Original Article

Hygiene Habits of Complete Denture Wearers in Geriatric Patients

Denture Hygiene Habits in Geriatric

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ABSTRACT

Objective: To assess the denture hygiene habits in geriatric patients visiting the Prosthodontic department at Liaquat College of Medicine and Dentistry, Karachi.

Study Design: A Cross Sectional Survey

Place and Duration of Study: This study was conducted at the Department of Prosthodontics at Liaquat College of Medicine and Dentistry, Karachi from March 2015 to November 2015.

Materials and Methods: A descriptive cross-sectional survey conducted in 350 complete denture wearers patients aged >65 years reported to Prosthodontics department of Liaquat College of Medicine & Dentistry. The questionnaire evaluates the time elapsed since the current complete dentures are being used in both jaws, whether the patient has been made aware of the instructions on how to clean and care for their dentures, what additional substances and dentrifices to use to aid cleaning, and whether the patients clean their oral mucosal surfaces as well or not. Statistical analysis of all the data collected were performed using SPSS version 21.

Results: In this study, 156 (45.8%) of the participants reported that their dentists had never been told how to clean their dentures. Nearly half of the study population 188 (55.1%) scrub the teeth with water. For the frequency of denture cleaning, two-thirds 255 (74.8%) of the researchers cleaned the denture at least once a day. This study showed that 102 (29.9%) participants usually sleep with dentures.

Conclusion: As a pre-requisite to denture wearing, care and oral hygiene should be informed and repeated to the patient throughout the course of treatment and then should be checked for patient compliance with regular follow-ups in the ensuing years.

Key Words: Denture hygiene, complete denture, geriatric, elderly

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INTRODUCTION

Over the years, the aim of conservative dentistry has been to preserve and make use of the teeth present in a person's oral cavity for as long as it is possible. But as medical care is being made easily available and with advances and feats of innumerable proportions being made in the health care industry, mortality rates have declined and people live well into their old age. Thus, the use of complete dentures has been on the rise because usually geriatric patients lose their tooth to aging if not disease. The most common causes of tooth loss include dental caries, periodontal problems, dento-alveolar traumatic injuries, orthodontic extractions, failed dental treatments, oral carcinomas and radiation therapy[1]. The work of a dentist does not end when the complete denture has been delivered to the patient.

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The real work begins after insertion as the success of the complete denture, in addition to its adequate and efficient construction, depends on how well the dentist / prosthodontist has made the patient aware on its maintenance and hygiene, and how well the patient takes care of it and his / her own oral cavity. The fitting surface of the denture, its quality and adjustment with regards to the patient's mouth, the occlusal relations, denture age, hygiene and maintenance of the removable prosthesis determines to which extent the oral mucosa and tissues of the patient might be damaged[2-4].

The deleterious effects of complete denture wear on the oral mucosa usually occurs as plaque, both hard and soft, adheres to dentures as well[5]. Some of the adverse effects of complete denture use with negligible hygiene maintenance includes denture-induced stomatitis, denture irritation papillary hyperplasia, angular chelitis, flabby pendulum ridges, oral candidosis, halitosis, and possibly, oral carcinomas[2-3, 6-8].

To create better awareness of the importance of maintaining prompt oral hygiene and denture hygiene to safeguard both the success of the prosthesis and health of the patient, the objective of this study was to assess the denture hygiene habits in geriatric patients visiting the Prosthodontic department at Liaquat College of Medicine and Dentistry, Karachi.

MATERIALS AND METHODS

A descriptive cross-sectional survey conducted in 350 complete denture wearers patients aged >65 years reported to Prosthodontics department of Liaquat College of Medicine & Dentistry during March 2015 to November 2015 . A total of 350 participants were required by calculating the sample using OpenEpi version 3 with a 95% confidence level, 80% power and 65 % frequency of outcome factor in the population (Azad et al). The reasons for the study were disclosed to the patients and written consent was taken from them. The questionnaire used in this cross-sectional study was taken from a study conducted by Peracini et al.[8]. This questionnaire evaluates the length of time of edentulousness, the time elapsed since the current complete dentures are being used in both jaws, whether the patient has been made aware of the instructions on how to clean and care for their dentures, what additional substances and dentrifices to use to aid cleaning, how often to remove the dentures from the oral cavity, and whether the patients clean their oral mucosal surfaces as well or not. A total of nine forms were excluded in analysis due to incomplete information. Statistical analysis of all the data collected were performed using SPSS version 21. Frequency and percentages were reported for categorical data while mean and standard deviation for numerical data. Chi square test was used for variables between males and females at p value <0.05.

RESULTS

In this study, 156 (45.8%) of the participants reported that their dentists had never been told how to clean their dentures. Nearly half of the study population 188 (55.1%) brush the dentures with water. For the frequency of denture cleaning, two-thirds 255 (74.8%) of the participants cleaned the denture at least once a day. Of all the participants who received the interview, 174 (51%) reported daily cleaning of oral tissue; the most frequent brushing area was tongue. Oral flushing is the most common auxiliary tool for cleaning, 153 (44.9%). This study showed that 102 (29.9%) participants usually sleep with dentures (Table 1).

Table 2 shows the hygiene habits between different sexes. There was a significant difference between males and females after receiving any dentist guidance on how to clean dentures (p <0.013). Again, there was no statistically significant difference in the denture cleaning method, the frequency of denture cleaning, the difficulty of cleaning the denture and brushing the oral tissue. The chi-square test using oral rinse and denture was examined for p = 0.014 and p <0.001, respectively. Figure 1 shows that women (77.2%) were more satisfied with the use of dentures than men (72.6%).

Table No.1: Demographic Characteristics of Patients Wearing Complete Denture (n=341)

Variables	(n%)
Age (years)	
65 – 75	297(87.1)
>75	44(12.9)
Gender	
Male	73(21.4)
Female	268(78.6)
Education Level	
Illiterate	91(26.7)
Primary	88(25.8)
Secondary	39(11.5)
Intermediate	113(33.1)
Bachelors	10(2.9)
Time of use of complete denture	
<1 year	86(25.2)
1-5 years	177(52)
6-10 years	54(15.8)
>10 years	24(7)
Condition of denture	
Good	201(58.9)
Fair	79(23.2)
Poor	61(17.9)
Nocturnal denture wearing habit	
Remove denture	181(53.1)
Does not remove	102(29.9)
Remove sometimes	58(17)

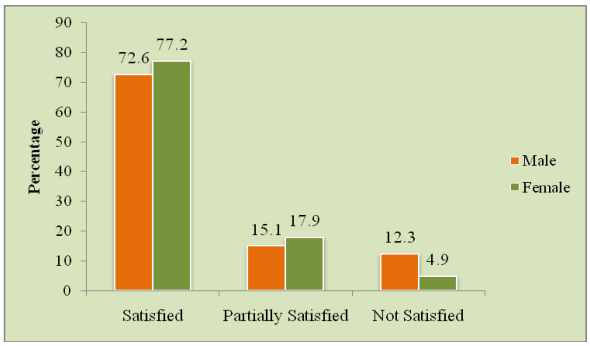

Figure No.1: Subjects' Satisfaction with Use of Denture

DISCUSSION

As complete dentures are usually provided to geriatric patients and the elderly as elaborated by the current study as well, overtime they lack the manual dexterity with which the maintenance and care of the dentures should be met[5, 6]. However, generally too, the neglect of denture hygiene is negligible on part of the wearer which reflects basic lack of motivation and laziness, in turn showing how much the patient was actually guided and instructed by the dentist / prosthodontist in making the patient take interest and show a visible effort on safeguarding the cleanliness of the oral cavity and the denture[5].

Table 2: Denture Care Habits Based on Gender (n=341)

Questions	Gender (n %)			
	Male (n=73)	Female(268)	Total	p-value
Have you received any instruction from your dentist on how to clean your denture(s)? **Yes**	24(32.9)	132(49.3)	156(45.8)	0.013[a]
How do you clean your denture(s)?				
Water + cleansing tablet	7(9.6)	14(5.2)	21(6.2)	
Water + brush + soap	5(6.8)	15(5.6)	20(5.9)	
Water + brush + toothpaste	21(28.8)	78(29.1)	99(29)	0.667[b]
Water + brush	38(52.1)	150(56)	188(55.1)	
Water only	2(2.7)	11(4.1)	13(3.8)	
How often a day does you clean your denture(s)?				
Twice/more a day	9(12.3)	43(16)	52(15.2)	
Once daily	56(76.7)	199(74.3)	255(74.8)	0.542 [a]
Once/twice a week	8(11)	22(8.2)	30(8.8)	
Occasionally	0	4(1.5)	4(1.2)	
Do you have any difficulty cleaning the dentures? **Yes**	8(11)	23(8.6)	31(9.1)	0.531 [a]
Do you soak your denture in any substance? **Yes**	35(47.9)	129(48.1)	164(48)	0.977 [a]
Do you brush the:				
Roof of the mouth (palate)	9(12.3)	19(7.1)	28(8.2)	0.348 [a]
Tongue	27(40)	90(33.6)	117(34.3)	
Gum (ridge)	10(13.7)	19(7.1)	29(8.5)	
Do you use oral rinse? **Yes**	42(57.5)	111(41.4)	153(44.9)	0.014 [a]
Denture status on examination				
Poor	39(53.4)	76(28.3)		<0.001 [a]
Fair	18(24.7)	87(32.5)		
Good	16(21.9)	105(39.2)		

a = Chi Square Test, b = Fisher Exact Test

In this study, nearly half of the patients reported that they received information on cleaning the denture. General instructions given to the patient by a dentist / prosthodontist include things like washing their dentures after every meal with water and to rinse their mouths as well, prescription of denture cleansers is also desirable and patients should be instructed to brush the dorsal surface of their tongues and the mucosal surface overlying their residual ridges with a soft brush[6, 9-11].

In this study, the most used method of cleaning the denture was with water using toothbrush. Even though mechanical methods of cleaning dentures with toothbrushes and water is the most popular method, it results with long-term manifestations of denture surface abrasion which leads to a greater surface area at a micro-porous level of acrylic for micro-organism prevalence and colony formation, thus leading to greater chances of infection. Also it may lead to undesirable appearance of the denture itself which impairs the satisfaction of the patient with regards to esthetics. Peracini et al.[8] in their study presented findings that 58.49% of the subjects were cleaning their dentures only by immersion in liquid, water being the most common of those (38.71%).

With advancing age, it is noticed that a general lack of oral hygiene maintenance and the necessary vigor and determination to keep the denture and oral cavity clean becomes lacking within the patients[12]. Kulak et al., observed oral hygiene habits and presence of yeast and denture stomatitis in giatric population[13]. This study concluded that there is a significant relationship between denture stomatitis, yeast and denture hygiene. As it has been observed by Baran et al, a positive relationship has been observed between the level of oral hygiene and denture hygiene maintenance and the occurrence of traumatic ulcerations and denture-induced stomatitis in denture wearing patients[14].

At times the dental professionals themselves often times forget to inform and educate the patients with regards to oral hygiene instructions and denture care. This is gross neglect on part of the operator and not be tolerated within the workforce of dentistry as it goes against the basic need to maintain oral and general health and well-being of the patient[15 – 17].

In another study by Coelho et al., the most frequent lesion observed with poor denture hygiene maintenance in the oral cavity was chronic atrophic candidiasis most prevalent in females as compared to males[17]. Hoad et al, encountered the denture hygiene in old age

population, which showed that maintenance of denture hygiene in this age group is difficult due to which incidence of denture stamatitits is also increased[18]. Takamiya et al, evaluated the relationship between the denture hygiene and night time wearing of denture which showed that the patient need education as well as motivation regarding their denture hygiene and denture removing at night[19].

Thus, meticulous care of dentures and simultaneous oral hygiene cleanliness should be vehemently emphasized by the dental practitioner to the patient, with constant follow-ups being scheduled and patient kept on the right track. Long-term use of same dentures should be avoided as with on-going use, quality declines and the chances of infections increase along with other deleterious effects also manifesting in the patient's oral cavity.

CONCLUSION

As a pre-requisite to denture wearing, care and oral hygiene should be informed and repeated to the patient throughout the course of treatment and then should be checked for patient compliance with regular follow-ups in the ensuing years. Failure to comply with instructions should be met with prompt health awareness which is in the best interest of the patient and is the duty of every dental practitioner.

Author's Contribution:

Concept & Design of Study:	Muhammad Athar Khan
Drafting:	Muhammad Athar Khan
Data Analysis:	Irum Munir Raja
Revisiting Critically:	Farah Naz
Final Approval of version:	Irum Munir Raja

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