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RESEARCH ARTICLE

A STUDY TO ASSESS THE DENTURE HYGIENE KNOWLEDGE, ATTITUDE AND PRACTICE AMONG COMPLETE DENTURE WEARERS ATTENDING A POST GRADUATE DENTAL HOSPITAL IN KARAD, MAHARSHTRA, INDIA

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INTRODUCTION

Life expectancy in both developed and developing countries is on a rise. There are an estimated 600 million people aged 60 years and above and this number is expected to be doubled by 2025 (Deogade, 2013). 7-69 percentage of adult population internationally is estimated to be affected by complete edentulism that is loss of all permanent teeth (Petersen, 2005). With the rise in elderly patients the number of patients requiring complete dentures is also increasing (Mersel, 2000; Petersen, 2005; Nalcaci, 2007). Removable partial dentures are the most common treatment for the partially edentulous patients likewise complete denture is the most common form of treatment for the completely edentulous patients (Olusile, 2002; Ogunrinde et al., 2007). The treatment doesn't end with providing a removable partial denture or a complete denture to the patient. The treatment is successful only when the patients are educated and motivated to follow the guidelines provided by the treating dentist and the patients maintain the hygiene of the dentures. The stains, hard and soft tissue debris tend to get

ABSTRACT

Background and Aim: Life expectancy of people is increasing hence the edentulous population as well. It is of utmost importance that the post insertion instructions to be given by the dentists and followed by the patients earnestly for the success of the prosthetic rehabilitation. In view of this the aim of the present study was conducted. **Materials and methods:** A self administered questionnaire was administered to the patients to assess their attitude and knowledge about denture care. **Results:** Out of the 260 patients assessed 76 were males and 184 were females. 114 (43.8%) patients were between the age of 51-60 years. 112 (43.1%) of them used the dentures for 1-2 years. 56 (21.6%) of them had quid habit and 7 (2.7%) smoked with their dentures. 207 (29.6%) of them got the denture hygiene and maintenance instructions from their treating dentists. 243 (93.5%) said they clean their dentures after every meal. 114 (43.8%) used brush and water to clean their dentures. 239 (91.9%) stored their dentures in water at night. 245 (94.2%) do not use any denture cleansing tabs. 249 (95.8%) do not use any oral rinse. 245 (94.2%) do not sleep with dentures on. 100 (38.5%) of the study participants visited their dentists for follow up yearly once visit. 198 (76.2%) said that the most important quality of denture is that is mastication. **Conclusion:** The denture care instructions and maintenance protocol in this study were found to be satisfactory. However, emphasis should be given on education and motivation of patients regarding the recall visits of the patients.

accumulate on the surface of the dentures, and it could have deleterious effects on the health of the patients (Abelson, 1985). Hence, it becomes absolutely necessary that the patients maintain the denture hygiene and visit the dentist for a regular follow up. While it's the responsibility of the patients that they follow the post insertion instructions given by their dentists. The responsibility is equally shared by the dentists to make sure that they spare some time to educate and motivate their patients about the denture hygiene maintenance (Budtz-Jorgensen, 1968). Hence the dental professionals treating the edentulous should be abreast with the current knowledge of the materials and techniques available to maintain the denture hygiene (Shay, 2000). According to a study done by Vinay Suresan et al. (2016) 70% of the dentists said that they used only verbal medium to explain the denture hygiene instructions to their patients and only 20% of the dentists provided practical demonstration. On the other hand, the literature (Tarbet et al., 1984) states that denture wearers pay less attention towards the plaque control in comparison to the dentate patients. Care, maintenance and regular practice of denture hygiene plays a pivotal role in maintenance of the oral health and the general

health of the geriatric community. Unclean dentures predispose the patients to pathogens which can lead to an array of oral and general diseases. This in turn pushes the patient into a vicious cycle of health issue. Low self esteem, malodor, esthetic issues are the further problems associated with the unclean denture practices (Axe *et al.*, 2016). There is a close relationship between the denture hygiene practice, and other factors like attitude, age, education, gender, socioeconomic status, their chronic illness. Hence there is need for a special geriatric care when it comes to counseling the patients about the importance of denture hygiene practice (Dogan, 2012; Lal 2004). With the aim to assess the knowledge and evaluate the denture hygiene practice among the denture wearing patients attending a tertiary care dental hospital in Malkapur, Karad, Maharashtra. The objective of the study were to increase the awareness of denture hygiene maintenance among the denture wearers and to reinforce the denture hygiene maintenance practice among the denture wearers through education and motivation.

MATERIALS AND METHODS

A descriptive, cross sectional survey was conducted using a self administered questionnaire involving the complete denture patients attending the Department of Prosthodontics, School of dental Sciences, KIMSDU, Karad. A comprehensive close ended, interviewer administered questionnaire comprising 11 questions was designed. The questionnaire recorded their demographic information like level of education, monthly income and questions related to their knowledge, attitude and practice of denture hygiene. The questionnaire was types and printed in English, Hindi and Marathi to ensure linguistic validity. This questionnaire was mailed to 10 experts in this field to review it for its face and content validity. The experts were requested to identify the deficient areas and provide recommendations and suggestions on ways to improve clarity of the questions. After the required modifications, the Cronbach's alpha agreement among the experts was 80% or 0.80, which denotes high level of agreement. The questionnaire was pilot tested on 30 patients and was assessed for uniformity of interpretation. The patients were made to sit comfortably on the dental chair and were explained in detail the purpose and details of the study. The questionnaire in language of their preference was handed over to them. The answers given by them were marked by a single subject expert. The questionnaire took about 10- 15 minutes to complete. The data collected during the study was not included in the main study. Based on the response rate in the pilot study, which was about 85%, a confidence interval of 95% and absolute precision set at 3%, the sample size calculated was 214. The minimum sample size was increased by 10% to compensate for non response and incomplete responses bringing the total sample size to 260. The ethical clearance was obtained from the University for the Study. Details of the study were explained to the patient and their consent to participate in the study was recorded. Only the consented subjects were involved in the study. The study subjects were randomly selected by recruiting old denture wearers visiting the Department of Prosthodontics for a recall visit and also few patients who resided in the nearby areas were recalled by telephonic conversation asking them to visit the department for a follow up. The patients were made to sit comfortably on the dental chair and were explained in detail the purpose and details of the study. The questionnaire in language of their preference was handed over to each of the study subjects. The answers given by them were marked by a single subject expert.

RESULTS

Table 1 shows the number of participants in the study. Their age range is shown in Table 2. Age, education and occupation were having no response cases. So no significance was checked with the knowledge and denture hygiene practices of the population. It was found that, there was significant difference between Gender and period of using the current set of dentures and habits with dentures on. No. of males using dentures for less than a year, 5 years, 1-2 years were significantly higher than females ($p < 0.05$) (Table 3). Number of females using mishri were significantly higher than males ($p < 0.05$) (Table 4).

Table 1. Table showing the gender distribution

Gender	Percent
Females	29.2
Males	70.8
Total	100

Table 2. Table showing the Age wise distribution

Age	Percent
≤50	3.1
51-60	21.5
61-70	43.8
>70	28.1
No response	3.5
Total	100

DISCUSSION

This study was conducted to analyze knowledge, attitude and Practice of denture care/ hygiene of denture wearers attending the tertiary care dental hospital in a rural set up in western Maharashtra. To prevent the ill effects of the poorly maintained dentures on oral and general health appropriate denture care is of prime importance. The ill effects of poor denture hygiene among the denture wearers is a public health issue which needs to be addressed (Peterson 2005). It is of prime importance that the treating dentists sufficiently educate and motivate the denture wearers about the importance and protocol to for denture hygiene. According to a study done by Vinay Suresan (Suresan 2016) on the attitude of patient education in denture care among dental practitioners revealed that half the number of the participants said that they feel explaining denture hygiene instructions to old patients can be very time consuming. On the other side of the spectrum it has also been reported (Dikbas *et al.*, 2006; Collis, 1994; Hoad-Reddick, 1990; Budtz- Jorgensen, 1975) that the patients do not pay necessary attention towards maintenance of their dentures. The responsibility to avoid the ill effects of the dentures which aren't maintained is equally shared by the treating dentists as well as the patients. Most of the patients evaluated in this study have been using their dentures for an average period of 1-2 years majority had good denture cleanliness. This study is in conjunction with a study done by Ogunrinde *et al.* (2015) but in contrary to previous studies (Marchini 2004; Fenlon, 1998; Markovic 1999) where the dentures were poorly maintained. This difference in the result is probably because of the different population studied, the difference in the age group of participants. In response to the tobacco habits of the denture wearers, almost half of the participants (49.2%) said that they used tobacco in some form or the other with their dentures on.

Table 3. Table showing significant difference between Gender and period of using the current set of dentures and habits

Gender	Less than a year	5 years	1-2 years	More than 10 years	Total	Chi sq. statistic	p value
Females	30	5	27	14	76	18.42	0.00
Males	47	39	85	13	184		
Total	77	44	112	27	260		

Table 4. Table showing significant difference in gender with respect to use of mishri

Gender	Smoke	Use tobacco in any other form	Use mishri	Quid habit	No response	Total	Chi sq. statistic	p value
Females	0	3	26	8	39	76	48.94	0.00
Males	7	33	10	48	86	184		
Total	7	36	36	56	125	260		

Tobacco and its products are known to cause precancerous lesions thereby leading to oral cancer (Vigneswaran, 1995; Blot, 1988). According to a study done by Patil *et al.* (2013) A total of 2,318 patients (61.8%) of the study population were diagnosed with lesions associated with tobacco use and the wearing of dentures. The result of their study strongly indicated a strong association between frictional keratosis with tobacco users and wearers of dentures. The response from this study for this particular question indicated us that there is an urgent need to educate and motivate the patients about the association of denture wearing and oral cancer. Denture wearers should be recalled for periodic check-ups which would help the clinician to diagnose any precancerous lesions and help take optimum preventive measures. And further studies need to be done in this front to help reduce the global cancer rate. About 80% of the patients in the present study responded stating that the denture hygiene instructions were provided for them by their treating dentists which is in contradictory to studies done by Dikbas *et al.* (2006), Hoad-Roddick *et al.* (1990) Marchini *et al.* (2004), Jagger *et al.* (1995), Namrata, (2017), Amanda *et al.* (2010). In the present study 93.4% of the participants cleaned their denture more than 2 times a day, which is in accordance to a study done by Namrata and Dhanraj (2017), Peracini *et al.* (2010), and Pietrokovski *et al.* (1995) wherein respectively 85%, 73.58%, 96% of their study population brushed their dentures 2 or more times a day. This however is in excess compared to a study done by Dikbas *et al.* (2006) where only 25% of their study population practiced cleaning their dentures twice daily. In the present study 43.8% of the participants of the present study used tooth brush and water to clean their dentures, 8.5% used only water, 29.6% of them used water, tooth brush and dentifrice, 15% of them used water, tooth brush and soap. Similar results were found in a study by Namrata and Dhanraj, (2017) and Molouk *et al.* (2013) where 40% and 31.14% respectively cleaned their dentures with brush and water. According to a study done by Shankar T (2017) et al 100% of their study population used brushing for denture cleaning. In our study only 3.1% used denture cleansers where as a study done by Namrata and Dhanraj, (2017) showed that about 51% of their study population used denture cleansers. In a study done by Veres *et al.* (1985) 63% subjects used only tap water to clean their dentures. In response to how the dentures are stored when not in use majority of the participants of this study (91.9%) of the patients soak it in cold water. Methods of storage of dentures when not in use was employed by 64.8% of the subjects in a study done by Shankar *et al.* (2017) 80.4% of the population said that they keep the dentures out while sleeping. 2.3% of them kept it in mouth during sleep. Similar results were found in a study done by Shankar *et al.* (2017) where 13.2% of the study subjects wore the dentures at night. These results differ from other studies where a higher percentage of study subjects

that is 41.5% (Dikbas, 2016) and 64% (De Castellucci Barbosa *et al.*, 2008) were found to sleep with the dentures. 94.2% of the present study population said that they do not use any kind of denture cleansing tablets and 95.8% of them said that they do not use any kind of oral rinse. 36.2% of them said they have never visited their dentists after the dentures were inserted for follow up, 38.5% of them visited yearly, 5.4% of them visited only twice a year and 14.6% of them visited quarterly and 5.3% of them monthly. These observations from the present study are far from dentists recommendations. This possibly may be because of lack of denture hygiene instructions given by the dentists or a failure to follow the instructions given by the dentists. Limitation of this study however is that the study group was chosen from the patients visiting a tertiary hospital. And also the assessment was done using only the questionnaires and physical examination of the dentures and the oral soft tissues were not done. Hence there exists a scope where in a detailed study correlating the assessment of the dentures with the knowledge of the study participants.

Conclusion

Within the limitations of the study it can be concluded that the patients visiting the tertiary hospital have good knowledge and attitude about the denture hygiene. The instructions given by the dentists are followed and practiced by the patients. However, the patients need to be motivated in using the denture cleansing agents so as to prolong the life of the dentures. The emphasis need to be reinforced on the regular recall visits to maintain the oral tissues in a healthier state.

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