

Research Article

Assessment of Denture Hygiene Practices and Denture-Related Stomatitis among Removable Denture Wearers

Rameen Hafeez¹, Osama Razzaq², Aamir Kamal³, Muhammad Talha Jawad⁴, Rida Gul Rahim⁵, Fahad Amjad Sheikh⁶, Muhammad Junaid Hashmi⁷

¹Bachelor of Dental Surgery 3rd Year BDS student, Shahida Islam Dental College, Lodhran.

²House officer Prosthodontics, School of Dentistry SZABMU Islamabad.

³Demonstrator Dental Technology, Khyber Medical University Institute of Health Sciences, DIKhan.

⁴House Officer Prosthodontics, School of Dentistry SZABMU Islamabad.

⁵Demonstrator Department of Periodontology, School of Dentistry SZABMU, Islamabad.

⁶Dental Surgeon, Sheikh Zayed Hospital, Rahim Yar Khan, Pakistan.

⁷Assistant Professor Department of Community and Preventive Dentistry, Shahida Islam Dental College Lodhran.

Email: ¹rameenhafeez433@gmail.com, ²osamarazzaqkhan@gmail.com,

³Aamirkamal2246@gmail.com, ⁴mtj.khan@hotmail.com, ⁵ridagul96@gmail.com,

⁶fahadamjad2000@hotmail.com, ⁷Drjunaidhashmi57@gmail.com

Corresponding Author: Muhammad Junaid Hashmi

Assistant Professor Department of Community and Preventive Dentistry, Shahida Islam Dental College Lodhran.

Email: Drjunaidhashmi57@gmail.com

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ABSTRACT

Objective: To evaluate the level of denture hygiene and to find out the prevalence of denture related stomatitis among the removable denture wearers.

Study Design: Observational study, cross sectional.

Place and Duration of Study: This study was conducted in Department of Dentistry, Shahida Islam Dental College Lodhran from November 2024 to June 2025

Methods: Participants were 140 complete or partial removable denture wearers who had been wearing their dentures for at least six months (convenience sampling). Structured questionnaire and clinical examination were used to collect data. Details of denture hygiene habits, how often and how to clean the dentures, overnight use and how long they are worn were taken. The data were analyzed statistically, using descriptive and inferential statistics with p value of < 0.05 significant.

Results: Poor denture hygiene and use of dentures over night were prevalent among the participants. There was a significant association with denture-related stomatitis with those that had poor cleaning methods.

Conclusion: Denture stomatitis and oral health will be improved if the denture hygiene and patient education are proper.

Keywords: Denture Hygiene, Denture-Related Stomatitis, Removable Dentures, Oral Health, Prosthodontics.

INTRODUCTION

Removable dentures are popular dental prostheses used for the replacement of missing teeth and the restoration of oral function, aesthetics and quality of life of partially or completely edentulous people (Dakka et al., 2022). Dental diseases, trauma, aging and systemic diseases can be the cause of tooth loss, which is also a major oral health problem in the world. Removable dentures are a key to enhancing chewing efficiency, speech and facial appearance and psychological

health. While dentures are very functional and beneficial socially, long-term success of dentures is largely dependent upon their care and hygiene by the patient (Tosun & Uysal, 2025).

Denture hygiene is an integral part of oral hygiene as food debris, plaque, microorganisms and stains can get trapped in the dentures if the dentures are not cleaned properly. The surface of dentures is ideal for the growth of microorganisms because of its irregular surface and extended time in contact

with the mouth. Poor denture cleaning can result in oral infections and inflammatory diseases (Jawad, 2023). Brushing, soaking the teeth in cleansing solutions, and regular maintenance as outlined help to minimize the buildup of microbes and promote oral health. But many denture wearers don't know the correct type of cleaning or may not be consistently following the correct instructions (Tetou et al., 2025).

Denture related stomatitis is one of the most common oral problems caused by inadequate oral hygiene related to dentures. Denture-related stomatitis is an inflammatory reaction that occurs in the oral mucosa below the area of the denture in the mouth, especially in the palatal mucosa in complete upper denture patients (Bradić-Vasić et al., 2025). Many patients may not have any symptoms of the condition, but if they do, they can include redness, swelling, discomfort and irritation (Moussa et al., 2022). Poor denture hygiene, wearing dentures all night long, colonization by fungi (mainly *Candida* spp), smoking, ill-fitting dentures and systemic diseases like diabetes mellitus are a few of the factors contributing to denture-related stomatitis. The prevalence of denture related stomatitis is different in various populations and may involve a large percentage of the denture wearer population (Ramezani et al., 2023).

Studies have demonstrated a strong correlation between inappropriate denture cleaning habits; denture use and increased microbial growth and inflammation of the oral mucosa. The poor maintenance of dentures is still an issue, particularly in the elderly age group and amongst populations with limited oral health awareness despite the improvement in oral health and patient education (Hidayat & Alzubaidee, 2023). It is important to understand the denture hygiene behaviours of denture wearers to determine possible risk factors and preventive strategies to minimize oral issues (Navabi et al., 2023).

Hence the purpose of this study was to evaluate the denture hygiene habits and to find out the prevalence of denture stomatitis among removable denture wearers. The results of this research could be useful in patient education and in encouraging patient's oral health and hygiene practices to achieve better oral health outcomes for denture wearers (Şahin et al., 2025).

Objective

This study aims to evaluate the denture hygiene among removable denture wearing

patients and to find out the prevalence of denture related stomatitis. This study also seeks to investigate the relationship between denture cleaning habits, frequency of denture maintenance, overnight denture wear and the presence of oral mucosal inflammation among denture wearers.

METHODOLOGY

This study was conducted in Department of Dentistry, Shahida Islam Dental College Lodhran from November 2024 to June 2025. Fourteen denture wearers were recruited as they came into the clinic's offices. The study employed a convenience sampling method with a total of 140 removable denture wearers. The participants were those who wore complete or partial removable dentures for at least six months. A structured questionnaire and clinical examination were used for data collection. Demographic data, denture hygiene habits, cleaning frequency, cleaning methods, overnight denture usage and denture wearing time were collected. Clinical examination was done to evaluate denture stomatitis by examining the oral mucosa. The data were analyzed by applying statistical software and descriptive and inferential statistical tests were used with a significance level of $p < 0.05$.

3.1 Inclusion Criteria

The subjects that participated in this study were complete or partial removable denture wearers aged 18 years or older and had been wearing their removable dentures for at least six months. A group of individuals who were willing to participate and gave informed consent was recruited. For patients available for clinical examination, patients who attended the Prosthodontics Department during the study period were also included.

3.2 Exclusion Criteria

Those who had previously undergone oral malignancy, oral surgical procedures in the previous two years or severe systemic diseases affecting oral health were excluded from the study. Patients with removable dentures for less than 6 months, receiving antifungal therapy and those who refused to give informed consent or clinical examination were also excluded.

3.3 Data Collection

Data was obtained with a pre-designed and structured questionnaire and by the clinical oral examination. The participants were interviewed to get demographic data and

information about their denture hygiene practices such as how often they clean their dentures, cleaning techniques they use, overnight denture wearing habits and how long they wear dentures. Details regarding information on oral hygiene awareness and denture maintenance practices were also collected. Dental practitioners with training and experience in the field performed clinical examination with standardized conditions to determine the presence of denture-related stomatitis according to the oral mucosal assessment. Data collection forms were used to record all findings and later organised and analysed in statistical software. Participants' information was kept confidential during the data collection procedure

3.4 Data Analysis

The data obtained were tabulated, coded and analysed by statistical software. Demographic characteristics and study variables were summarized by descriptive statistics (mean, standard deviation, frequency and percent). The prevalence of denture related stomatitis, and patterns of denture hygiene practices have been calculated and presented in the tables and charts as appropriate. The association between denture hygiene practices and denture-related stomatitis was determined

using inferential statistical test (Chi-square test). Data were analyzed using appropriate statistical methods based on the distribution of the data (continuous variables). To assess the strength of association between variables, the p-value was considered statistically significant if it was less than 0.05.

RESULTS

Fourteen hundred removable denture wearers were involved in the study. Most of the subjects had a regular denture use and denture hygiene practices were found to vary. Many of the participants had poor cleaning practices, and they tended to wear their dentures overnight. A significant percentage of denture wearing patients had denture-related stomatitis, as detected by clinical examination. The prevalence of oral mucosal inflammation was greater among individuals who had poor denture hygiene and/or used dentures for a long time. The statistical analysis revealed that there was significant association between denture hygiene behaviours with denture related stomatitis ($p < 0.05$), suggesting that denture hygiene behaviours can be a potential source of oral health problems among the denture wearers.

Table 1: Demographic Characteristics of Participants (n=140)

Variables	Frequency (n)	Percentage (%)
Male	78	55.7
Female	62	44.3
Age 18–40 years	28	20.0
Age 41–60 years	64	45.7
Age >60 years	48	34.3

Demographic characteristics revealed that males had a slightly larger percentage of subjects than females. Most removable denture wearers were in the middle aged

(between 41 and 60 years) group suggesting that middle aged and older adults were the most prevalent wearers of removable dentures in this study population.

Table 2: Denture Hygiene Practices among Participants

Hygiene Practice	Frequency (n)	Percentage (%)
Clean dentures once daily	52	37.1
Clean dentures twice daily	46	32.9
Irregular cleaning	42	30.0
Brush with toothpaste	71	50.7
Use denture cleanser	41	29.3
Water only	28	20.0

The results showed that there was variance in subjects' denture hygiene practices. Most people used toothpaste to clean their dentures and a significant proportion reported that they

irregularly cleaned their dentures. Fewer denture cleaners used indicates low knowledge about the proper denture care practices.

Table 3: Overnight Denture Wearing Habits

Denture Wearing Habit	Frequency (n)	Percentage (%)
Remove dentures at night	58	41.4
Wear dentures overnight	82	58.6

Over 50% of the respondents indicated that they slept with dentures in place. Oral inflammation and denture-related complications may be caused by continuous

dentures during the night, as it may create a higher number of microorganisms and less time for the mucosa to recover.

Table 4: Prevalence of Denture-Related Stomatitis

Clinical Findings	Frequency (n)	Percentage (%)
Presence of stomatitis	49	35.0
Absence of stomatitis	91	65.0

There was a significant amount of denture-related stomatitis in the sample, as identified through clinical examination. While most participants did not present inflammatory

changes, the number seen indicates that there are still denture-related oral complications that are an important consideration for denture wearers.

Table 5: Association Between Denture Hygiene and Denture-Related Stomatitis

Denture Hygiene Practice	Stomatitis Present n (%)	Stomatitis Absent n (%)	p-value
Adequate hygiene	14 (20.0)	56 (80.0)	0.003
Poor hygiene	35 (50.0)	35 (50.0)	

The findings showed a significant relationship between the denture hygiene practices and denture related stomatitis. The prevalence of oral inflammation was higher for participants who had poor denture hygiene as compared to those who had adequate denture hygiene, highlighting the importance of good denture maintenance.

DISCUSSION

The present study aimed to evaluate the level of denture hygiene and the presence of denture stomatitis in removable denture wearers. The results showed that the participants had poor denture hygiene practices and this was significantly associated with denture related stomatitis (Mylonas et al., 2022). The study also noted that many denture wearers used their dentures overnight and did not clean them regularly, suggesting a lack of knowledge on the part of the denture wearers about how to properly clean their dentures. The results of this study highlight the need for educating people about good oral hygiene and preventive measures to minimize oral complications among denture wearers (Basnyat et al., 2022).

The results of the demographic study showed that most of the subjects were from the middle age group and older age group. This finding agrees with previous studies which

found older people using more dentures because they experienced higher rates of tooth loss as a result of ageing, periodontal diseases, and other oral diseases (Peric et al., 2024). Multiple oral health issues are likely to occur in aging populations that tend to be more reliant on prosthetic rehabilitation. As a result, it's important to maintain your dentures to maintain the health of your oral tissues and quality of life (Qiu et al., 2023).

This study found that inadequate denture cleaning behaviour was exhibited by many participants. A substantial number of people reported that they don't clean their dentures regularly or clean them properly, for example by using only water. Plaque, food debris and microbial biofilms that form on denture surfaces must be removed for effective cleaning of the dentures (Rizvi et al., 2022). When hygiene is neglected, it provides conditions which encourage the proliferation of microorganisms and raises the likelihood of mouth infections. A poor knowledge of the dentures and inadequate practices of denture care among removable denture wearers have also been reported previously, particularly in the elderly (Mostafa et al., 2024).

Another significant result of this study was the high prevalence of using a denture overnight amongst the study participants. Wearing dentures around the clock does not allow the

proper rest for the tissues, and might provide a suitable environment for microbial growth, as it can be warm and moist (Le Bars et al., 2023). Extended exposure of the denture and the oral mucosa could lead to a higher chance of swelling and irritation of the tissues. This has been reported in earlier studies among which denture wearing overnight was found to be an important risk factor for denture related stomatitis. Denture removal at night for the purposes of prevention has been recommended to limit microbial build-up and promote tissue recovery (Lee et al., 2025).

This study found denture-related stomatitis was prevalent, suggesting it is still a problem experienced by denture wearers. Denture related stomatitis is a multifactorial disorder and local and systemic factors play a role (Benyounes et al., 2025). The condition may be caused by poor hygiene, fungal colonization with *Candida* species, poorly fitting dentures, smoking and systemic disease. This study primarily cantered on hygiene related factors, but other factors that might contribute to disease occurrence were also considered (Kaur et al., 2024).

A significant link between poor denture hygiene practices and denture-related stomatitis indicates the need for better patient education and preventive measures. Clear instructions should be given to the dental health care workers as to the proper methods of cleaning, maintaining the dentures, and follow-up visits. Healthy oral outcomes and a reduction in oral complications can be achieved by raising awareness amongst denture wearers (Yacob et al., 2024).

CONCLUSION

The study demonstrated that the prevalence of denture-related stomatitis was significantly related to the poor denture hygiene practices of removable denture wearers. The suboptimal oral hygiene practices, lack of regular denture care and sleeping with dentures were found to be key factors contributing to oral mucosal inflammation. Good care and maintenance of the denture, along with following recommended care steps, is a key factor in avoiding complications with dentures. Patient education and periodic dental check-ups are required to educate patients about proper denture care. Education regarding maintenance and care of dentures can help decrease the risk of stomatitis and enhance the oral health and quality of life of the denture wearer.

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