or attachments are attached.⁷⁻¹⁰

The physiologic, anatomic, and psychological requirements of the patient should be considered while constructing the RPD by the dentist¹¹ In spite of considering all the aspects it is difficult to fulfil each and every need of patients and they might not use their RPDs.⁴ The discontinuation to use the RPD can be due to problems with the dental prosthesis which may begin right away post insertion and may persist afterward.¹² Majority of the patients have reported pain and discomfort, increase in the amount of salivation in the first 72 hours, and lack of stability and retention as the most common problems.^{13,14} Loss of abutment teeth due to periodontal changes and caries is the main cause for the failure of RPD.¹⁵ Service life of the prosthesis and the patient satisfaction can be the problem areas with the RPDs. Various studies have reported different factors as the reasons for un-satisfaction and discontinuation with the use of RPDs.¹⁷⁻¹⁹ The differences in the problems and satisfaction levels in all these studies might be due to the differences in socio-demographic profile of the region. Since the oral hygiene maintenance also varies in different socio-demographic regions, the prevalence of periodontitis also fluctuates accordingly. Literature search shows there is a dearth of information regarding patient satisfaction and prevalence of periodontitis in patients with removable partial dentures in this region of Bihar, India. Thus present study aims to evaluate patient satisfaction along with periodontal status with RPDs in Patna, India.

MATERIALS AND METHODS

Before commencing the study the research protocol was reviewed and approved by the Institutional Ethical Committee of Patna Dental College. A cross-sectional survey was conducted on the already treated patients with RPDs. The list of all the patients who received RPDs in between 2016 to 2019 was retrieved from the archives of the prosthodontics Department. Patients were contacted telephonically and invited to participate in the study. The inclusion criterion was RPD wearers with no systemic illness or disabilities. The

details of the recall procedure are described in Figure 1.

Patients treated by faculty or the post-graduates of age between 30 to 70 years and without any systemic diseases were included for the study. Informed consent was taken from the patients. A questionnaire was used to collect the information regarding demographics (sex and age) and details regarding RPDs, like date of delivery, academic degree of the clinician (faculty or post-graduate), type of RPD used (acrylic partial denture or chrome-cobalt), Kennedy classification of edentulous ridge, and edentulous arch (upper or lower). The patient satisfaction was evaluated by employing questionnaire developed by de Siqueira et al.²⁰ It assesses satisfaction levels on a 10 point likert scale for four categories viz (1) Mastication (chewing efficiency) (2) appearance (Aesthetics), (3) speaking (Phonatics), (4) level of comfort. Score 0 denotes least satisfaction and 10 denotes the highest satisfaction with their RPD.²¹ Mean satisfaction in all the four categories was calculated.²²

This was followed by periodontal examination of the patient by using a Williams Probe. The following parameters were recorded plaque index (PI)²³ gingival inflammation (GI)²⁴ and probing depth (PD)²⁵ The values of all teeth were summed up and means were calculated.

All the measurements were performed by a single trained examiner and recorder according to the methodology prescribed by Zlataric.²⁶ The calibration training was conducted before the main study and kappa statistics was found to be 0.84.

After data collection; data were entered into the MS Excel (MS Office version 2007 developed by Microsoft, Redmond, WA). Analysis was done using SPSS version 21. Descriptive analysis was performed for calculating frequencies, mean and standard deviation (SD). Unpaired 't' test and one way ANOVA was applied to determine the statistical differences between demographic variables for satisfaction and periodontal status as applicable. The significance level was set at below 0.05

RESULTS

A total of 126 patients participated in the study, out of which, 64.9% were above 50 years of age. There

were more females (57.1%) as compared to males (42.9%) More than half of partially edentulous cases were of Kennedy I (57.9%) and 33% were class II. Mandibular RPDs were more than maxillary. (Table 1)

Table 2 shows the relation between patient satisfaction according to demographic and prosthetic variables. Patients who were below 50 years had less satisfaction with RPDs in all four categories compared to patients above 50 years or older ($P < 0.05$). For mastication and speak no significant differences was observed between male and females whereas for facial aesthetics and comfort females were less satisfied than the males. Only in terms of speak more significant satisfaction was found in RPDs of the mandibular arch than maxillary RPDs ($P < 0.05$). Patients wearing RPDs from longer duration were more satisfied in all the four categories as compared to those who wore from less duration and this difference was significant just for mastication ($P < 0.05$). Statistically significant difference for mastication and facial aesthetics were observed among patients wearing acrylic-based or chrome-cobalt based RPDs ($P > 0.05$). There was no difference in satisfaction based on Kennedy classification of the edentulous ridge or the academic degree of the treating dentist ($P > 0.05$).

Table 3 shows the relation between periodontal status of patients according to demographic and prosthetic variables. Patients who were below 50 years had low score of PI, GI and PD as compared to patients above 50 years or older ($P < 0.05$). Similarly females had low mean scores for all the variables than males which was statistically significant for PI ($p < 0.05$). There was no difference in periodontal status for any other demographic variables. ($P > 0.05$).

DISCUSSION

The use of RPDs is heavily influenced by patient satisfaction and its effect on remaining teeth on the oral cavity. Various factors like patient attitude and his personality, quality associated with delivered RPDs, oral hygiene of the patient, degree of tolerance, and level of comfort can influence patient satisfaction with their RPD treatment.^{14,18} Thus, this study aimed to assess factors which affect patient satisfaction and as well as periodontal status.

Our findings show that the level of satisfaction was lower in patients below 50 years of age. Similar results were observed by a study conducted on Iranian population¹ and contrasting results were found by Singh et al.²⁷ They reported patients belonging to the age group of 45 to 65 years were more satisfied as compared to those above 65 years.²⁷ No correlation between patient age and satisfaction was established by de Siqueira et al.²⁰

Females were less satisfied for facial aesthetics and comfort. Singh et al. assessed RPD wearers in a region of India and found that male RPD wearers were more satisfied than females with respect to mastication, aesthetics, and speech.²⁷ The desires to look better is always more in females as this can be attributed to compared to men, women may suffer more from social anxiety, prejudice, and inequality based on their appearance.²⁸ Our results were not in accord to the findings of Shams et al.¹ Baran et al.²⁹ Zlataric et al.³⁰ who found females tended to be more satisfied than males.

In terms of arch, better satisfaction was reported by patients wearing mandibular RPDs. On the contrary, previous studies reported maxillary RPDs with more satisfaction level.^{1,31} The type of RPDs (acrylic-based or chrome-cobalt) did not have any effect on patient satisfaction in our study. Similar results were observed by Shamas et al.¹

There are abundant studies in the literature who have evaluated the periodontal status of abutment and non-abutment teeth but no study has evaluated overall periodontal status of denture wearers which was evaluated in present study. When the periodontal status of all the remaining teeth was assessed it was found that patients below 50 years were having lower scores of PI, GI and PD. The damage to the supporting periodontal tissues can be as a consequence of the altered host resistance for the progression of disease or could be collective outcome of the untreated disease course over the period of time.³²

The periodontal status of females was better than males. Females brushed their teeth significantly more often and had a better oral hygiene status than males. This difference could be attributed to the fact that women usually care more about their body and appearance and therefore, they may be

more concerned about adopting behaviours and habits, which promote their dental health.³³

Our findings emphasize the need for further motivation of oral hygiene instructions in denture wearers. In order to break the vicious circle of effect loss teeth on remaining natural teeth and supporting periodontium there is a need for periodic dental care.³⁴ The periodic care also improves the satisfaction of patient and eliminates the ill-effects due to non-wearing of dentures. Studies prove that enhanced oral hygiene due regular check-ups and re-motivation has resulted in minimal or no damage to the periodontium of abutment teeth.^{35, 36}

The demographic shifts have resulted in increased geriatric population and thus further increase in the requirement for partially edentulous care will be noticed. Regardless of advancement in dentistry and various options like implant-supported prosthesis the demand of removable partial denture will always be a significant part of practicing dentistry. And a properly constructed RPD which causes no harm to the remaining teeth and satisfies the patients need should always be considered.

Limitations:

The results of the study should be discussed in terms of its limitations also. Firstly it was a retrospective study which has its own shortcomings given that the data is from the existing clinical records. The participants who reported to a single dental health care facility were selected and therefore generalization the results of the study are not possible.

CONCLUSION

Whenever the missing teeth are opted to be replaced by RPDs it should be kept in mind that it is not just a single time delivery procedure but a continuous process requiring cautious consideration to the exact need of the patient and regular recall for evaluation. If the expectations of patients are met with a suitable design and desirable oral hygiene is maintained, the periodontal status of such patients can improve along with their satisfaction.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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