

## Edentulous-patient's profile in denture-adherence

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### Abstract

**Introduction:** Several researchers have pointed out that one of the most important correlated factors for the success of denture-adherence among edentulous patients is understanding the patient and his/her psychology. But there might still be other unknown factors which influence successful long-term use of complete dentures which need to be explored. Hence, the present study was taken up to explore edentulous patients' background characteristics which influence the post-treatment adherence to complete dentures. The present study was taken up to explore edentulous patients' background characteristics which influence the post-treatment adherence to complete dentures.

**Materials and Methods:** A hospital-based prospective study was taken up in the Dental College, JN Institute of Medical Science during the period Jan 2016 to December 2017. The study subjects included edentulous adult patients aged  $\geq 60$  years attending the Out-Patient Department of our Institute and provided with complete dentures. At the denture insertion appointment, after obtaining informed verbal consent, patients' socio-demographic background, treatment eagerness and their prioritisation for dental treatment were taken by using a pre-tested semi-open interview schedule. Then, they were instructed to report to the Prosthodontic Clinic after two months for check-up. Only patients who had been regularly using the dentures for at least two months were included in the study. At the follow-up visits, a detailed history was taken which included sections about their denture cleaning habits and duration of dental wear.

**Results:** Completed data sets could be obtained from 100 patients during the study period. The mean age (SD) of these patients were 64.3 ( $\pm 7.32$ ) years. Males outnumbered females in the ration 4:1. Females had a higher choice of using dentures compared to males ( $<0.001$ ). Literacy and income had a direct association with better denture cleansing habit ( $p < 0.001$ ). No socio-demographic variable was found to be closely associated with timing of denture-use. Patients aged  $> 65$  years were more likely to use dentures for more than four years compared to younger patients ( $p < 0.001$ ).

**Keywords:** Denture-Adherence, Compliance, Edentulous state.

### Introduction

The edentulous state has so far received relatively less attention comparing to other forms of organ loss. Yet loss of teeth causes adverse aesthetic and biomechanical sequelae. Prosthodontic therapy focuses on technical skills and clinical expertise required to fabricate complete dentures. These have helped in development of new materials and knowledge about the relationship among aesthetics, occlusion and patient's satisfaction.<sup>1-5</sup> Several researchers have pointed out that one of the most important correlated factors for the success of dentures is understanding the patient and his/her psychology.<sup>5-14</sup> There might still be other unknown factors which influence successful long-term use of complete dentures which need to be explored.

### Aim

The present study was taken up to explore edentulous patients' background characteristics which influence the post-treatment adherence to complete dentures.

### Materials and Methods

A hospital-based prospective analytical was taken up in the Dental College, JN Institute of Medical Science during the period Jan 2016 to December 2017. The study subjects included edentulous adult patients aged  $\geq$  years attending the Out-Patient Department of the Institute and provided with complete dentures. At the denture insertion appointment, after obtaining informed verbal consent, patients' socio-demographic background, treatment

eagerness and their prioritisation for dental treatment were taken by using a pre-tested semi-open interview schedule. Then, they were instructed to report to the Prosthodontic Clinic after two months for check-up. Only patients who had been regularly using the dentures for at least two months and fulfilled the criteria of clinical analysis as advocated by Carlson, Otterland and Wennstrom<sup>15</sup> were included in the study. At the follow-up visits, a detailed history was taken which included sections about their denture cleaning habits and duration of dental wear.

Data collected were analysed by using SPSSv23. Both descriptive (mean, SD, percentages) and analytical statistics (chi square for comparison of proportions) were used for data analysis. Analytical tests were applied for assessing association between the socio-demographic variables and post-treatment adherence. A p value of  $<0.05$  was considered as a statistically significant difference.

### Results

Completed data sets could be obtained from 100 patients during the study period. The mean age (SD) of these patients were 64.3 ( $\pm 7.32$ ) years. Males outnumbered females in the ratio of 4:1. The following table shows the comparison between eagerness to use dentures and the various socio-demographic variables (Table 1). Only gender had a significant value implying that females had a higher choice of using dentures compared to males. Other variables like age, literacy and income had any significant association

with using dentures either by own choice or as advised by others.

**Table 1: Treatment eagerness by socio-demographic variables**

Socio-demographic variable	Own will (%)	Advised by others (%)	p-value
By personal age			
• <65 yrs (n=50)	41 (82)	9 (18)	$\chi^2=3.33$ P=0.06
• ≥65 yrs (n=50)	33 (55)	17 (34)	
By sex			
• Males (n=80)	61 (76.3)	19 (23.7)	$\chi^2=21.5$ P<0.001
• Female (n=20)	16 (80)	4 (20)	
By literacy			
• Illiterate (n=24)	13 (54)	11 (46)	$\chi^2=8.21$ P=0.08
• Literate (n=76)	57 (75)	19 (25)	
By income			
• Upper (n=24)	21 (87.5)	3 (12.5)	$\chi^2=3.09$ P=0.21
• Middle (n=26)	21 (80.8)	5 (19.2)	
• Lower (n=50)	35 (70)	15 (30)	
By marital status			
• Currently married	69 (84.15)	13 (15.85)	$\chi^2=0.07$ P=0.78
• Divorced/widowed	15 (83.3)	3 (16.7)	

Table 2 shows the denture cleaning habits among the 100 study-subjects. Literate people were more likely to use proper denture cleansers compared to illiterate people. Again study-subjects from higher income group were found

to be using dental cleansers much more than study-subjects from lower income groups. These differences were found to be statistically significant (p<0.001).

**Table 2: Socio-demographic variables by denture cleaning habits**

Cleaning habits by age	Age < 65 yrs (%)	Age ≥ 65 yrs (%)	$\chi^2$ and p value	
• Denture cleansers	18 (36)	12 (24)	$\chi^2=3.57$ P=0.15	
• Brush with tooth-powder	17 (34)	14 (28)		
• Other detergents	15 (30)	24 (48)		
Cleaning habits by sex	Male (%)	Female (%)		
• Denture cleansers	26 (32.5)	6 (30)	$\chi^2=4.90$ P=0.086	
• Brush with tooth-powder	21 (26.3)	10 (50)		
• Other detergents	33 (41.2)	4 (20)		
Cleaning habits by literacy	Illiterate (%)	Literate (%)		
• Denture cleansers	-	28 (43.08)	$\chi^2=32.53$ P<0.001	
• Brush with tooth-powder	6 (25)	25 (38.46)		
• Other detergents	18 (75)	23 (35.38)		
Cleaning habits by income	Upper (%)	Middle (%)	Lower (%)	
• Denture cleansers	15 (62.5)	10 (38.5)	5 (10)	$\chi^2=24.06$ P<0.001
• Brush with tooth-powder	5 (20.8)	9 (34.6)	18 (36)	
• Other detergents	4 (16.7)	7 (26.9)	27 (54)	
Cleaning habits by marital status	Currently married (%)	Widowed/Divorced (%)		
• Denture cleansers	35 (42.7)	5 (27.8)	$\chi^2=1.48$ P=0.5	
• Brush with tooth-powder	24 (29.3)	7 (38.9)		
• Other detergents	23 (28.0)	69 (33.3)		

The timing of denture wear was also compared by their socio-demographic variable. No statistically significant

difference could be seen in the timing of its wear across the various socio-demographic variables. (Table 3)

**Table 3: Socio-demographic variables by time of denture wear**

By age	Age < 65 yrs (%)	Age ≥ 65 yrs (%)	x <sup>2</sup> and p value	
• 24 hours	5 (10)	3 (6)	x <sup>2</sup> =1.00 P=0.61	
• Whenever awake	42 (84)	42 (84)		
• While eating only	3 (6)	5 (10)		
By sex	Male (%)	Female (%)		
• 24 hours	7 (8.8)	1 (5)	x <sup>2</sup> =2.19 P=0.33	
• Whenever awake	60 (75)	18 (90)		
• While eating only	13 (16.2)	1 (5)		
By literacy	Illiterate (%)	Literate (%)		
• 24 hours	3 (12.5)	5 (6.58)	x <sup>2</sup> =5.14 P<0.74	
• Whenever awake	17. (70.8)	67 (88.16)		
• While eating only	4 (16.7)	4 (5.26)		
By income	Upper (%)	Middle (%)	Lower (%)	
• 24 hours	-	2 (7.7)	6 (12)	x <sup>2</sup> =6.89 P<0.14
• Whenever awake	20 (83.3)	20 (76.9)	29 (58)	
• While eating only	4 (16.7)	4 (15.4)	15 (30)	
By marital status	Currently married (%)	Widowed/Divorced (%)		
• 24 hours	5 (6.1)	3 (16.7)	x <sup>2</sup> =2.69 P=0.27	
• Whenever awake	71 (86.6)	13 (72.2)		
• While eating only	6 (7.3)	2 (11.1)		

Lastly, the period of denture-use was analyzed across the different socio-demographic variables. Younger patients were more likely to have never used dentures whereas people aged >65 years were more likely to have used

denture for more than four years. This difference was found to be statistically significant (p<0.001). No statistically significant difference in period of denture-use could be detected for the remaining socio-demographic variables. (Table 4)

**Table 4: Socio-demographic variables by period of denture-use**

By sex	Age < 65 yrs (%)	Age ≥ 65 yrs (%)	x <sup>2</sup> and p value	
• Never	29 (58)	6 (12)	x <sup>2</sup> =34.43 P<0.001	
• 1-4 yrs	17 (34)	15 (30)		
• >4 yrs	4 (8)	29 (58)		
By sex	Male (%)	Female (%)		
• Never	24 (30)	10 (50)	x <sup>2</sup> =3.98 P<0.41	
• 1-4 yrs	26 (32.5)	4 (20)		
• >4 yrs	30 (37.5)	6 (30)		
By literacy	Illiterate (%)	Literate (%)		
• Never	12 (50)	22 (28.9)	x <sup>2</sup> =14.55 P<0.56	
• 1-4 yrs	8 (33.3)	25 (32.9)		
• >4 yrs	4 (16.7)	29 (38.2)		
By income	Upper (%)	Middle (%)	Lower (%)	
• Never	2 (8.3)	7 (26.9)	25 (50)	x <sup>2</sup> =17.54 P<0.05
• 1-4 yrs	9 (37.5)	8 (30.8)	12 (24)	
• >4 yrs	13 (54.2)	11 (42.3)	13 (26)	
By marital status	Currently married (%)	Widowed/Divorced (%)		
• Never	29 (35.4)	5 (27.8)	x <sup>2</sup> =2.13 P<0.72	
• 1-4 yrs	23 (28)	5 (27.8)		
• >4 yrs	30 (36.6)	8 (44.4)		

**Discussion**

The present study was done in a hospital-based setting in which edentulous patients who were provided dentures were requested to come back for follow-up visits. This does

not necessarily translates into all patients coming back; some might have been lost to follow-up. Hence, the validity of the study-findings is an issue. Further, very small number of patients when classified into various strata may

compound to issues in reproducibility of the study-findings. Nevertheless, some useful information could be derived from the study.

As the research area is in a relatively newer avenue, not much literature was available for comparing the present findings with already published study articles. Silvermann SI found that aging populations are the main denture-wearers.<sup>11</sup> The present study finding corroborates with his finding. But Rutking IR et al in their study concluded that advanced age group of patients do not desire dentures because of drastic oral changes.<sup>16</sup> The different study-setting and the different study period might explain this disparity. The current study findings more or less complements previous study findings which showed that understanding the patient and his/her background is one of the important areas that needs to be looked into for successful denture application and effective adherence/compliance to it.

### Conclusion

The important socio-demographic variables associated with denture-adherence among edentulous patients as found out from the present study were that more females than males decides to use dentures of their own decision, literate and richer patients are more likely to take better care of the dentures and patients aged more than 65 years are likely to use the dentures for prolonged duration compared to their younger counterparts. Other seemingly important background characteristics did not statistically significant association with denture-adherence.

**Conflict of Interest:** Nil.

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