

# Influence of Education, Demographic Variables and Duration of Denture Use on Patients' Satisfaction with Complete Dentures



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**OBJECTIVE:** This study was conducted to determine the influence of education, demographic variables and duration of denture use on satisfaction level among complete denture wearer.

**METHODOLOGY:** A sample of 230 patients, fulfilling the inclusion criteria, were participated in this study. The level of education, demographic details, duration of denture use and patients' satisfaction with complete denture therapy in term of comfort, esthetics, phonetics, chewing, retention and ease of cleaning were recorded by using a questionnaire. Statistical analysis was performed by Statistical Packages for the Social Sciences (SPSS) 20.0. Post-stratification Chi-square test was applied by taking p-value <0.05 as significant.

**RESULTS:** The mean age of the respondents was  $60.37 \pm 9.055$  years, 165(71.74%) were females. Out of 230 respondents, literacy level of 78(33.91%) was matric & above. The average duration of use of denture was  $7.09 \pm 3.295$  months. On the basis of overall satisfaction scores 151(65.5%) patients were satisfied with the denture. There was statistically significant difference in age and patients' satisfaction level with dentures ( $p < 0.05$ ).

**CONCLUSION:** This study concluded that approximately 65% of the patients are satisfied with complete denture therapy. The demographic variables (except age) and duration of use of denture have no influence on patients' satisfaction level with dentures.

**KEYWORDS:** Edentulism, Complete Denture, Satisfaction.

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## INTRODUCTION

Conventional complete dentures are the most prescribed therapy worldwide to restore the functions and esthetics for edentulous patients because of financial and biological limitations.<sup>1</sup> The outcome of complete denture mainly depends on denture quality, patients' psychological state and biological condition.<sup>2</sup>

Although the majority of previous studies have reported the high level of patients' satisfaction with complete denture in different aspects. However a considerable percentage about 10% to 20% of complete denture wearers are dissatisfied with their dentures.<sup>3</sup>

Patient perception have a key role to improve the oral health care quality, so patients' feedback assessment on

satisfaction regarding treatment outcomes is important.<sup>4</sup> Considering that patients' satisfaction is the ultimate objective to achieve during oral rehabilitation several studies have been conducted to evaluate the different factors and their associations with patients' satisfaction including patients' age, gender, literacy level, previous denture experience, patients' personality, psychological state, oral conditions, pretreatment expectations and patients-dentist communication.<sup>1,2,4</sup>

Expectations can vary from one patient to the other due to differences in demographic and psychological variables, population groups and socioeconomic background. Kovac et al. conducted a study about patients' satisfaction with complete dentures and found that 70% patients were highly satisfied with their complete dentures.<sup>5</sup> Miranda et al evaluated the patients' perceptions regarding outcome of complete denture therapy and concluded that average score for positive perception ( $4.01 \pm 0.43$ ) was higher than negative perception ( $3.69 \pm 0.52$ ). They found that satisfaction is not influenced by gender, education status and evaluation of previous denture.<sup>1</sup> Santos et al studied the patients' expectations before

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and satisfaction after complete denture therapy. They found that 70% patients were satisfied with their dentures and patients' literacy level influence the satisfaction level.<sup>2</sup> McCunniff et al found that patients were esthetically more satisfied ( $9.4 \pm 1.2$ ) than that they expected ( $9.0 \pm 1.2$ ) and demographic variables (i.e. age, gender) did not influence the satisfaction with dentures.<sup>6</sup>

A study carried out by M.G. Gaspar et al on patients' satisfaction with complete denture in Brazilian population found that satisfaction score for all evaluated criteria (i.e. chewing= $7.25 \pm 3.12$ , phonetics= $8.64 \pm 2.02$ , comfort of use= $7.64 \pm 2.92$ ) was less than that of expectations score (i.e. chewing= $9.42 \pm 0.94$ , phonetics= $9.51 \pm 0.85$ , comfort of use= $9.57 \pm 0.83$ ).<sup>7</sup> G.P. de Siqueira et al. conducted the similar study regarding patient expectations and satisfaction with removable dental prosthesis and found that expectations were higher than satisfaction.<sup>8</sup> SM Fouda et al carried out a study on the effect of patients' personality on denture satisfaction and concluded that 55% patients were satisfied after treatment and personality type effect the satisfaction with their dentures.<sup>9</sup> In a study Ahmad et al found that pretreatment expectations were high (49% patients exhibited relatively high expectations while 37% exhibit very high expectations) and there was no significant association with demographic variables.<sup>10</sup> The results of these studies<sup>7,8,9,10</sup> were in contrast to other studies.<sup>1,2,5,6</sup>

In existence of differing results of previous studies on patients' satisfaction with their dentures in different population, it is demanding to evaluate the patients' satisfaction regarding complete denture outcome and influence of associated variables on satisfaction level in our local population. This study will help the clinician to have better understanding of patients' expectations and treatment needs that should be addressed at the time of treatment planning before fabrication of complete dentures which will increase denture acceptance. This will also be useful to establish a good patient-dentist relationship by explaining the limitations and possibilities of denture treatment which will help the patients to fit their expectation to a realistic level and subsequent increase in satisfaction level with treatment.

Based on previous studies<sup>1,6,8,13,20</sup>, hypotheses formulated was that education level, duration of denture use and demographic variables has no effect on patients' satisfaction level.

## METHODOLOGY

After approval from ethical committee, a cross sectional descriptive study was conducted in Prosthodontics department, de' Montmorency College of Dentistry/Punjab Dental Hospital Lahore. The sample size, 230 patients, was

calculated by using WHO sample size calculator considering 70% prevalence of satisfaction with 95% confidence level and 6% margin of error. Patients were selected randomly who received their dentures made by postgraduate students, supervised by faculty. Patients with temporomandibular disorders (TMD,) intra or extra oral pathologies and with diagnosed systemic diseases, e.g., metabolic disorders, hematological disorders, endocrine disorders were excluded from this study. Informed consent was taken from each participant of this study. A non-probability consecutive sampling technique was used. A questionnaire designed by the principal researcher was adopted as standardized measuring tool for uniform series of data collection. This questionnaire contains 6 questions to assess the outcome of complete denture therapy in terms of esthetics, comfort, retention, ease of cleaning, ability to chew and speak properly. The answer to each question will be marked in "YES" which will be scored as "1" or "NO" which will be scored as "0". This makes the total score of "6". Out of 6, score of 3 or greater than 3 will be labeled as "Satisfied". Score of less than 3 will be labeled as "Not satisfied". All the patients were interviewed by the principal researcher to avoid biasness.

## STATISTICAL ANALYSIS

Statistical analysis was performed by Statistical Packages for the Social Sciences (SPSS) 20.0. Post-stratification Chi-square test was applied by taking p-value  $\leq 0.05$  as significant.

## RESULTS

In this study total 230 respondents participated. The average age of the respondents was  $60.37 \pm 9.055$  years with minimum and maximum ages of 45 & 65 years respectively. Among 230 respondents, 65(28.26%) were males while 165(71.74%) were females.

The average duration of use of denture of the respondent was  $7.09 \pm 3.295$  months with minimum and maximum duration of 2 & 12 months respectively.

Out of 230 respondents, 53(23.04%) were illiterate, 52(22.61%) had primary education, 47(20.43%) had middle and 78(33.91%) had matric & above educational status. According to this study, the respondents who felt comfortable wearing dentures were 113 (49.1%), and 129 (56.1%) respondents were able to eat properly with dentures. Whereas the number of respondents satisfied with speaking was 115 (50.0%), and 121 (52.6%) thought that dentures were retentive during function. The respondents satisfied with their appearance were 98 (42.6%). However, 107 (46.5%) respondents thought that it was easy to clean their dentures.

The mean total satisfaction score of the respondents was  $2.97 \pm 1.33$  with minimum and maximum scores of 0 & 6 respectively.

On the basis of satisfaction scores, 151 (65.7%) respondents were satisfied with the denture. In respondents with age  $\leq 50$  years, 22 (51.2%) were satisfied with denture whereas in respondents having age more than 50 years, 129 (69%) were satisfied. Statistically there was significant difference observed between the satisfaction of use of denture and age groups i.e. (p-value=0.026). (Table 1)

**Table 1:** Comparison of satisfaction of use of denture between age groups

		Satisfied		Total	p-value
		Yes	No		
Age (years)	$\leq 50$	22	21	43	0.02
		51.2%	48.8%	100.0%	
$> 50$	129	58	187		
	69.0%	31.0%	100.0%		
Total		151	79	230	
		65.7%	34.3%	100.0%	

In male respondents, 37 (56.9%) were satisfied with denture whereas in female respondents, 114 (69.1%) were satisfied with use of denture. Statistically there was no significant difference observed between the satisfaction of use of denture and gender i.e. (p-value=0.08). (Table 2)

**Table 2:** Comparison of satisfaction of use of denture between gender

		Satisfied		Total	p-value
		Yes	No		
Gender	Male	37	28	65	0.08
		56.9%	43.1%	100.0%	
Female	114	51	165		
	69.1%	30.9%	100.0%		
Total		151	79	230	
		65.7%	34.3%	100.0%	

In respondents with duration of use of denture  $\leq 6$  months, 72 (68.6%) were satisfied with denture whereas in respondents having duration of use of denture more than 6 months, 79 (63.2%) were satisfied. Statistically there was no significant difference observed between the satisfaction of use of denture and duration of use of denture i.e., (p-value=0.39). (Table 3)

In respondents having education up to middle, 97 (63.8%) were satisfied with denture whereas in respondents having education matric & above, 54 (69.2%) respondents were

**Table 3:** Comparison of satisfaction of use of denture between duration of use of denture

		Satisfied		Total	p-value
		Yes	No		
Duration of use of denture in months	$\leq 6$	72	33	105	0.39
		68.6%	31.4%	100.0%	
$> 6$	79	46	125		
	63.2%	36.8%	100.0%		
Total		151	79	230	
		65.7%	34.3%	100.0%	

satisfied. Statistically there was no significant difference observed between the satisfaction of use of denture and education of the respondents i.e. (p-value=0.41). (Table 4)

**Table 4:** Comparison of satisfaction of use of denture between education status

		Satisfied		Total	p-value
		Yes	No		
Education	Upto middle	97	55	152	0.41
		63.8%	36.2%	100.0%	
Matric & above	54	24	78		
	69.2%	30.8%	100.0%		
Total		151	79	230	
		65.7%	34.3%	100.0%	

## DISCUSSION

Complete dentures have been widely used for the oral rehabilitation of edentulous patients, who are usually satisfied with their dentures.<sup>1-4</sup> Dental professionals should be aware of the importance of these variables and should pay attention to patients' perceptions and expectations during treatment to perceive patients' wishes using culturally contextualized questions and to know how and when to limit patients' expectations.<sup>6,8</sup>

This study was conducted to determine the frequency of satisfaction among complete denture wearers. The average age of the respondent was  $60.37 \pm 9.05$  years with minimum and maximum age of 45 & 65 years, respectively. Among 230 respondents, 65 (28.26%) were males while 165 (71.74%) were females. The average duration of use of denture of the respondents was  $7.09 \pm 3.29$  months with minimum and maximum duration of 2 & 12 months respectively. Out of 230 respondents, 53 (23.04%) were illiterate, 52 (22.61%) had primary education, 47 (20.43%) had middle and 78 (33.91%) had matric & above educational status. The

mean total satisfaction score of the participant was  $2.97 \pm 1.33$  with minimum and maximum scores of 0 & 6 respectively. Based on satisfaction scores 151 (65.5%) respondents were satisfied with the denture.

This study showed that the age was only variable that significantly influence the patients' satisfaction level.

In respondents with age  $\leq 50$  years, 51.2% were satisfied with denture whereas in respondents having age more than 50 years, 69% respondents were satisfied. Statistically there was significant difference observed between the satisfaction of use of denture and age groups. Some previous studies have shown the results similar to the present study while some have contrasting results. Singh et al found that patient's age was an influential factor on denture satisfaction. The results showed that level of denture satisfaction was higher in age group belonging to 45 - 65 years of age as compared to age group  $> 65$  years of age in relation to comfort, health, and denture care.<sup>11</sup> G P Siqueira et al. and Elhout found in their study that there was no significant difference in patients' satisfaction score and age.<sup>8,6</sup> In another study, McCunniff et al. concluded that age did not correlate to patient's expectations and satisfaction with denture esthetics.<sup>6</sup>

In our opinion, the younger age group ( $< 50$ ) has higher esthetics concern and also, compare mastication with complete dentures to mastication with natural teeth. These unrealistic expectations for aesthetics and function may lead to dissatisfaction with complete dentures.

Statistically there was no significant difference observed between the satisfaction with the use of denture and demographic variables including gender, education level and duration of use of denture. Similar to this study, some previous studies found that there was no significant difference between genders and patient's satisfaction.<sup>1,6,8,18,20,21</sup> In contrast, some studies have observed significant differences between genders and duration of denture use regarding patient satisfaction with dentures.<sup>1,11,12</sup> Similar to this study, some previous studies conducted by Miranda et al.<sup>1</sup> and Turker et al.<sup>13</sup>, involving education level found no significant association between satisfaction and education level. While some studies<sup>2,7,18,22</sup> showed contrasting results. The fact that everyone is equally concerned about their appearance can be used to justify the findings of our study. Everyone has access to media in this age of technology, whether it's through television, movies, publications, commercials, social media, or digital media. Regardless of gender or education, the media has had a significant impact on people's perceptions of personal appearance, leading to equal aesthetic demands.

In this study, 65.65% respondents were satisfied with the denture. There are some other studies about satisfaction of complete dentures. In a study by Miranda et al<sup>1</sup> demonstrated that patients presented a positive perception

of complete denture therapy, and the risk factors (negative perceptions) received the lowest scores. Santos et al. studied the patients' expectations before and satisfaction after complete denture therapy. They found that 70% patients were satisfied with their dentures and patients' satisfaction regarding complete denture therapy exceeded expectations.<sup>21</sup>

Kovac et al. conducted a study about patients' satisfaction with complete dentures and found that 70% patients were highly satisfied with their complete dentures. 80% patients were satisfied with maxillary denture esthetics & speaking ability, 70% with retention & chewing ability.<sup>5</sup>

Miranda et al. and Santos et al. evaluated the complete denture therapy outcomes and association of related variables. They found that 70% patients were satisfied with their dentures and patients' satisfaction regarding complete denture therapy exceeded expectations.<sup>1,2</sup> Some studies showed comparatively low score of satisfaction with complete denture. Gaspar et al.<sup>7</sup> and Siqueira et al.<sup>8</sup> found low score of satisfaction than expectations. SM Fouda et al carried out a study on the effect of patients' personality on denture satisfaction after increasing occlusal vertical dimension in Egyptian patients and concluded that 55% patients were satisfied after treatment and personality type effect the satisfaction with their dentures.<sup>9</sup> According to Van der Waas<sup>14</sup> 55% of patients were completely satisfied with their CDs.

The success of complete denture therapy is mainly determined by patients' satisfaction. Patients' satisfaction with complete denture rehabilitations are influenced by individual characteristics, such as psychological factors, the adaptation process, personality traits, perceived health needs, previous denture experience, period of edentulism and patient-dentist relationship which have to be considered in a sociocultural and economic context.<sup>4,5,6,15,17,19</sup>

A possible interpretation for the comparatively low level of satisfaction in this study can be justified by multiple factors that affect the patient satisfaction with complete denture. Firstly, patient might not be aware of his or her oral condition. Secondly, the patients might have unrealistic expectations regarding the outcome of complete denture therapy.

The process of assessing treatment outcome is essential for determining the success of therapy. The self-assessment method can be used to evaluate the degree of patients' satisfaction with their complete dentures subjectively. The primary limitation of this study involve that data collection was done by using self-designed questionnaire, so the results were mainly based on participant response. Furthermore, for the convenience of researchers a very precise inclusion criterion had been established which can be expanded. Also, pre-treatment expectations were not evaluated in the study. Further research can be performed to grasp more about complete denture wearers' perspectives.

## CONCLUSION

This study concluded that approximately 65% of the patients are satisfied with conventional complete denture therapy. According to this study, education level, duration of denture use and demographic variables, except age, have no influence on patients' satisfaction level with complete dentures. So, younger age group must be counselled to keep their unrealistic expectations in check. It can also be suggested to the teaching institutes and dental clinics to evaluate the patients' satisfaction which can ultimately improve the quality of services.

## CONFLICTS OF INTEREST

There are no conflicts of interest.

## SOURCE OF FUNDS

There are no sources of funds included in this study.

## REFERENCES

- Miranda BB, dos Santos MBF, Marchini L. Patients' perceptions of benefits and risks of complete denture therapy. *J Prosthodont.* 2014;23:515-20. <https://doi.org/10.1111/jopr.12164>
- Santos BFO, dos Santos MBF, Santos JFF, Marchini L. Patients' evaluations of complete denture therapy and their association with related variables: a pilot study. *J Prosthodont.* 2015;24:351-7. <https://doi.org/10.1111/jopr.12286>
- Carlsson GE. Facts and fallacies: an evidence base for complete dentures. *Dental Update.* 2006;33:134-42. <https://doi.org/10.12968/denu.2006.33.3.134>
- Silva JD, Santos JF, Marchini L. Factors influencing patients' satisfaction with complete dentures: a qualitative study. *Braz Dent Sci.* 2014;17:83-8. <https://doi.org/10.14295/bds.2014.v17i2.967>
- Kovac Z, Troskot Z, Uhac I, Cabov T, Lajnert V, Kovacevic Pavicic D, et al. Multivariate analysis of different factors affecting the patient general satisfaction with complete dentures. *Coll Antropol.* 2012;36:791-4.
- McCunniff M, Liu W, Dawson D, Marchini L. Patients' esthetic expectations and satisfaction with complete dentures. *J Prosthet Dent.* 2017;118:159-65. <https://doi.org/10.1016/j.prosdent.2016.10.015>
- Gaspar M, Dos Santos M, Dos Santos J, Marchini L. Correlation of previous experience, patient expectation and the number of post-delivery adjustments of complete dentures with patient satisfaction in a Brazilian population. *J Oral Rehab.* 2013;40:590-4. <https://doi.org/10.1111/joor.12070>
- Siqueira GPd, Dos Santos MBF, Santos JFFd, Marchini L. Patients' expectation and satisfaction with removable dental prosthesis therapy and correlation with patients' evaluation of the dentists. *Acta Odontol Scand.* 2013;71:210-4. <https://doi.org/10.3109/00016357.2012.654612>
- Fouda SM, Al-Attar MS, Virtanen JI, Raustia A. Effect of patient's personality on satisfaction with their present complete denture and after increasing the occlusal vertical dimension: a study of edentulous Egyptian patients. *Int J Dent.* 2014;2014. <https://doi.org/10.1155/2014/635943>
- Ahmad S, Jawad A, Shah MU. Influence of demographic variables on pre-treatment expectations of prosthodontic patients at a private tertiary care dental facility in Islamabad. *Pak Oral Dent J.* 2017;37:496-500.
- Singh BP, Pradhan KN, Tripathi A, Tua R, Tripathi S. Effect of sociodemographic variables on complete denture satisfaction. *J Adv Prosthodont.* 2012;4:43-51. <https://doi.org/10.4047/jap.2012.4.1.43>
- Bellini D, Dos Santos MB, De Paula Prisco Da Cunha V, Marchini L. Patients' expectations and satisfaction of complete denture therapy and correlation with locus of control. *J Oral Rehab.* 2009;36:682-6. <https://doi.org/10.1111/j.1365-2842.2009.01967.x>
- Turker SB, Sener ID, Özkan YK. Satisfaction of the complete denture wearers related to various factors. *Arch Gerontol Geriatr.* 2009;49:e126-9. <https://doi.org/10.1016/j.archger.2008.11.003>
- Van Waas MA. Determinants of dissatisfaction with dentures: a multiple regression analysis. *J Prosthet Dent.* 1990;64:569-71. [https://doi.org/10.1016/0022-3913\(90\)90130-5](https://doi.org/10.1016/0022-3913(90)90130-5)
- Cerutti-Kopplin D, Emami E, Hilgert JB, Hugo FN, Rivaldo E, Padilha DM. Predictors of satisfaction with dentures in a cohort of individuals wearing old dentures: Functional quality or patient-reported measures? *J Prosthodont.* 2017;26:196-200. <https://doi.org/10.1111/jopr.12383>
- Elhout W, Seyam A. Patient Satisfaction with Complete Denture Prosthesis Made By Clinical Year Students at the Faculty of Dentistry, Al Azhar University-Gaza. *Int. J. Acad. Med. Res. (IAHMR).* 2020;4.
- Panchevska S, Elenchevski S, Janeva N, Mijoska A. Satisfaction of complete denture wearers. *Medicinski Pregled.* 2018;71:247-9. <https://doi.org/10.2298/MPNS1808247P>
- Sastrawijaya AD, Kusdhany LS, Gita F, Kiswanjaya B. Impact of Mandibular Vertical Height and Bone Density on Patient Satisfaction Following Complete Denture Treatment. *J. Int. Dent. Med. Res.* 2020;13:996-1002.
- Surlari Z, Budala DG, Luca E, Brezilianu C, Iordache C, Ciocan-Pendefunda AA, Virvescu D. Objectives and assessment of esthetic dental treatment-a based evidence approach. *Rom. J. Oral Rehabil.* 2019;11:205-9.
- Parvez K, Parvez K. Oral Complaints of Complete Denture Wearing Elderly Patients and Their Relation with Age & Gender. *J Pak Dent Assoc.* 2020;29. <https://doi.org/10.25301/JPDA.293.140>
- Colvin J, Dawson DV, Gu H, Marchini L. Patient expectation and satisfaction with different prosthetic treatment modalities. *J. Prosthodontic.* 2019;28:264-70. <https://doi.org/10.1111/jopr.12983>
- Ahmed AR, Chaturvedi S, Muneer MU, Rana SA, Hussain MW, Khan MF. Clinical analysis of complete denture satisfaction factors: dentist and patient perspective. *Int. J. Med. Res. health Sci.* 2019;8:128-34