

**ORIGINAL ARTICLE****Denture Cleanliness Habits Among Geriatric Patients Wearing Complete Dentures**

Shivani Jandial

Consultant Dental Specialist, Dept of Prosthodontics, Indira Gandhi Govt Dental College and Hospital Jammu, J&amp;K, India


**ABSTRACT:**

**Objective:** To study was planned to determine the frequency of denture hygiene habits in complete denture patients. **Methods:** The study was conducted among 146 geriatric patients to assess their hygiene habits towards complete dentures. A self administered structured proforma was developed to know the frequency of denture wearing habits, practices of denture cleanliness, storage of denture and nocturnal denture-wearing habits. The data was analyzed using SPSS version 16.0 at p value <0.05. **Results:** In this study 41% geriatric patients had habit of daily cleaning their dentures, 46.7% clean it weekly and 12.3% do it rarely. Most of the patients do it with water and brush (46.1%) followed by water only 29.8%. Majority of the sample wear dentures on day time (45%). Some use it only for chewing the food (36.4%). After examination, it was found that the condition of the dentures were rated as good in 52.7%, followed by fair and poor as 30.1% and 17.2% respectively. Pearson Correlation showed positive correlation between frequency of cleansing and the condition of dentures. **Conclusion:** The main source of cleaning the denture was water with brush and a good number of patients clean their denture on daily basis. Nearly half of the respondents maintain their denture hygiene in good condition. Still, patients should be given instructions regarding maintenance of denture hygiene.

**Key words:** Denture hygiene, complete denture, habits.

Corresponding Author: Dr. Shivani Jandial, Consultant Dental Specialist, Dept of Prosthodontics, Indira Gandhi Govt Dental College and Hospital Jammu, J&K, India

This article may be cited as: Jandial S. Denture Cleanliness Habits Among Geriatric Patients Wearing Complete Dentures. J Adv Med Dent Scie Res 2017;5(12):85-88.

Access this article online	
<b>Quick Response Code</b> 	Website: <a href="http://www.jamdsr.com">www.jamdsr.com</a>
	DOI: 10.21276/jamdsr.2017.5.12.24

**INTRODUCTION**

Over the past few decades, the life expectancy in both developing and developed countries has increased. Correspondingly, the proportion of the elderly among the total population has also increased. There are 600 million people aged 60 years and above, and this number will double by 2025.<sup>1</sup> By the year 2050, there will be 2 billion people and 80% of them aged 60 years and above living in developing countries.<sup>2</sup> There is a growing interest in the oral health status of the elderly, as the size of this population is increasing worldwide. In dentistry, there is an increasing emphasis on maintaining better oral health in the old age, when alterations in oral tissues are associated with various conditions.<sup>2</sup> Although the prevalence of oral mucosal disease has been found to be higher in older subjects such as trauma, systemic diseases, the presence of medications and oral and denture hygiene, may also influence the development of oral mucosal diseases.<sup>3</sup> Despite of several advances in preventive and curative dentistry, common problem of aging populations is still the large number of edentulous people which is attributed to the increased prevalence of periodontal disease and caries.<sup>4</sup> Complete dentures are the most common treatment for rehabilitation of total loss. But the

rehabilitative treatment is successful only when patients are aware of correct prosthesis use and hygiene.<sup>5</sup> As denture hygiene has been reported to be the main means of preventing oral lesions.<sup>6</sup> Food particles located between the denture and the gingiva or between the denture and the palate allow multiplication of *Candida* spp. and bacteria, which can cause denture stomatitis.<sup>7</sup> Care of dentures and the mucosal tissues of the edentulous mouth can be important for overall health, especially in the elderly. Surveys show that many patients fail to keep their dentures clean and prefer to use dirty dentures. This situation may be a result of negligence of clinicians in recalling their denture patients and reinforcing the denture hygiene methods.<sup>8</sup> Regular cleaning of dentures is recognized as an important part of oral hygiene for denture wearers. Dentures predispose the wearer to denture stomatitis, harbours many potential pathogens, causing microorganisms. Unclean dentures result in oral mucosal diseases, impairment in eating, and fall in self-esteem on a frail elder than on a younger, healthier person.<sup>7,9</sup> However, it has been found that mostly denture wearers do not pay attention to oral hygiene. The difference in oral hygiene habits and attitudes may be related to number of factors, such as education, gender, social

status, or age.<sup>10</sup> Hence this survey was planned to investigate occurrence of denture cleanliness habits among old age denture wearers.

**MATERIALS & METHODS**

**Study area:** All the complete denture wearer patients coming to the Department of Prosthodontics, Indira Gandhi Govt Dental College and Hospital Jammu, India were selected for the study.

**Sample:** The total sample for the study was composed of 146 geriatric patients. Among all 85 were males and 61 females. According to age 44 were between 50 to 60 years (Group I), 67 between 60 to 70 year (Group II) and 35 were ≥ 70 years (Group III).

**Proforma:** A self structured questionnaire was developed for obtaining information regarding the frequency of denture hygiene habits. A pilot study was done on 10 patients to check the appropriateness of the proforma. The purpose of the survey was explained to the subjects and a written consent was obtained. The questionnaire included information as age, sex, also time & frequency of denture wearing, and other questions were also to know the practices of denture cleanliness habits, storage of denture and nocturnal denture-wearing habits.

**Data analysis**

Data was analyzed using SPSS version 16.0. Descriptive statistics were obtained and frequency distribution, means, standard deviation were calculated. One way

ANOVA test was used to find the significance of difference at p<0.05.

**RESULTS**

The study assessed denture hygiene habits and it was seen that 41% geriatric patients had habit of daily cleaning their dentures, 46.7% clean it weekly and 12.3% do it rarely as mentioned in Graph 1. According to the method of maintaining denture cleanliness, most of the patients maintain it with water and brush (46.1%) followed by water only 29.8% whereas very few did it with combination of water and cleansing tablets (4.4%) (Graph 2). When it was asked on storage of the dentures, mostly store it in water (69.7%), followed by wrapping in clothes (23.8%). However few keep it open only (Graph 3). In this study group mostly people wear dentures on day time (45%). Some use it only for chewing the food (36.4%). Around 11.4% wear all the time (Graph 4). After examination, it was found that the condition of the dentures were rated as good in 52.7%, followed by fair and poor as 30.1% and 17.2% respectively (Graph 5). Table 1 showed that with the advancing age the scores of denture cleaning habits also increased. Similar significant differences were found according to the condition of dentures among different age groups (p=0.000) as mentioned in Table 2. Pearson Correlation showed positive correlation between frequency of cleansing and the condition of denture as illustrated in Table 3.

**Table 1:** Showing frequency of denture cleansing according to age of the patients

Age	No	Mean	SD	F value	Sig
50-60 years	44	1.32	.471	11.251	.000
60-70 years	67	1.78	.623		
≥70 years	35	2.00	.907		
Total	146	1.69	.710		

**Table 2:** Showing condition of dentures according to age of the patients

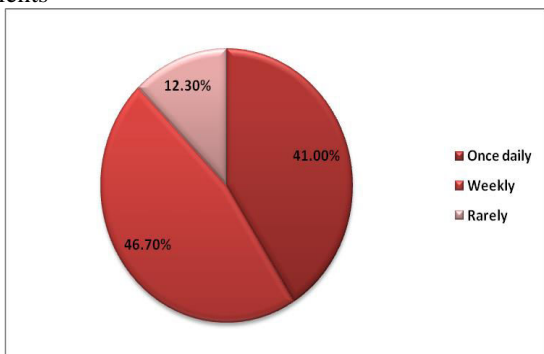
Age	No	Mean	SD	F value	Sig
50-60 years	44	1.00	.000	56.745	.000
60-70 years	67	1.79	.640		
≥70 years	35	2.40	.812		
Total	146	1.70	.782		

**Table 3:** Showing correlations between frequency of cleaning and condition of denture

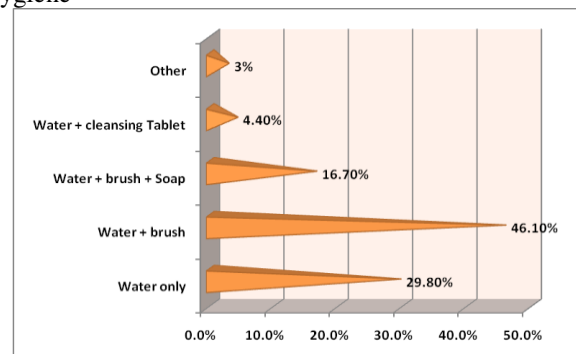
	Frequency of cleaning	Denture condition
Pearson Correlation	1	.452(**)
Sig. (2-tailed)		.000
N	146	146

\*\* Correlation is significant at the 0.01 level (2-tailed).

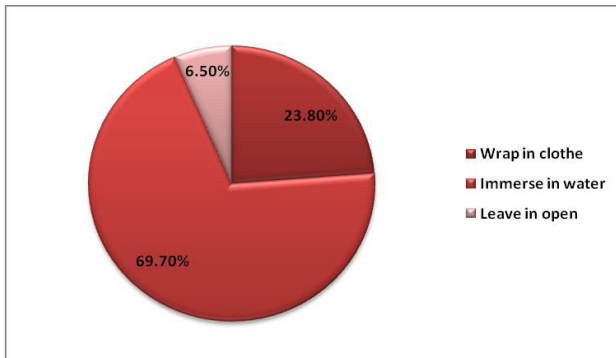
**Graph 1:** Frequency of cleansing dentures by the elderly patients



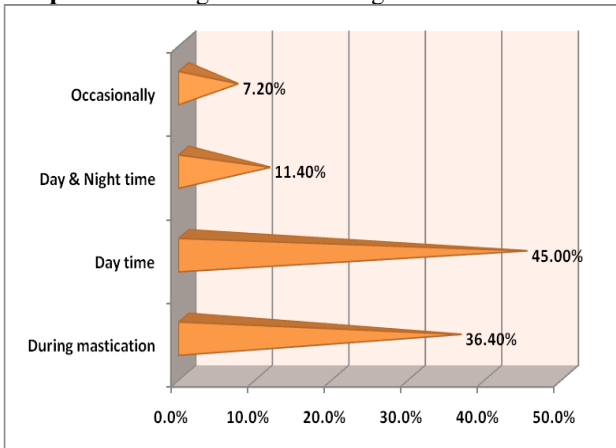
**Graph 2:** Showing different ways of maintaining denture hygiene



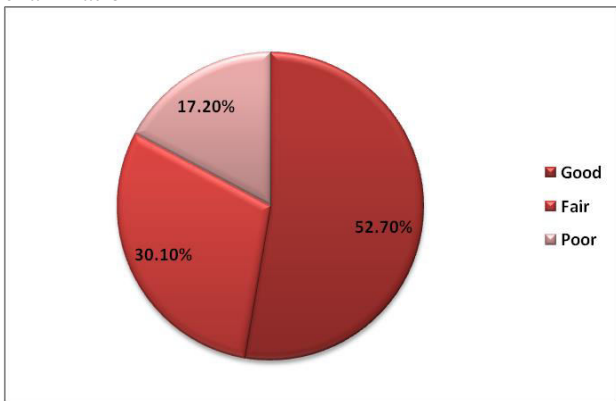
**Graph 3:** Showing different methods of storing the dentures



**Graph 4:** Showing time of wearing the dentures



**Graph 5:** Showing condition of dentures at the time of examination



**DISCUSSION**

Poor denture hygiene is a seemingly common problem encountered by prosthetic dentists<sup>7</sup> with their numerous complete denture patients. Elderly patients, particularly those who are in a compromised state, are not able to maintain good denture hygiene due to some physical and/or mental handicap.<sup>11,12</sup>

In this study most of the participants clean their dentures with water and brush (46.1%) followed by water only (29.8%). Where 16.7% of the subjects maintain denture hygiene with water along with brush and soap and these findings are comparable to Patel et al study.<sup>13</sup> However Polyzois found 86% of sample in Australia maintain

proper denture hygiene by brush.<sup>14</sup> Similar higher results were observed by Coelho et al (2004) in Brazil<sup>15</sup> and Dikbas et al (2006) in university hospital.<sup>16</sup> The reason behind this may be due to lower level of knowledge and awareness among this population.

Veres et al<sup>17</sup> observed that 36% of the participants brushed their dentures, and very few people (5%) used immersion as cleaning and 63% used only water to clean their prostheses. Some authors mentioned that brushing with toothpaste may make denture surfaces rougher, which increases the accumulation of dental plaque and reduces the shine of denture surfaces.<sup>18</sup> Ideally, combination of brushing and soaking with cleansing solutions has been recommended as the most effective method for cleaning dentures.<sup>19</sup>

In the present study most of the sample (69.7%) immerses their denture in the water at night. Similar results were obtained by Shankar et al among Complete Denture Wearers attending a Postgraduate Dental Institute.<sup>20</sup>

The current data showed that mostly people remove their dentures at night and the findings were similar to the studies as 41.5% reported by Dikbas et al<sup>16</sup>, 55.2% by Baran and Nalçaci<sup>21</sup> and only 26.3% reported by Marchini et al<sup>22</sup> who remove their dentures. Marcus et al found that nearly one-third of the participants of their study slept with both dentures, and 12% slept with the lower denture only. Ideally prostheses should not be worn overnight to give rest to the supporting tissues.<sup>23</sup>

Around 41% of the study subjects mentioned that they clean their dentures once daily and the findings were similar to Ozcan et al<sup>24</sup> in which 45.7% stated that they clean their dentures once a day. However many studies have shown higher frequency of cleaning as Peracini et al<sup>25</sup> reported that 73.58% subjects cleaned their dentures 3 times daily and Petrokvoski et al<sup>26</sup> said that 96% of patients reported cleaning their dentures 2 times per day. Nevalainen et al<sup>27</sup> De Castelucci Barbosa et al<sup>28</sup> who obtained similar results, 30% cleaned the dentures twice a day and 16% cleaned one time for every two days.[ 5] However a current sample of 12.3% also had a habit of cleaning their dentures unevenly

According to the condition of the dentures around half of the dentures were in good condition in this study. Where as Amjad et al<sup>29</sup> in 2010 mentioned that denture hygiene was rated as “Good” for 21.9% participants, “Fair” for 45.0% and “Poor” for 32.94%. Gautham et al also found that most of the participants had dirty dentures in their study.<sup>30</sup>

**CONCLUSION**

The study concluded that most of the participants used water with brush for cleaning dentures. Frequency of cleaning with cleansing solutions was also limited. But still a good number of the respondents maintain their denture hygiene on daily basis, therefore similar percentage of subjects had their dentures in good condition. Still, patients should be motivated and instructed by the dentists about denture cleansing methods, materials, and the harmful effects of overnight denture wearing.

## REFERENCES

- Deogade SC, Vinay S, Naidu S. Dental prosthetic status and prosthetic needs of institutionalised elderly population in oldage homes of Jabalpur city, Madhya Pradesh, India. *J Indian Prosthodont Soc* 2013;13(4):587-592.
- Freitas JB, Gomez RS, Abreu MHNG, Ferreira E. Relationship between the use of full dentures and mucosal alterations among elderly Brazilians. *J Oral Rehabil* 2008; 35(5): 370-4.
- Wolff A, Ship JA, Tylanda CA, Fox PC, Baum BJ. Oral mucosal appearance is unchanged in health, different-aged persons. *Oral Surg Oral Med Oral Pathol* 1991; 71(5): 569-72.
- Nalcaci R, Erdemir EO, Baran I. Evaluation of the oral health status of the people aged 65 years and over living in near rural district of Middle Anatolia, Turkey. *Arch Gerontol Geriatr* 2007; 45: 55-64.
- Budtz-Jørgensen E. Oral mucosal lesions associated with the wearing of removable dentures. *J Oral Pathol* 1981; 10: 65-80.
- Budtz-Jørgensen E. Materials and methods for cleaning dentures. *J Prosthet Dent* 1979; 42: 619-23.
- Manderson RD, Ettinger RL. Dental status of the institutionalized elderly population of Edinburgh. *Community Dent Oral Epidemiol* 1975; 3(3): 100-7.
- Cakan U, Yuzbasioglu E, Kurt H, Kara HB, Turunç R, Akbulut A, Aydin KC. Assessment of hygiene habits and attitudes among removable partial denture wearers in a university hospital. *Niger J Clin Pract* 2015;18(4):511-515.
- Abelson DC. Denture plaque and denture cleansers: review of the literature. *Gerodontology* 1985;1(5):202-206.
- Dogan BG, Gokalp S. Tooth loss and edentulism in the Turkish elderly. *Arch Gerontol Geriatr* 2012;54(2):162-166.
- Srinivasan M, Gulabani M. A microbiological evaluation of the use of denture cleansers in combination with an oral rinse in complete denture patients. *Indian J Dent Res* 2010;21:353-6.
- Gornitsky M, Paradis I, Landaverde G, Malo AM, Velly AM. A clinical and microbiological evaluation of denture cleansers for geriatric patients in long-term care institutions. *J Can Dent Assoc* 2002;68:39-45.
- Patel IB, Madan G, Patel B, Solanki K, Chavda R. Behaviours and Hygiene Habits of a sample population of complete denture wearers in Ahmedabad. *JIOH* 2012; 4(2): 30-38.
- Polyzois GL. Denture cleansing habits. A survey. *Aust Dent J* 1983; 28: 171-3.
- Coelho CM, Sousa YT, Daré AM. Denture-related oral mucosal lesions in a Brazilian school of dentistry. *J Oral Rehabil* 2004; 31: 135-9.
- Dikbas I, Koksall T, Calikkocaoglu S. Investigation of the cleanliness of dentures in a university hospital. *Int J Prosthodont* 2006; 19: 294-8.
- Veres EM, Wolfaardt JF, Hnizdo E. Denture cleansers: Part III - A survey of materials and methods employed by denture wearers. *J Dent Assoc S Afr* 1985; 40: 591-4.
- Barnabe' W. Efficacy of sodium hypochlorite and coconut soap used as disinfecting agents in the reduction of denture stomatitis, *Streptococcus mutans* and *Candida albicans*. *J Oral Rehabil* 2004; 31: 453-9.
- Dills SS, Olshan AM, Goldner S, Brogdon C. Comparison of the antimicrobial capability of an abrasive paste and chemical-soak denture cleaners. *J Prosthet Dent* 1988; 60: 467-70.
- Shankar T, Gowd S, Suresan V, Mantri S, Saxena S, Mishra P, Panday P. Denture Hygiene Knowledge and Practices among Complete Denture Wearers attending a Postgraduate Dental Institute. *J Contemp Dent Pract* 2017;18(8):1-8.
- Baran I, Nalcaci R. Self-reported denture hygiene habits and oral tissue conditions of complete denture wearers. *Arch Gerontol Geriatr* 2009; 49: 237-41.
- Marchini L, Tamashiro E, Nascimento DFF et al. Self-reported denture hygiene of a sample of edentulous attendees at a University dental clinic and the relationship to the condition of the oral tissues. *Gerodontology* 2004; 21: 226-8.
- Marcus PA, Joshi A, Jones JA, Morgano SM. Complete edentulism and denture use for elders in New England. *J Prosthet Dent* 1996;76(3):260-266.
- Ozcan M, Kulak Y, Arikian A et al. The attitude of complete denture wearers towards denture adhesives in Istanbul. *J Oral Rehabil* 2004; 31: 131-4.
- Peracini A, Andrade IM, Paranhos Hde F, Silva CH, de Souza RF. Behaviors and hygiene habits of complete denture wearers. *Braz Dent J* 2010; 21(3): 247-52.
- Pietrokovski J, Azuelos J, Tau S, Mostavoy R. Oral findings in elderly nursing home residents in selected countries. Oral hygiene conditions and plaque accumulation on denture surfaces. *J Prosthet Dent* 1995; 73: 136-41.
- Nevalainen MJ. Oral Mucosa lesions and oral hygiene habits in the home living elderly. *J Oral Rehabil*, 1997.
- De Castelucci Barbosa L. Edentulous patient's knowledge of dental hygiene and care of prosthesis. *Gerodontology* 2008.
- Amjad M, Azad AA, Ayub MM, Qureshi MA, Jave MU. Denture hygiene habits in complete denture wearers at armed forces institute of dentistry. *Pak Armed Forces Med J* 2010; 4: 13-18.
- Gautham P, Mallikarjun M, Chakravarthy K, Kumar KR, Budege V, Bodankar N. Assessment of denture hygiene maintenance among elderly patients in Nizamabad (Telangana) population: A survey. *J NTR Univ Health Sci* 2016;5:275-80.

**Source of support:** Nil

**Conflict of interest:** None declared

This work is licensed under CC BY: **Creative Commons Attribution 3.0 License.**