



Assessment of Denture Hygiene Maintenance Among Completely Edentulous Patients of Various Age Groups in Garhwal Region of Uttarakhand: An Analytical Survey

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KEYWORDS

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ABSTRACT:

Introduction: In the Garhwal area, a survey was carried out to assess denture hygiene, knowledge and practice, problem during cleanliness of denture, in patients wearing complete denture.

Objectives: To assess the denture hygiene maintenance, post insertion problems and masticatory efficiency among completely edentulous patients in Garhwal region of Uttarakhand.

Methods: A sample size of subjects was 500. From every block in each district, a sample of individuals was gathered. The Probability Proportional to Size sampling approach was used to determine the number of eligible participants in each block. The selection of subjects was based on 'Systemic Random Sampling' done by door to door visit. The participants were initially questioned in accordance with the already prepared questionnaire proforma. A mouth mirror was used to examine the patient intraorally. The data collected was stored in a computer using Microsoft Excel software, subjected to statistical analysis and results were derived and interpreted.

Results: A great majority (92.2%) of the denture wearers were aware about denture hygiene. Majority of patient cleaned their denture once in a day with water and brush only.

Conclusions: Detrimental consequences of inadequate prosthesis cleaning in aged people constitute a significant public health issue. The majority of denture user's patients need to be occasionally called back for instruction over denture cleaning even though denture cleanliness education is the most important part of denture therapy.

Introduction

Teeth are essential for maintaining a good perspective on life and a healthy attitude. One of the top 100 health issues impacting the world's population is tooth loss, which not only causes functional and aesthetic problems but also has a negative social effect that lowers quality of life^{1,2}. Despite improvements in curative dentistry,

edentulism continues to be a significant global public health issue. Edentulism is caused by biological disease processes, including oral cancer, trauma, periodontal disease, and tooth caries³. Rehabilitation with complete denture is the most common treatment modality for complete tooth loss. Treatment is only effective when patients are well-motivated, aware about using the prosthesis, and maintaining good hygiene.



Complete dentures that don't fit well are frequently a result of inconsistent cleaning routines and a lack of cleaning solution use, which causes mechanical irritation beneath the mouth. Patients should be told to rinse their prostheses every time they eat. The mucosal surface of residual ridge and the dorsal surface of tongue also should be brushed everyday with a soft brush, denture cleansers can also be used ⁴. This study was carried out to assess denture hygiene knowledge and practice, problem during cleanliness of denture in patients wearing complete denture.

Objectives

- To assess the denture hygiene maintenance among patients wearing complete denture.
- To assess the problems during cleanliness of denture by the patients.
- To assess the post insertion problems in patient wearing complete denture.
- To analyse the satisfaction with masticatory efficiency in patients wearing complete denture.

Methods

Analytical survey was performed throughout the Gharwal region among completely edentulous patients. The Garhwal region of Uttarakhand comprises of 7 districts. This survey was done in namely Dehradun, Uttarkashi, Pauri, Rudraprayg and Tehri. A questionnaire was created and sent it for validation. After receiving ethical clearance from ethical committee, the validated questionnaire (figure 1) delivered to the patients.

A sample of edentulous patients both males and females were interviewed. The study groups comprised of four different ages of participants, 40 to 50, 51 to 60, 61 to 70, or more than 70 years. Research assessed a total of 500 samples to come at a relevant estimation. A sample of subjects was collected from each block in each district. The number of eligible subjects from each block was calculated using the Probability Proportional to Size sampling method.

The selection of subjects was based on 'Systemic Random Sampling' done by door-to-door visit. The participants were first interrogated in accordance with the already created questionnaire proforma. With the mouth mirror, the patient was examined intraorally. The

data collected was stored in a computer using Microsoft Excel software, subjected to statistical analysis and results were derived and interpreted.

The collected data was examined and checked for any errors. After thorough examination of the data, a master chart was prepared in the computer using Microsoft Excel software for further analysis. Statistical Package for the Social Sciences was used to statistically analyse the collected data. (SPSS Version 23; Chicago Inc., IL, USA). To determine the statistical significance of the comparisons, precise statistical tests were used to compare the data. Shapiro Wilk and Kolmogorov-Smirnov tests were used to evaluate whether the data for denture hygiene awareness. Using mean values or standard deviation, data has been contrasted. Chi square statistic used for identify variations in deterioration across years of wearing denture and denture hygiene awareness.

SURVEY QUESTIONNAIRE

1. Serial no :

Gender		Location		
Male	Female	Urban	Periurban	Rural
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Age :

40-50yrs	1	<input type="checkbox"/>
51-60yrs	2	<input type="checkbox"/>
61-70yrs	3	<input type="checkbox"/>
71 or above	4	<input type="checkbox"/>

3. How long have you been using your complete denture

<1 year	1	<input type="checkbox"/>
1 to 5 year	2	<input type="checkbox"/>
>5 year	3	<input type="checkbox"/>

SECTION 1: DENTURE HYGIENE MAINTENANCE

1. Do you know about denture hygiene?
☐ Yes
☐ No

2. How many times do you clean your denture in a day?
☐ Once
☐ Twice
☐ Three
☐ Occasionally
☐ Never

3. How do you clean your denture?
☐ Water only
☐ Water + tooth
☐ Water + tooth + toothbrush
☐ Water + tooth + toothbrush + toothpaste

4. How do you place your denture?
☐ Leave the denture outside
☐ Wrap in cloth
☐ Wrap in plastic bag
☐ Immerse in water

5. Do you use any products to maintain denture hygiene?
☐ Yes
☐ No

If yes then specify _____

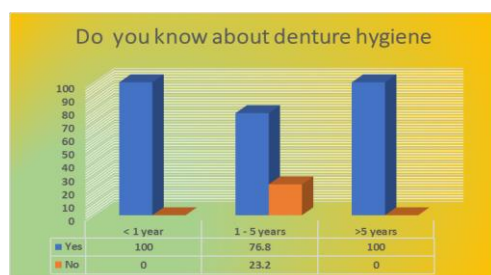
Figure 1: Questionnaire



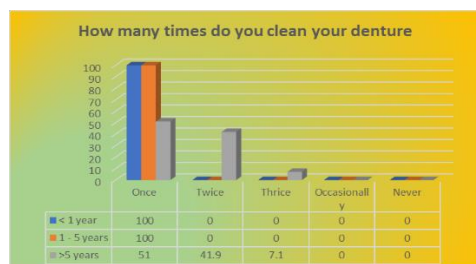
Results

The results of the study pertaining to assessment of denture hygiene maintenance, among 500 completely edentulous patients of various age groups surveyed from Garhwal region of Uttarakhand.

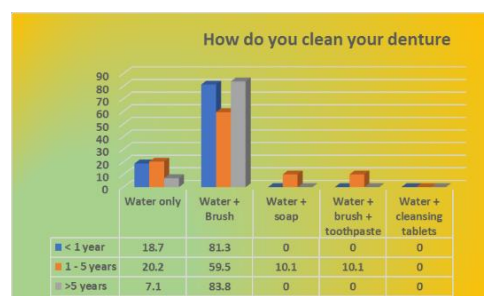
A great majority (92.2%) of the denture wearers were aware about denture hygiene. When compared between the years of wearing denture, those wearing for 1 – 5 years had slightly lesser awareness as compared to the other counterparts, with which a p-value of 0.000, was highly significant as seen Graph 1 & table 1. Denture wearers with lesser years of wearing (< 1 years) cleaned their twice (41.9%) while none in the other 2 groups, which was statistically significant. Majority (76.4%) of them cleaned their denture only once in a day as seen in Graph 2 and table 1. 75.2% of the population cleaned their dentures with water and brush. Those with 1 – 5 years of wearing dentures experimented cleaning with other options such as water and soap, water and paste, and found significant at $p=0.000$ as seen in Graph 3 and table 1. While 100% of >5 years denture wearers immersed their denture in water, 18.7% of the <1 year experience wearers wrapped in cloth as seen in Graph 4. 96.6% of them have problem during cleanliness of denture dentures, but 3.4% don't have problems in denture hygiene as in Graph 5 and table 1.



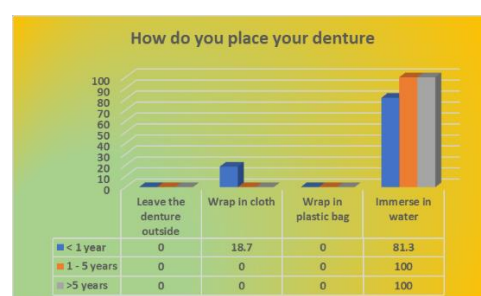
Graph 1: Do you know about denture hygiene



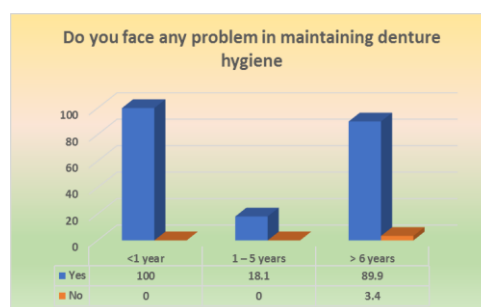
Graph 2: How many times do you clean your denture in a day



Graph 3: How do you clean your denture



Graph 4 : How do you place your denture



Graph 5 : Do you face any problem in maintaining denture hygiene

Variable	<1 year N (%)	1 – 5 years N (%)	> 6 years N (%)	Total N (%)	Chi square statistic	P value
1. Do you know about the denture hygiene?						
Yes	91 (100.0)	129 (76.8)	241 (100.0)	461 (92.2)	83.592	0.000*
No	0 (0.0)	39 (23.2)	0 (0.0)	39 (7.8)		
2.How many times do you clean your denture in 1 day ?						
Once	53 (58.2)	168 (100.0)	241 (100.0)	462 (92.4)	165.986	0.000*
Twice	38 (41.8)	0 (0.0)	0 (0.0)	38 (7.6)		
Thrice	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		
Occasionall y	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		
Never	0 (0.0)	0 (0.0)	0 (0.0)	(0.0)		
3.How do you clean your denture?						
Water only	17 (18.7)	34 (20.2)	17 (7.1)	68 (13.6)	113.921	0.000*

Table 1 : Distribution of study population based on denture hygiene awareness



Water + Brush	74 (81.3)	100 (59.5)	202 (83.8)	376 (75.2)		
Water + soap	0 (0.0)	17 (10.1)	0 (0.0)	17 (3.4)		
Water + brush + toothpaste	0 (0.0)	17 (10.1)	0 (0.0)	17 (3.4)		
Water + cleansing tablets	0 (0.0)	0 (0.0)	22 (9.1)	22 (4.4)		
4. How do you place your dentures?						
Leave the denture outside	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	79.096	0.000*
Wrap in cloth	17 (18.7)	0 (0.0)	0 (0.0)	17 (3.4)		
Wrap in plastic bag	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)		
Immerse in water	74 (81.3)	168 (100.0)	241 (100.0)	483 (96.6)		
5. Do you face any problem in maintaining denture hygiene?						
Yes	241 (100.0)	91 (18.1)	151 (89.9)	483 (96.6)	34.778	0.000*
No	0 (0.0)	0 (0.0)	17 (3.4)	17 (3.4)		
Total	241 (100.0)	91 (18.1)	168 (33.6)	500 (100.0)		

*=Significant; NS=Not Significant

Discussion

The successful management of patients with complete dentures who continue to have problems with their dentures remains a significant issue in dentistry practise. The maintenance of patient denture hygiene is significantly influenced by the dentists' knowledge⁶. Dentists must possess a thorough understanding of denture hygiene maintenance in order to properly educate their patients about the significance of denture hygiene. This present study was conducted to assess the denture hygiene maintenance amongst 500 completely edentulous patients using a validated, well-structured questionnaire.

92.2% denture wearers were aware about denture hygiene. Denture wearers with less years of wearing (> 6 years) cleaned their denture twice (41.8%) while none in the other 2 groups, which was statistically significant. Majority (92.4 %) of them cleaned their denture only once in a day. 75.2% of the population cleaned their dentures with water and brush. It was disheartening to note that only 4.4% of our study population used denture cleansers, almost similar to the study of Thatpudi Shankar et al⁹ wherein, In this research, 11.4% of the participants admitted to soaking their dentures in denture cleaner that was readily available on market. But it was contradictory to the study of Namarata et al⁸ who reported 51% of their patients cleaned with denture cleansers. Perhaps there is lack of availability to dental care products in this region, and frequently, dentists are unaware of this helpful product or failed to provide patients with instruction in this area. so Future studies could address this issue. According to Chhabra et al¹⁰,

denture users need to exhibit better hygiene maintenance and awareness. To do this, they have placed a strong emphasis on combining the efforts of specialists and general dentists to transmit and enhance hygiene-related knowledge and information to denture patients.

Only 3.4% of the respondents used a dentifrice to clean the denture. This was dissimilar to the study of Peracini A et al¹¹ who reported 84.91% of the individuals preferred using a dentifrice to brush in order to clean their dentures. The familiarity, ease of use, and affordability of toothpaste as a denture cleaner have all contributed to its adoption. However, because to its abrasive propensity, studies have suggested that poor brushing combined with a dentifrice might harm the denture base material. 96.6% of the denture wearers immersed it in water in the present study. Namrata et al⁸ showed that with regard to soaking dentures in solution, 68% of the patients immersed their prosthetic teeth in the solution. The higher percentage in our study could probably be due to detailed explaining by dentist regarding denture hygiene instructions. Another finding to be noted is that while 100% of >6 years denture wearers immersed their denture in water, 18.7% of the <1 year experience wearers wrapped it in cloth suggesting that the adaptability to and acceptance for denture hygiene increases with increase in year of denture wearing.

Conclusion

In the survey, the majority of denture wearers (92.2%) were knowledgeable about denture hygiene. Most patients only used water or a brush to clean their dentures, with toothpaste being the most popular choice. A very small percentage of people used the chemical technique, or immersion in a cleansing solution.

Patients who had worn a denture for less than a year experienced more cleaning issues. Most patients cleaned their dentures on a daily basis. Perhaps the availability of dental care products is still restricted, and frequently dentists themselves are fail to give instruction to the patients.

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