

Assessment of Factors Affecting the Use of and Need for Dental Prosthesis

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ABSTRACT

Objective: There is a dearth of literature on population-based studies that look at the factors that influence the use of and the need for dental prostheses. The purpose of this study was to assess the use and need for dental prostheses, as well as other related aspects in older adults of Pakistan.

Materials and Methods: A descriptive cross-sectional study was conducted amongst the community-dwelling older participants from December 2021 and February 2022. The sample size was calculated using a probabilistic per-cluster sampling method. A clinical oral exam was conducted followed by a systematic questionnaire to collect data. Bivariate and multivariate Poisson regression was used to verify associations using multivariate analysis.

Results: A total of 338 individuals participated from Lahore, Pakistan. Dental prostheses were used by 77.3% of the participants. The number of people who needed dental prostheses was 37%. High levels of education were associated with a reduced prevalence ratio (PR) for dental prosthesis use. Retired older people and unmarried individuals had significantly higher PRs for prosthesis use than other groups. Those who did not have access to dental care had a higher prevalence ratio for using a dental prosthesis. In rural locations, older persons had a 73.4 per cent greater prevalence ratio of needing dental prosthetics.

Conclusion: This sample revealed a low prevalence of dental prosthesis use and a high prevalence of dental prosthesis need in Lahore, Pakistan. Marital status, level of education and retirement status are all factors to consider when planning for a dental prosthesis.

Keywords: Ageing, Dental Prosthesis, Risk Factors, Tooth Loss

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INTRODUCTION

Edentulism and tooth loss might be viewed as indicators of overall health. Oral health issues manifest as the result of the cumulative effects of the majority of chronic oral disorders.¹ Individuals may be subjected to repetitive stressors. Throughout one's life, there will be bouts of dental caries and periodontal disease. The effects of these are sometimes more severe in older persons. illnesses that cause partial or total edentulism. Although there has been a decline in the number of edentulous cases and the overall rate of tooth loss among these groups in some countries, this progression does not appear to be developing in third world countries like Pakistan.² As a result, the majority of senior citizens require mouth prosthetics, either in the form of partial or complete rehabilitation. The global prevalence of dental prostheses was revealed in the Oral Health Survey. The incidence of the dental prostheses requirement globally was 78.2 per cent, while 68.7% of those aged 65 to 74 years old.³ The reasons for the inability to avail of oral rehabilitation vary, and they might range from simple to complex including a lack of financial means and a lack of dental care.

In terms of clinical significance, the reluctance of older individuals towards oral rehabilitation may have several negative implications, including a decline in masticatory function. Furthermore, a decline in masticatory capacity may be linked to a drop in nutrient intake and the choice of a more calorie diet, which may have an impact on an individual's nutritional status. Simultaneously, elderly persons who have paid more attention to oral aesthetics have positive implications. Studies have demonstrated that these individuals have better satisfaction with their oral appearance and the absence of the need for oral rehabilitation is linked to a lesser impact on one's oral health-related quality of life.¹ When contemplating the ongoing demographic change, studies on the dental health of older persons are crucial. The fragile state of oral health in Pakistan, as well as a large number of people in need of rehabilitation therapies, can be explained by the poor and compromised access to dental care services and the non-conservative oral treatment approaches observed over time.⁴ These conditions must be researched since they can not only affect aesthetics, but also the masticatory efficiency and phonetic ability of individuals. The literature, on the other hand, is lacking in population-

based research involving senile people and analysing the factors affecting the need for and the use of dental prosthesis. As a result, it's critical to investigate and comprehend the impact of these elements on the oral health of the elderly.

The purpose of this study was to assess the use and need for dental prostheses, as well as other characteristics, among older persons in Pakistan. We will investigate against the null hypothesis that there are no statistically significant connections between dental prosthesis use and need in non-institutionalized older individuals and their sociodemographic status, general health, gender, age, income or behavioural factors.

MATERIALS AND METHODS

The present study was conducted following the ethical declaration of Helsinki.⁵ Ethical approval was obtained from the Institutional Ethical Review Committee (Ref: ANDC/RAC/35/07). A descriptive cross-sectional study was done in various government and private hospitals of Pakistan. To find, interview, and evaluate elder persons from both rural and urban areas of Pakistan, a probability cluster sampling technique was chosen. The number of people who were included was proportional to both parts of the city. All of the blocks were assigned numbers based on the urban and rural area map. Following the initial interview, the visits progressed in an anti-clockwise direction until the scheduled task was completed. The researchers used a standardised questionnaire to collect data. The sociodemographic, behavioural, and medical history characteristics were all included in the questionnaire. Verification of the requirement for and use of the World Health Organization's guidelines for oral rehabilitation was followed. After the physical examination, the clinical examination was carried out using a wooden spatula. The entire data collection was carried out between December 2021 and February 2022. The use of dental prostheses by participants was categorized as 'Yes' and 'No'. The need for dental prosthesis was also categorized as 'Yes' and 'No'. Age, sex, residing area, degree of education, married status, retirement status and health issues, medication use, smoking and alcohol exposure were all independent variables.⁶ The average age was 60 years old.

The statistical tool SPSS (version 21.0) was used to analyse the data (SPSS Inc, Chicago, USA). Chi-square

or Mann-Whitney tests were used to assess relationships between dependent and independent variables. The level of significance was set at 5%. To test the relationship between the dependent and independent variables, multivariate and bivariate analyses were done using Poisson regression with robust variance. Only the variables which secured P.20 in the bivariate analysis were included in the multivariate analysis. The P.05 effect and value of modification analysis were used to decide if independent variables should be kept in the final model. There was no evidence of multicollinearity among the independent variables in the analyses.

RESULTS

A total of 338 old age adults participated in the study.

Out of these, 71.9% were from rural area (n = 243) and 28.1% were from urban area (n = 95). The mean age of individuals was 60±6.8, with 60.9% females (n = 206) and 39% male (n = 132) participants. In terms of educational attainment, 189 people (55.9%) had a poor level of education, with 27 people (7.9%) declaring themselves illiterate. Approximately 72.7% of those polled said they were married (n = 246). Another 264 people were found to have health issues (78.1%). Prosthesis use related to gender, age, marital status, educational level, smoking levels, retirement, brushing frequency and access to dental care was found to be 88.1 per cent (n = 298). The prevalence of the need for prostheses was 36.9 per cent (N = 125), and it was also linked to age, residential location, and retirement status as shown in Table 1.

Table 1: Association of various variables with the prevalence and requirement for prosthesis

Variable N	Prevalence of dental prosthesis			Requirement for a dental prosthesis		
	Yes	No	P value	Yes	No	p-value
Age						
≤ 60	58	168	0.05*	20	198	0.02*
≥ 70	109	21		212	32	
Marital status						
Unmarried	27	154	0.12	18	145	0.21
Married	138	24		174	28	
Level of education						
Medium / High	61	187	0.02*	30	202	0.35
Low	201	19		140	31	
Gender						
Male	87	90	0.07*	86	98	0.14
Female	102	110		89	125	
Living area						
Rural	121	99	0.25	125	85	0.01*
Urban	175	109		56	187	
Health Problem						
No	141	109	0.28	11	130	0.54
Yes	135	175		124	110	
Retirement status						
Not retired	58	168	0.01*	58	168	0.02*
Retired	109	21		109	21	
Smoking exposure						
Non-Smoker	29	198	0.01*	161	120	0.27
Smoker	222	32		124	180	
Use of medication						
No	160	128	0.35	131	121	0.47
Yes	121	110		12	108	

Frequency of Toothbrushing						
≥ twice	26	198	0.02*	11	121	0.57
< two times daily	219	32		14	1804	
Access to dental care						
No	24	198	0.03*	121	12	0.48
Yes	262	32		144	140	

DISCUSSION

The goal of this research was to determine the prevalence of dental prosthesis use and need among older Pakistani people. The usage of dental prostheses was linked to marital status, education, retirement status, level of education and access to oral care. Only the location of residence was linked to the need for oral rehabilitation. As a result, the null hypothesis stated previously was rejected because several factors affected the use of and need for dental prostheses in elderly people. The findings of this study revealed a high prevalence of dental prosthesis use, which is consistent with the findings of other studies including elderly people. When compared to previous research, there was a lower need of the requirement for dental prostheses.

Tooth loss and edentulism are highly linked to socioeconomic status, and oral rehabilitation is no exception.⁷ In this study, the use of dental floss was linked to the amount of schooling which is consistent with previous research. Similarly, older individuals with higher levels of income and education were more inclined to seek out dental procedures to keep their teeth in good shape and, as a result, there is a low percentage of tooth loss and the necessity for or usage of dentures.⁸ Older adults with decreased amounts of testosterone, and those with a higher level of education are more satisfied with their oral health.⁹ Unmarried people had a higher prevalence of prosthesis use in the current study. Loneliness is a severe issue for many elderly people, and it can have a negative impact on their dental health.¹⁰ Previous research shows that the individuals who reside alone tend towards tooth loss.¹¹ According to another study, widowed older persons had fewer dental visits than married or cohabiting older adults. It might be possible that these people are less conscious about their dental health, maintenance of dental prostheses, or even getting a new one.¹²

Older persons in rural areas had a greater prevalence of needing dental prostheses in this study. Similar findings

have been found in the literature, indicating that older persons living in rural locations had poorer oral health and a larger need for oral rehabilitation.¹³ Living in a rural region is linked to a higher rate of edentulism, which necessitates the use of dental prostheses. Individuals living in villages or other rural locations are more vulnerable in general, with decreased levels of education, poorer wages, and problems in accessing health services regularly.¹⁴ There was no link between sex and outcomes in this study, either in terms of prosthesis use or necessity. Females, on the other hand, were found to have higher use of dental prostheses and a lesser need for them. These findings could be explained by women's increased attention to their general and oral health, as well as their higher frequency of dental appointments. According to the literature, males have worse oral health conditions than females which could be due to their negative attitudes toward dental health. Despite this, no statistically significant differences in dental care between males and females were found in the current study.

The present study does have some limitations. For one, the subjective responses of patients in the questionnaire are influenced by patient behavioural and psychological attitude. The clinician should play a significant role in assessing the factors like age, level of education, living area, type of prostheses and any underlying medical/systemic conditions. Besides, Kennedys classification was not assessed in the clinical examination which can give better assessment of arch configuration when planning a prosthesis. Randomized controlled trial with larger sample sizes needs to be conducted in the future to further validate the results of this prospective cross sectional study.

CONCLUSION

In conclusion, our research showed a high prevalence of dental prosthesis use and a low requirement for dental prostheses. The use of dental prostheses was linked to marital status, the level of education, retirement status,

and availability of dental care, but the need for dental prostheses was simply linked to the living area.

DISCLAIMER

None to declare.

CONFLICT OF INTEREST

There is no conflict of interest among the authors.

ETHICAL STATEMENT

No ethical concern was raised by Ethical Review Committee at The Superior University Lahore. Ethical Approval Reference: ANDC/RAC/35/07.

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