

## Original Article

# Evaluation Of Complication Rate And Patient Satisfaction With Removable Denture

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## Abstract

**Background:** The loss of teeth is very distressing misfortune for person physically, esthetically, functionally and mentally. It is restored most of the time with prosthesis. The present study was planned to evaluate the complication rate and patient satisfaction with removable denture. **Materials and methods:** The study was conducted in the Department of Prosthodontics of dental institution. The selection of patients for the study was done from the regular circulation at department. The selection criteria for the study were to include those patients only who had worn conventional partial or complete removable dentures for at least 3 years. 35 patients met these criteria and were included in the study. **Results:** The mean age of the patients was 57.22 years with age ranging from 29-71 years. In the sample, we had 22 cases of Complete Denture (CD), 2 cases of RPD, 8 cases of CD+RPD and 3 cases of RPD +CD. Table 1 shows the incidence of various complications with removable dentures. The highest frequency was seen with loss of retention (n=22), followed by irritation or ulceration (n=16). No statistically significant difference was found between denture and complication types (P>.05). **Conclusion:** From the results of the present study, we concluded that the loss of retention is the most frequent complication associated with removable dentures, followed by ulcerations. Also, non-significant difference was found between denture and complication types.

**Keywords:** Complete denture, partial denture, patient satisfaction.

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## INTRODUCTION

The loss of teeth is very distressing misfortune for person physically, esthetically, functionally and mentally. It is restored most of the time with prosthesis.

Although preventive dentistry helps protecting teeth, the demand for prosthodontic treatment is expected to rise even in developed countries as a result of a rapid increase in their elderly population. Many countries are facing an aging population, which will cause a ratio of individuals over 65 years of age up to 50% in the coming decades. The number of edentulous patients even in countries with a high standard of dental health care is significant.<sup>1-3</sup> Since prosthodontic as well as surgical treatment can be performed to improve patient satisfaction, oral health-related quality of life (OHRQoL) must be influenced by the quality of the prosthetic treatment. Problems related to RPDs can affect patient satisfaction and service life of the prosthesis. Hummel et al. reported that 65% of

patients wearing RPDs have at least one problem, with lack of stability being the most common.<sup>4</sup> Bilhan et al. showed that the loss of retention, issues related to the vertical dimension of occlusion, trauma, and ulcers play a significant role in patient satisfaction.<sup>5</sup> Koyama et al. found a significant relation between age, edentulous ridge, number of occlusal rests, pain and discomfort, shade and form of artificial teeth with a patient's willingness to use their RPD.<sup>6</sup> Akeel found that pain and discomfort are the most important causes of discontinuation of RPDs.<sup>7</sup> So, the present study was planned to evaluate the complication rate and patient satisfaction with removable denture.

## MATERIALS AND METHODS

The study was conducted in the Department of Prosthodontics of dental institution. The ethical approval for the study was obtained from the ethical committee of the institute. The selection of

patients for the study was done from the regular circulation at department. The patients were examined and interviewed. The selection criteria for the study were to include those patients only who had worn conventional partial or complete removable dentures for at least 3 years. 35 patients met these criteria and were included in the study. An informed signed consent was obtained from each patient after explaining them about the study and procedure to be followed. The removable dentures were divided into the following groups:

1. A maxillary complete denture vs. mandibular complete denture (CD/CD)
2. A maxillary complete denture vs. mandibular removable partial denture (CD/RPD)
3. A maxillary removable partial denture vs. mandibular complete denture (RPD/CD)
4. A maxillary removable partial denture vs. mandibular removable denture (RPD/RPD)

Subjects' age, gender and dental status including number of former dentures and age of the present dentures, period of edentulism, presence of prosthetic complications were recorded.

The statistical analysis of the data was done using SPSS software for windows. Chi-square test and Student's t-test were used to analyze the data. Statistical significance was predetermined at  $P < 0.05$ .

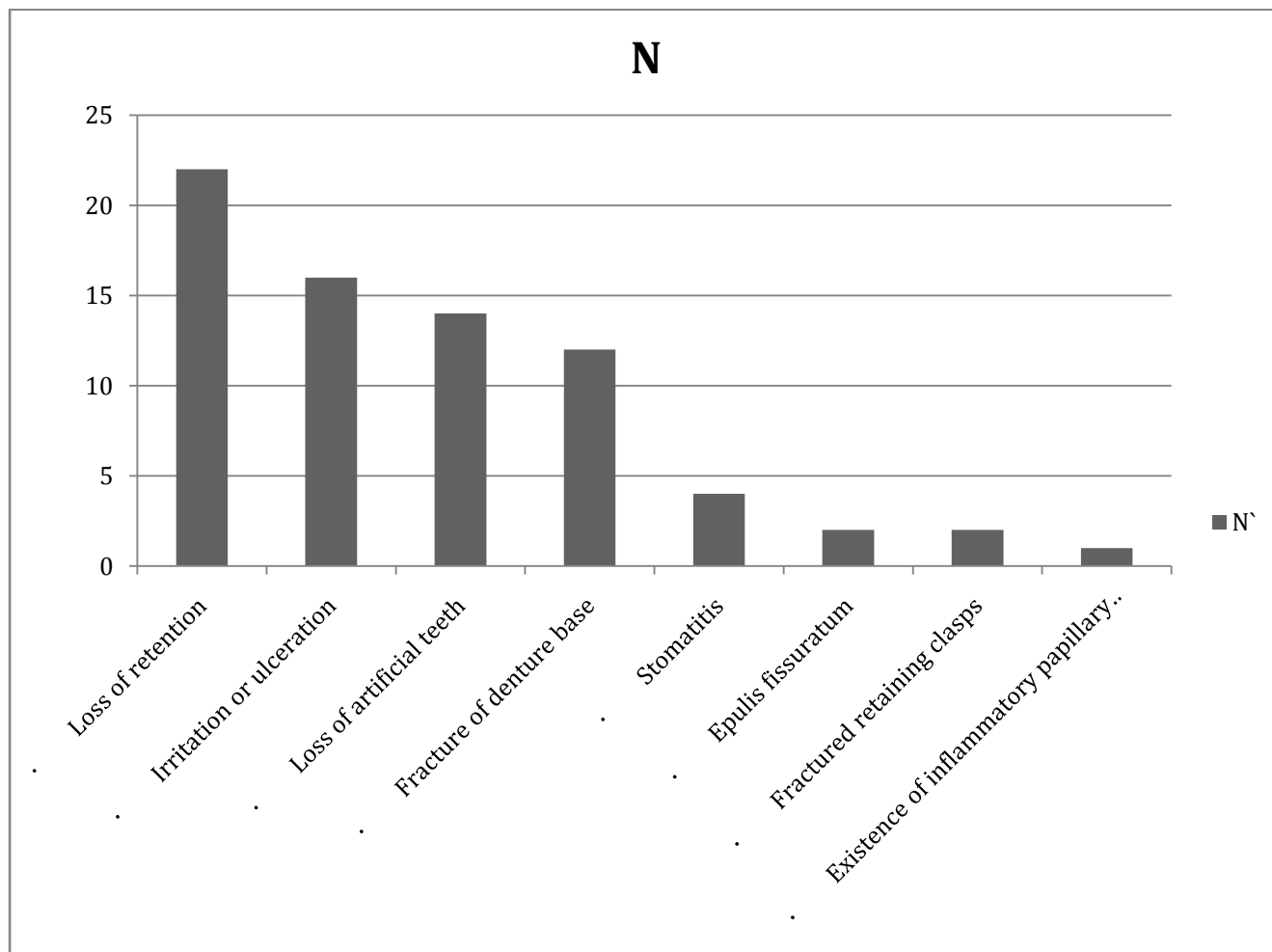
## RESULTS

In the present study, we evaluated a total of 35 patients of removable dentures. The mean age of the patients was 57.22 years with age ranging from 29-71 years. In the sample, we had 22 cases of Complete Denture (CD), 2 cases of RPD, 8 cases of CD+RPD and 3 cases of RPD +CD. Table 1 shows the incidence of various complications with removable dentures. The highest frequency was seen with loss of retention ( $n=22$ ), followed by irritation or ulceration ( $n=16$ ). The least frequency was seen with existence of inflammatory papillary hyperplasia [Figure 1]. No significance was noted between the complication frequency and type of the prosthesis ( $P > .05$ ). Table 2 shows distribution of different denture types and associated complications. No statistically significant difference was found between denture and complication types ( $P > .05$ ) [Figure 2].

**Table 1: The incidence of various complications**

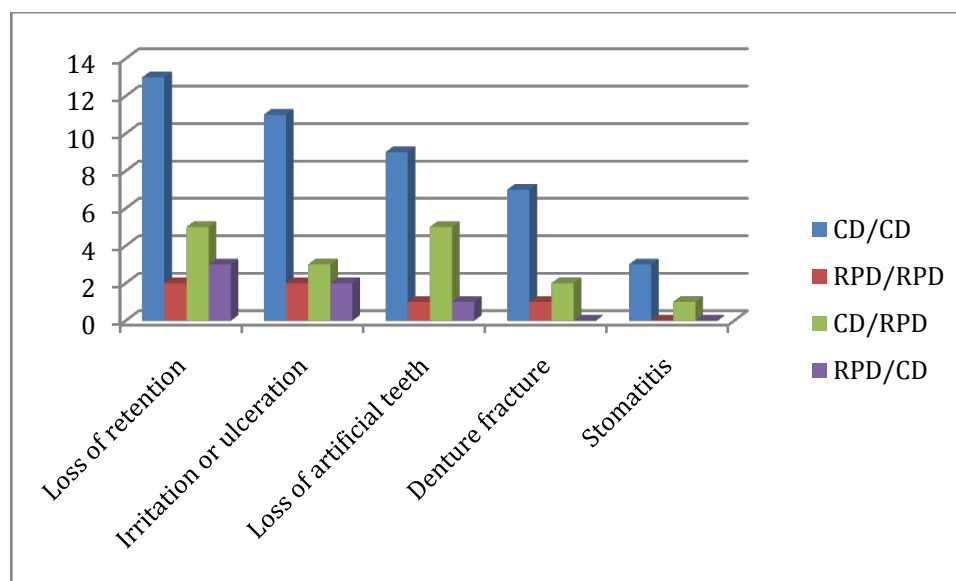
Complications	N	%
Loss of retention	22	62.8
Irritation or ulceration	16	45.7
Loss of artificial teeth	14	40
Fracture of denture base	12	34.2
Stomatitis	4	11.4
Epulis fissuratum	2	5.7
Fractured retaining clasps	2	5.7
Existence of inflammatory papillary hyperplasia	1	2.8

**Figure 1: The incidence of various complications**



**Table 2: Distribution of different denture types and complications**

Complications	Denture Type				P-value
	CD/CD (n=22)	RPD/RP D (n=2)	CD/RPD (n=8)	RPD/CD (n=3)	
Loss of retention	13	2	5	3	0.23
Irritation or ulceration	11	2	3	2	0.07
Loss of artificial teeth	9	1	5	1	0.65
Denture fracture	7	1	2	0	0.71
Stomatitis	3	0	1	0	0.22

**Figure 2: Distribution of different denture types and complications**

## DISCUSSION

Although a major part of the population in many countries has an incomplete dentition, a substantial number of patients remain either not prosthetically restored or functioning with a shortened dental arch without any need for treatment. Nevertheless, the restoration of oral function and esthetics especially in higher economic groups is preferred. The replacement of missing teeth can be achieved by fixed or removable appliances, but generally it is accepted that removable dentures deteriorate in a shorter time period, even though there are studies indicating more favorable results by careful planning, regular recall appointments, patient instruction and prosthetic adjustments. In the present study, most frequent complication was the loss of retention which is in agreement with previous reports. Baucić I et al conducted a study to screen patients with fixed prosthodontic appliances that were in oral cavity for a period of 5 years or more and to assess clinically and radiologically root caries, gingival recession, pocket formation, alveolar ridge resorption, as well as gingival (GI) and plaque index (PI). The aim also was to find out the differences between materials and constructions, between abutment and non-abutment teeth, and to find out the need for replacement. A total of 260 patients and their orthopantomograms were examined, with a total of 2,265 teeth, 610 being bridge abutments and 246 being crowns. The most frequent were metal+

acrylic veneer crowns or bridges. Root caries was found under the abutments in 10-20%; however abutments with ceramic crowns had the lowest percentage of caries ( $p < 0.01$ ).<sup>8</sup> Alveolar ridge resorption, pocket formation deeper than 3 mm and gingival recession of various degree was found in 50% of the cases, again with the lowest percentage of ceramic-fused-to-metal appliances ( $p < 0.01$ ). Pocket depth was registered in significantly higher percentage in metal-acrylic veneer appliances compared to natural teeth ( $p < 0.01$ ), while there was no significant difference between metal-ceramic appliances and natural teeth ( $p > 0.05$ ). Although the worst findings were recorded for metal- + acrylic veneer crowns for PI, no significant difference existed between crowns of different material or non-abutment teeth ( $p > 0.05$ ). There was statistically significant difference between abutments with metal + acrylic veneer crowns, full metal crowns, metal ceramic crowns and non-abutments for GI scores. Higher percentage of scores 0 and 1 was recorded for metal ceramic crowns and non-abutments and significantly higher percentage of scores 2 and 3 was recorded for metal + acrylic veneer crowns and full metallic crowns. Almost 50% of metal-ceramic abutments had no pathologic findings. Almost 30% of the patients needed replacement, or even some abutments to be extracted and therefore a new prosthodontic appliance. Bilhan H et al conducted a clinical trial to assess satisfaction, as well as the frequency and type of prosthetic

complications in terms of several variables, in patients with complete dentures that had been supplied at private clinics. The study subjects were 64 patients with a mean age of 63.48 years wearing complete dentures provided at private clinics, and requesting new ones. The degree of patient satisfaction with their dentures was assessed, as well as complications and parameters related to the dentures such as the accuracy of vertical dimensions and centric relation, arrangement and possible malposition of the artificial teeth, and the border length of the denture bases. The most common complication was loss of retention (85.9%), followed by ulceration (44.2%). Mandibular dentures with long vestibular borders showed a significantly higher incidence of epulis fissuratum ( $P = 0.017$ ), and denture-related sore spots influenced patients' speech ability ( $P = 0.023$ ). Routine recalls seem to be important for wearers of complete dentures, as several insidious complications may develop and cause damage to the dentures as well as the patients' oral tissues.<sup>9</sup> A study by Saito M et al showed effectiveness of denture designs and the component that had high rates of failure and complications. A total of 91 RPDs, worn by 65 patients for 2-10 years, were assessed. Removable partial dentures were classified into four groups: telescopic dentures (TDs), ordinary clasp dentures (ODs), modified clasp dentures (MDs) and combination dentures (CDs). The failure rates of abutment teeth were the highest and those of retainers were the second highest. The failure rates of connectors were generally low, but they increased suddenly after 6 years. Complication and failure rates of denture bases and artificial teeth were generally low. Complication and failure rates of TDs were high at abutment teeth and low level at retainers. Complication and failure rates of ODs were high at retainers. Wenz HJ et al researched to investigate the long-term success of a telescopic crown system that can be used for both rigid and resilient support and to evaluate by means of a literature review whether the use of resilient support may be advantageous compared to other double crown systems when the restoration is placed on only a few remaining teeth. Patient records were used to evaluate 125 dentures (with 460 abutment teeth) based on the Marburg double crown system. The loss of abutment teeth, endodontic treatment, and fracture of the metallic framework were investigated with regard to the different types of denture support. The probability that a patient would have kept all abutment teeth was 84% after 5 years and 66% after 10 years. No significant

differences were found for the two groups "resilient support" ( $<$  or  $=$  three abutment teeth) and "rigid support" ( $>$  or  $=$  four abutment teeth). For abutment teeth with a double crown with clearance fit, the risk of loss was 4% after 5 years and 15% after 10 years for rigid support, and 10% and 24%, respectively, for resilient support. The risk of endodontic treatment was 7% after 5 years and 9% after 10 years for rigid support, and 3% and 7%, respectively, for resilient support. None of the denture frameworks showed a fracture during the observation period. It was concluded that removable partial dentures retained by double crowns with clearance fit and constructed without major or minor connectors provide good clinical longevity. The survival rates of abutment teeth were comparable to those reported in the literature for other double crown systems. There was no significant increase of the risk of abutment loss when the restoration was placed on three or fewer remaining teeth and the concept of resilient support was applied.<sup>10, 11</sup>

## CONCLUSION

From the results of the present study, we concluded that the loss of retention is the most frequent complication associated with removable dentures, followed by ulcerations. Also, non-significant difference was found between denture and complication types.

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