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COMPREHENSIVE ASSESSMENT OF COMPLETE DENTURE
CLEANLINESS AND AFTER CARE HABITS AMONG ELDERLY
PATIENTS ATTENDING PRIVATE CLINICS IN A NORTHERN INDIAN
CITY; AN (QUESTIONNAIRE BASED) ORIGINAL RESEARCH STUDY

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**Key Words: Complete Denture Cleanliness, Dental Practitioners, Questionnaire,
Hygiene**

ABSTRACT

Background and Aim: The long term success of most of the removable prostheses depends on their hygiene and maintenances. Poorly maintained prosthesis eventually leads to tissue abuse and other related dilemmas. The present questionnaire based study was conducted to evaluate complete denture cleanliness and after care habits among elderly patients attending private clinics in a northern Indian city. **Materials & Methods:** This study was outlined, planned and executed on questionnaire ideology. Authors targeted 50 dental clinics of Meerut city, India for their responses. A pre formed questionnaire have been sent to practitioners by their email addresses and requested to respond the same within 30 days. The questionnaire comprised of 8 questions regarding complete denture hygiene, knowledge and other interrelated factors. All practitioners were requested to provide data about their own experiences and opinion regarding complete denture hygiene measures used by their patients. **Results:** Out of total 50 practitioners, males were 41 and females were 9. Total 6 practitioners were in the age range of 31-35 years. P value was significant for this age group (0.01).

Total 12 private dental practitioners stated that their complete denture patients were cleaning the dentures by tooth brush and tooth paste. Total 7 private dental practitioners responded that their complete denture patients were cleaning the dentures by keeping it into cleansing tablet solution. 14 practitioners stated that their complete denture patients cleaned the denture only once in two/three days. **Conclusion:** Within the limitations of the study, authors concluded that the overall status of complete denture cleanliness and after care was at fair level. These inferences were solely based on the responses obtained from private dental practitioners. Variable frequencies of denture cleaning were also seen ranging from daily cleaning to highly irregular cleaning.

INTRODUCTION

Literature has well evidenced that the complete dentures are the most common prosthesis for restoration of complete dentition. However, it is very obvious that any rehabilitative therapy is successful only when patients are well aware of accurate prosthesis usage and cleanliness.^{1,2} Once the complete denture has been delivered to the patients, it is the sole responsibility of patient to maintain prosthesis hygiene and related after care measures. Also, with the increasing life expectancy, geriatric population is increasing worldwide. Accordingly, there is enhanced inclination towards the maintenance of oral and dental health.^{3,4} This is particularly stands true for middle aged and elderly populaces. Whenever there is any treatment related modifications needed in the oral tissues, people are more concerned and panic about their oral health. In spite of the various advancements in the restorative and palliative dentistry, dental professionals are more worried about ever increasing number of completely edentulous patients.^{5,6} Researchers have well demonstrated that efficient oral hygiene must be maintained everyday by complete denture patients since periodontal health is imperative for the long term success of the prosthesis. Both, practitioner and patients must understand that bacterial plaque on dentures can be extremely damaging to both the oral and systemic health.^{7,8} We all are also aware that prevention is a primary component of dental treatment. The first and foremost prevention of oral diseases starts from performing oral hygiene. It is therefore deemed necessary for complete denture patient to clean their dentures regularly.^{9,10} The present questionnaire based study was conducted to evaluate complete denture cleanliness and after care habits among elderly patients attending private clinics in a northern Indian city.

MATERIALS & METHODS

This study was outlined, planned and executed on questionnaire ideology. Authors targeted 50 private dental clinics of Meerut city, India for their responses. The contact details (email, contact number, address) of private dental practitioners of Meerut city was obtained by requesting them on their social media messaging group. Firstly, total 68 practitioners were approached for their consent in the study. After explaining the study methodologies, only 56 of them were voluntarily ready for participating in our study. All conversations were attempted via their email. A pre formed questionnaire have been sent to all 56 practitioners by their email addresses and requested to respond the same within 30 days. 6 practitioners have sent incompletely filled responses so, discarded. Therefore, authors had attempted to process the responses obtained form 50 private dental practitioners of the city. The questionnaire was self prepared, close ended questionnaire and comprised of 8 questions regarding complete denture hygiene, knowledge and other interrelated factors. All practitioners were requested to provide data about their own experiences and opinion regarding complete denture hygiene measures used by their patients. Respondents were also asked to record the data of patients in which dentures have been fabricated at their own clinic in past 2 years. Authors have finalized to perform this study on questionnaire model as

such types of studies are very imperative. Questionnaire based studies provides significant information about individual and group level attitude. They also provide a broader range of data with enhanced explanation and perception. The relative significance of this study was also clarified to all participating practitioners. The privacy and other rights of respondents were kept completely reserved. Results thus obtained was tabulated and subjected to basic statistical analysis. P value less than 0.05 was considered significant ($p < 0.05$).

STATISTICAL ANALYSIS AND RESULTS

All the studied factors and data were assembled and sent for statistical analysis using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The resultant data was subjected to appropriate statistical tests to obtain p values, mean, standard deviation, chi-square test, standard error and 95% CI. Table 1 and Graph 1 showed that out of 50 practitioners, males were 41 and females were 9. Total 6 practitioners were in the age range of 31-35 years. P value was significant for this age group (0.01). Maximum 13 practitioners were in the age range of 41-45 years. P value was reported to be significant (0.01). 11 practitioners were found in the age range of 46-50 years. 8 practitioners were noticed in the age range of 51-55 years. Table 2 depicts about questionnaire responses evaluation with related statistical inferences. 5 practitioners experienced that their complete denture patients were not cleaning the dentures at all. Total 7 private dental practitioners agreed that their complete denture patients were cleaning the dentures by tooth brush and tap water. Total 6 private dental practitioners agreed that their complete denture patients were cleaning the dentures by tooth brush and any soap. Total 12 private dental practitioners stated that their complete denture patients were cleaning the dentures by tooth brush and tooth paste. Total 7 private dental practitioners responded that their complete denture patients were cleaning the dentures by keeping it into cleansing tablet solution. Total 5 private dental practitioners answered that their complete denture patients were cleaning the dentures by keeping it into mouthwashes. Total 4 private dental practitioners confirmed that their complete denture patients were cleaning the dentures by Brushing and putting in mouthwash. The overall p value was reported to be significant (0.020). Table 3 illustrated the distribution of practitioners as per their responses about patterns of cleaning by their complete denture patients. The overall p value was reported to be highly significant (0.010). Maximum 14 practitioners stated that their complete denture patients cleaned the denture only once in two/three days. Other frequencies have been highlighted in the table 3. Table 4 shows the basic statistical explanation with level of significance evaluation using Pearson chi-square test (for responses of all 8 questions). P value was highly significant for question no 1,3,4,6,8.

Table 1:
AGE & GENDER WISE DISTRIBUTION OF PRACTITIONERS

Age Group (Yrs)	Male	Female	Total	P value
31-35	5	1	6 [12 %]	0.01*
36-40	9	3	12 [24 %]	1.00
41-45	11	2	13 [26 %]	0.01*
46-50	9	2	11 [22 %]	0.50

51-55	7	1	8 [16 %]	0.80
Total	41	9	50 [100 %]	*Significant

Table 2:
QUESTIONNAIRE RESPONSES ASSESSMENT WITH ASSOCIATED STATISTICAL IMPLICATIONS

Questions	Variables (Methods)	No. of Practitioners	p Value
1	No complete denture cleaning at all by patients	5	0.020* (significant)
2	Complete denture cleaning by tooth brush and tap water	7	
3	Complete denture cleaning by tooth brush and any soap	6	
4	Complete denture cleaning by tooth brush and tooth paste	12	
5	Complete denture cleaning by keeping it into cleansing tablet solution	7	
6	Complete denture cleaning by keeping it into mouthwashes	5	
7	Complete denture cleaning by Brushing and putting in mouthwash	4	
8	Any other indigenous means	4	

Table 3:
ALLOCATION OF PRACTITIONERS AS PER THEIR RESPONSES ABOUT PATTERNS OF CLEANING BY THEIR COMPLETE DENTURE PATIENTS

S. No	INCIDENCE	No. of respondents who agreed (for question no 2-8 only, n=45)	p value
1	Daily cleaning of complete denture (Morning)	5	0.010* (significant)
2	Daily cleaning of complete denture (Twice: Morning & evening)	8	
3	Cleaning of complete denture only once in two/three days	14	
4	Cleaning of complete denture only once in a week	8	
5	Very irregular cleaning habit of complete denture	10	

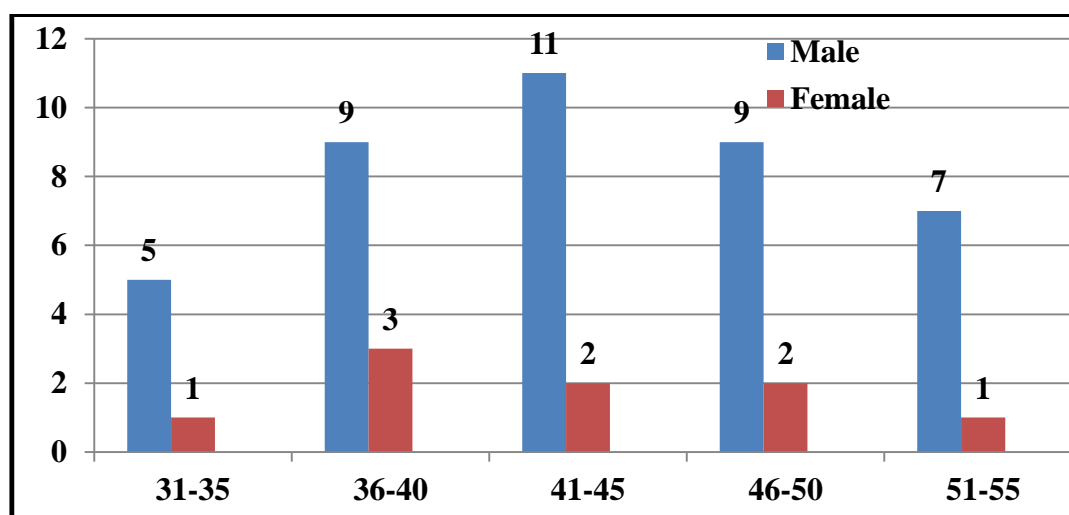
Table 4:
BASIC STATISTICAL EXPLANATION WITH LEVEL OF SIGNIFICANCE EVALUATION USING PEARSON CHI-SQUARE TEST (FOR RESPONSES OF ALL 8 QUESTIONS)

Question No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	Df	Level of Significance (p value)

1	2.45	0.459	0.563	2.53	1.536	2.0	0.001*
2	1.87	0.972	0.294	1.93	1.397	1.0	0.080
3	1.23	1.560	0.637	1.53	2.859	1.0	0.020*
4	2.45	0.609	0.403	2.05	1.748	2.0	0.001*
5	1.98	1.128	0.763	1.45	2.032	1.0	0.080
6	1.02	1.738	0.552	1.63	1.039	1.0	0.001*
7	2.38	0.846	0.263	1.69	1.222	1.0	0.090
8	1.23	1.039	0.590	1.82	2.453	1.0	0.020*

*p<0.05 significant

**Graph 1:
AGE & GENDER WISE DISTRIBUTION OF PRACTITIONERS**



DISCUSSION

Oral health is one of the highly discussed and researched fields of medicine. The initial researches related to oral health was in the shape of chewable wooden pieces. Few of the ancient practitioners advocated the use of these chewable wood pieces.^{11,12} It was derived from certain medicinal plants and mostly used for teeth cleaning and refreshing breath. In this modern era, the most common method of mechanical plaque control is tooth brush. It is universally practiced and accepted method of effective plaque control.^{13,14} Complete restoration of edentulous ridge with the complete dentures is considered as first line of treatment since decades. It is primarily directed to set back previous functional and esthetic demands. It is therefore very imperative for the patient to manage hygiene of prosthesis as well as oral cavity.^{15,16} It is very well observed by dental practitioners and clinicians that new denture wearers usually face severe problems in keeping the prosthesis clean. This is primarily because of unfamiliarity of denture to the underlying bony structures.

Even new patients find sometimes difficult to adapt with complete dentures.^{17,18} Literature is overwhelmed with the data of satisfaction and hygiene levels in such patients. Many of the pioneer researchers have shown that tissue surface of complete denture usually acts as favorable space for developing microbial colonies. Even fungal growth also reported in many of the related studies. It is therefore advisable to clean the complete dentures regularly with some cleaning aid. It is because the prosthetic treatment will be successful only when patients are guided for optimal hygiene maintenance.^{19,20} Many of the studies have clearly indicated that prosthetic hygiene has key role in prevention of mucosal inflammation and infection. Our study results were comparable to numerous previous studies. Mostly, their inferences were in accordance with ours.^{21,22}

CONCLUSION

Our study results undoubtedly showed the current scenario of complete denture cleansing habits in patients attending private clinics of particular Indian vicinity. Within the limitations of the study, authors concluded that the overall status of complete denture cleanliness and after care was at fair level. These inferences were solely based on the responses obtained from private dental practitioners. Inconsistent frequencies of denture cleaning were also seen ranging from daily cleaning to highly irregular cleaning. Our study results can be considered as indicative for predicting clinical outcomes for such crucial situations. Nonetheless, we expect some other large scale studies to be conducted that can further establish certain standard guidelines in these regards. Acknowledgement; this project is supported by Deanship of Graduate Studies and Scientific Research at Dar Al Uloom University.

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Statement of conflict of interest

There is no conflict of interest for work reported in paper.