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# Comparison of patient satisfaction among flexible and interim acrylic removable partial denture wearers - A survey

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## Introduction

Individuals seek replacement of their missing teeth to improve their appearance, speech, social confidence and self-esteem, the ability to chew more comfortably and to preserve the remaining natural teeth.

Functional and aesthetic restoration of partially edentulous mouth may be done using a variety of treatment options. The current options available are removable partial dentures (RPDs), fixed partial dentures and dental implants.[1]

The factors that might affect the choice of prosthesis used are the periodontal status, aesthetic requirements, cost, anatomical constraints and patient acceptability. RPD s out number conservative implant tooth replace ments because of their accessibility to lower socio-economic groups in whom the highest rates of tooth loss

occur due to lack of proper awareness and education about oral hygiene.

Removable Partial Denture (RPD) is a standard option for the rehabilitation of partially edentulous patients especially when a lot of teeth are missing and are to be replaced. While cast partial dentures and aryl ketone polymeric dentures are the superior options; interim acrylic prostheses and flexible partial dentures are in common clinical use due to its cost effectiveness, ease of fabrication and longevity.

Even though the studies regarding the thermo plastic materials provide encouraging results, comparative data regarding the use of interim acrylic RPDs and flexible RPDs are lacking.

A study was conducted among RPD wearers, both acrylic and flexible to compare the patient satisfaction and the results were statistically analysed.

The aim of the study was to evaluate the patient satisfaction among flexible and interim acrylic RPD wearers through a questionnaire conducted via phone calls.

**Methodology**

The records of 90 patients who had undergone rehabilitation with removable partial dentures in the past 5 years in the Department of Prostho dontics, Edu care Institute of Dental Sciences were collected. For validity of data, equal number of patients treated with flexible RPD (Dent care Flex, Dent care Lab, Kerala) and interim acrylic RPD (Bre dent, Dent care Lab, Kerala) were taken.

A survey was conducted among the 90 patients via phone call to assess the patient satisfaction in relation to the removable dentures. Direct interaction with the patients was not possible as the survey was conducted during the time of lockdown in connection with Covid 19 pandemic.

The survey was done using a modified OHIP 14 questionnaire[2], which was originally created in English and was translated to the native language by the authors. An additional question was added by us to the OHIP 14 questionnaire to assess the condition of the abutment tooth. For each question, scores were rewarded under the categories never, hardly ever, occasionally, frequently and very frequently. Scores were given from zero to four.

Data was analyzed using the statistical package SPSS 22.0 (SPSS Inc., Chicago, IL) and level of significance was set at $p<0.05$. Descriptive statistics was performed to assess the mean, standard deviation and proportion of each category of the respective groups

Normality of the data was assessed using Shapiro Wilkinson test. Inferential statistics was done using INDEPENDENT T TEST.

CHI SQUARE test was used to test the association between the groups regarding categorical variables.

**Results**

The results showed that the mean values are significantly lower within the flexible RPD group regarding criteria such as sense of taste, difficulty in pronunciation and ease of eating food ($P < 05$). The responses about abutment loosening gave lower mean values for flexible RPD wearers in comparison to patients with interim acrylic RPD ($P < 05$).

Table 1: Comparison of OHIP 14 between study groups.

| | | Flexible rpd | Conventional | P value |
|---|---|---|---|---|
| 1 | Trouble in pronounciation | 2.12±0.21 | 2.39±0.24 | 0.0001* |
| 2 | Worsened sense of taste | 1.88±0.31 | 2.21±0.34 | 0.0001* |
| 3 | Pain | 2.19±0.57 | 2.23±0.72 | 0.77 |
| 4 | Uncomfortable to eat | 2.04 ±0.34 | 2.57±0.36 | 0.0001* |
| 5 | Self-conscious ness | 2.13±0.50 | 2.19±0.96 | 0.71 |

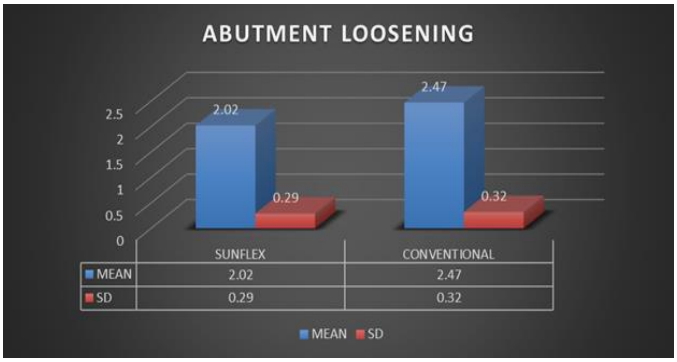
| | | | | |
|---|---|---|---|---|
| 6 | Tension because of problems with denture | 2.18±0.28 | 2.25±0.76 | 0.64 |
| 7 | Unsatisfactory diet | 2.19±0.46 | 2.24±0.83 | 0.69 |
| 8 | Meal interruptions | 2.08 ±0.18 | 2.14±0.92 | 0.59 |
| 9 | Difficult to relax | 2.26±0.38 | 2.31±0.99 | 0.77 |
| 10 | Embarrassment | 2.43±0.93 | 2.49±0.59 | 0.88 |
| 11 | Irritation | 2.15±0.24 | 2.20±0.74 | 0.79 |
| 12 | Difficulty in usual jobs | 2.18±0.19 | 2.22 ±0.85 | 0.71 |
| 13 | General satisfaction affected | 2.15±0.22 | 2.19±0.49 | 0.69 |
| 14 | Unable to function | 2.25±0.46 | 2.29 ±0.56 | 0.68 |

Graph 1:


Table 2: Comparison of abutment loosening between the study groups.

| | Flexible rpd | Conventional | P value |
|---|---|---|---|
| Abutment loosening | 2.02±0.29 | 2.47±0.32 | 0.0001* |

Graph 2:




## Discussion

Traditionally physical or biological markers of oral health or dental disease such as dental caries, periodontal disease, or tooth loss have been assessed in the field of research, however, there is now agreement that the patient perspective is an important component of the multi-dimensional nature of oral health.[3]

Measures for the patients' perceptions, also known as patient-reported outcomes (PROs), are complementary to objective oral health characteristics assessed by oral health professionals.

The most comprehensive and most often applied PRO concept in the dental field is oral health-related quality of life (OHRQoL). For the assessment of OHRQoL, the Oral Health Impact Profile (OHIP)[4] is currently one of the best investigated methods logically and most often used instruments.

The primary objective of prosthesis, including RPD, is preservation of the health of the remaining hard and soft tissues of the oral cavity and restoration of function, thereby improving patient satisfaction and quality of life. To accomplish the objective of preservation, numerous materials and designs of removable prosthesis have evolved over the years, such as the flexible RPD.[5]

Despite the popularity, literature is scanty on the distribution of stress when flexible RPDs are used[6]and also, there is a lack of evidence to compare the success of flexible and interim acrylic RPDs.

This study was designed in the form of a questionnaire to evaluate the patient satisfaction among flexible and interim acrylic PRDs among subjects belonging to similar demo graphics.

The results of the questionnaire revealed that the two groups showed significant difference in relation to 3 aspects namely, pronounciation, sense of taste and ease of mastication. Among all the three features, the OHIP

values were found to be lesser in the flexible RPD group which indicates more acceptance.

Along with the OHIP 14 questionnaire an additional question was asked to assess the quality of the abutment. The question was designed to assess whether there was any mobility or pain present in the abutment teeth. Although, these features could have been better assessed by direct visualization of the patient, this was not possible due to the ongoing pandemic at the time of the study. Without the physical presence of the patient, minor features such as gingival recession or crestal bone loss in the abutment teeth could not be assessed. From the available data, the condition of the abutment was also found to be better among individuals with the flexible RPDs.

The major difference in the results between the two groups could be attributed to features of flexible RPDs such as their limited coverage of the supporting tissues, reduced weight and increased retentive capabilities even in the absence of clasps. Another contributing factor to the better OHQoL among patients with the flexible RPDs could also be due to the psychological satisfaction for having chosen a treatment option of higher expense which in turn attributes to higher quality in the patient's psyche. Similar results indicating the advantages of flexible RPDs have been obtained in a study conducted by Akinyamoju A., et al[1].

Cast partial dentures are considered to be the gold standard in removable partial dentures.[7] The widespread acceptance of CPDs however is limited due to the perceived poor esthetics due to the metal components[8] and also, due to the increased expense. This study could have been made more encompassing if it was a comparison between CPDs, flexible RPDs and interim acrylic RPDs. However, the available data pool did not consist of enough subjects with CPDs to make up the sample size. A study was conducted by Kumar N, et al to compare stress distribution in flexible RPD with cast metal RPD by using three-dimensional finite element analysis (FEA) and patient satisfaction by using OHIP-14 questionnaire in participants with Kennedy's class I partially edentulous mandibular arch and found that flexible RPD is useful in periodontally compromised abutment teeth and cast partial denture in resorbed ridge conditions. The same study also concluded that the patient satisfaction is more with flexible RPD when compared with cast metal RPD at the end of 1 year.[5]

The results of the present study can further be authenticated by conducting a more evolved research process in the form of a randomized control trial.

**Conclusion**

From the results of this study, a conclusion can be drawn that flexible RPDs provide a comparable, if not superior option to interim acrylic RPDs in terms of patient satisfaction. A significant improvement was found in patients using flexible RPDs in terms of pronounciation, sense of taste and ease of mastication.

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