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## RESEARCH ARTICLE

### EVALUATION OF KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS DENTURE HYGIENE AND DENTURE STAINING AMONG DENTURE WEARERS IN WARDHA REGION

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#### ABSTRACT

**Aim:** To evaluate knowledge, attitude and practice towards denture hygiene among denture wearer patients in Wardha region. **Material and Methods:** A total of 80 complete denture wearer patients completed a comprehensive questionnaire. **Statistical Analysis:** The data obtained through questionnaire was synchronized and analyzed statistically. The software used in the analysis was SPSS 17.0 version. **Conclusion:** Most of the denture wearers have limited knowledge of denture cleansing and oral hygiene practices. **Clinical significance:** Periodic recall for assessment of denture and mucosal surfaces along with instructions about denture hygiene will go a long way in helping the patients.

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#### INTRODUCTION

From last few years, the life expectancy of individuals is increased both in developed and developing countries (Shankar et al., 2017). One of the important objectives in the rehabilitation of edentulous patient is to improve their health by establishing functionality (de Castellucci Barbosa, 2008). This can be achieved by giving patients complete dentures. The three most important etiological factor which in turn contribute to the occurrence of oral mucosal lesions as a result of denture use are the fitting of denture, it occlusal relations and oral hygiene of denture (Hoad Reddick, 1990). Among which the former two are wholly the dentist's responsibility to correct the errors occurring in these. But hygiene of denture is to be maintained by patient itself. Denture serves to be one of the most artificial substitutes which require proper maintenance and care to prevent it from staining. The main aim of cleaning the denture is to remove the plaque adhering to the denture which in turn will eliminate the cause of denture stomatitis and reduce the presence of micro-organisms on the denture which have been known to act as a reservoir of micro-organisms involved in systemic diseases like aspiration

pneumonia, endocarditis and diabetes (Awano et al., 2008; Scannapieco, 2006; Sjogren et al., 2008). At the time of denture insertion appointment, it is obligatory duty of dentist to guide and motivate patient in complete denture maintenance which can be considered as complex rehabilitative treatment (Arendorf, 1987). In spite of this, many patient fail to keep their denture clean and prefer to use dirty dentures. This neglected behavior of patient for denture hygiene leads to malodor, poor esthetics and accumulation of plaque (Jagger et al., 1995). "Awareness is the first step of any change", hence awareness of patients regarding denture staining and its effect on surrounding structure should be explained to patient by the dentist. The purpose of this study was to evaluate the awareness among denture wearer patient regarding denture staining and oral hygiene maintainance in Wardha region.

#### MATERIALS AND METHODS

A descriptive, cross-sectional survey was conducted using self administered questionnaire involving the complete denture patients reporting to the Department of Prosthodontics, SPDC College, Sawangi. A comprehensive close-ended, interviewer administered questionnaire comprising 15 questions was designed. The questionnaire administered to the patient was

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prevalidated from the Subject Experts. This questionnaire was available both in English and Marathi language to ensure linguistic validity. The subjects were selected according to the inclusion and exclusion criteria.

**Inclusion criteria**

- Patient wearing complete dentures.
- Patient above 45 years of age.
- Patient wearing denture for more than 6 months of duration.

**Exclusion criteria**

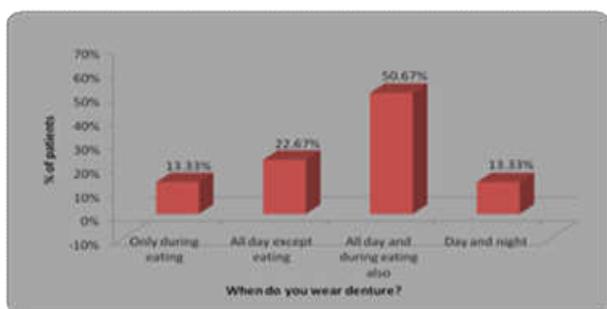
- Patient wearing a prosthesis other than complete denture.
- Patients below 45 years of age.
- Patients wearing denture for less than 6 months of duration.

The purpose and nature of the study was explained to each patient fitting in the inclusion criteria and the willing patients were requested to complete a comprehensive closed ended, self-administered questionnaire. The patients were asked not to reveal their identity on the questionnaire. The time period required for the patients to fill the questionnaire was approximately 10 minutes. Statistical analysis was done by using descriptive and inferential statistics using z-test for single proportion and chi square test and software used in the analysis was SPSS 22.0 version and Graph Pad Prism 6.0 version and  $p < 0.05$  is considered as level of significance.

**Observations and Results**

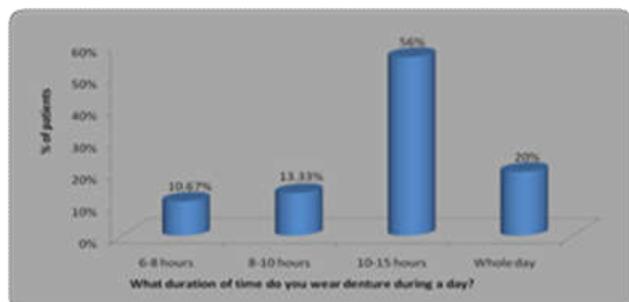
1. When do you wear denture?

Response	Number of respondents	Percentage
Only during eating	10	13.33%
All day except eating	17	22.67%
All day and during eating also	38	50.67%
Day and night	10	13.33%



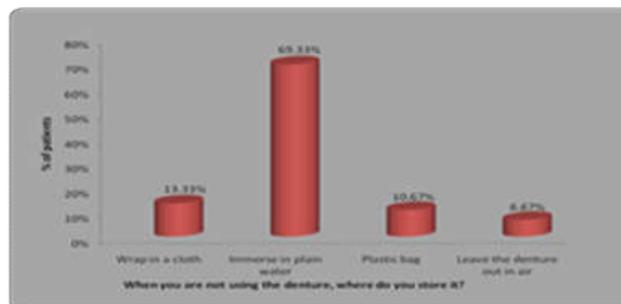
2. What duration of time do you wear denture during a day?

Response	Number of respondents	Percentage
6-8 hours	8	10.67%
8-10 hours	10	13.33%
10-15 hours	42	56%
Whole day	15	20%



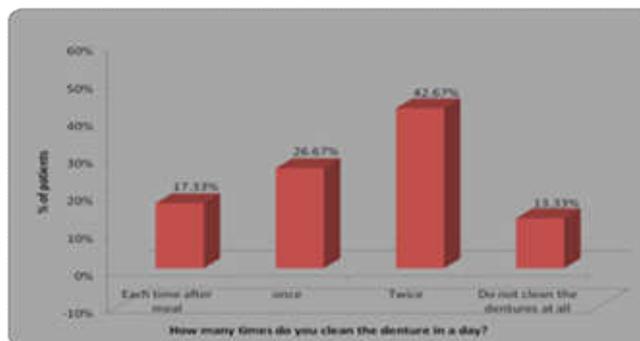
3. When you are not using the denture, where do you store it?

Response	Number of respondents	Percentage
Wrap in a cloth	10	13.33%
Immerse in plain water	52	69.33%
Plastic bag	8	10.67%
Leave in the air	5	6.67%



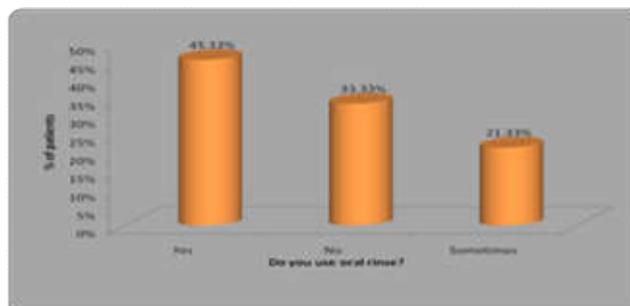
4. How many times do you clean the denture in a day?

Response	Number of respondents	Percentage
Each time after meal	13	17.33%
Once	20	26.67%
Twice	32	42.67%
Do not clean at all	10	13.33%



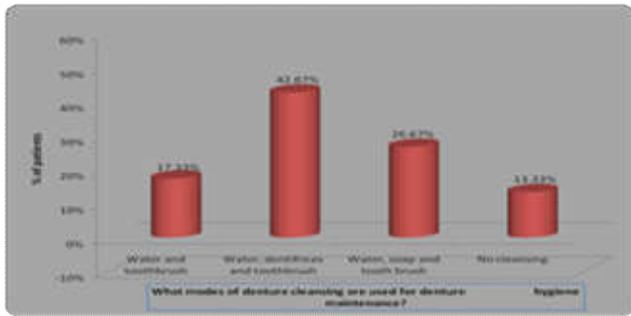
5. Do you use oral rinse?

Response	Number of respondents	Percentage
Yes	34	45.33%
No	25	33.33%
Sometimes	16	21.33%



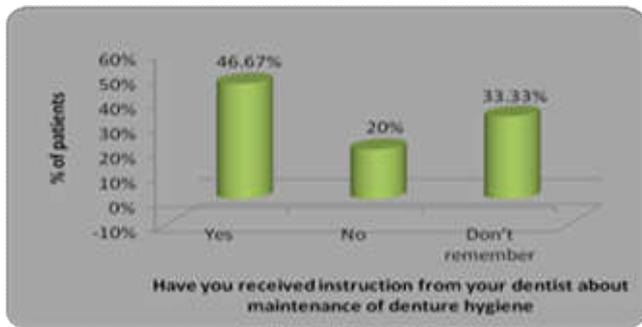
6. What modes of denture cleansing are used for denture hygiene maintenance?

Response	Number of respondents	Percentage
Water and toothbrush	13	17.33%
Water, dentifrices and toothbrush	32	42.67%
Water, soap and toothbrush	20	26.67%
No cleansing	10	13.33%



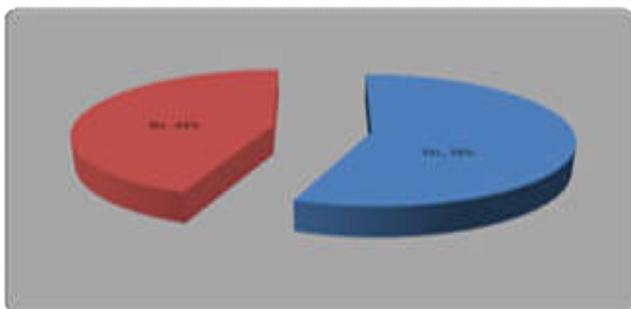
7. Have you received instruction from your dentist about maintenance of denture hygiene?

Response	Number of respondents	Percentage
Yes	35	46.67%
No	15	20%
Don't remember	25	33.33%



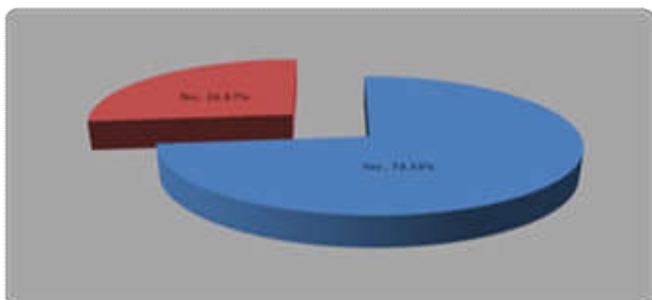
8. Do you follow the recall appointments given by the dentist?

Response	Number of respondents	Percentage
Yes	35	46.67%
No	15	20%



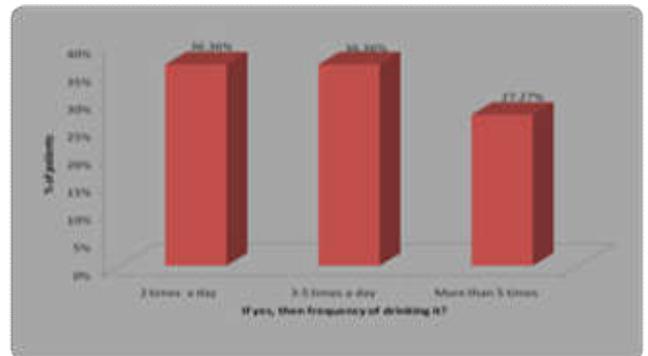
9. Do you drink coffee or tea regularly?

Response	Number of respondents	Percentage
Yes	55	73.33%
No	20	26.67%



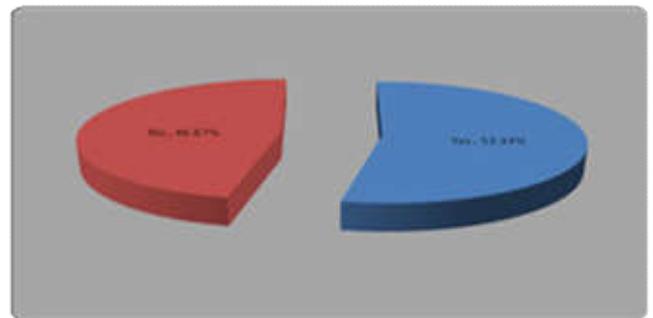
10. If yes, then frequency of drinking it?

Response	Number of respondents	Percentage
2 times a day	20	36.36%
3-5 times a day	20	36.36%
More than 5 times	15	27.27%



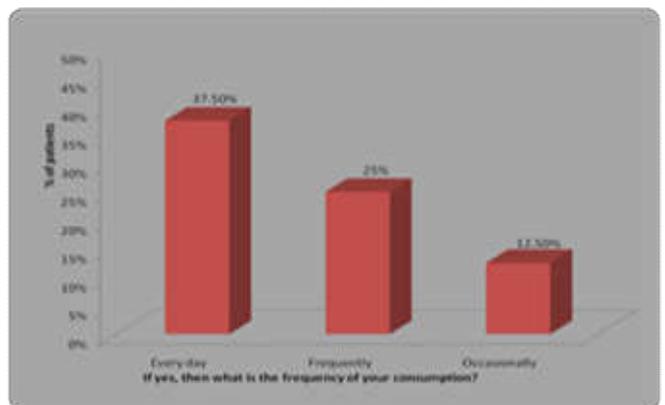
11. Do you drink aerated drinks?

Response	Number of respondents	Percentage
Yes	40	53.33%
No	35	46.67%



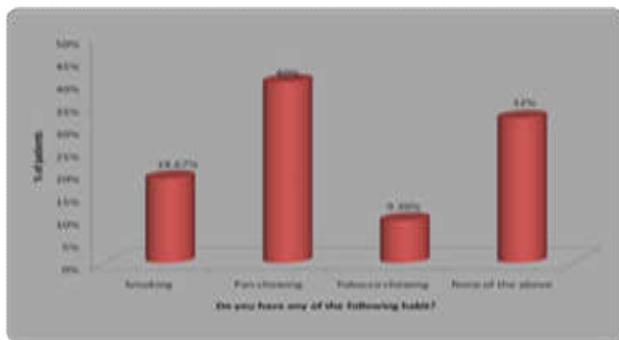
12. If yes, then what is the frequency of your consumption?

Response	Number of respondents	Percentage
Every day	15	37.5%
Frequently	10	25%
Occasionally	5	12.5%



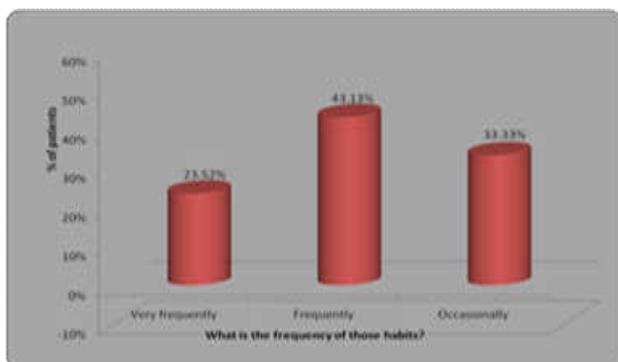
13. Do you have any of the following habit?

Response	Number of respondents	Percentage
Smoking	14	18.67%
Pan chewing	30	40%
Tobacco chewing	7	9.3%
No habits	24	32%



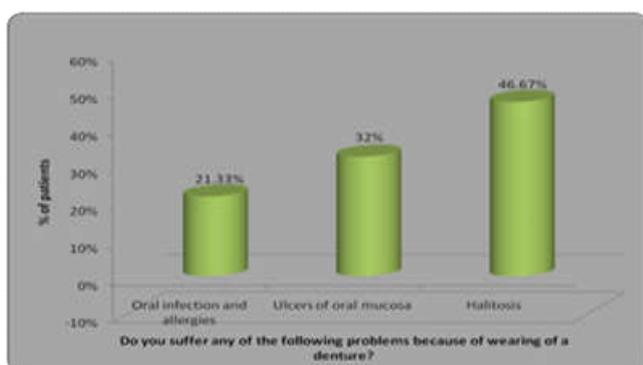
#### 14. What is the frequency of those habits?

Response	Number of respondents	Percentage
Every day	12	23.52%
Frequently	22	43.10%
Occasionally	17	33.33%



#### 15. Do you suffer any of the following problems because of wearing of a denture?

Response	Number of respondents	Percentage
Oral infection and allergies	16	21.33%
Ulcers of oral mucosa	24	32%
Halitosis	35	46.67%



## DISCUSSION

The present study is a survey to gauge the awareness among the people of Wardha district regarding denture hygiene and susceptibility of denture to staining. The wearing of new complete denture is usually associated with complaints of looseness of the denture, pain, discomfort, masticatory problems, bad odor, altered speech and accumulation of food particles. In order to avoid any other infections or diseases, the denture must be maintained in a proper condition by cleaning it often (Robin, 2018). Daily hygiene has been reported to be the main means of preventing mucosal inflammation (Budtz-

Jorgensen, 1979). According to Lombardi and Budtz-Jorgensen, old complete dentures may predispose patients to denture stomatitis, because the denture surface may contain porosities that make proper cleaning difficult (Lombardi *et al.*, 1993). Other authors have stated that prosthesis age, associated with inappropriate user habits and poor hygiene (Budtz-Jorgensen, 1970), can lead to or aid in the progression of denture stomatitis (Budtz-Jorgensen, 1970; Vigild, 1987). In addition to this condition, chronic oral tissue trauma and irritation can also result from long-term use, especially in association with poor cleaning habits and inadequate prosthesis adaptation (Arendorf, 1987; Marchini *et al.*, 2006). Denture is exposed to wide variety of food during its shelf life. Foodstuffs have characteristics pH, pigment, texture and many other physical and chemical attributes. Dentures are not impervious to these foodstuffs and lose its aesthetics in due course if not taken care of due to staining. Apart from foodstuffs, denture is also exposed to wide variety of insults from addictive substances like tobacco; beetle-nut, smoking, alcohol etc. denture hygiene practices are important to prevent this unwanted staining of denture. According to a survey conducted by Shreya *et al* in 2016 it was concluded that staining remains a questionable factor as many patients lacked knowledge about proper denture cleansing routines and habits. The present study has focused on acquiring the perception of denture wearers towards denture hygiene and staining. The present study revealed that 13.33% of subjects wear prosthesis while sleeping and 50.67% used it throughout daytime and during eating as well, a fraction of denture wearers also belonged to the category of using dentures only during eating and, the continuous use of complete dentures is found more frequently in patients with denture stomatitis (Raab *et al.*, 1991).

The method of dentures storage when not in use or during the night was also varied. Ideally, immersion in plain water by 69.33% of the subjects followed by 13.33% subjects wrapping it in a piece of cloth, this is in accordance with a study performed by Shankar T *et al* in 2017 (Shankar *et al.*, 2017). When asked about the frequency of denture cleaning 42.67% of subjects cleaned the dentures twice daily, 26.67% cleaned their denture once daily followed by 13.33% who never cleaned their dentures. This frequency was lower than that presented by Ozcan *et al.* (2004) in which 45.7% of a sample of 70 individuals reported cleaning their prostheses more than once a day. However, according to Nevalainen *et al.* (1997), this frequency would not necessarily indicate efficient cleaning, mainly because 46.7% of the sample studied were 80 years of age or older, with commonplace limitations such as a reduction in visual acuity and manual dexterity (Darwazeh *et al.*, 2001). Questions were asked regarding patients knowledge of oral hygiene practice and modes of denture hygiene and it was observed that 45.33% of the subjects used oral rinses to clean their oral cavity. 42.67% used water, dentifrices and toothbrush to clean their dentures which agrees with the findings of Papas *et al.* (Papas *et al.*, 1998), followed by 17.33% using water and toothbrush a result that corresponds to that of Ozcan *et al.* (Ozcan *et al.*, 2004), in which 17.1% of the sample cleaned their prostheses in this manner, a significant fraction of 13.33% of subjects did not use any cleansing modes. Instruction regarding denture maintenance and use is to be provided by the operator at the time of insertion and must be reinforced at recall appointments, when the subjects were asked regarding this aspect 46.67% agreed that they received instruction from their respective physicians and 56% also agreed that they followed the recall appointments. Tea has the

potential to stain dentures (Jagger *et al.*, 2002), 73.33% of subjects were tea drinkers out of which majority 72.72 used to drink twice or more than twice, this made the dentures highly susceptible to staining due to tea. Aerated drinks cause increase in surface roughness of PMMA teeth which are used in denture fabrication making it more susceptible to staining (Feitosa *et al.*, 2015), a significant majority of 53.33% agreed to consumption of aerated drinks of which 37.5% were everyday consumers. When asked regarding deleterious habits majority of the subjects 40 % were pan chewers, 18.67 were smokers, and 9.3% were tobacco chewers. A significant number of patients 32% were habit free. These adverse habits are known to stain dentures and jeopardize denture hygiene; nonetheless they contribute to conditions ranging from halitosis to malignancies. When asked about the problems they faced because of wearing denture, 46.67% complained of Halitosis 32% complained of ulcers in oral mucosa and 21.33 % complained of oral infections and other allergies.

## Conclusion

Within the limitations of this study, most of the patients evaluated had little knowledge of complete denture cleaning and maintenance methods. It must be concluded that greater emphasis on hygiene instructions during rehabilitation treatment is necessary. The insertion of a complete denture must be seen as the beginning of a long patient–dentist relationship to maintain healthy oral tissues. This relationship will ensure that the prosthesis does not become a predisposing factor for oral trauma and infections, and will allow complete denture users to wear their prostheses for longer periods of time.

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