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## Evaluation of Oral Health-related Quality of Life in Patient with Removable Prosthesis: A Cross-sectional Study

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### ABSTRACT

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### INTRODUCTION

There has been an increase in mean age of the population with enhancement in overall health since the second part of the 20th era. There is also anticipation for the significant increase in number of the elderly population, which may sequentially increase the number of geriatric diseases. With increasing population of elderly persons, there is an undeniable need to attend this group of people so that they lead a superior quality and relaxed life.[1]

The chief component of an elderly person's life which affects his/her lifestyle, physical, emotional, and mental happiness is oral health status. The complete social development is impacted by oral health status, which influences speech, alimentary function, and communal life.[2]

Of the several available instruments that evaluate the relationship between oral health and quality of life, Oral Health Impact Profile (OHIP) survey is most commonly used. The OHIP survey is designed to assess the oral condition by measuring extent of body pain and debility, emotional distress and inability, functional limitations, social disability, and handicap, all of which influence daily well-being.[3]

Although the number of non-dentulous/edentulous patients has decreased in the recent past, the progressive aging care for non-dentulous patients is much required. Complete or partial loss of teeth may arise due to various pathological or physiological factors. The most common available treatment option for non-dentulous subjects is the construction of complete or incomplete prosthesis that can be removed.[4] These dentures help in reinstating the functions of esthetics, mastication, and speech. With due consideration of various socioeconomic backgrounds, the conventional removable dentures remain the chosen option of treatment for non-dentulous patients as they are relatively cost-effective,

esthetic, easier to clean, and require lesser treatment times.[5] Thus, we conducted this study to evaluate the relationship between oral health and quality of life in patients wearing removable prosthesis.

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## MATERIALS AND METHODS

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### Design of study

An investigative cross-sectional study was designed and conducted to evaluate the relationship between oral health and quality of life in patients wearing removable prosthesis. This study used simple random sampling method. Totally, 200 subjects were considered suitable for this trial based on previous experiences. The enrolled participants could withdraw from the investigation at any phase of study without consequences.

### Survey design

The survey comprises two parts in the study. Questions related to sociodemographic factors that documented age, gender, and type of removable prosthesis were included in the initial part of survey. Questions related to impact of oral health on quality of life which was measured by OHIP-14 survey make up the latter part of the survey. The questions were both in English and Kannada language to ensure complete understanding by all participants. The answers ranged from “Definitely no” to “Definitely yes” for every item on a scale having 5 points. The likely range of scores is from 14 to 70, with higher scores suggestive of bigger neglect of oral health status. A previous pilot study was performed to establish the acceptable internal reliability (Cronbach  $\alpha$ ) of the survey as 0.80. The participants of the pilot study were not included in the final study.

### Method of collection of data

An agreed permission was provided by each patient in the trial. During the study, survey forms were distributed to all the participants with ample time to answer the questions and the filled survey forms were taken back the same day. The received surveys were reviewed to assess the status of removable prosthesis.

### Statistical analysis

The collected data were categorized and recorded in Excel (Microsoft Office, USA). Data were analyzed by using the Statistical Package for the Social Sciences (SPSS, IBM SPSS, New York, USA) software program, version 20.0 for Windows. The relationship between the variables was established using analysis of variance (ANOVA), chi-square test, and Pearson correlation. A value of  $P < 0.05$  was considered statistically significant.

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## RESULTS

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A survey evaluating the relationship between oral health and quality of life was adequately completed by 200 enrolled participants. Of these 200 participants, 18 (22%)

were women and 154 (78%) were men. As shown in [Tables 1](#) and [and2,2](#), parameters such as gender, age, and relationship between oral health and quality of life did not show significant difference within or between the groups.

**Table 1**

Comparison of age and oral health-related quality of life

Age (years)	Mean of OHRQoL	F Value	P Value
20–29	52.25	1.224	0.262
30–39	58.32		
40–49	59.16		
>50	59.68		

**Table 2**

Comparison of gender and oral health-related quality of life

Gender	Mean of OHRQoL	F Value	P Value
Male	58.12	2.122	0.062
Female	51.96		

The participants enrolled in this study were wearing dental prosthesis as shown in [Table 3](#), including complete dentures (CDs) in both upper (U) jaw and lower (L) jaw (19%), U jaw (3%), L jaw (4%) and removable prostheses in both jaws (30%), U jaw (24%) and L jaw (20%). No statistically significant difference was found between them.

**Table 3**

## Comparison of removable prosthetic status and oral health-related quality of life

Type of removable prosthesis	<i>n</i>	Mean of OHRQoL	<i>F</i> Value	<i>P</i> Value
CD: upper	6 (3%)	52.38	4.317	0.06
CD: lower	8 (4%)	56.88		
CD: upper and lower	38 (19%)	59.04		
RPD: upper	48 (24%)	51.96		
RPD: lower	40 (20%)	50.06		
RPD: upper and lower	60 (30%)	56.18		

The relationship between oral health and quality of life scores was positive for removable prosthesis score ( $r = 0.122$ ) and was statistically significant, as shown in [Table 4](#).

**Table 4**

Correlation of total oral health-related quality of life scores of the subjects with removable prosthesis

### Removable prosthesis

Total oral health-related quality of life score      Pearson correlation      0.122

## Removable prosthesis

Significance 0.01

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## DISCUSSION

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The OHIP tool that is used in this study measured different parameters of oral health-related quality of life (OHRQoL) such as body pain and debility, emotional distress and inability, functional limitations, social disability, and handicap.[6] The study subjects included 200 male and female participants.

Most of the participants in our study showed the highest OHIP mean values for functional limitation and social disability. This indicates that the difficulties faced by majority of the participants were related to speech, mastication, type and taste of food, bad odor along with communication, ill-fitting dentures, and insufficient retention of dentures and social interactions.[7,8] This denotes that although the use of removable prostheses was associated with great functional difficulty, the participants continued to use them because of lack of pain. Majority of the non-dentulous patients consider that problems associated with dentures are inseparable component of wearing a prosthesis which they have to accept and feel helpless about the same.[9] In contrast, the lowest mean value for OHIP scores was recorded for emotional distress. The findings obtained by us are like the results obtained by Kranjčić *et al.*[10] as per which subjects of young age from villages with lesser literacy rates and reduced denture wear time developed an increased effect on relationship between oral health and quality of life.

Cicciù *et al.*[11] recorded the highest score for psychological discomfort on the OHIP-14 survey in patients who were aged between 65 and 87 years. According to Ulinski *et al.*[12] and Kotzer *et al.*,[13] the parameters of the OHIP-14 surveys that were most commonly affected were psychological discomfort and physical pain in participants aged more than 60 years.

The enrolled participants were wearing different dental prostheses such as CD in both U jaw and L jaw (19%), U jaw (3%), L jaw (4%) and removable prostheses in both jaws (30%), U jaw (24%) and L jaw (20%). Our observation may have been predisposed by the factor that approximately 74% of the participants were removable partial dental prostheses wearers. A positive influence on OHRQOL cannot be warranted with restoration by removable prostheses.[14] Also, a Finland study has reported in the past that of all the adult participants, the removable prosthesis wearers with at least 20 teeth were most likely to report an impact on OHRQOL than those who did not.[15]

The most common factors that impact the OHRQoL were the denture type, experience of wearing removable prosthesis, and the patient's contentment. The adaptation of the participant to removable prosthesis influences OHRQoL. The participants who are previous removable denture wearers will adapt more easily to dentures and enhance their

OHRQoL.[16] A potentially poorer OHRQoL scores can be seen in participants who were CD wearers likened to those using partial dentures that can be removed. The OHRQoL are also influenced to a lesser extent by the type of removable denture. This result is not in accordance with the results obtained by Bae *et al.*,[16] in which removable prostheses users experienced reduced relationship between oral health and quality of life when linked to patients using full-mouth dentures. It could possibly be because of various processes of adjustments. Full-mouth denture wearers know their limitations completely and can perform well wearing prosthesis as he/she has switched over from incomplete to full-mouth denture in the past. On the contrary, partial denture wearers may have great anticipations and could equate prostheses to teeth in real. Conversely, Bae *et al.* did not find any noteworthy difference in relationship between oral health and quality of life between full-mouth prosthesis and partial prosthesis by means of impact on oral health.

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## CONCLUSION

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This study concluded that the use of removable prosthesis may positively impact OHRQoL. The period of usage of removable dentures was the highly significant parameter affecting patient gratification, whereas the practice of using removable prostheses was the highly significant parameter affecting the relationship between oral health and quality of life.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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