ASSOCIATION OF EXPECTATION LEVELS WITH SOCIODEMOGRAPHICS AMONG PROSTHODONTIC PATIENTS REQUIRING REMOVABLE PARTIAL DENTURE- A CROSS-SECTIONAL STUDY

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ABSTRACT

Objective: To determine the association between expectation levels and sociodemographic factors among prosthodontic patients requiring removable partial dentures (RPD).

Material and Methods: A total of 174 participants were selected using a consecutive non-probability technique at Khyber College of Dentistry, Peshawar. The study included patients of both genders, aged between 16 and 65 years, who required new RPD. Patients with previous denture wear, as well as those with mental or physical disabilities, were excluded. Detailed history and clinical examinations were conducted, and participants were asked five questions regarding RPD delivery, eating after insertion, denture fixation, teeth coloration, and longevity. Expectation levels were stratified by gender, age, and socioeconomic status, and the association was analyzed using the chi-square test.

Results: The study consisted of 91 males (52.3%) and 83 females (47.7%), with a mean age of 47.13±1.71 years. The majority of participants had a high level of expectation (n=76, 41.3%), followed by moderate expectation in 88 (47.8%) participants, and low expectation in 20 (10.9%) participants. There was a statistically significant difference in expectation levels among different age groups ($P<0.05$). However, no significant differences were found in expectation levels between genders ($P>0.05$). Socioeconomic status had a significant effect on expectation levels regarding RPD ($P<0.05$).

Conclusion: Pretreatment expectations were significantly associated with demographic variables such as age, occupation, and educational level. However, no significant gender-based differences were observed in pretreatment expectations.

Keywords: Removable Partial Denture, Patient Expectations, Sociodemographic Factors, Healthcare Quality Assessment, Kuppuswamy Socioeconomic Scale

INTRODUCTION

The presence of edentulism in our society can be attributed to a range of identifiable factors.[1] Tooth loss can have adverse effects on speech, appearance, nutritional health, and can contribute to feelings of social discomfort and isolation.[2] Removable dentures, such as complete conventional dentures and removable partial dentures (RPD), are the primary treatment options for edentulism.

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These dentures provide a cost-effective, simple, and conservative approach to treatment.[3]

The attainment of desirable dentofacial aesthetics holds considerable importance in determining the effectiveness of RPD treatment, as it is a primary expectation expressed by patients when they begin their dental care.[4] Patient expectations play a pivotal role in determining the overall success of the treatment. [5-7]

Assessing the patients' perspective is crucial prior to initiating any treatment.[8] Factors such as age, gender, educational attainment, and socioeconomic status within the sociodemographic context can influence the expectations of patients.[9]

Extensive prior research has delved into the influence of sociodemographic factors on patients' expectations before receiving treatment. The findings have been mixed, with some studies observing a positive connection between these factors and RPD, while others did not find such associations.[10] Notably, studies conducted by Bellini et

al.[11] and Marachlioglou et al. [12] did not identify any links between patients' gender, age, and their expectations before treatment. However, Celebic et al.'s study[13] demonstrated that individuals with lower literacy levels tend to adopt a more realistic approach to dental treatment, highlighting how education enhances patients' awareness in this context.

In a study by Ahmed et al. conducted in Multan, the frequency of expectation levels among patients was analyzed. Results showed that 13.9% had a low expectation level, 38.9% had a moderate expectation level, and 47.2% had a high expectation level. When considering gender, 11.1% of females had low expectations, 11.1% had moderate expectations, and 27.8% had high expectations. Among males, 2.8% had low expectations, 27.8% had moderate expectations, and 19.4% had high expectations. Examining different age groups, 25% of patients in group II (36-55 years) had high expectations, while both group II and group III (>55 years) had 13.9% of patients with moderate expectations. In group I (16-35 years), 11.1% of patients had both moderate and high expectations. Moreover, when considering literacy level, illiterate patients showed a higher tendency towards having high expectations, while literate patients had lower expectations. [10]

This study aims to explore the frequency of expectation levels among prosthodontic patients requiring removable partial dentures (RPD) and to assess whether these expectations are realistic. By examining the association between expectation levels and sociodemographic factors, the study seeks to provide information that can help prosthodontists align care with patient expectations. Given the lack of existing research on this topic in the region, this study have significant importance for advancing patient-centered care.

MATERIAL AND METHODS

This descriptive, cross-sectional study was conducted at the Department of Prosthodontics, Khyber College of Dentistry, Peshawar, from October 15, 2020, to May 15, 2021, using a consecutive non-probability sampling technique. The sample size of 174 was calculated using the WHO software for sample size determination in health studies, considering a proportion value of 13.9% (the overall frequency of patients with a low expectation level[10]) and a specified absolute precision of 5%.

The research study obtained approval from the hospital's Research Evaluation Unit (REU). Individuals who met the inclusion and exclusion criteria were invited to participate in the study. The purpose, procedure, potential risks, and benefits of the study were thoroughly explained to them. Informed consent was obtained, ensuring their willingness to participate.

The inclusion criteria for the study included patients within the age range of 16-65 years, regardless of their gender, who required prosthodontics treatment and a new removable partial denture (RPD). Additionally, co- operative patients who were willing to participate were included. On the other hand, the exclusion criteria consisted of individuals who were already wearing dentures and those with mental or physical disabilities.

History and clinical examination was performed. The relevant data was recorded in the data collection performa. Sociodemographic variables were age, gender and socio-economic status. Socio-Economic Status (SES) referred

to the economic and social standing of individuals or families compared to others, and it was assessed based on income, education, and occupation. A modified Kuppuswamy classification was employed to categorize individuals into five socio-economic groups, considering these factors. Different income levels were assigned scores in the study to assess the socio-economic status. Income greater than 24,000 Rupees received a score of 12, while income between 12,000 and 24,000 Rupees received a score of 10. The score for income between 9,000 and 12,000 Rupees was 6, while for income between 6,000 and 9,000 Rupees it was 4. Income between 3,500 and 6,000 Rupees received a score of 3, income between 1,200 and 3,500 Rupees received a score of 2, and income below 1,200 Rupees received a score of 1. Education levels were assigned scores as follows: Professional or Honours (7), Graduate or Post-Graduate (6), Intermediate or Post-High-School Diploma (5), High School Certificate (4), Middle School Certificate (3), Primary School or literate (2), and Illiterate (1).

Occupation scores were assigned as follows: Profession (10), Semi- Profession (6), Clerical, Shop-owner, Farmer (5), Skilled worker (4), Semi- skilled worker (3), Unskilled worker (2), and Unemployed (1).Il The overall socioeconomic status of a patient was estimated based on the total score, which corresponded to different socioeconomic classes: Upper (I) with a total score of 26-29, Upper Middle (II) with a total score of 16-25, Lower Middle (III) with a total score of 11-15, Upper Lower (IV) with a total score of 5-10, and Lower (V) with a total score less than 5.literate 1

Expectation level was assessed as by Ahmed et al. [10]

Level 1: Low expectation: when the total score earned 5 or 6. Level 2: Moderate expectation: when the total score earned 7 or 8. Level 3: High expectation: when the total score earned 9 or 10.

During the initial visit, patients were queried about five aspects related to RPD treatment, including the delivery of RPD, ability to eat after insertion, denture stability, desire for whiter teeth, and longevity of the denture. The collected data were then processed, assigning 2 points for each "yes" response and 1 point for each "no" response. By summing up the scores for each question, the overall expectation level of the patients was categorized into the following levels.

The data analysis was conducted using SPSS version 16.0. Categorical variables such as gender, literacy level, and patient expectations were presented as frequencies and percentages. The numerical variable, age, was described using the mean and standard deviation. The levels of expectations were examined based on gender, age, and socio-economic status to explore any potential effect modification. A post-stratification chi-square test was performed, considering $p \leq 0.05$ as statistically significant.

RESULTS

In this study, the total sample consisted of 184 participants, of whom 101 (54.9%) were males and 83 (45.1%) were females. The age range of the participants was 15 to 65, with a mean age of 47.13±11.71 years. The most common age group was 36 to 55 years (n=100, 27.7%), followed by 56 to 65 years (n=51, 27.7%). The majority of participants had a high level of expectation (n=76, 41.3%). Moderate expectation levels were found in 88 participants (47.8%), and low expectation levels were found in 20 participants (10.9%). These details are presented in Table 1.

The socio-economic status of the participants is shown in the pie graph (Fig 1) based on the Kuppuswamy scale. The most common levels were III (n=57, 30.98%) and IV (n=56, 30.43%), followed by level II (n=52, 28.26%), and the least common was level I (n=19, 10.33%). A majority of the participants were illiterate (n=101, 54.89%), while 19 (10.33%) had a post- graduate level of education and 18 (9.78%) had a middle or intermediate level. Participants with a primary level of education were 13 (7.07%), and those with a high school level were 12 (6.52%). Only 3 (1.63%) were classified as high professionals **(Fig 2).**

The difference in levels of expectations among different age groups was found to be statistically significant ($P<0.05$). The age group 16-35 exhibited a moderate level of expectation (n=24, 13%) and a high level of expectation (n=9, 4.9%). In the age group 36-55, the majority had a high level of expectation (n=49, 26.6%), while in the age group 56-65, a moderate level of expectation was observed (n=27, 14.7%). On the other hand, the difference in levels of expectation between genders was not statistically significant ($P>0.05$). **(Table 2).**

The pre-treatment expectation level of patients for removable partial denture varies significantly among different educational levels. The majority of illiterate individuals had a moderate level of expectation (n=58, 31.5%) and a significant number had a high level of expectation (n=36, 19.6%) for removable partial dentures. Participants with primary, middle, and high school education levels mostly had a high level of expectation. Among participants with an intermediate education level, the majority had a moderate level of expectation (n=12, 6.5%). Similarly, participants' expectation levels showed variation among different occupations ($P>0.05$). Most professional individuals had a low level of expectation from removable partial dentures, while the majority of unemployed, unskilled, and clerical individuals had a high level of expectation. The details are given in the table 3.

The socio-economic status of participants had a significant effect on the expectation level from removable partial denture ($P < 0.05$). The majority of participants in level I, II, and III had a high level of expectation, while participants in level IV had a moderate level of expectation (n=21, 11.4%). The details are shown in the table 4

Table 1: Age distribution and expectation levels of the participants

Variable	Age group	n(%)
Age group	16-35	33(17.9)
	36-55	100(54.3)
	56-65	51(27.7)
Expectation level	Low expectation	20(10.9)
	Moderate expectation	88(47.8)
	High expectation	76(41.3)

n; frequency, %; percent

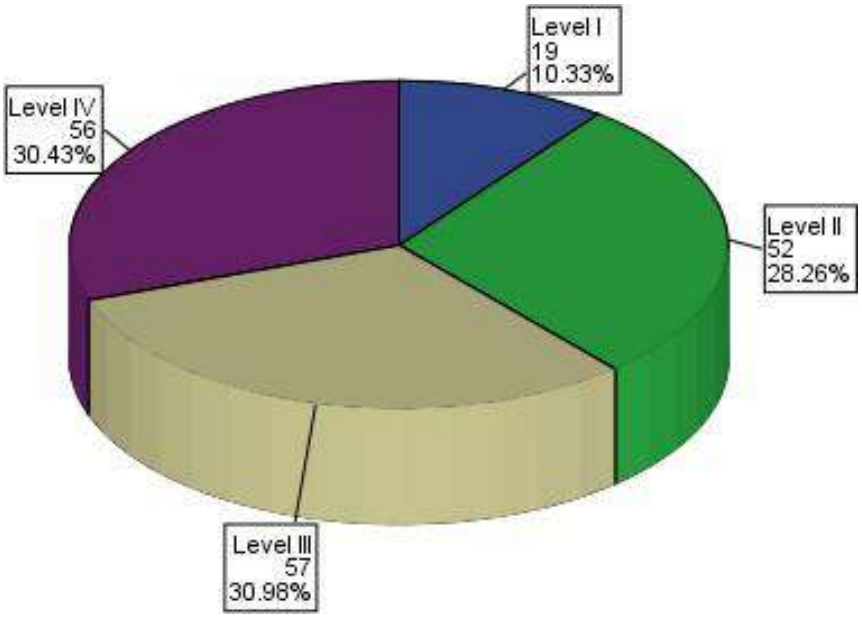

Fig 1: Socio-economic status of the participants

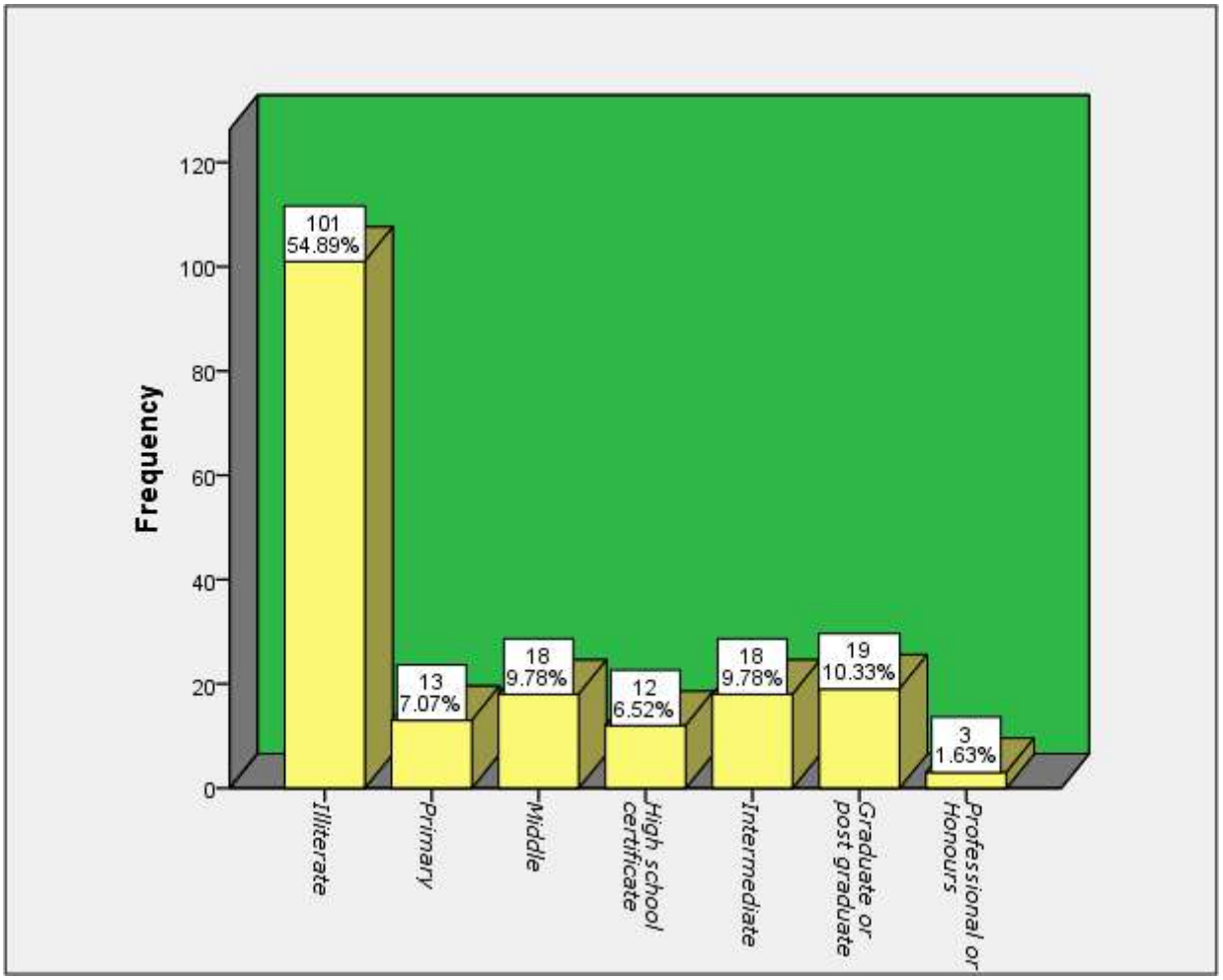

Fig 2: Educational level of the participants

Table 2: Patient expectation level stratified by age group and gender

Variable	Characteristics	Low expectation	Moderate expectation	High expectation	p
Age Group	16-35	0(0)	24(13.0)	9(4.9)	0.005
	36-55	14(7.6)	37(20.1)	49(26.6)	
	56-65	6(3.3)	27(14.7)	18(9.8)	
Gender	Male	10(5.4)	49(26.6)	42(22.8)	0.89
	Female	10(5.4)	39(21.2)	34(18.5)	

*Fisher exact test/Chi-square test

Table 3: Patient expectation level stratified by educational and expectation level

Variable	Characteristics	Low expectation	Moderate expectation	High expectation	p
Education	Illiterate				<0.001
	Primary	0(0)	6(3.3)	7(3.8)	
	Middle	0(0)	3(1.6)	15(8.2)	
	High school certificate	3(1.6)	3(1.6)	6(3.3)	
	Intermediate	3(1.6)	12(6.5)	3(1.6)	
	Graduate or post graduate	7(3.8)	3(1.6)	9(4.9)	
	Professional or Honors	0(0)	3(1.6)	0(0.0)	
Occupation	Unemployed	4(2.2)	39(21.2)	30(16.3)	<0.001
	Unskilled worker	0(0)	13(7.1)	12(6.5)	
	Semi-skilled worker	3(1.6)	3(1.6)	3(1.6)	
	Skilled worker	0(0.0)	9(4.9)	3(1.6)	
	Clerical, shop owner,farmer	3(1.6)	18(9.8)	22(12.0)	
	Semi-profession	3(1.6)	0(0.0)	0(0)	
	Profession	7(3.8)	6(3.3)	63.3 ()	

*Chi-square test

Table 4: Patient expectation level stratified by Socio-economic status

Socio-economic status	Low expectation	Moderate expectation	High expectation	p
Level I	6(3.3)	6(3.3)	7(3.8)	0.001
Level II	6(3.3)	21(11.4)	25(13.6)	
Level III	0(0.0)	33(17.9)	24(13.0)	
Level IV	7(3.8)	28(15.2)	21(11.4)	

DISCUSSION

This study aimed to assess the pre-treatment expectation level regarding removable partial dentures among patients seeking dental treatment. Patient satisfaction with Prosthodontic treatment may be influenced by factors such as the chosen treatment modality, previous experiences, and psychological well- being, highlighting the importance of understanding pre-treatment expectations.[14] The expectations of patients at the beginning of a selected treatment or treatment plan are also of utmost importance.[15] Typically, the pre- treatment expectations are higher when it comes to conventional prosthodontic methods, which frequently result in patient dissatisfaction during the post- treatment period.[16]

In this study, there was higher proportion of male participants compared to females, which could be attributed to greater education and awareness among males in Pakistan, coupled with lower literacy rates among females. These findings are consistent with a

study conducted by Salman et al.[17], which explored the impact of demographic variables on pre-treatment expectations of prosthodontic patients at a private tertiary care dental facility in Islamabad.

The questionnaire used in this study consisted of five pertinent questions that were adapted from a previous study. [17] s Initially formulated in English, suitable translations in Urdu were also provided to ensure easy comprehension and response from the patients. Prior to answering with "Yes" or "No," it was ensured that all patients understood the questions. The questions were structured in a way that the ideal response for each statement was "No." This approach was taken to ensure result standardization, facilitate data analysis, and enhance overall study comprehensibility.

In this study, the age range of participants ranged from 15 to 65 years, with a mean age of 47.13±11.71 years. The relatively lower mean age observed in our study can be attributed to the early tooth loss experienced by individuals in our population, leading them to seek prosthodontic treatment for restoring oral function and esthetics. This early tooth loss is primarily attributed to a lack of awareness regarding oral hygiene practices. Insufficient oral hygiene maintenance contributes to the development of periodontal disease and dental caries, ultimately resulting in tooth loss. A similar age range was reported by Montandon et al.[18] in their study on the prevalence and causes of tooth loss in a sample from a dental clinic in Brazil.

In this study, the participants' age was categorized into three groups: Group I (15-35 years), Group II (36-55 years), and Group III (56-65 years). Notably, there were relatively fewer patients in the younger age Group I, while the other two age groups were well-represented in the study sample. This observation aligns with the usual trend seen in the department, where fewer individuals in the younger age range seek treatment. To ensure inclusivity of patients from all age groups, three broader age categories were established,

facilitating data analysis. These findings are consistent with similar results reported by others.[17]

The majority of participants had limited literacy levels, while a small percentage (10.33%) possessed a postgraduate education. Additionally, 9.78% had a middle or intermediate level of education. Only a minimal percentage (1.63%) consisted of high professionals. These findings are consistent with similar results reported by previous study.[17]

The main objective of this study was to examine the relationship between the expectations of our prosthodontic patients before treatment and certain demographic variables such as age, gender, literacy level, and type of prostheses. The socioeconomic status (SES) of the participants was assessed using the Kuppuswamy scale, which is a well-established tool for categorizing socioeconomic status. SES is recognized as a crucial factor influencing the overall health status of individuals and families. The Kuppuswamy scale, developed several decades ago, has remained a prominent measure of socioeconomic status in urban populations and continues to be widely used and referenced in research.[19]

The present study revealed that a significant number of participants had high and moderate levels of expectation. This elevated expectation could potentially be attributed to a lack of awareness and lower educational attainment among the participants. In a study conducted by Siqueira et al. [20]on patients' expectations and satisfaction with removable dental prostheses, they

also reported a high level of expectation among participants. However, it is important to note that their study differed from ours as they also assessed patient satisfaction levels in addition to expectations.

Salman et al.[17] conducted a study at a private tertiary care dental facility in Islamabad, exploring the influence of demographic variables on pre- treatment expectations of Prosthodontic patients. Their study yielded similar results and revealed an interesting finding: none of the patients in our present study fell into the categories of very low and relatively low expectations, which was somewhat unexpected. Salman et al.[17] speculated that this observation could have been coincidental or possibly influenced by the sample size, indicating the need for further comparative research to better understand the factors that influence pretreatment expectations of patients.

The study found that the socio-economic status of participants had a significant impact on their expectation level for removable partial denture treatment. Participants in levels I, II, and III had a high expectation level, while level IV participants had a moderate expectation level. These findings are consistent with similar studies conducted by others.[17]

In a study by Bashayer et al. [21], it was observed that patients' expectations ratings were significantly higher than their levels of satisfaction among the Saudi population. However, no significant associations were found between patients' expectations and satisfaction scores in relation to age, education level, and previous experiences. These findings contrast with the results of the current study, suggesting that genetic and ethnic differences may play a role in the variations observed. Additionally, the difference in the types of dental prostheses studied, with Bashayer et al. focusing on removable complete denture patients and the current study focusing on removable partial denture patients, could contribute to the discrepancies in the results.

The current study found a significant variation in the pre-treatment expectation level of patients for removable partial denture across different educational levels. In contrast, the study conducted by Salman et al.[17] reported opposite results. This difference in findings could be attributed to the geographical variation, with Salman et al.'s study being conducted in Islamabad and our study being conducted in Peshawar, which may have different educational contexts.

The present study revealed variations in expectation levels among different occupations, with professional individuals having lower expectations and unemployed, unskilled, and clerical individuals having higher expectations from removable partial dentures. This difference in expectations could be attributed to variations in education and awareness levels across different occupations. Notably, no previous study exploring the relationship between patient occupation and expectation levels from removable partial dentures was found.

The current study is limited in several aspects. Firstly, it is a single- center study conducted in a hospital setting, which may restrict the generalizability of the findings to a broader population. Secondly, the study design is nonrandomized, which introduces the possibility of selection bias and limits the ability to establish causal relationships. Therefore, further research studies employing larger sample sizes, multi-center settings, and case control designs are required to investigate these issues more comprehensively. These future studies can provide additional evidence, enhance the external validity of the findings, and contribute to a more robust understanding of the topic.

CONCLUSION

Considering the limitations of the present study, it can be concluded that the majority of the included patients exhibited higher levels of pretreatment expectations. Significant associations were observed between pretreatment expectations and the demographic variables investigated, including age, occupation, and educational level. However, no significant difference was found in pretreatment expectations between genders.

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