# INFLUENCE OF DEMOGRAPHIC VARIABLES ON PRE-TREATMENT EXPECTATIONS OF PROSTHODONTIC PATIENTS AT A PRIVATE TERTIARY CARE DENTAL FACILITY IN ISLAMABAD

[1]SALMAN AHMAD

[2]ATIF JAWAD

[3]MOHAMMAD UMAR SHAH

## ABSTRACT

*This cross-sectional survey was carried out on 100 patients reporting for treatment in the Department of Prosthodontics at a private tertiary care dental facility. The sample included 50 completely edentulous and 50 partially edentulous patients. Data were collected on a self-designed close-ended questionnaire that comprised of eight relevant questions. All questions were so designed that the best answer was a "No" to every statement. A numeric calculation was done afterwards to derive the final score of the patient, ranging from minimum of 8 to maximum of 16. On the basis of this final score, five expectation categories were devised i.e. very low expectations (score of 8-9); Relatively low expectations (score of 10-11); Moderate expectations (score of 12); Relatively high expectations (score of 13-14); and Very high expectations (score of 15-16). The results indicated that none of the patients were placed in the very low and relatively low expectation categories. There were 49% patients in relatively high category, 37% in very high and only 14% in moderate expectation categories. Statistical analysis of expectation categories was not significant in relation to the demographic variables studied i.e. age, gender, literacy level and type of prostheses.*

**Key Words:** *Pretreatment expectations, complete denture, partial denture, survey.*

## INTRODUCTION

The satisfaction of patients from prosthodontic treatment may be dependent upon an interaction of the chosen modality of treatment, previous experiences and psychological well-being.[1,2] Another critically important factor is the expectations of the patients at the start of a chosen treatment or treatment plan.[3] This pre-treatment level of expectations is generally higher with conventional prosthodontic modalities, which often lead to dissatisfaction of the patients during the post-treatment phase.[2]

The pretreatment expectations can vary from one patient to the other due to differences in demographic and psychological variables, population groups and socioeconomic backgrounds.[4-6] Earlier work by Smith and McCord[4] found gender to be an important predictor of denture satisfaction. However, more recent studies found no correlation of gender with pretreatment expectations that influence the post-treatment satisfaction scores.[7,8] Likewise, age may also be a predictor of patient expectations since elderly denture wearers have been found to have lesser dissatisfaction from their dentures as compared to the relatively younger edentulous patients.[9]

In their study on complete denture satisfaction, Singh et al[10] found it to be different in different literacy levels but it was generally higher with increasing literacy levels. A study carried out by Diehl et al[11] found no statistically significant relationship of demographic factors and education level with the success of a removable denture. However, they accepted these and other variables as important co-factors for patient's acceptance and their expectations of dental therapy. Santos et al[12] found that satisfaction of patients with complete dentures exceeded their initial expectations and that expectations regarding esthetics and comfort were related to the age of the patients.

In the existence of such differing results, it seems important to investigate the influence of different

[1] **Corresponding Author:** Dr Salman Ahmad, (FCPS), Associate Professor, Department of Prosthodontics, Islamic International Dental College, Riphah International University, 7th Avenue, Sector G-7/4, Islamabad, Pakistan
Email: salman.ahmad@riphah.edu.pk   Cell: +92-300-873-2017

[2] Dr Atif Jawad (FCPS), Assistant Professor, Department of Prosthodontics, Bhitai Dental and Medical College, Mirpurkhas, Pakistan

[3] Dr Mohammad Umar Shah (FCPS), Assistant Professor, Department of Prosthodontics, Frontier Medical and Dental College, Abbottabad, Pakistan

demographic variables on pretreatment expectations of our local patients. Therefore, the objective of the present study was to find any association of patient's age, gender, literacy status and denture status on their pretreatment expectations from removable prostheses. This information is hoped to provide the local dental community with better understanding of the demands and expectations of prosthodontic patients, which in turn may be beneficial towards imparting appropriate education and instructions to the needful patients.

## METHODOLOGY

This was a cross-sectional survey carried out in the Department of Prosthodontics at Islamic International Dental College and Hospital, Islamabad through the months of December 2014 to May 2015 after formal approval from the Ethical Review Committee of the institute. A consecutive non-probability sampling technique was used to include 100 patients with equal number of removable partial and complete denture wearers. Patients reporting to the department were considered for inclusion according to the following criteria: both male and female patients with age from 16 years onwards, and requiring a removable partial or complete denture for the first time in their life. Patients who did not wish to be interviewed, who were mentally handicapped or on anti-depression therapy were excluded from the study.

Suitability of the cases for provision of partial or complete dentures was judged after history taking, and clinical and radiographic examinations. Then informed consent was obtained from the patients before being included in the study and interviewed. Two house officers were trained by the principal investigator to gather the required data. For this purpose, a simple self-designed close-ended questionnaire, comprising of eight relevant questions, was devised in English language with appropriate Urdu language translations. Questions were asked regarding delivery of denture on the first visit, denture lasting forever, denture fixed in place and never to be removed, denture not needing any adjustments in future, eating of every type of food (hard or soft) with denture, ability to eat anything right after insertion, having whiter than white teeth in denture, and functioning of the denture to be better than natural dentition. Patients were required to answer either as "Yes" or "No". Questions were so designed that the best answer was a "No" to every statement. Patients were also required to provide their personal/demographic information (age, gender and literacy level) for data analysis.

After recording the response of patients, a simple numeric calculation was done. Every "Yes" answer was given 2 points (labeled as Value 1) while every "No" answer was given 1 point (labeled as Value 2). Both values were added up to obtain the final score of the patient. The minimum score that could be achieved was 8 (all answers in "No") and the maximum 16 (all answers in "Yes"). At the end, the patient's expectations were categorized into five groups on the basis of their final scores: Very low expectations (score of 8-9); Relatively low expectations (score of 10-11); Moderate expectations (score of 12); Relatively high expectations (score of 13-14); and Very high expectations (score of 15-16). It was assumed that the lower the final score of the patient, the more realistic would be the patient expectations.

Data analysis was done by using SPSS version 19 software. Mean and standard deviation was computed for quantitative variables i.e. age and final score of the study participants. In order to generate correlations of the qualitative variables, cross tabulation was done for expectations of the patients with their age groups, gender, literacy level and type of denture. Chi-square test was applied at 95% confidence interval and P value of less than 0.05 was to be considered as significant.

## RESULTS

The study sample of 100 patients included 56% males and 44% females. The mean age of the sample was 53.88 years ± 13.972. Subjects ranged in age from 20 upto 85 years. The mean final score was 12.53 ± 1.708. The score ranged from 9 upto 15. Hence no pa-

TABLE 1: DISTRIBUTION OF STUDY SAMPLE ACCORDING TO THE EXPECTATIONS CATEGORIES AND AGE GROUPS DEVISED (N=100)

| Expectation Category | Group I (39 years & below) | Group II (40-59 years) | Group III (60 years & above) |
|---|---|---|---|
| **Very low** *(Final score of 8-9)* | 0 | 0 | 0 |
| **Relatively low** *(Final score of 10-11)* | 0 | 0 | 0 |
| **Moderate** *(Final score of 12)* | 3 | 8 | 3 |
| **Relatively high** *(Final score of 13-14)* | 7 | 21 | 31 |
| **Very high** *(Final score of 15-16)* | 8 | 9 | 20 |
| **Total** | 18 | 38 | 44 |

TABLE 2: DISTRIBUTION OF STUDY SAMPLE
ACCORDING TO THE EXPECTATIONS
CATEGORIES AND GENDER (N=100)

| Expectation Category | Males | Females | Total |
|---|---|---|---|
| **Very low** *(Final score of 8-9)* | 0 | 0 | 0 |
| **Relatively low** *(Final score of 10-11)* | 0 | 0 | 0 |
| **Moderate** *(Final score of 12)* | 8 | 6 | 14 |
| **Relatively high** *(Final score of 13-14)* | 24 | 25 | 49 |
| **Very high** *(Final score of 15-16)* | 24 | 13 | 37 |
| **Total** | 56 | 44 | 100 |

TABLE 3: DISTRIBUTION OF STUDY SAMPLE
ACCORDING TO THE EXPECTATIONS
CATEGORIES AND TYPE OF PROSTHESES
REQUIRED (N=100)

| Expectation Category | Removable Partial Denture | Complete Denture | Total |
|---|---|---|---|
| **Very low** *(Final score of 8-9)* | 0 | 0 | 0 |
| **Relatively low** *(Final score of 10-11)* | 0 | 0 | 0 |
| **Moderate** *(Final score of 12)* | 5 | 9 | 14 |
| **Relatively high** *(Final score of 13-14)* | 26 | 23 | 49 |
| **Very high** *(Final score of 15-16)* | 19 | 18 | 37 |
| **Total** | 50 | 50 | 100 |

tient scored the minimum value of 8 or the maximum value of 16.

Distribution of participants according to the expectations categories devised is presented in Tables 1, 2, 3 and 4 according to age groups, gender, type of prostheses and literacy level respectively. Very interestingly, no patient was placed in very low and relatively low expectations categories. A large majority of patients (49%) exhibited relatively high expectations followed in frequency by the very high expectations category (in 37% patients) while the remainder 14% patients had moderate expectations. Chi-square test remained non-significant for age groups (P=0.153), gender (P=0.338) and type of prostheses (P=0.508). Chi-square test was only slightly non-significant for literacy level (P=0.056).

## DISCUSSION

The study was carried out on 100 patients, with equal number of removable partial and complete denture wearers. This was done in the light of suggestions made by the Ethical Review Committee as they thought the outcome of the study was better served if a comparison of pretreatment expectations was made between both types of denture wearers. Therefore the study design was modified to accommodate this suggestion.

Basically, the present study was meant to correlate the pretreatment expectations of our prosthodontic patients with some of their demographic variables such as age, gender, literacy level and type of prostheses. Overall, there were fewer number of patients in the younger age Group I while the other two age groups had good representation in the study sample. This trend was expected since the department normally receives lesser number of younger aged individuals for treatment purposes. Therefore, three age groups were devised with much broader age ranges to accommodate patients from all age strata. This also simplified the data analysis.

Patients were required to provide their personal and demographic information which was only used for data analysis. Data were collected through interviews which were conducted by two house surgeons, who were properly trained for the task by the primary author. All information was gathered on a self-designed close-ended questionnaire. This was done to keep the process of information gathering simple and easy and also to save the time of the patients on the chairside.

The questionnaire comprised of eight relevant questions which had been made in light of our own clinical experience. The questions were originally composed in English language. However appropriate Urdu language translations were also made so that patients could easily understand and answer them. It was ensured that all patients understood the questions before answering them as "Yes" or "No." All questions were structured so that the ideal answer to every statement was "No." This was done to standardize the results and outcome of the study and also to keep the data analysis easy to perform and comprehend.

TABLE 4: DISTRIBUTION OF STUDY SAMPLE ACCORDING TO THE EXPECTATIONS CATEGORIES AND LITERACY LEVEL (N=100)

| Expectation Category | Group A (Illiterates) | Group B (Primary to Middle Education) | Group C (Secondary to Higher Secondary Education) | Group D (Graduation and Above Education) |
|---|---|---|---|---|
| **Very low** *(Final score of 8-9)* | 0 | 0 | 0 | 0 |
| **Relatively low** *(Final score of 10-11)* | 0 | 0 | 0 | 0 |
| **Moderate** *(Final score of 12)* | 2 | 2 | 3 | 7 |
| **Relatively high** *(Final score of 13-14)* | 13 | 14 | 11 | 11 |
| **Very high** *(Final score of 15-16)* | 13 | 14 | 7 | 3 |
| **Total** | 28 | 30 | 21 | 21 |

Patient responses were used to numerically calculate their final scores. This helped in formulating the five groups of patient expectations whereby a higher score was associated with higher level of expectations and a lower score with lower levels of expectations. Hence, the ideal patient score would have been 8 but very interestingly none of the patients in the present study scored this ideal value. The minimum score obtained was 9, which placed them in the very low expectations category. Similarly, on the other extreme, none of the patients scored the maximum value of 16. The maximum score obtained was 15, which still placed these patients in the very high expectations category. The absence of these two extreme scores was somewhat not expected as in a previous study carried out by Ahmad et al13 at another center, upto 7% of the subjects had obtained the maximum score.

Another interesting finding was that none of the patients in the present study were placed in the very low and relatively low expectations categories, which was somewhat not expected. This occurrence may have been coincidental only or could have been due to the sample size. More comparative research is still needed on the topic to clearly identify the influencing factors related to pretreatment expectations of the patients.

The previous study by Ahmad et al13 found the very high expectations category among the illiterate subjects only. However, in the present study, patients from all literacy groups (i.e. from illiterates upto graduates) were exhibiting very high expectations. These included 3 graduate level patients, 7 from secondary to higher secondary level, 14 from primary to middle level of education and 11 illiterates. This was a surprising finding in itself as the more educated class of people should have scored less as compared to the less educated ones. This finding may suggest that some other demographic variable may be at play which had increased the participant's pretreatment expectations irrespective of their literacy status. Further and more controlled research on the topic may be able to clarify on this point.

In their sample of sixty four patients, Bellini et al7 found that the pretreatment expectations regarding esthetics and function were significantly lower than the post treatment completion ratings. They also found no correlation with gender. In another study, Marachlioglou et al8 found their patients to have higher level of expectations as compared to technicians and dentists for esthetics and function. There was no correlation between pretreatment expectations and post-treatment completion ratings according to the age of the patients. Additionally, no correlation was established between gender and expectation scores. Fromentin and Boy-Lefevre14 found the place of residence and level of income to have an influence on pretreatment expectations and satisfaction from service. In the present study, the pretreatment expectations were statistically not significant for any of the demographic variables included (age, gender, type of denture) although a weak association was established with literacy level of the patients. However, no attempt was made to study the post-treatment satisfaction with the treatment provided. This may be a topic for future research on the subject.

## CONCLUSION

Within the limitations of the present study, it can be concluded that the level of pretreatment expectations was generally higher in majority of the patient's included, although no statistically significant association of

pretreatment expectations was made with demographic variables studied i.e. age, gender, type of denture and literacy level.

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## CONTRIBUTIONS BY AUTHORS

**1  Salman Ahmad:**    Research idea, methodology, composing & editing

**2  Atif Jawad:**    Data entry, results & discussion

**3  M Umar Shah:**    Reference searching, introduction & proof reading

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