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Attitude Of Patient Wearing Removable Dentures Towards Denture Hygiene Habits

A project Submitted to college of dentistry , University Of Babylon , Department of Prosthodontic in partial fulfilment for the Bachelor of Dental Surgery

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الإهداء

إلى المبعوث رحمة للعالمين المصطفى الأمين أبو الأئمة

الميامين المسمى عند أهل السماء أحمد وعند أهل الأرض

أبي القاسم محمد عليه وعلى أهل بيته أفضل الصلاة وأتم التسليم

Abstract:

Background: To determine the denture hygiene habits in RCD and RPD patients according to their age and time of dentures, because improper denture care negatively impacts denture clinical longevity and increases denture plaque aggregation.

Aim: To evaluate a variety of habits related to denture hygiene, assess the denture hygiene with Iraqi people, and access to the reasons that lead to the deterioration of the condition of the dentures.

Materials and methods: A total of 220 patients (117 males and 103 females) with age range was (30-80) years. who participated in this study were patients with RCD or RPD for at least six months, probability sample technique used for sampling process and evaluated by using likert's scale.

Result: Nearly half of the subjects have a good denture condition in male more than female, the majority of subjects cleaned their dentures after each meal are 78 (35.5%), after them Once a day are 69 (31.4%). we found that the most common method for denture cleaning is by brushing with tooth paste & water their number is 73 (33.2%), by Brushing only with water are 57 (25.9%).

Conclusion: Based on the findings of this study, it was found that half of the dentures were rated as good followed by fair and poor. Also, it was observed that the most commonly used method was brushing with toothpaste. The majority of dentures in good condition was reported with these patients that cleaned their dentures using brushing with toothpaste after each meal and removed their dentures at night and storage them with water.

Introduction:

Dental caries and periodontal diseases have been reported as the predominant causes of tooth loss. Other documented causes include pericoronitis, trauma, orthodontic and prosthetic reasons as well as neoplasms. The causes of tooth mortality, especially those removed for therapeutic reasons by oral health care givers have been reported to have wide geographical and cultural variation across different populations .While caries and its sequealae remain the major cause of tooth mortality in some countries, periodontal disease is responsible for tooth loss in other countries , studies have shown that subjects of low income and low education are more prone to be edentulous than those of higher socio-economic status. A study on correlation between gender and reasons for tooth extraction showed more teeth loss in less educated rural male population [1].

Tooth loss can present adverse consequences on the remaining dentition and on the patients' general wellbeing, studies reported drifting of adjacent teeth and supra-eruption of the opposing teeth to the edentulous space in their study which looked at positional changes of adjacent teeth to edentulous spaces. Also, observed in a case report supra-eruption of a first mandibular premolar into the space left by an upper first premolar whose coronal tissue had broken down although the whole tooth was not lost. Additional to that is a possible facial/oral asymmetry or collapse that may result following loss of teeth. Despite the enormous adverse effects of tooth loss on functional, social and psychological wellbeing of the patients as well as on the remaining dentition, many patients in our environment do not replace their missing teeth. This could be due to poor awareness that failure to replace missing teeth may cause the remaining dentition to further deteriorate. Studies have been done on socio-psychological effects of tooth loss on patient but there is dearth of information on patients' awareness of the consequences of tooth loss on the remaining dentition [2].

Replacement of missing teeth has become one of the most important needs for patients attending clinics to restore esthetics and/or function. Many treatment modalities are available

for replacing a single missing tooth; removable partial denture, fixed partial denture or dental implant. Each modality is a possible treatment option and has its own advantages and disadvantages 3.

There are several factors affecting the final treatment decision regarding the replacement of a missing tooth, these factors are case dependent. In many cases if more than one treatment option is possible, the definitive replacement depends on patient's decision/financial status or influenced by the patient's gender, age, public awareness and patient's knowledge. Therefore, it is mandatory to understand the patient's needs and demands to determine the kind of treatment that ensures the patient's satisfaction with the dental service. In many cases the cost of the treatment is considered as a major determinant and ahead of oral health status and patient preference. Pain and dental phobia are considered as important factors as well and they might affect the patient decision not to receive treatment at all [3].

Removable partial dentures (RPDs) are used to replace missing teeth to improve masticatory efficiency, enhance appearance, prevent unwanted teeth movement and/or improve phonetics. They may be chosen over fixed prosthetics for various reasons, including financial limitations, to facilitate hygiene access, or to overcome biomechanical issues associated with dental implants. The number of people with partial dentures is rising in line with increased numbers of partially dentate adults. Tis is thought to correlate with increased life expectancy and numbers of elders in the population, and a shift from total edentulism towards partial edentulism as oral hygiene improves [4].

Rehabilitative treatment is successful only when patients are motivated and aware of correct prosthesis use and hygiene. The quality of the denture fitting surface, occlusal relations, denture age and hygiene are important factors contributing to the prevalence of oral mucosal lesions associated with denture use.

Daily hygiene has been reported to be the main means of preventing mucosal inflammation. The patient's correct cleansing of complete dentures is essential to prevent staining of dentures and the coating of dentures with a biofilm which could damage the adjacent mucosa and cause systemic diseases. The adherence of Candida albicans to the acrylic surfaces of dentures is implicated as the first step in the pathogenesis of associated stomatitis. Studies demonstrated that there is a strong correlation between unsatisfactory cleaning and the prevalence of Candida. A lack of preventive hygiene programmes, denture cleanliness and denture removal overnight were found to be associated with denture stomatitis. Other authors also have reported a deficiency in denture cleaning in their studies. Improvements in oral and prosthetic hygiene are also considered significant factors for the treatment of prosthesis-related stomatitis [5].

Aim of study: In order to better design educational resources and interventions to enhance patient education and oral health outcomes, this study intends to evaluate the attitudes of edentulous patients on the maintenance of complete denture prosthesis.

Method

Study design and population

This was a cross-sectional hospital-based study carried out using a Questionnaire given to 100 patients (50 females and 50 males; mean Age, 61 years; age range, 29-80 years) who applied to Ministry of Health 75th Year Oral and Dental Health Hospital for various dental problems And were still using the removable partial or complete dentures. The study was approved by the Ethics Committee of the Faculty of Dentistry at Ankara University (10/3;25.05.2016) and was conducted In accordance with the latest version of the Declaration of Helsinki. All patients or legal representatives gave written informed consent Before any study-related procedure.

Study questionnaire

The questionnaire was designed by the investigators based on previous studies utilizing similar questionnaires (4-9). It aimed to collect Data on socio-demographic characteristics of patients and hygiene, Attitudes, and habits of using removable dentures. The questionnaire Contains the questions on for how long the dentures had been used, Whether or not the dentures were worn while sleeping at night, how

Often the dentures were cleaned, how the dentures were cleaned, Whether or not the dentist was visited for control at least once a year Even if there were no complaints, whether patients were informed About how to clean and care for dentures at the clinic where dentures Were placed, whether the dentist warned about removing dentures Before going to bed and reminded not to sleep with dentures, and Whether patients would be interested in a written and illustrated Guideline explaining how to clean dentures and the points to be considered for a healthier use. The questionnaire was completed by the Dentists during a face-to-face interview with the patients.

Data analysis

The collected data were analyzed using a statistical package for social sciences, SPSS (IBM Corporation, SPSS Inc., Chicago, USA, Version 21, software package). The descriptive statistics with frequency, percentage and Pearson Chi-Square test were used to find the relation of many factors ith the condition of the denture, P values less than 0.05 was considered as significant

Results:

In this descriptive analytical study 220 patients participated with 117 (53.2%) were males, and 103 (46.8%) were females.The age range divided into Two groups; group I (30-55) years old about 139(63.2%) group II (56-80) years old about 81(36.8%).

Table-1: Gender Distribution and Age Groups:

Demographic variable	Frequency	Percentage

Gender	Male	117	53.2
	Female	103	46.8
	Total	220	100.0
Age	30 - 55	139	63.2
	56 - 80	81	36.8
	Total	220	100.0

About The Educational level is about 101 (45.9%) were uneducated. Primary education was about 84 (38.2%) Advance education were about 35 (15.9%).

Table-2: Educational levels of the people in study:

Demographic variable		Frequency	Percentage
Educational level	Non	101	45.9
	primary	84	38.2
	advanced	35	15.9
	Total	220	100.0

It was found that the most common method for denture cleaning is by brushing with tooth paste & water their number is 73 (33.2%) , by Brushing only with water are 57 (25.9%) , by Denture cleansing solutions are 42 (19.1%) , those who do not use any method are 32(14.5%) and the least used method of cleaning is by Water only their number 16 (7.3%).

Table -3: Method of denture cleaning that people use:

		Frequency	**Percentage**
Method of denture cleaning	No	32	14.5
	Brushing with tooth paste & water	73	33.2
	Brushing only with water	57	25.9

	Denture cleansing solutions	42	19.1
	Water only	16	7.3

The majority of subjects cleaned their dentures After each meal are 78 (35.5%),After them Once a day are 69(31.4%), twice a day are 50 (22.7%) and the least of them cleaned their dentures occasionally are 23 (10.5%).

Table-4: Frequency of denture cleaning:

		Frequency	**Percentage**
Frequency of denture cleaning	Once	69	31.4
	Twice	50	22.7
	After each meal	78	35.5
	Occasionally	23	10.5

The condition of denture **The largest Percentage Were Good** about 104 (47.3%) and Fair condition were 58 (26.4%)and Poor condition were 58 (26.4%).

Table-5: Condition of denture:

		Frequency	Percentage
Condition of denture	Good	104	47.3
	Fair	58	26.4
	Poor	58	26.4

About Overnight denture wearing at night the Highest percentage were **"No"** about 127 (57.7%)

Table-6: Overnight denture wearing:

		Frequency	Percentage
Overnight denture wearing	Yes	50	22.7
	No	127	57.7
	Remove some times	43	19.5

About Storage of denture after removing from mouth: - People who store in **Normal water** were the higher percentage 132 (60.0%). Then who **wrapped in cloth** were 12 (5.5%), In **plastic bag** were 18 (8.2%) , And none were 50 (22.7%). The lowest percentage were **open in air were** 8 (3.6%).

Table-7: Storage of denture after removing from mouth:

		Frequency	Percentage
Storage of denture after removing from mouth	Normal water	132	60.0
	wrapped in cloth	12	5.5
	plastic bag	18	8.2
	open in air	8	3.6
	Non	50	22.7

About Duration of wearing denture, the largest data was **from 1 - 3 years** were 132 (60.0%)

Table-8: Duration of wearing denture:

		Frequency	Percentage
Duration	less than one year	83	37.7

	1 - 3 year	132	60.0
	more than 3 years	5	2.3

Table -9: level of significance evaluation using Pearson Chi-Square Test:

variable		Good	Fair	Poor	Significant
Gender	Male	61	25	31	.164
	Female	43	33	27	
Age	30 - 55	66	39	34	.627
	56 - 80	38	19	24	
Educational level	Non	33	33	35	**.000**
	primary	45	16	23	
	advanced	26	9	0	
Method of denture cleaning	No	1	2	29	**.000**
	Brushing with tooth paste & water	42	12	19	
	Brushing only with water	24	28	5	
	Denture cleansing solutions	33	7	2	
	Water only	4	9	3	
Overnight denture wearing	Yes	11	13	26	**.000**
	No	69	38	20	
	Remove some times	24	7	12	
Frequency of denture cleaning	Once	18	29	22	**.000**
	twice	21	10	19	
	After each meal	61	17	0	
	occasionally	4	2	17	

Storage of denture after removing from mouth	Normal water	71	35	26	**.000**
	wrapped in cloth	5	7	0	
	plastic bag	16	2	0	
	open in air	1	1	6	
	non	11	13	26	
Duration	less than one year	44	20	19	**.299**
	1 - 3 year	56	38	38	
	more than 3 years	4	0	1	

df: degree of freedom. p-value<0.05: significant , p-value>0.05: non-significant.

Discussion:

Our finding reveals no significance differences between various age group of patient due to they use similar mechanical and chemical aids for dentures cleaning. In the previous study of Nevalainen et al. [6] suggested that patients' age of 80 years or more could indicate inefficient cleaning due to commonplace limitations such as a reduction in visual acuity and manual dexterity.

In this study, largest percantage of patients (33.2%) used brushing mechanical method (brushing with toothpaste) for denture cleansing. Agree with 40.59% (Dikbas et al) [7] of patients brushed their dentures as the cleaning method of choice [8]. 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 [9] due to the potential abrasive wear of the denture material. [3] Brushing with toothpaste may make denture surfaces rougher, which increases the accumulation of plaque and reduces the shine of complete denture surfaces. [10]. In addition, brushing alone, with or without

dentifrice, is an inadequate approach for controlling denture plaque[4] and mechanical methods are not normally sufficient to remove the micro-organisms that colonize resinous materials.[11] Toothpaste has little effect on denture hygiene when used by individuals with deficient motor coordination.[12] both patients and dentists frequently neglect these factors.[13] But (25.9%) of patient clean their dentures with water only are similar with De Castellucci Barbosa et al.[14] found 8%, and disagree with Ozcan et al.[15] found 17.1% and Veres et al.[23] found 63% of those interviewed used only water to clean their prostheses.In addition, brushing alone, with or without dentifrice, is an inadequate approach for controlling denture plaque[4] and mechanical methods are not normally sufficient to remove the micro-organisms that colonize resinous materials.[16]

In our study there are corresponds in our finding (35.5%) of patient clean their dentures after each meal to the findings of Dikbas et al.[7], who reported 25% of individuals reported cleaning their dentures 3 times a day. While contrast with Peracini (99.06%)[19] , Marchini et al.(98.7%)[18], Nevalainen et al.(96.0%)[19] and De Castellucci Barbosa et al.(98.0%).[14] Hoad-Reddick et al.[20] with those patients saied clean their dentures once a day .There was a positive relationship between the absence of recom-mendations on oral and denture cleaning and the development of denture-related stomatitis and hyperplasia (21).It was reported that dentist's patient informing had a positive effect on denture cleaning (4). An increase was observed in the frequency of denture cleaning after educating the elderly patients using old re-movable dentures about the denture hygiene (22).

Our result that the largest percentage of patient (57.7%) who not wearing their denture at night agree with Grant et al.[6] stated that prostheses should not be worn overnight or should be removed for a certain number of hours per day to allow the supporting tissus

to recover from the trauma of physical contact. In this study almost all of the patients removed their dentures at night. Contrasting results were obtained in previous studies In which 58.49% (Peracini et al)[19] 41.5% (Dikbas et al.)[7] and 64% (De Castellucci Barbosa et al.)[14] 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.Many investigators found the frequency of severe inflammation to be significantly higher in patients who wore their dentures at night.[25,26]

In this study, based on education level, when determining the level of knowledge of prosthesis hygiene of the cases studies.

Found (45.9%) of non educated patients presented fair an poor denture maintance, evidenced by the presence of bacterial plaque on fitting surface of the prosthesis, the possible reason found the most of the subject did not receive guidance regarding oral hygine instructions this agree with Barreir et al and,did not usually remove their denture at night and almost none of the patient knew about the use of mechanical and chemical denture cleaners.therfore this group have poor quality and poor condition of denture ،Leads to short life of denture [27, 28].

Our results found (38.2%) primary education level with poor and fair denture prosthesis but to lesser score compared to non _education level patients, because they never clean their denture after a meal, did not knew how to clean their denture, and The dentists also show a negative attitude toward disseminating proper instructions to their patients. [29] In a previous study conducted in Jabalpur, 48% of the dentists strongly agreed that explain-ing denture hygiene instructions to the elderly can be very time-consuming and it is of no use to provide the elderly with denture hygiene maintenance instructions as they decline to follow. [30] The responsibility of dissemination of denture care instructions falls solely on the dentist. This part was efficiently completed by this study group, as it was evident in most of the elderly subjects' higher knowledge scores. The

reason for this may be due to the study setting; which was a postgraduate teaching institute where there are set protocols in denture patients care and after-care, and all the dentists working here are under supervision of a senior faculty member unlike a private dental practitioner [31].

Our finding was (15.9%) advanced patients have good denture maintance and good condition of denture prosthesis,This comes from high knowledge of denture hygiene by the patient and receiving good instruction from the doctor, clean the denture daily and good storage [32].

Overall results of the present study revealed a significant association of knowledge grade regarding denture hygiene maintenance with patient's education level. However, the role of these factors and possibly many others needs to be investi-gated further in order to determine more accurately the educational and training needs of our local and regional patients towards their denture maintenance. [32].

In this study. found 90% pateint storage denture in normal water and 2%storage denture in the clothes and 4% in plastic bag and 4% in open air and this agreewith In 2011, the American College of Prosthodontists publed guidelines for mintaining complete dentures based on evidence from the literature.17 One of these guidelines was that to prevent warping, dentures should be stored in water, both after cleaning and if not to be replaced immediately in the mouth. another guideline was not to wear dentures continuously to minimize the potential for denture stomatitis. However, literature was not cited for the first guideline. Given that a significant In the presen study , the most common storage in water and solution and similar to precentage of good condition denture . in the our study more than half dentures weares cleand with brush only or paste and brush or in water . our results most common dentures weares storage in water . our finding denture storage In air less care with denture that resulte poor condition [33].

Conclusion:

Based on the findings of this study, it was found that half of the dentures were rated as good followed by fair and poor. Also, it was observed that the most commonly used method was brushing with toothpaste. The majority of dentures in good condition was reported with these patients that cleaned their dentures using brushing with toothpaste after each meal and removed their dentures at night and storage them with water.

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