



## Oral health related quality of life of complete denture patients treated by UG students - A university hospital based study

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### ABSTRACT

Oral health status of the elderly people is booming as a wide interest in dentistry. Complete dentures are the most common treatment for rehabilitation of total loss of teeth. Denture replacing the teeth helps in patients mastication, communication and aesthetics. This study aims to assess the oral health quality of patients wearing complete denture treated by undergraduate students. A questionnaire was prepared to assess the oral health-related quality of life among 107 complete denture patients who were treated by undergraduate students at Saveetha Dental College, Chennai. The questionnaire was administered to 107 respondents via telephonic conversation. The complete denture patient list was obtained by reviewing and analysing 86,000 patients record who visited the Saveetha Dental College during the time period of June 2019 to March 2020. Based on the data collected from the questionnaire, the results were tabulated and statistically analysed via the Statistical Package for Social Sciences (SPSS). In this study, it was observed that the complete denture patients on the whole experienced positive outcomes with 73.8% patients with no allergy, 36.4% with no difficulty in phonetics, 45.7% reported occasional difficulties in mastication and 46.7% reported occasional food sticking to the denture. In this study, it is observed that the complete denture patients treated by the under-graduate students, on the whole, were satisfied with their dentures.



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### INTRODUCTION

Geriatric dentistry deals with the handling of elderly people. Due to the increase in life expectancy, the population of elderly people is increasing worldwide. In dentistry, the oral health status of elderly people is becoming an area of growing interest (Freitas *et al.*, 2008; Duraisamy *et al.*, 2019). The World Health Organisation's (WHO) definition of Oral health states that "An individual would be considered to have good oral health if he/she retains, throughout the life at least 20 natural teeth which are functional, aesthetic and not needing prosthesis". Thus this signifies the importance of retaining

teeth to lead a healthy and productive life (Jain *et al.*, 2017). Therefore in today's ageing world, the concept of retention of teeth acquires greater significance (Kosuru *et al.*, 2017; Ashok *et al.*, 2014).

Loss of teeth has a significant impact on the quality life of individuals (Hewlett *et al.*, 2015; Visscher *et al.*, 2014). The effect of loss of teeth is related to people's lives by affecting their aesthetics, psychology, mastication and social impact, loss of natural teeth can be identified by prosthetic treatment (Dable *et al.*, 2013; Kannan and Venugopalan, 2018).

Despite the several advances in preventive and curative dentistry, the common problem of the elderly population is the occurrence of edentulousness which is attributed to the prevalence of caries and periodontal disease (Nalçacı *et al.*, 2007; Venugopalan *et al.*, 2014).

Complete dentures are the most common treatment for the rehabilitation loss of total teeth. The rehabilitative treatment is successful only when the patients are aware of correct prosthesis use and hygiene (Budtz-Jorgensen, 1981; Ajay *et al.*, 2017).

In this scientifically progressing world dental implants are present, people prefer the complete denture accounting for its easy access, low cost compared to implants, facilitating social engagement and leading an aesthetically acceptable life (Perea *et al.*, 2013; Piampring, 2007).

Teeth replaced by denture serves as an indispensable part of the patient as it can help him/her in following ways of mastication, aesthetics, communication and self-esteem (Singh *et al.*, 2014; Ashok and Suvitha, 2016; Ganapathy *et al.*, 2017).

The oral health of the patient greatly depends on the patient's maintenance of denture (Allen *et al.*, 2001; Zarb *et al.*, 2013). Cleaning of the dentures play an important role in the longevity of prosthesis and greatly involves the oral health condition of the patients (Dikbas *et al.*, 2006; Peracini *et al.*, 2010).

The aim of the present study is to evaluate the oral health-related quality of life among complete denture patients treated by undergraduate students.

## MATERIALS AND METHODS

### Study setting

The study was based on a University study setting dealing with the complete denture patients treated by undergraduate students.

After obtaining the approval of the Scientific Review Board of Saveetha Institute and Technical Sciences, the study was initiated.

### Sampling method

The list of patients who had undergone complete denture treatment from Saveetha Dental Hospital was obtained by reviewing patient's records and analysed the data of 86,000 patients during the period of June 2019 to March 2020. A total of 320 cases were obtained. Patients who underwent complete denture therapy on both the arches and people aged 50 and above were included in the study. A total of 107 complete denture cases were then included in the study. A questionnaire consisting of basic questions related to the Oral Health related quality of complete denture patients was created. The questionnaire was administered through telephonic conversation and with two reviewers (Kappa statistics was performed for inter reviewer reliability and was found to be 0.90). Inclusion of all available data and tabulated in the excel sheet. Sampling bias was reduced and randomised. Internal validity was adequate and external validity included systematic sampling.

### Analysis

The data obtained were tabulated in Microsoft Excel and transferred to statistical SPSS software for statistical analysis. Chi-squared test was then performed to check for the effect of any demographic data. The variables assessed were demographic detail, age group, the period of edentulousness, history of any previous extraction, year of study (operational), number of visits taken, the average number of days from the first visit of the patient until denture delivery, number of days taken for post-delivery review, number of review visits, referral to postgraduate, clinic post insertion of denture, correlation, cross tab and descriptive analysis was done.

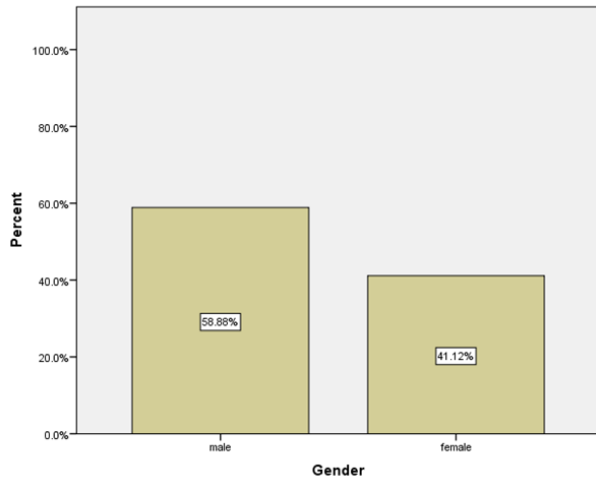
## RESULTS AND DISCUSSION

Among the data collected, 59% of the patients were male whereas 41% of patients were female. Based on the age group, 39.2% of the patients belonged to 50-60 years of age, 41.1% belonged to the age 61-70 years of age and 19.7% belonged to 71-80 years of age. When questioned about the removal process of denture whether removal of denture is easy or difficult, 70% of patients opted for easy removal whereas 30% of patients found the removal of dentures to be difficult. The patients' opinion on the difficulty in phonetics varied 36.45% patients suggested that there was no difficulty in communication, 14% suggested hardly ever, 29% occasionally, 8.41% fairly often and 12.14% very often.

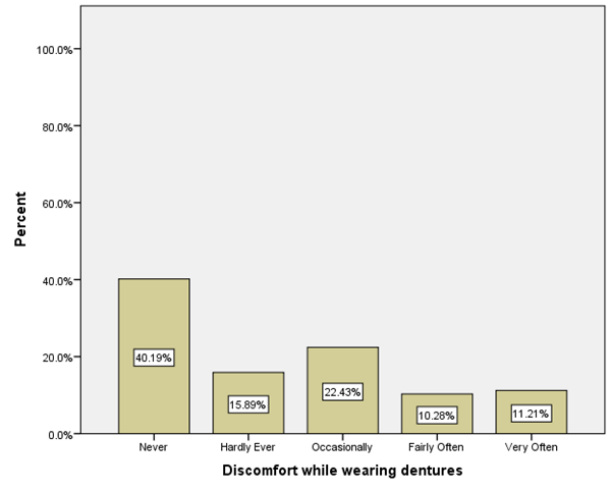
Based on difficulty during mastication 18.7% had no difficulty, 17.8% hardly ever, 45.8% occasion-

**Table 1: Showing age distribution among the Study sample complete denture patients of Saveetha Dental College, Chennai, India. 50-60 years (39.2%), 61-70 years (41.1%), 71-80years (19.7%)**

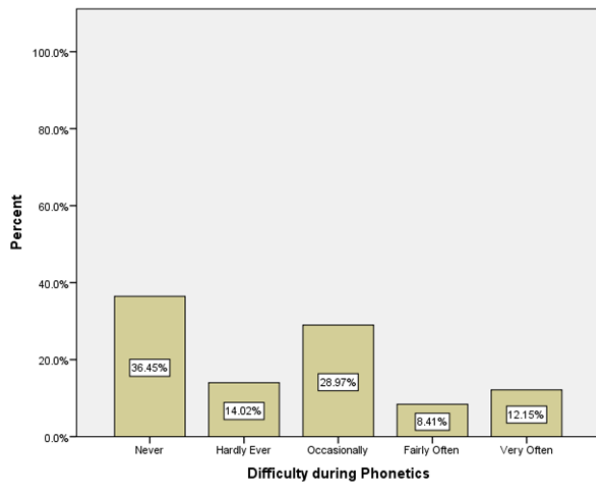
Age	Frequency	Percent
50-60 years	42	39.3
61-70 years	44	41.1
71-80 years	21	19.6
TOTAL	107	100



**Figure 1: Depicts the frequency distribution of the complete denture wearers based on gender**



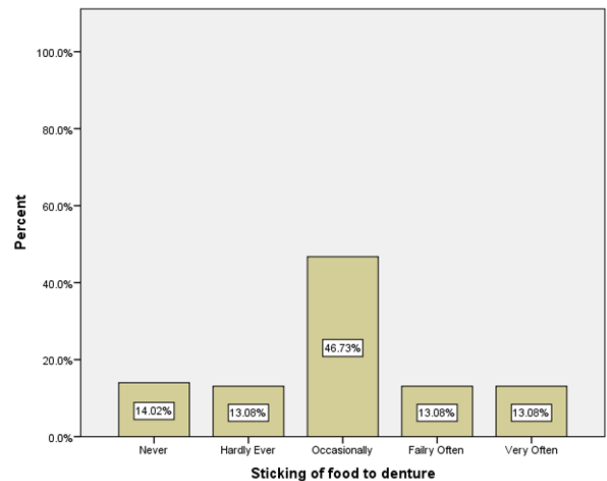
**Figure 3: Depicts the frequency distribution of the complete denture wearers based on degree of discomfort wearing denture**



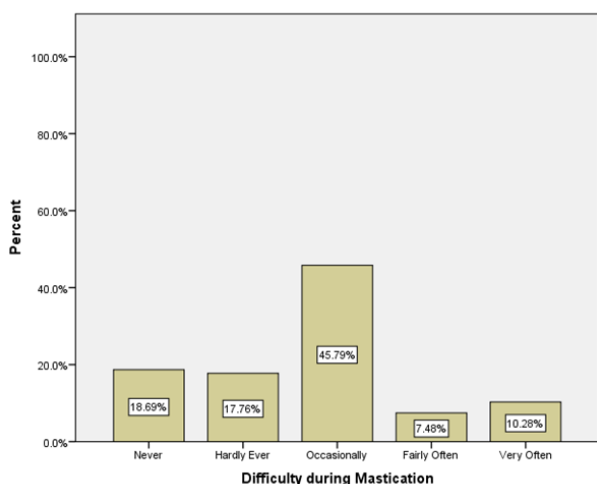
**Figure 2: Depicts the frequency distribution of the complete denture wearers based on phonetics**

ally, 7.4% fairly often and 10.3% very often. 74% of patients suffered no allergy after denture placement whereas 26% of patients were allergic. 67.3% of patients weren't under medication for allergy and 32.7% of patients were under medication.

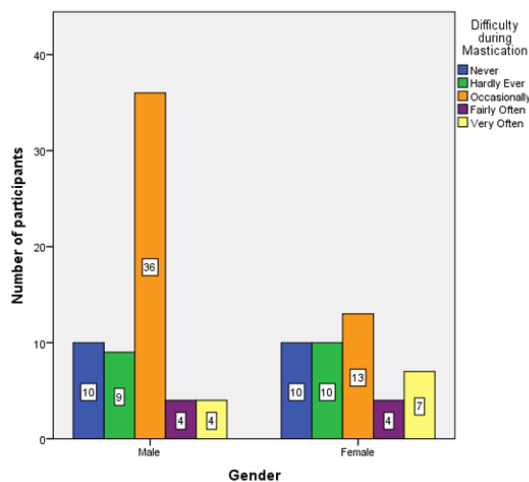
42% of the patients clean the denture often, 24.3% hardly ever, 11.3% occasionally, 13% fairly often, and 9.4% rarely. 37.3% of patients suggested that



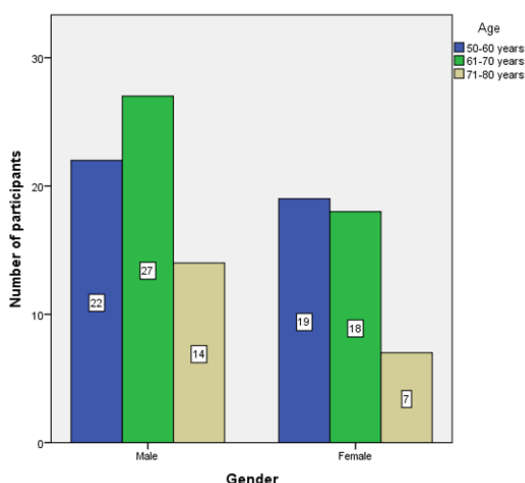
**Figure 4: Depicts the frequency distribution of the complete denture wearers based on whether food sticks to denture during mastication**



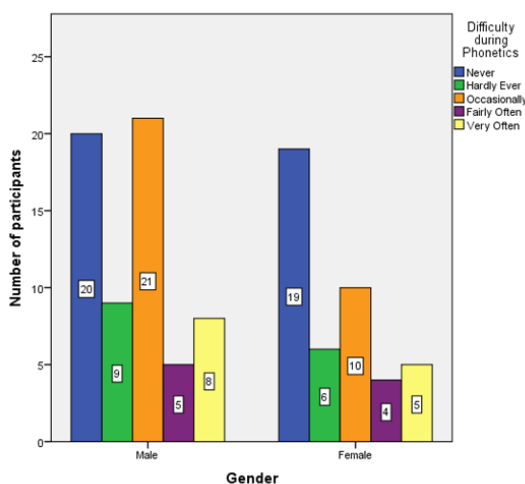
**Figure 5:** Depicts the frequency distribution of the complete denture wearers based on difficulties during mastication



**Figure 8:** Depicts the gender comparison between gender and the patients opinion on whether any difficulties faced during mastication



**Figure 6:** Depicts the comparison between age and gender of the complete denture patients



**Figure 7:** Depicts the comparison between gender and the patients opinion on whether any difficulties faced during communication

the complete denture should be replaced within a span of 3 years, 32.7% said 5 years, 30% said 1 year. 38.4% of patients experienced no bad breath, 11.2% hardly ever, 25.2% occasionally, 12.14% fairly often, 13.08% very often. 14% of patients agreed that the food doesn't stick to the denture, 13.08% hardly ever, 46.76% occasionally, 13.08% fairly often, 13.08% very often. 29% of patients have already worn a denture before whereas 71% contradicted the fact. 40.2% of patients have no discomfort wearing denture 15.9% hardly ever, 22.42% occasionally, 10.28% fairly often and 11.21% very often.

In Figure 1, X-axis represents gender predilection of complete denture patients. Y-axis represents the percentage of participants. Male were predominantly wearing complete dentures compared to females. In Figure 2, X-axis represents the patient's opinion on phonetics difficulties. Y-axis represents the percentage of participants. Majority of the complete denture patients faced no difficulties during phonetics. In Figure 3, X-axis represents the patient's opinion on discomfort faced while wearing denture. Y-axis represents the percentage of participants. Majority of the patients had no discomfort wearing dentures. In Figure 4, X-axis represents the patient's opinion on whether food sticks to the denture. Y-axis represents the percentage of participants. Majority of the patients experienced occasional sticking of food to denture. In Figure 5, X-axis represents the patient's opinion on difficulties during mastication. Y-axis represents the percentage of participants. Majority of the patients faced difficulties during mastication occasionally. In Figure 6, X-axis represents gender predilection of complete denture patients based on age group as 50-60 years (blue), 61-70 years (green), 71-80 years

(yellow). Y-axis represents the number of participants. Increase in male patients of the age group 61-70 years was observed. Analysing through Chi-square test the p-value was found to be  $0.6 > 0.05$ . There was no significant difference in age between males and females. In Figure 7, X-axis represents gender predilection of complete denture patients based on the patient's opinion never (blue), hardly ever (green), occasionally (orange), fairly often (violet), very often (yellow). Y-axis represents the number of participants. Increased number of male patients had difficulties occurring occasionally during phonetics. Analysing through Chi-square test p-value was found to be  $0.732 > 0.05$ . There was no significant difference in communication difficulties between males and females. In Figure 8, X-axis represents gender predilection of complete denture patients based on the patient's opinion never (blue), hardly ever (green), occasionally (orange), fairly often (violet), very often (yellow). Y-axis represents the number of participants. More male patients had difficulties occurring occasionally during mastication. Analysing through Chi-square test p-value was found to be  $0.073 > 0.05$ . There was no significant difference in mastication difficulties between males and females.

Variables such as age, gender play an important role in the satisfaction of complete dentures (Seenivasan et al., 2019; Ariga et al., 2018). The study reveals that the complete dentures are more common in male and they belong to the age group of 61-70 years as depicted in Table 1, Figure 1 and Figure 6. According to previous literature (Shigli and Hebbal, 2010), similar evidence is seen in which it states that the denture wearers are common in male and with the mean age group of 69 years.

Denture replaces the missing teeth which enable patients to communicate better. Improvement is seen pronouncing the words containing sibilants fricatives (Jyothi et al., 2017). The study reveals that the majority of the patients had no difficulty during communication as depicted in Figure 2 and Figure 7, which is because of an intense try in procedure protocol that ensures that phonetics and aesthetics are evaluated prior to processing the final denture. The patients are encouraged to talk as much as they can whilst the student and the instructor listen intently. According to the previous literature (Wearers, 2001), similar evidence was observed which stated that complete denture wearers are well satisfied with their communication and different evidence is seen in Allen and Mcmillan (2003) which states that complete denture wearers complaints of phonetics.

After the insertion of the complete denture, patients may experience excessive salivation, the occurrence of sore spots due to compression, gagging reflex which leads to discomfort (Selvan and Ganapathy, 2016). This study reveals that the majority of the patients had no discomfort while wearing denture as depicted in Figure 3. This could possibly be because of good post insertion instructions given by undergraduate students which is a part of their curriculum. According to previous literature, different evidence was seen in Souza et al. (2007) which states that dentures loosely fit and not many studies correlate to no discomfort while wearing dentures.

One of the major reasons for poor oral hygiene is the accumulation of food and plaque in the denture and leads to gingivitis infections (Ganapathy et al., 2016; Basha et al., 2018). This study reveals that the majority of the patients did not experience sticking of food particles to the denture as depicted in Figure 4. This could be attributed to the post-insertion care and maintenance provided by both the patient and student, and frequent follow-ups which are mandated in the student's undergraduate curriculum. According to previous studies, different evidence is seen in Fujimori et al. (2002) which states that there is food retention under denture base and external surface. And not many studies correlate with the fact that food does not stick to the denture.

Edentulous patients are forced to choose soft and easy to chew foods, the complete denture insertion has improved the quality of life of edentulous patients (Subasree et al., 2016). The denture enhances the patients for better food intake and ability to chew hard foods (Vijayalakshmi and Ganapathy, 2016). This study reveals that there are no disturbances during mastication as the high points and immature contacts are eliminated immediately post-processing as depicted in Figure 5 and Figure 8. According to previous literature, similar evidence is seen in Laurina and Soboleva (2006) which states that complete denture wearers are comfortable during mastication with the denture.

### Limitations

The limitations of the study are that it is a single centred study and does not represent the population as a whole.

### Future Scope

The future scope must focus on conducting similar multi-centred trials across various teaching centres in India.

## CONCLUSION

In this study, it is observed that the complete denture patients treated by UG students on the whole experienced positive outcome after the denture placement such as no difficulty during phonetics and mastication while wearing dentures. The outcome of the complete denture is variable and relies on the attitude towards edentulousness and denture and the process is highly influenced by patients expectations. In addition, efficient and regular procedures of cleaning of complete denture are important for maintaining the oral health and longevity of prosthesis. It is extremely important that patients return regularly to the dentist for oral health maintenance and evaluation of denture.

## Conflict of Interest

The authors declare that there is no conflict of interest for this study.

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