

An In-Vivo Evaluation of Attitude towards Denture Hygiene Habits in Complete Denture Wearers: An Original Study

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Abstract

Background and Aim: With the advanced innovations in the rehabilitation techniques, the usages of removable denture have been reduced significantly. However, complete denture are one of the most common and trendy avenue for restoring completely edentulous situations. The ultimate aim of this study was to assess the denture hygiene attitude in complete denture patients.

Materials and Methods: A total of 100 complete denture wearing patients were selected for this assessment. The patients were selected in the age range of 45-70 years. The methodologies were explained to the patients prior to the real execution of the study. All interested complete denture patients were included in the study. We also performed a small demographic recording of the patients that includes data on gender, age, length of prosthesis utilize, cleaning strategies and materials, and so on.

Statistical Analysis and Results: Basic statistical analysis was completed using SPSS statistical package for the Social Sciences version 21 for Windows. Only 58% of the patients reported that they use to clean their dentures every day once. Approximately 68% of the patients agreed that they do not remember the verbal and written instructions for denture hygiene at the time of delivery of complete dentures by the dentists. However, on further exploration of the method of cleaning, it was revealed that most of the patients were unaware about recent aids of denture cleaning and they still use traditional brushing with water methods for cleaning dentures. **Conclusion:** The overall denture hygiene outlook in the studied complete denture patients was poor. The probable and attributable causes might be irregular cleansing habits and moreover diminished awareness about newer and advanced denture cleansing solutions.

Keywords: Denture Hygiene, Complete Denture, Habits, Denture Cleansers

Introduction

As we all know that oral hygiene has ancient roots; the first evidence in the direction of maintenance of oral hygiene by people was in the form of "chewing sticks." As early as 3500 BC, the Babylonians used chewing sticks those obtained from special aromatic trees designed to clean the teeth.¹ Most widespread mechanism used to attain oral hygiene in the present day is the "toothbrush." It is the most effective way of mechanical plaque control. Mechanical tooth cleaning by means of a toothbrush is considered the most common ways of distressing dental plaque development. In spite of numerous developments in preventive and restorative dentistry, general difficulties of aging populations are still the huge number of edentulous people.² This is attributed to the higher prevalence of periodontal disease and caries. Complete dentures are the most common treatment for rehabilitation of complete edentulousness. However, this rehabilitative treatment is not a 'failure' only when patients are well attentive of right prosthesis use and related optimal oral hygiene. Literature has well evidenced that denture hygiene could be efficient means of preventing oral lesions.³

Food particles those indulged between the denture and the gingiva or between the denture and the palate let reproduction of *Candida* species and bacteria. Such activities can later on result into denture stomatitis. It is also very crucial that patients do not overlook the daily habit and routine of cleaning of their dentures. This is because 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. The denture could possibly acts as a favorable host that facilitates *Candida* to adhere and resist the flushing action of saliva. This is the first stage in the process leading to colonization and infection. Dental professionals and denture patients must comprehend that microbial plaque on dentures may be harmful to both the oral mucosa and the general health. Therefore, it is the sole accountability of the patient to maintain optimal oral hygiene by daily home care practices. Nevertheless, Literature has also shown that completely edentulous patients in comparison to the dentulous, pay less attention toward the importance of plaque control.⁴ Dental professionals must have a current knowledge of denture cleansing strategies to maximize the services offered to their denture patients.

The aim of this paper was to assess the denture hygiene attitude in studied complete denture patients.

Materials and Methods

This study was conducted on 100 totally edentulous patients with age 45-70 years reporting to institute. Patients >70 yrs of age were also considered in the study. Author has screened and selected total 100 complete denture patients from the regular patient footfall of department. A small survey was prepared and given to the patients for filling them. Out of 100 patients, 55 patients were male and 45 were female. The contact no and address details of the patients were also recorded for future reference or record purposes. All patients were informed in detail about the study and written consent was obtained. The survey contained statistic data, for example, age, sex, time of wearing, and other inquiries to know the denture cleanliness outlook, frequency of cleaning and method of cleaning. It contained 8 questions related to denture hygiene. In spite of the fact that the denture hygiene education is the extremely important part of denture therapy, most elderly patients are not suitably informed and periodically recalled to review denture care. Author had finalized to conduct and complete our study on survey basis. Literature has well evidenced that survey based studies are extremely useful in obtaining detailed information regarding individual and group perceptions and attitudes. In addition, questionnaire based studies also offer a wider range of information with better intelligibility. Right before the execution of the study, author had explained the relative significance of this study to all participating patients. The privacy and other interrelated rights of the patients along with their freedom of expression were kept absolutely

confidential. The recorded data was subjected to suitable statistical tests to obtain p values, mean and other statistical parameters. P values less than 0.05 was considered as significant

Statistical Analysis and Results

All the recorded data were arranged in logical manner and subjected to suitable statistical analysis using SPSS statistical package for the Social Sciences version 21 for Windows. Approximately 68% of the patients agreed that they do not remember the verbal and written instructions for denture hygiene at the time of delivery of complete dentures by the dentists. Merely 32% remember they were received denture hygiene instructions. Out of the total sample size of 100 subjects who participated in the study, 24 belonged to the age group of 45-54 years, 26 subjects were of 55-64 years of age, 27 were 65-70 years of age and 23 patients were more than 70 years of age. P value was reported to be significant for it. Overall it had 55 male and 45 female subjects. In general, 58% patients cleaned their dentures almost once a day and 18% people do it occasionally (refer Table 1-4 & Graph 1). Only 58% of the patients reported that they use to clean their dentures every day once. The general hygienic condition of the complete denture was found to be good in 61 patients while it was fair and poor in 25 and 14 patients respectively. About 52 patients reported that they do not wear the denture overnight however, 36 patients admitted that they use to wear it overnight. 71 patients were reported to clean their dentures by brushing with water. It shows that the majority of the patients using this method for cleaning denture. We have noticed only less than 7% patients those using advanced cleansing aids or denture cleansing solutions. This shows the relative unawareness of these aids in the studied population.

Table 1: Patients distribution according to gender: Statistical Evaluation using Student's t-test

Sex	Number [n]	Mean	SD	P value
Male	55	2.65	1.230	0.980
Female	45	2.87	1.630	

Table 2: Patients distribution according to age groups: Evaluation of level of significance using ANOVA test

Patients distribution according to age groups						
Group	Age Range	n	Mean	SD	P value	*Sig [*p<0.05]
I	45-54 Yrs	24	2.54	1.450	0.000*	
II	55-64 Yrs	26	2.23	1.540		
III	65-70 Yrs	27	2.67	2.174		
IV	>70 Yrs	23	2.23	2.165		

Graph 1: Frequency of denture cleaning

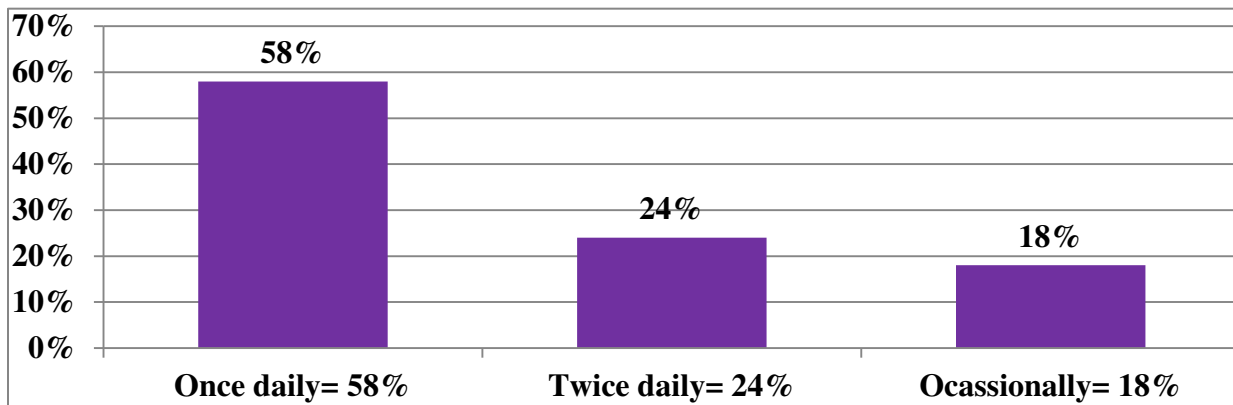


Table 3: Demographic details of studied complete denture patients

Variable Sr No.	Variable	Number [n]
1	Age	
	45-54	24
	55-64	26
	65-70	27
	>70	23
2	Gender	
	Male	55
	Female	45
3	Duration of Denture Wearing	
	<1 year	23
	1-4 year	20
	5-9 year	21
	10-15 years	15
	>15 years	21
4	Condition of denture	
	Good	61
	Fair	25
	Poor	14

5	Overnight denture wearing habit	
	No	52
	Does it Remove sometimes	36 12
6	Relevant Medical history	
	Present Absent	29 71
7	Method of Denture cleaning	
	No	12
	Brushing & water	72
	Brushing only	10
	Denture cleansing solutions Newer cleansing aids	4 2
8	Frequency of denture cleaning	
	Once	58
	Twice Occasionally	24 18

Table 4: Fundamental statistical description with level of significance evaluation using Pearson Chi-Square Test

Variable No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (p value)
1	2.53	0.252	0.160	1.96	2.433	1.0	0.086
2	2.76	0.264	0.000	1.96	2.242	2.0	0.030*
3	2.53	1.346	0.078	1.96	2.498	1.0	0.030*
4	2.98	0.434	0.035	1.96	1.556	1.0	0.080
5	2.23	0.276	0.025	1.96	2.550	3.0	0.000*
6	1.57	0.352	0.029	1.96	2.463	1.0	0.435
7	1.38	0.132	0.016	1.96	1.231	1.0	0.341
8	2.34	0.349	0.033	2.33	1.219	1.0	0.324

*p<0.05 significant

Discussion

Poor denture hygiene is a apparently common dilemma faced by prosthodontists. Aged patients [especially those who are in a compromised state] are not able to maintain good denture hygiene due to some physical and/or mental handicap. Nevertheless, the maintenance of denture hygiene is neglected in not just compromised geriatric patients but also with normal healthy denture wearers.⁵⁻⁷ In the present study, the general hygienic condition of the complete denture was found to be good in 61 patients while it was fair and poor in 25 and 14 patients respectively. About 52 patients reported that they do not wear the denture overnight however, 36 patients admitted that they use to wear it overnight. 71 patients were reported to clean their dentures by brushing with water. It shows that the majority of the patients using this method for cleaning denture. We have noticed only less than 7% patients those using advanced cleansing aids or denture cleansing solutions. This shows the relative

unawareness of these aids in the studied population. This can be due to a clear cutlack of motivation, basic knowledge or simply carelessness and neglect. Cleansing and disinfecting of dentures are crucial for the maintenance of oral soft tissue health and successful use of removable dentures.^{8,9,10} Consequently, it is very significant for dentists to educate their patients about daily denture cleansing regimen to prevent undesirable circumstances. Many of the literature researches showed that insufficiently maintained dentures contribute to a host of infections in denture patients. It also diminishes the physical condition of the denture. Poor denture hygiene attracts harmful tissue reactions; those are direct outcomes to accumulation of food debris, calculus, stains and multiplications of bacterium.^{11,12,13} In an ideal scenario, both mechanical and synthetic instruments should be utilized together to accomplish better plaque control. The blend of brushing and drenching technique has been prescribed as the successful path for cleaning dentures.¹⁴⁻¹⁸ A noteworthy relationship between

condition of the mucosa of denture bearing areas and pain and discomfort was predicted. Patients who were medically compromised or treated with medications such as steroids that produce oral side effects with intraoral manifestations will possibly experience more difficulties with their dentures.¹⁹⁻²⁴ Such patients are generally presented with pain on the soft tissues, ulceration, inability to eat and inadequate retention.

Conclusion

The overall denture hygiene outlook in the studied complete denture patients was poor. The possible and attributable causes could be irregular cleansing habits and moreover diminished awareness about newer and advanced denture cleansing solutions. Dental specialists must furnish reasonable guidelines with respect to maintenance of denture cleanliness. In the present study, most of the patients were employing brushing with water to clean their dentures. Such populations are needed to be taught about various newer and easy methods of denture cleaning. These approaches will not only improve the efficiency of cleaning but also boost up the durability and shelf life of the denture. Additionally, health care professionals must also develop a habit of counseling the complete denture patients in these perspectives.

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