

## A survey assessing methods of maintaining denture hygiene among denture wearers

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### Abstract

**Introduction:** This study aimed to investigate the denture hygiene habits among old age denture wearers. The purpose of the study was to explain about the methods of maintaining denture hygiene among denture wearers.

**Methods:** The present cross-sectional survey was conducted among denture wearer patients during follow-up appointment, using a self-administered structured questionnaire.

**Results:** The study sample consisted of a total of 324 participants; out of them, 211 (65.1%) were males and 113 (34.9%) were females. Regarding the method of maintaining denture cleanliness, most of the patients cleaned it with water only (57.1%), whereas patients who cleaned with brush and paste were less (35.8%) and very few cleaned it with a combination of water, brush and toothpaste (7.1%).

**Conclusion:** Majority of the patients cleaned their denture at least once daily and were provided with proper instructions from their dentist to maintain denture hygiene.

**Key words:** Cleaning habits, Denture hygiene, Edentulism, Elderly patients

### Introduction

Dental diseases like dental caries, periodontal disease, dentoalveolar trauma are the major causes for the loss of natural dentition. Removable partial dentures and complete dentures are commonly used rehabilitation modes for partially and completely edentulous arches respectively.<sup>1</sup>

Acrylic is the most commonly used material in denture fabrication, which contains micro porous surfaces that provide environments to support microorganisms. It is vital that patients do not neglect the daily cleaning of their dentures as poor hygiene may lead to halitosis, staining

of the dentures and acrylic teeth, irritation to tissues, calculus deposition on teeth as well as yeast infections of the oral cavity.<sup>2</sup>

Patients should be instructed to rinse their mouth and dentures after meals whenever possible.<sup>3,4</sup> The intra mucosal surfaces of the denture bases can be the favorable place for the formation of new reservoir of microorganisms. However, it has been observed that the majority of denture wearers do not pay necessary attention to the cleanliness.<sup>5</sup> The mechanical approach to clean dentures include brushing it with either hot or cold water. Mechanical method is mostly accompanied with a chemical one to attain effective cleaning, maintenance and infection control.<sup>6</sup> Dental professionals must have proper information of denture cleansing strategies to maximize the services offered to their denture patients before using the dentures.<sup>7</sup>

Hence this study aimed to investigate the denture hygiene habits among denture wearers.

*Conflict of Interest: No*

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The purpose of the study was to explain denture wearers about the methods of maintaining denture hygiene.

## Methods

The present cross-sectional survey was conducted among denture patients during follow-up visit in the Department of Prosthodontics, Kantipur Dental College and Hospital, Basundhara, Kathmandu, Nepal from July 2020 to December 2020. The ethical clearance was obtained from Institutional Review Committee, Kantipur Dental College (IRC-KDC) to conduct the study. The purpose of the survey was explained to the subjects and written consent was obtained. The patients wearing complete denture, removable partial denture or both were included in the study. However, new denture wearers were excluded from the study.

Pilot testing of the questionnaire was conducted among a group of 30 patients to test reliability and validity of the questionnaire. The participants were asked to fill up the anonymous, self-administered questionnaire. The questionnaire contained demographic information such as age, sex, duration of denture wear, and questions related to the attitude of denture hygiene habits, frequency of cleaning, and nocturnal denture wearing habits. Sample size was calculated using the following formula using the prevalence of edentulous patient from the previous study.

$$\text{Sample size (N)} = \frac{Z^2pq}{e^2}$$

Data were analyzed using SPSS version 15.0. Descriptive statistics were obtained, and frequency distribution, means, and standard deviation were calculated. Simple descriptive

statistics were used together with Chi-square test at  $P < 0.05$  to evaluate the relationship between age, gender and prosthetic treatment.

## Results

The study sample consisted of a total of 324 participants; out of them, 211 (65.1%) were males and 113 (34.9%) were females. They were further categorized according to age groups as 30-39 years (Group I), 40-49 years (Group II), 50-59 years (Group III), 60-69 years (group IV) and above 70 (Group V). With respect to age distribution of the sample, 103 belonged to the age group of 30-39 years, 70 subjects were of 40-49 years of age, and 130 were 50-59 years of age, 20 were 60-69 years of age and 1 was above 70.

Regarding the method of maintaining denture cleanliness, most of the patients cleaned it with water only (57.1%), whereas patients who cleaned with brush and paste were less (35.8%) and very few cleaned it with a combination of water, brush and toothpaste (7.1%).

Regarding the frequency of denture cleaning 268(82.7%) cleaned the denture once daily, 10(3.1%) cleaned the denture twice daily, only 46(14.2%) cleaned their denture after each meal.

There was no relationship between the age and denture wearing while sleeping. The age of 30-39 years wear denture at night-time (59.2%).

Also, regarding the night wearing of the denture patient-wearing denture during sleeping was less 25.6% compared to the patients not wearing denture 74.4%.

Among 324 participants 210(64.8%) received instructions from dentists regarding denture cleaning.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	83	25.6	25.6	25.6
	No	241	74.4	74.4	100.0
	Total	324	100.0	100.0	

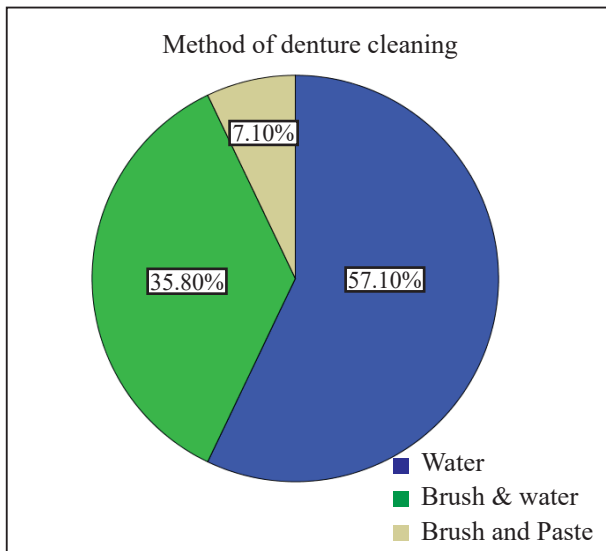


Figure 1: Method of denture cleaning

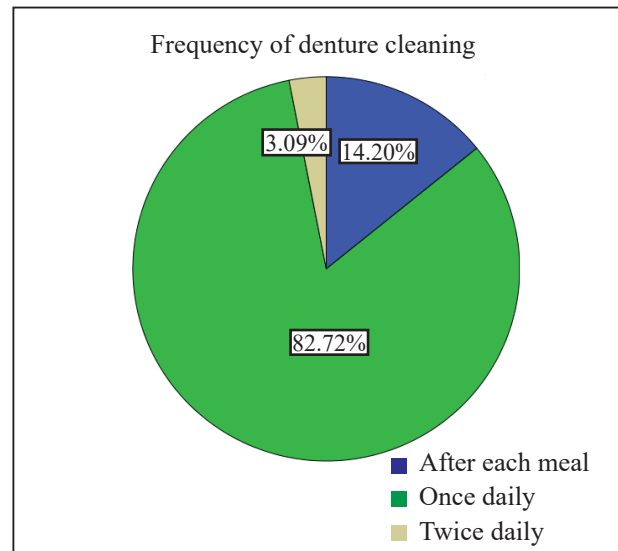


Figure 2: Frequency of denture cleaning

## Discussion

The knowledge of the dentists plays an important role in the maintenance of denture hygiene among the patients. It is very important that the dentists have ample knowledge of denture hygiene maintenance and instruct their patients accordingly on the importance of denture hygiene. The present study aimed to assess the denture hygiene knowledge among denture wearers.

The percentage of participants in our study cleaned their denture once daily (82.7%) is similar to the study reported by Peracini et al (99.06%)<sup>8</sup>. The above-mentioned results can be because of lack of awareness among patients or improper instructions given to them after the insertion of denture by the dentist. In the present study, most of the patients used to clean the dentures with water alone (57.1%) in contrast to the values reported by Jandial et al (19%)<sup>9</sup>. This displayed that the need to aware elderly people regarding cleaning and hygiene of denture along with oral health. Studies have shown that there are high percentages of denture wearing people who are not satisfied with the cleanliness of their dentures, yet they still wear them with no problem with the use of

dirty dentures. Majority of the patients receive proper instructions regarding the ways in which they can clean their dentures, yet the patients sometimes fail to do so efficiently and regularly. For this reason, dentists should also provide them with thorough knowledge regarding the adverse effects of wearing unclean dentures.

The majority of patients exhibited limited knowledge regarding the care and cleaning of denture. Most of the patients used water only to clean the denture and did not use any denture cleansers. So the dentists should instruct their patients a combination of brushing technique and soaking in cleansing solutions. Older prosthesis tend to be more dirty causing oral lesions such as oral candidiasis and denture stomatitis. This could be due to many microorganisms that could have collected on the denture surface over the years. They may even have deposits present on the denture due to insufficient cleaning of the denture.

The present study had a few limitations. The technical quality of the prosthesis was not assessed in any way. Furthermore, patient satisfaction was also not taken into consideration as in article given by Waseem et al.<sup>10</sup>

## Conclusions

From the study, it was concluded that majority of the patients cleaned their denture at least once daily and were provided with proper instructions from their dentist to maintain the dentures. Regular visits to the dentists for the assessment of the status of denture hygiene and maintenance instructions will be fruitful for the patients to get better use and maintenance of their denture and improve their oral health.

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