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Behaviors and Hygiene Habits of Complete Denture Wearers

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In this study, a questionnaire was applied to patients from Ribeirão Preto Dental School, University of São Paulo, Brazil, to evaluate the hygiene methods and habits concerning the use of complete dentures, the age of dentures, and whether patients have been instructed on how to clean their dentures. The mean age of patients was 63.35 years, and most of them were females (82.08%). The results showed that 62.26% of the respondents had been using the same maxillary complete denture for more than 5 years, and 49.06% used the same mandible complete denture for more than 5 years. Of the patients interviewed, 58.49% slept with the dentures. Mechanical brushing was the most used cleaning method by the patients (100%), using water, dentifrice and toothbrush (84.91%). Most patients (51.89%) reported never having been instructed by their dentists as to how to clean their dentures. Based on the limitations of this study, it was concluded that the patients interviewed had limited knowledge about prosthetic hygiene and oral care. The method more used by patients was the mechanical method of brushing, most patients used the same complete dentures for more than 5 years and slept with the dentures.

Key Words: denture complete, habits, hygiene, dental care.

INTRODUCTION

The number of fully or partially edentulous patients is still large in present days. Dentures are used for replacing lost teeth and returning the functional and esthetic conditions to the patients.

The literature shows that the presence of some diseases and the use of certain medications can affect the oral tissues and amount of saliva (1). Knowledge of these factors associated with the constant intraoral changes related to use of the dentures and the aging of the individuals is of paramount importance to the dentist for making an accurate diagnosis and promoting health.

In addition, efficient and regular procedures for cleaning complete dentures are important for maintaining good oral health and greater longevity of the prosthesis (2). To minimize the prevalence of denture stomatitis, the dentist must instruct the patient in removing complete dentures 6 to 8 h *per* day (3).

The fitting of complete dentures should not be considered the final stage of treatment, but the beginning of a long relationship between patient and dentist in order to maintain the health of oral tissues (4). It is extremely important that patients return regularly to the dentist for oral health maintenance and for the evaluation of their dentures.

However, surveys have reported that complete denture wearers have difficulty in cleaning their dentures (5,6), and so preventive programs are effective in promoting good oral health. Patients do not return to the dentist for control and maintenance of their dentures generally at the appropriate intervals (7). Thus, it is up to the dentist to guide their patients properly about proper denture cleaning and the appropriate products to be used.

Using a specific questionnaire, the purpose of this study was to evaluate the hygiene methods and habits concerning the use of complete dentures, the age of dentures, and whether the patients have been instructed

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on how to clean their dentures.

MATERIAL AND METHODS

This research project was approved by the Research Ethics Committee of Ribeirão Preto Dental School, University of São Paulo, Brazil (Process #2008.1.313.58.0).

One hundred and six patients of both genders from Ribeirão Preto Dental School, University of São Paulo, Brazil, were invited to participate in this survey. The patients were asked to fill out a questionnaire (Fig. 1) addressing denture wearing and denture cleansing habits.

RESULTS AND DISCUSSION

Nineteen patients were males (age range 45-80 years) but the majority (n=87; 82.08%) were females (age range = 37 to 92 years). The mean age of patients was 63.35 years. Among the male patients, 12 wore upper and lower complete dentures and 7 wore upper complete denture only. Among females, 72 wore upper and lower complete dentures, and 15 wore upper complete denture only.

Data referring to patient distribution according to time of edentulousness, time of denture use, age of current denture, previous information on denture cleansing, denture cleansing method used, frequency of cleaning of dentures, cleaned regions of the oral cavity, alleged difficulty on cleaning of dentures, use of some type of oral rinse, and continuous use of complete dentures, are presented in Tables 1-10.

Protocol of Research – Questionnaire

Name:_____ Gender _____ Race:_____

Home address:_____ Date of birth: ___/___/___

Profession:_____

Institution:_____

Business Address:_____

1- History

1.1- How long have you had your teeth extracted?_____

1.2- How long have you been using denture(s)? Upper_____ Lower_____

1.3- How long have you been using the current denture(s)? Upper_____ Lower_____

2- Hygiene

2.1- Have you received any instruction from your dentist on how to clean your denture(s)? Yes ( ) No ( )

2.2- How do you clean your denture(s)?

Water + toothbrush ( )

Water and dentifrice + toothbrush ( )

Water and soap + toothbrush ( )

2.3- How often a day do you clean your denture(s)?_____

2.4- Do you have any difficulty cleaning the dentures?

Yes ( ) No ( ) Which part of it?_____

2.5- Do you soak your denture in any substance?

Yes ( ) No ( ) Which?_____

2.6- Do you brush: the roof of the mouth (palate) ( ) tongue ( ) gum (ridge) ( )

2.7- Do you use oral rinse? Yes ( ) No ( ) How?_____

2.8- Do you sleep with the denture(s)? Yes ( ) No ( )

Figure 1. Questionnaire.

DISCUSSION

Several factors that may be related to the occurrence of denture stomatitis were approached by the questionnaire: denture age, denture hygiene habits, and frequency of denture use and cleaning.

The results showed that 62.26% of the respondents had been using the same upper complete denture for over 5 years; 49.06% had been using the same lower complete denture for over 5 years; and 24.53% and 16.04% had been using the same upper and lower dentures, respectively, for more than 20 years (Table 3). Coelho et al. (8) also found that most patients wore their dentures for 20 years.

Previous studies (2,9) 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 (51.89%) reported never having been advised by their dentists as to how to clean their dentures (Table 4). Similar results were obtained by Dikbas et al. (2), Hoad-Reddick et al. (5) and Marchini et al. (7), who found that 82.9%, 86.3% and 77.5%, respectively, of the respondents did not receive proper denture cleaning instructions from their dentists.

In this study, all patients (100%) used brushing (mechanical method) for denture cleansing. Similar results were obtained in previous studies that found that 97% (4), 86% (10), 80.1% (8), 79.7%

(7), 57.1% (6) and 40.59% (2) of patients brushed their dentures as the cleaning method of choice. In the study by Veres et al. (11), most patients used dentifrice or tap water (70% and 63%, respectively) to clean their dentures.

Brushing with dentifrice was used by 84.91% of patients in the present study (Table 5), which is in agreement with the findings of a previous study (12). Dentifrice has the advantage of being simple to use and relatively inexpensive. However, if used with an improper brushing technique, dentifrice can damage the prosthesis material (2), due to the potential abrasive wear of the denture material (9).

Table 1. Distribution of patients according to the time of edentulousness (in years) for each gender.

	Maxilla						
	1-5	6-10	11-15	16-20	21-25	26-30	>30
Males	1	2	1	2	4	3	6
Female	3	4	4	9	16	22	29
Total	4	6	5	11	20	25	35
	Mandible						
	1-5	6-10	11-15	16-20	21-25	26-30	>30
Males	3	1	2	2	4	3	3
Female	8	7	3	11	16	14	24
Total	11	8	5	13	20	17	27

Table 2. Distribution of patients according to time of use (years) of complete dentures, for each gender.

	Upper complete denture use							
	<1	1-5	6-10	11-15	16-20	21-25	26-30	>30
Male	0	2	2	1	1	4	3	6
Female	0	5	5	3	11	15	24	24
Total	0	7	7	4	12	19	27	30
	Lower complete denture use							
	<1	1-5	6-10	11-15	16-20	21-25	26-30	>30
Male	0	2	0	3	1	4	2	2
Female	1	7	6	4	12	15	13	18
Total	1	9	6	7	13	19	15	20

Only 58.49% of the patients in present study reported the use of chemical solutions for cleaning by immersion. Among the substances used for immersion, of the dentures water was the most frequent (38.71%) followed by sodium hypochlorite (33.87%) (Table 5). In the study by Baran and Nalçaci (13), 42.9% of patients immersed their dentures in water and only 1.6% immersed then in a chemical (hypochlorite) solution. The use of chemical solutions for denture immersion is less frequently than manual brushing methods of cleaning (7).

Hoad-Reddick et al. (5) found that a combination of methods (brushing and soaking) was used more frequently. Veres et al. (11) found that the majority of patients (59%) brushed and immersed their dentures, whereas 36% only brushed their dentures, and only 5% used immersion as the only method of cleaning.

Chemical methods have the advantage of being simple to use (14-16). However, chemical methods have disadvantages such as high cost and metal corrosion as well as the bleaching of acrylic resin resulting in damage to the denture base (9,14).

Table 3. Distribution of patients according to the age (in years) of current complete dentures, for each gender.

	Upper complete denture							
	<1	1-5	6-10	11-15	16-20	21-25	26-30	>30
Male	0	4	6	1	2	2	1	3
Female	6	30	15	8	8	7	7	6
Total	6	34	21	9	10	9	8	9
	Lower complete denture							
	<1	1-5	6-10	11-15	16-20	21-25	26-30	>30
Male	0	3	2	3	1	2	0	1
Female	5	24	13	8	8	8	2	4
Total	5	27	15	11	9	10	2	5

Table 4. Distribution of patients according to instructions provided by the dentist on complete denture cleansing, for each gender.

Gender	Received instructions	Did not receive instructions	Total
Male	7	12	19
Female	44	43	87
Total	51	55	106

In relation to inflammation of the oral mucosa of the edentulous, Abelson (14), showed that one of the main etiological factors is the lack of denture hygiene. With regard to the frequency of denture cleaning, 99.06% of the study population said they clean their dentures at least once a day (Table 6). These results agree with those of Nevalainen et al. (17) and De Castellucci Barbosa et al. (12) (96.0% and 98.0%, respectively). Hoad-Reddick et al. (5) and Dikbas et al. (2) showed that only 79.1% of a sample of 233 patients and 70.0% of a sample of 234 patients, respectively, cleaned their dentures at least once a day.

In the present study, 73.58% of patients cleaned their dentures 3 or more times daily (Table 6). This frequency was higher than that of Dikbas et al. (2), where 25% of individuals, from a sample of 234, reported cleaning their dentures 3 times a day. However, according to Pietrokvoski et al. (18), 96% of patients reported cleaning their dentures 2 or more times *per* day.

Table 7 shows that the internal labial flange, inner surface, and the regions between the teeth were the most difficult regions to clean. Paranhos et al. (19) found that the greatest amount of biofilm was present on the internal labial flange.

The dentist should also instruct the patient on how to clean the soft tissues of the oral cavity. Of the

Table 5. Distribution of patients according to the denture cleaning method used, for each gender.

Mechanical brushing	Male	Female	Total
W+ TB	1	3	4
W and D + TB	16	74	90
W and soap + TB	2	7	9
W and D + handbrush	0	1	1
W and D + TB and bicarbonate	0	1	1
Brush + effervescent tablets	0	1	1
Total	19	87	106
Chemical cleaning by immersion	**Male**	**Female**	**Total**
W	2	22	24
W and soap	1	0	1
W + detergent + hypochlorite	0	2	2
Bicarbonate	0	6	6
Detergent	1	1	2
Oral rinse	2	1	3
Sodium hypochlorite	2	19	21
Effervescent Tablets	0	3	3
Total	8	54	62

W = water; D = dentifrice; TB = toothbrush.

Table 6. Distribution of patients according to the frequency of cleaning of dentures.

Gender	Denture cleaning							Total
	Times *per* day					After eating	Not reported	
	1	2	3	4	5			
Male	2	9	4	3	0	1	0	19
Female	2	14	43	20	2	5	1	87
Total	4	23	47	23	2	6	1	106

Table 7. Distribution of patients according to the difficulty on cleaning of dentures, for each gender.

Parts of the dentures	Male (n=19)	Female (n=87)
Internal and external borders	0	1
Between the teeth	0	5
Internal flanges	0	2
Labial flange	0	2
Posterior region	1	1
External surface of upper/lower molars	0	1
Removal of stains	0	1
Internal labial flange	0	6
Total inner surface	0	7

Table 8. Distribution of patients who cleaned regions of the oral cavity, for each gender.

Gender	Regions of the oral cavity		
	Palate	Tongue	Ridge
Male	8	14	9
Female	44	63	50
Total	52	77	59

patients interviewed, 72.64% reported to clean the oral tissues daily; the most frequently brushed region was the tongue (Table 8). In the present study, 52 patients (49.06%) reported brushing their palate, 77 (72.64%) reported brushing their tongue and 59 (55.66%) brushed their ridges (Table 8). Of the patients surveyed, 53.77% used some type of oral rinse (Table 9).

Data analysis in this study showed that 58.49% of the patients usually slept with their dentures (Table 10). Similar results were obtained in previous studies in which 41.5% (2) and 64% (12) of patients, respectively, did not remove their dentures at bedtime. Baran and Nalçaci (13) also showed that 55.2% of patients slept with their dentures. Marcus et al. (20) found that nearly one third of the participants of their study slept with both dentures, and 12% slept with the lower denture only. Veres et al. (11) showed that 49% of the patients wore their dentures continuously.

The use of dentures during the day by the patients might result in the accumulation of biofilm on their surface (5,7). Thus, the continuous use increases the prevalence of denture-induced stomatitis, which has the biofilm as its main etiological factor. According Zissis et al. (3), patients who wore dentures continuously (day and night) had a higher prevalence of denture stomatitis. Similar result was reported by Jeganathan et al. (4), who found that denture-induced stomatitis was more common in patients with continued use of the dentures (61%) when compared to controls with healthy mucosa (18%).

This survey revealed the hygiene habits of 106 patients. Within the limitations of this study, it may be concluded that the interviewed patients had limited knowledge of denture cleansing and oral hygiene. Brushing was the method of choice for cleaning, most patients had been using the same complete dentures for more than 5 years, and were used to sleep with the dentures.

Table 9. Distribution of patients who used oral rinse.

Type of oral rinse	Male (n=19)			Female (n=87)			Total N=106		
	Y	N	S	Y	N	S	Y	N	S
Water	3	-	-	12	-	-	15	-	-
Water and vinegar	0	-	-	4	-	-	4	-	-
Water + vinegar + salt	0	-	-	1	-	-	1	-	-
Water + vinegar + salt+ alcohol	0	-	-	1	-	-	1	-	-
Vinegar + salt	0	-	-	1	-	-	1	-	-
Astringent solutions	0	-	-	1	-	-	1	-	-
Mouthwash	4	-	-	18	-	-	22	-	-
Dentifrice + water	1	-	-	2	-	-	3	-	-
S. barbatiman bark solutions	0	-	-	1	-	-	1	-	-
Pomegranate leave solutions	0	-	-	1	-	-	1	-	-
Non reported	2	-	-	5	-	-	7	-	-
Total	10	9	0	47	38	2	57	47	2

Y = yes,; N= No; S = sometimes.

Table 10. Distribution of patients according to the continuous use of complete dentures.

Gender	Sleeps with both CDs	Does not sleep with both CDs	Sleeps with the upper CD	Sometimes sleeps with the CD
Male	7	5	7	0
Female	33	38	15	1
Total	40	43	22	1

CD = complete denture.

RESUMO

Foi realizada uma pesquisa na Faculdade de Odontologia de Ribeirão Preto - Universidade de São Paulo, por meio da aplicação de questionário, para avaliar os métodos de higiene e hábitos referentes ao uso de prótese total, idade das próteses, e se os pacientes têm sido instruídos em como limpar suas próteses. A idade média dos pacientes estudados foi 63,35 anos, a maioria (82,08%) do sexo feminino. Os resultados mostraram que 62,26% dos entrevistados usavam a mesma prótese total superior há

mais de 5 anos, e 49,06% a mesma prótese total inferior. Dos pacientes entrevistados, 58,49% dormiam com as próteses. O método mais utilizado pelos pacientes foi o método mecânico de escovação (100% dos pacientes), utilizando água, pasta e escova de dente (84,91%). A maioria dos pacientes (51,89%) relatou nunca ter sido orientado pelos dentistas de como higienizar as próteses. Baseado nas limitações deste estudo, concluiu-se que os pacientes entrevistados tinham conhecimento limitado sobre higiene protética e cuidados bucais. O método de higiene mais utilizado foi a escovação da prótese, a maioria dos pacientes usavam a mesma prótese total há mais de cinco anos e dormiam com as próteses.

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