

Original Article

Awareness about Denture Hygiene: A Survey among Patients Wearing Complete Dentures and Removable Partial Dentures

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ABSTRACT

Background and Aim: The awareness of prosthetic treatment among patients has seen an increase lately, and hence surge in the prosthetic treatment. Efficient and regular cleaning of denture is necessary to maintain good oral hygiene conditions and also to maintain the durability of the dentures. The aim of this research is to evaluate the awareness of patients toward denture hygiene using a questionnaire survey. **Materials and Methods:** A questionnaire was used to reveal the knowledge of 2 groups consisting of 50 each to evaluate their awareness of maintenance of denture hygiene (group 1 – complete denture wearers, group 2 –removable partial denture wearers). The questionnaire consisting of 20 questions collected demographic details of patients, type and duration of the denture worn, cleaning habits employed by the patients, and other details relevant to denture hygiene awareness and knowledge of patients. **Results:** A total of 100 patients were reviewed with their age ranging from 45 to 75. Among them 44% (25%-RPD,19%-CD) were male and 56% (25%-RPD,31%-CD) were female. Most of the patients (93%) wear their denture for all days in a week except at night. Regarding storage of dentures most patient (90%) immersed their dentures in water, whereas only 10% stored them in the dry environment. When the patients were asked whether they received instruction from their dentist regarding denture cleaning, only 45% are said to have received while 55% replied negatively. About 46% cleaned their denture more than twice per day, whereas 39% were found to clean twice a day and only 15% once per day. Regarding the method of cleaning denture the most common method was found to be with water (45%), with brush and water (40%), water and salt (9%), brush and paste (5%), and finally, brush and solution (1%). More than half of the patients (51%) used denture cleansers. In this study, it was found that only 10% of patients went for regular follow-ups. **Conclusion:** The denture care practices are said to be satisfactory, but there is a need to increase awareness among dentists on the importance of educating patients about denture hygiene.

KEYWORDS: Complete denture, denture hygiene, removable partial denture

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INTRODUCTION

With the increase in life expectancy over the past decade, the number of elderly patients requiring dentures to replace missing teeth has also increased.^[1-3] Provision of the conventional denture (removable partial dentures and complete denture) is a common way to restore anatomical structures, form, function, and esthetics. The fitting of denture should not be considered

the final stage of treatment, instead, it should be seen as a beginning of long-term process as the success of the denture depends not only on accurate clinical and technical procedures carried out by the dentist but also on how the patients wear their denture and denture care practices.^[4] Denture care is, therefore, an imperative

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step to maintain good denture quality and also to ensure good oral health status.

Dentures are cleaned mechanically, chemically, or through a combination of these. The most common and most widely used mechanical method of denture cleansing is the using a brush in the presence of hot or cold water. There are brushes specifically designed and sold commercially for this purpose.^[5] Chemical methods for cleaning dentures in household solutions such as vinegar. The use of vinegar was evaluated by Basson *et al.*^[6] who found it effective at killing adherent microorganism and it also has an advantage that it does not cause mucosal damage if not rinsed adequately. Mouthwashes can also be used to chemically clean dentures. Soaking dentures in nystatin antifungal suspension solution has been empirically suggested as a useful adjunct in the management of denture stomatitis.^[7] The dominant approach in the United States to denture cleaning is through the use of commercial denture cleaning products dissolved in water. The dominant chemical formulation for these commercial cleansers includes compounds for oxidizing (e.g., Alkaline perborate), effervescing (e.g., Carbonate), and chelating agent (e.g., Ethylenediaminetetraacetic acid).^[8] The formulations are effective at essentially sterilizing a prosthesis when used overnight, they achieve a 99% kill rate of most organisms in the recommended 10–20-min soaking time. A component of commercial denture cleanser which has been recently introduced in the United States is a silicone polymer^[9] which coats the surface of the denture to which bacteria oral bacteria is unable to adhere. The material will not rub off or rinse and is slowly lost over the day. Thus, the addition of silicone polymer to a denture cleanser product signals a welcome new approach to denture care.

American Diabetes Association guidelines for the care and maintenance of dentures

Based on the best available evidence^[10], the following are guidelines for the care and maintenance of dentures:

1. Careful daily removal of the bacterial biofilm present in the oral cavity and on complete dentures is of paramount importance to minimize denture stomatitis and to help contribute to good oral and general health
2. Dentures should be cleaned daily by soaking and brushing with an effective, nonabrasive denture cleanser
3. Denture cleansers should only be used to clean dentures outside of the mouth
4. Dentures should always be thoroughly rinsed after soaking and brushing with denture-cleansing solutions before reinsertion into the oral cavity.

Always follow the product usage instructions

5. Although the evidence is weak, dentures should be cleaned annually by a dentist or dental professional using ultrasonic cleansers to minimize biofilm accumulation over time
6. Dentures should never be placed in boiling water
7. Dentures should not be soaked in sodium hypochlorite bleach, or in products containing sodium hypochlorite, for periods that exceed 10 min. Placement of dentures in sodium hypochlorite solutions for periods longer than 10 min may damage dentures
8. Dentures should be stored immersed in water after cleaning, when not replaced in the oral cavity, to avoid warping
9. Denture adhesives, when properly used, can improve the retention and stability of dentures and help seal out the accumulation of food particles beneath the dentures, even in well-fitting dentures
10. In the quality of life study, patient ratings showed that denture adhesives may improve the denture wearer's perceptions of retention, stability, and quality of life; however, there is insufficient evidence that adhesives improve masticatory function
11. Evidence regarding the effects of denture adhesives on the oral tissues when used for periods longer than 6 months is lacking. Thus, extended use of denture adhesives should not be considered without periodic assessment of denture quality and health of the supporting tissues by a dentist, prosthodontist, or dental professional
12. Improper use of zinc-containing denture adhesives may have adverse systemic effects. Therefore, as a precautionary measure, zinc-containing denture adhesives should be avoided
13. Denture adhesive should be used only in sufficient quantities (three or four pea-sized dollops) on each denture to provide sufficient added retention and stability to the prostheses
14. Denture adhesives should be completely removed from the prosthesis and the oral cavity on a daily basis
15. If increasing amounts of adhesives are required to achieve the same level of denture retention, the patient should see a dentist or dental professional to evaluate the fit and stability of the dentures
16. While existing studies provide conflicting results, it is not recommended that dentures be worn continuously (24 h per day) in an effort to reduce or minimize denture stomatitis
17. Patients who wear dentures should be checked annually by the dentist, prosthodontist, or dental professional for the maintenance of optimum denture

fit and function, for the evaluation for oral lesions and bone loss, and for the assessment of oral health status.

Studies have shown that denture stomatitis, which affected 15% to 70% of denture wearers in different populations,^[11] is associated with poor denture hygiene and continual denture wearing.^[12-14] The denture care practices of the denture wearers are associated with their knowledge and attitude. Knowledge and attitude do not directly lead to behavioral changes, but there is a positive relationship between knowledge, attitude, and behaviour.^[15] They will cultivate good behaviors in denture wearing and denture care practices if they have enough knowledge and hold positive attitude. Therefore, proper instructions should be provided to denture wearers by dentists to ensure proper denture hygiene is maintained.

MATERIALS AND METHODS

This survey was conducted on 100 patients with removable dentures attending the Outpatient Department of Saveetha Dental College and Hospitals. Data were collected using a questionnaire consisting of demographic details (age, sex, kind of prosthesis, age of denture, frequency of wearing denture, and given instructions about denture cleansing habits) denture cleaning habits (frequency of cleaning, materials used to clean, use of denture cleansers, denture adhesives, and oral rinses), and regular follow-up visits. The collected data were input into a computer using the computer software Microsoft Excel 2007. Proofreading was done, and errors were corrected. Data analysis was done using Chi-squared test. The $P \leq 0.05$ was considered statistically significant.

RESULTS

A total of 100 patients were reviewed with their age ranging from 45 to 75 [Table 1]. Among them, 44% (25%-RPD, 19%-CD) were male and 56% (25%-RPD, 31%-CD) were female. About 44% of elders have been denture wearers for less than a year, whereas about 28% have worn dentures for 1–3 years and about 19% for 3–5 years and 8% for more than 5 years. Most patients (95%) were satisfied with their dentures. The most common reason given by the patients for wearing denture was given as chewing (81%), whereas about 15% wore dentures for appearance and only 4% wore dentures for speaking. Most of the patients (93%) wear their denture for all days in a week except at night. Majority of patients (91%) wear their denture while chewing and more than half (68%) wear their denture while talking. The vast majority of the

patients (90%) do not wear their denture while sleeping. Regarding storage of dentures when not in use most patient (90%) stored their dentures in water while only 10% stored them in a warm environment. When the elders were asked if they received any instruction from their dentist regarding denture cleaning only 45% are said to have received instructions on denture cleaning while 55% replied negatively. All the patients cleaned their denture by themselves, and about 46% cleaned their denture more than twice per day, whereas 39% were found to clean their denture twice a day and only 15% cleaned their dentures once per day. Regarding the method of cleaning denture the most common method was found to be with water (45%) followed closely by brush and water (40%), water and salt (9%), brush and paste (5%), and finally, brush and solution (1%). With regard to soaking dentures in solution, it was found that more than half of the patients (68%) soaked their dentures in solution (water, soap-water). More than half of the patients (51%) used denture cleansers. Majority of the [Figure 9] patients (83%) used denture adhesives. About 78% of patients were found to brush other parts of oral cavity such as tongue, floor, and roof of the mouth and gums. Most patients (58%) are said to use oral rinse often. Only 2% of patients complained about having problems with cleaning their dentures. In this study, it was found that only 10% of patients went for regular follow-ups. There is no significant statistical difference between various age groups on denture hygiene.

DISCUSSION

A total of 100 patients were reviewed with their age ranging from 45 to 75. Among them, 44% (25%-RPD, 19%-CD) were male and 56% (25%-RPD, 31%-CD) were female. In this study, the most common reason given by the patients for wearing denture was chewing (81%), whereas about 15% for appearance and 4% for speaking [Figure 1], and the results are similar to the previous study^[4] done by Chen Qipeng (appearance-17%, chewing-92%, speaking 4%). Data analysis, in this study, showed

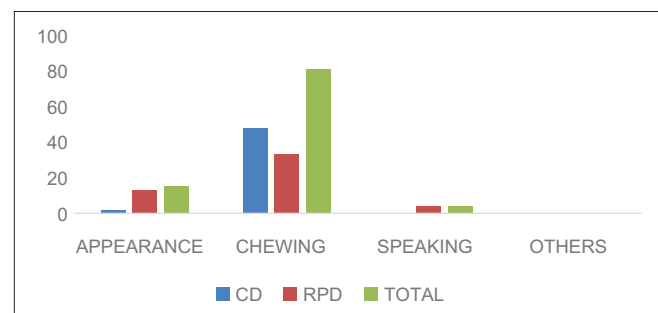


Figure 1: Reasons for wearing denture

that majority of the patients (93%) wear their denture for all days in a week except at night [Figure 2] similar to the results obtained (>90%) in a previous study done in Hongkong. Data analysis in this study showed that only 10% of the patients usually slept with their dentures [Figure 3]. This situation is better than those reported in the previous studies in which 41.5%^[16] and 64%^[17] of patients, respectively, did not remove their dentures at bedtime. Baran and Nalçaci^[11] also showed that 55.2% of patients slept with their dentures. Regarding storage of dentures, the results obtained in this study are that most patients (90%) immersed their dentures in water, whereas only 10% stored them in the dry environment [Figure 4] which is in agreement with other studies.^[4,11,12] The previous studies^[16,18] have reported that the majority of denture wearers do not know how to clean their dentures because they have never received instructions from their dentist. In this study, most patients (55%) reported never having been advised by their dentists as to how to clean their dentures [Figure 5]. Similar results were obtained by Dikbas *et al.*,^[16] Hoad-Reddick *et al.*,^[19] Marchini *et al.*,^[20] and Amanda *et al.*,^[21] who found that 82.9%, 86.3%, 77.5%, and 51.89%, respectively, of the respondents, did not receive proper denture cleaning instructions from their dentists. In the present study, 85% of patients cleaned their dentures 2 or more times daily and 15% once per day [Figure 6]. This frequency was higher than that of Dikbas

et al.,^[16] where 25% of individuals, from a sample of 234, reported cleaning their dentures more than 2 times a day. However, according to Pietrovovski *et al.*,^[22] and Peracini *et al.*,^[21] 96% and 73.58% of patients, respectively, reported cleaning their dentures 2 or more times per day. Regarding the method of cleaning denture in this study the most common method was found to be with water (45%), with brush and water (40%), water and salt (9%), brush and paste (5%), and finally, brush and solution (1%) [Figure 7]. In a study by Molouk *et al.*,^[23] 31.7% of patients cleaned their dentures with water and 31.14% with brush and water. Whereas, the studies by Baran and Nalçaci,^[11] Khasawneh and al-Wahadni^[13] reported that most patients cleaned their denture with a toothbrush. In our study, more than half of the patients (51%) used denture cleansers [Figure 8] which is in agreement with a similar study done by Chen Qipeng.^[4] Of the patients interviewed, 78% reported to clean the oral tissues daily [Figure 10] which is similar to the results obtained in a study by Peracini *et al.*^[21] Of the patients surveyed, 58% used some type of oral rinse [Figure 11]. In this study, it was found that only 10% of patients went for regular follow-ups [Figure 12].

CONCLUSION

Based on the findings of this study, it was found that most of the patients have satisfactory denture hygiene. The most common method of denture cleaning is using only water. It was also found that more than half of

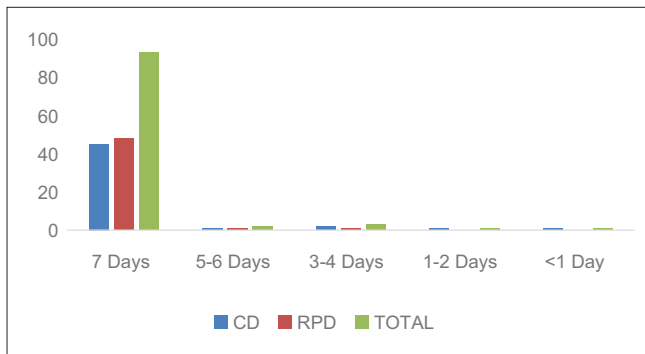


Figure 2: Frequency of denture wearing

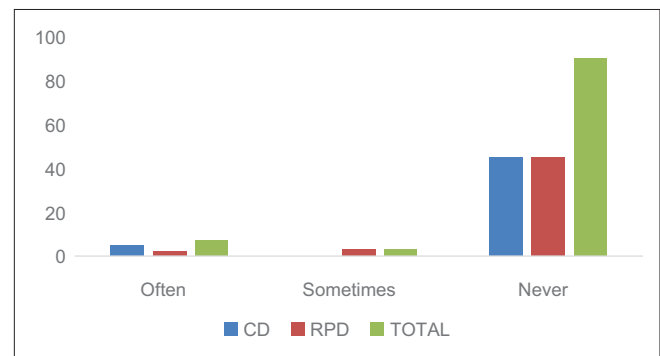


Figure 3: Denture wearing while sleeping

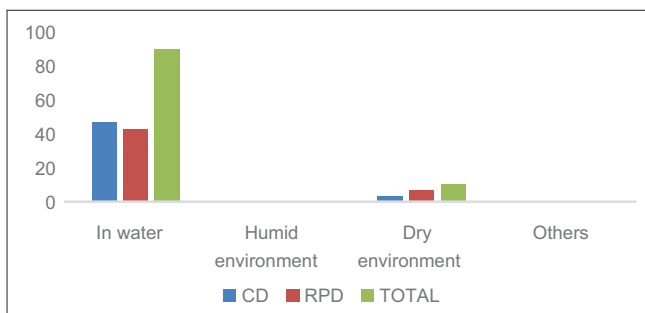


Figure 4: Storing denture while not in use

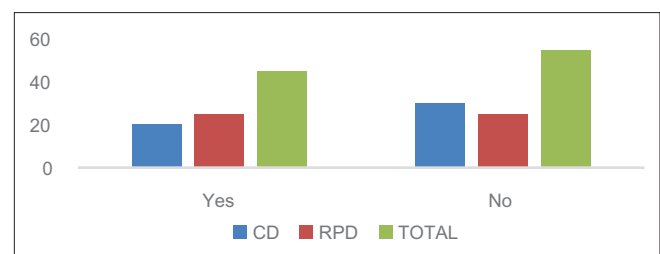


Figure 5: Received instructions from dentists about denture cleansing

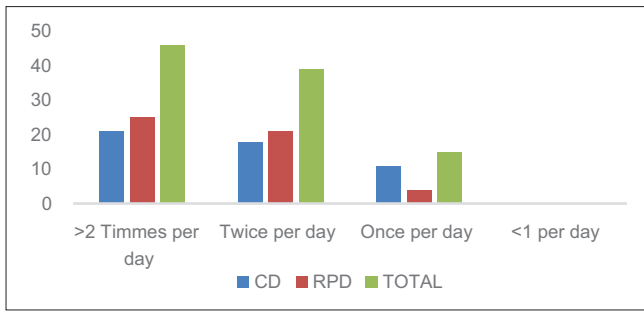


Figure 6: Frequency of denture cleaning

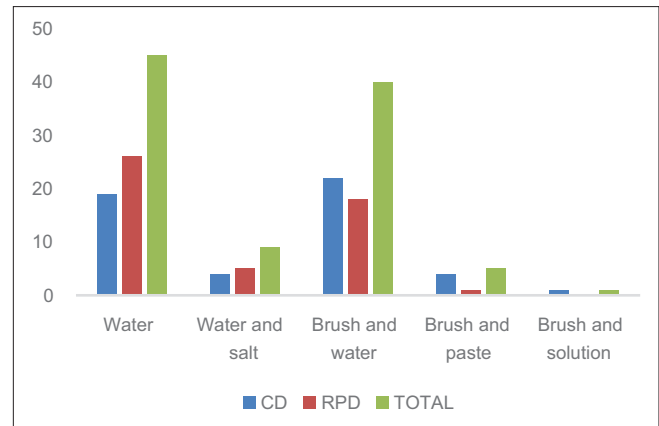


Figure 7: Method of denture cleansing

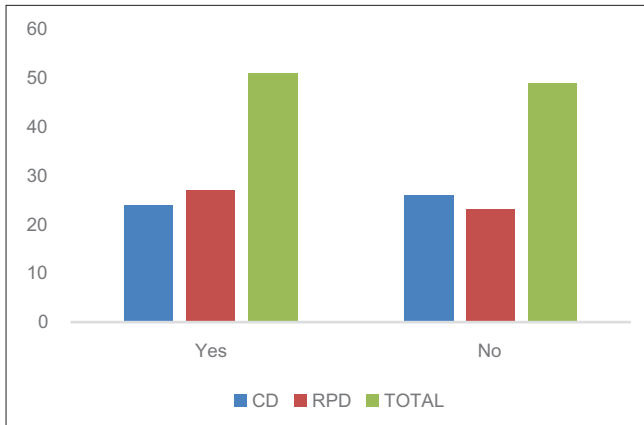


Figure 8: Use of denture cleansers

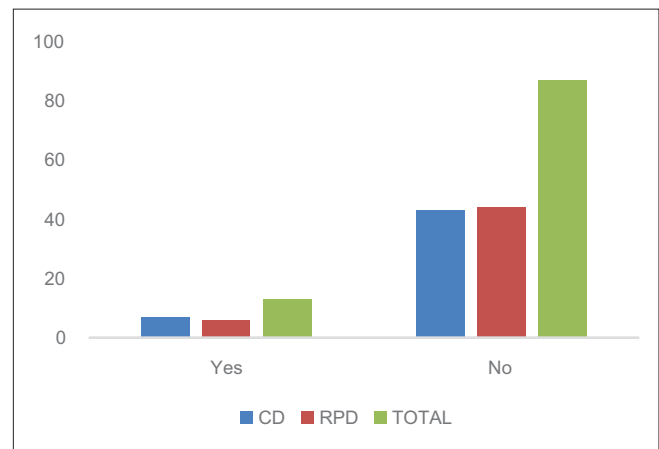


Figure 9: Use of denture adhesive

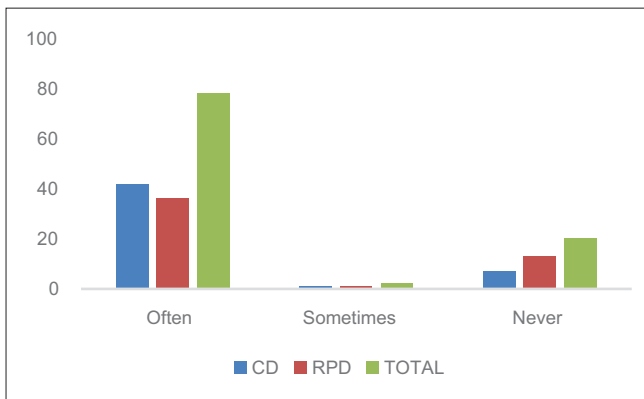


Figure 10: Brushing of other parts of the mouth

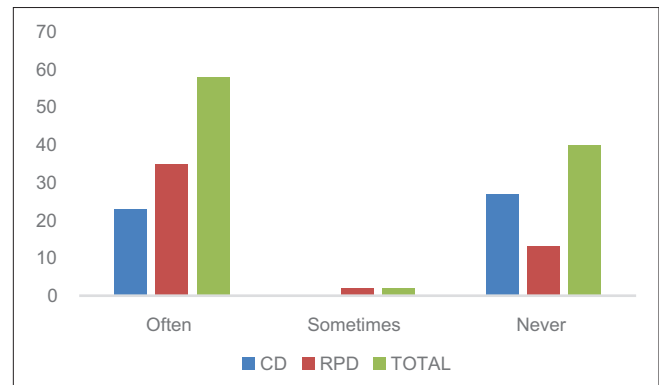


Figure 11: Use of oral rinse

the patients do not receive any instruction on denture hygiene from dentists. Thus, it is important for to spread awareness among dentists to educate their patients about correct methods and practices to clean and maintain their dentures. Many new methods of denture cleaning are available commercially such as cleansing tablets, cleansing solutions, and a number household methods are also available. A component of commercial denture cleanser that has been recently introduced to the United States is a silicone polymer that coats the surface of the denture to which oral bacteria are unable to adhere.^[9] Therefore, dentists should update themselves about new materials available in the market to create the denture hygiene

practice efficient among the patients. Furthermore, very few patients were found to go for regular follow-ups so more patients should be encouraged to do so.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

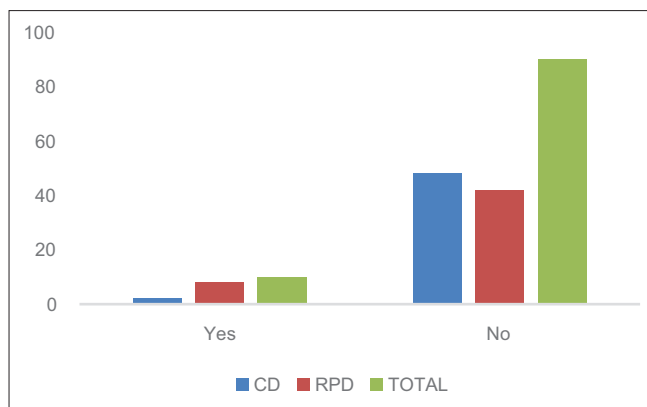


Figure 12: Regular dental checkups

Table 1: Evaluation of Dental Hygiene between genders

	Male	Female
Satisfaction level		
Satisfactory	44	51
Unsatisfactory	0	2
Reason for wearing denture		
Appearance	2	13
Chewing	27	54
Speaking	4	0
Frequency of wearing denture		
7 days	44	49
5-6 days	0	3
3-4 days	0	2
1-2 days	0	1
<1 day	0	1
Denture wearing while chewing		
Often	35	56
Sometimes	8	0
Never	1	0
Denture wearing while sleeping		
Often	6	1
Sometimes	3	0
Never	35	55
Frequency of cleaning denture		
>2 times/day	29	17
Twice/day	7	32
Once/day	8	7
<1/day	0	0
Use of denture cleansers		
Yes	19	32
No	25	24
Use of denture adhesive		
Yes	12	1
No	32	55
Use of oral rinse		
Yes	28	32
No	16	24
Regular dental follow-up		
Yes	10	0
No	34	46

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