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## Evaluation of denture hygiene among removable denture wearers referred to clinics of Kerman, Iran

*Molouk Torabi Parizi DDS, MS<sup>1</sup>, Shahrzad Taheri DDS<sup>2</sup>, Parviz Amini MS, DDS<sup>3</sup>, Marzieh Karimi Afshar DDS<sup>4</sup>, Mehrnaz Karimi Afshar<sup>5</sup>*

### Original Article

#### Abstract

**BACKGROUND AND AIM:** The number of patients who need prosthetic treatments has increased. Efficient and regular procedures for cleaning removable dentures are important for maintaining good oral health. The aim of this study was to analyze the oral and prostheses care habits of removable denture users, who attended the clinics of Kerman, Iran.

**METHODS:** This cross-sectional study was carried out on 350 patients, who attended the clinics of Kerman and were chosen by the multistage sampling method. Data were obtained from a checklist consisting of demographic characteristics (age, sex, educational level, kind of prosthesis, age of prosthesis, self-report of halitosis, and smoking status), denture hygiene habits, denture-wearing behavior, and cleanliness of denture by examiner. Data was analyzed using chi-squared test ( $P < 0.05$ ).

**RESULTS:** The mean age of patients was  $58.52 \pm 10.78$  years, 103 (29.4%) were male and 247 (70.6%) were female. The results showed that 78.6% had complete denture and 12.7% reported halitosis, 55.1% used their denture at night, and 36.4% had poor denture hygiene. Brushing was the most used cleaning method by the patients (36.5%). 60.4% reported never having been instructed by their dentists as to how to clean their dentures. 58.6% had been using the same denture for more than 5 years. There was a significant correlation between the kind of denture, and denture hygiene and education level.

**CONCLUSIONS:** According to the results of the present study denture hygiene was not favorable. Therefore, dentists should instruct the patients on cleaning their denture in order to prevent denture-induced lesions.

**KEYWORDS:** Complete Denture, Removable Denture, Habits, Hygiene, Dental Care

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Life expectancy has increased over the past years, and the number of elderly requiring dentures has also increased.<sup>1-3</sup> When an edentulous patient is fitted with a complete or removable partial denture, the important phase of oral and denture care begins. This care includes follow up for adjustment, guiding the patient for rebasing, and explanation of the potential

need for exchange the denture in the future.<sup>4</sup> Dentists should explain to the patients the need for periodical visits for maintenance of oral and denture hygiene, denture cleansing, and wearing habits for prevention of mucosal lesions.<sup>1</sup>

Denture stomatitis is the inflammation of oral mucous membranes, which in direct contact with the base of the removable

1- Associate Professor, Kerman Oral and Dental Diseases Research Center AND Department of Pathology, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

2- Resident, Department of Prosthodontics, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

3- Associate Professor, Department of Prosthodontics, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

4- Resident, Department of Orthodontics, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

5- Dental Student, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

Correspondence to: Molouk Torabi Parizi DDS, MS

Email: drtorabiparizi@yahoo.com

dentures. Denture stomatitis is caused by factors such as wearing dentures at night, age of prosthesis, smoking, poor oral hygiene, and microbial agents.<sup>5,6</sup> It is important that patients return regularly for oral health maintenance and evaluation of their dentures.<sup>7</sup> Studies have reported that complete denture wearers have difficulty in cleaning and hygiene of their dentures. Marchini et al. showed that only 26.3% removed their dentures overnight.<sup>4</sup> Kanli et al. reported that 16.7% of patients with denture accurately cleaned their dentures.<sup>8</sup> De Castellucci Barbosa et al. showed that 64% of patients in their study slept with their prostheses and 44% removed them from their mouth only for cleaning.<sup>9</sup>

The aim of this study was to evaluate the cleansing and wearing habits of removable partial and complete denture wearers in Kerman (Iran).

### Methods

This study was conducted on 350 patients with removable dentures attending clinics (private and government) in Kerman, Iran, with multistage sampling method. Data were collected using a checklist consisting of demographic characteristics (age, sex, educational level, kind of prosthesis, age of prosthesis, given instructions about denture cleansing), denture-cleaning habits, frequency of denture wearing, and clinical denture cleanliness examination. Denture cleanliness examination was assessed using a dye disclosing method. The denture plaque was scored good (none or few spots plaque), fair (more extended plaque, less than half of the denture base covered by plaque), and poor (more than half of the denture base covered by plaque).<sup>10</sup> Patients who had a history of antifungal therapy in the previous two weeks and uncontrolled diabetes were not included in study. Data were analyzed in SPSS for Windows (version 18; SPSS Inc., Chicago, IL., USA) using chi-squared test ( $P < 0.05$ ).

### Results

103 patients (29.4%) were male and 247 (70.6%) were female and mean age of patients was  $58.52 \pm 10.78$  years. 42.9% were illiterate and 78.6% had complete denture. 12.7% reported halitosis (male 15.5% and female 11.5%). 193 (55.1%) used their denture at night. 10.4% had good denture hygiene, 53.2% fair, and 36.4% poor denture hygiene. 204 (64%) cleaned their denture 3 times a day. Most patients (60.4%) reported that they had not received denture hygiene instruction from their dentists. There was a significant correlation between denture hygiene, patients' educational level, type of denture, age of denture, and using the denture overnight ( $P < 0.001$ ). There was no significant difference between gender and denture hygiene. 39.7% of patients were 40-44 years of age. Data referring to patient distribution according to age of denture are showed in figure 1. Data referring to type of denture according to gender are given in table 1. Denture cleansing method used and frequency of cleaning oral cavity use, and continuous use of complete dentures are presented in figures 2 and 3. Water and salt was the most popular solution for immersion of the denture at night.

### Discussion

Poor denture hygiene has a negative impact on the elderly and is an important public health issue.<sup>2,3</sup> Our findings showed that 55.1% of denture wearers slept with their denture, which is greater than that reported by Marchini et al., and lower than that by de Castellucci Barbosa et al. (64%) and Peracini et al. (58.49%).<sup>4,7,9</sup> The study by Sadig showed a significant association between denture stomatitis and using prosthetics overnight.<sup>11</sup> In the present study 36.4% of denture wearers had poor denture hygiene. This amount is lower than that reported by Baran and Nalcaci and Marchini et al., who reported 42.6% and 73.7%, respectively, and is similar to that reported by Sadig

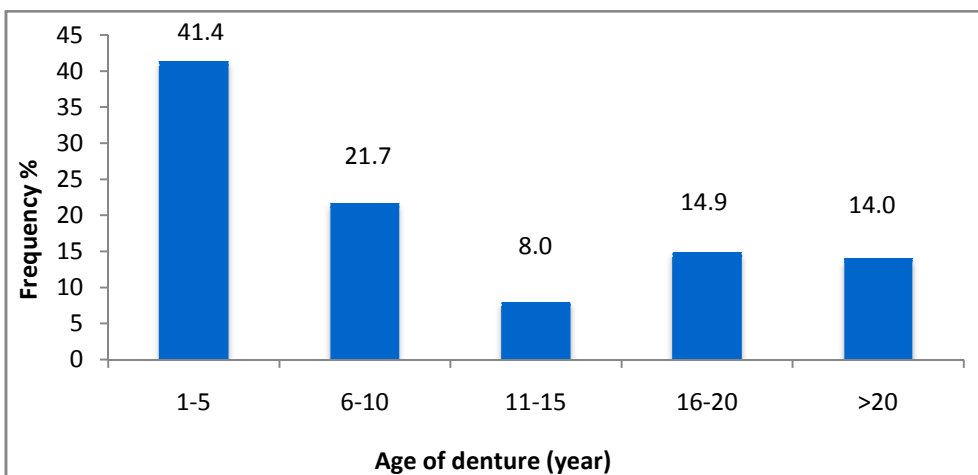


Figure 1. Distribution of patients according to age of current denture

Table 1. Distribution of patients by type of denture

Gender	Type of prosthetic	
	Complete denture	Partial removable denture
Male	24.6%	4.9%
Female	54.0%	16.6%
Total	78.6%	21.4%

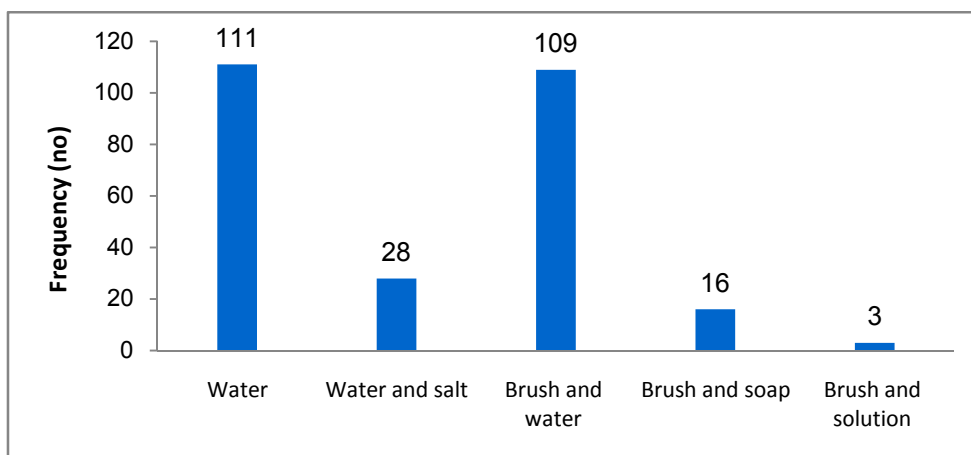


Figure 2. Distribution of patients according to method of denture hygiene

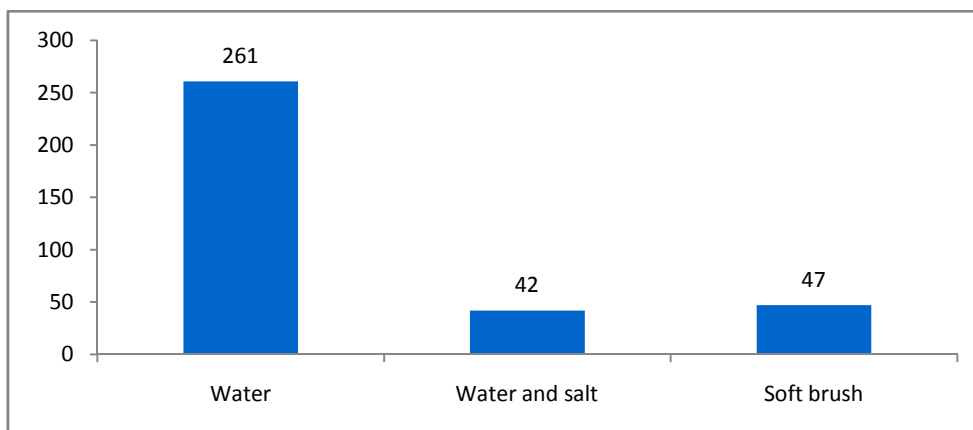


Figure 3. Distribution of patients according to methods of oral health hygiene

(35.2%).<sup>1,4,11</sup> We found a significant correlation between age of denture and denture hygiene, older dentures were dirtier. This is in accordance with the results of the studies by Dikbas et al. and Kanli et al.<sup>8,12</sup> They showed mucosal lesions in denture wearers was significantly correlated with long use of denture.<sup>5,11,13,14</sup> In the present study there was no correlation between gender and denture hygiene; however, females' dentures were cleaner. This is not in accordance with the study by Baran and Nalcaci, who found a significant correlation between sex and denture hygiene.<sup>1</sup> In our study 31.7% of patients cleaned their dentures with water and 31.14% with brush and water. Whereas, the studies by Baran and Nalcaci, and Khasawneh and al-Wahadni reported that most patients cleaned their denture with a toothbrush.<sup>1,13</sup> The majority of patients in our study cleaned oral mucosa with water. In the present study, there was not a frequent use of products for immersing denture, which is in accordance the study by Barreiro et al.<sup>15</sup> The most commonly used solution was water and salt; this is in disagreement with the studies of Marchini et al. and Baran and Nalcaci.<sup>14</sup> None of the denture wearers in the present study used the denture cleansing tablet, because most of them had no knowledge of such a cleanser.

None of the patients in our study knew anything about brushes designed specifically

for complete dentures; this is in accordance with the study of de Castellucci Barbosa et al.<sup>10</sup> In our study 60.4% of patients reported they had not received any denture hygiene instruction; this is in agreement with the study of Peracini et al.<sup>7</sup> Therefore, It is necessary that dentists give instructions to denture wearers on how to clean their denture surfaces and oral mucosa correctly, and maintain good hygiene.

### Conclusion

Based on the results of the present study, removable denture hygiene and oral hygiene in denture wearers is not satisfactory. The method most used by patients was the mechanical method of water and brushing. Moreover, most patients used the same complete dentures for more than 5 years, and half of them slept with their dentures.

Dentists and dental hygienists should bear the responsibility of preventing denture induced oral lesions by routinely providing post-placement denture hygiene instructions to educate and motivate the patients.

### Conflict of Interest

Authors have no conflict of interest.

### Acknowledgments

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