

Determinants of not Availing Oral Prosthesis in Low Income Country- Pakistan: A Cross Sectional Survey in Lahore Population

FAIZ RASUL¹, ASAD ULLAH², M. RAFI ULLAH AWAN³, SAFDAR BAIG⁴, MARIA⁵, SADAF TANVEER⁶

ABSTRACT

Aim: To determine reasons of not getting oral prosthesis among partial or complete edentulous individuals in the general population of Lahore.

Methodology: This descriptive cross-sectional study was carried out at de'Montmorency college of Dentistry; Lahore, after the approval of Institutional Review Board, ethical consideration was taken for this survey. Duration of this survey was six weeks and comprised of 97 individuals who have one or more missing teeth. Both gender having age between 20-80 years were included in this study. After taking their informed verbal consent, a structured questionnaire was administered to obtain data about the socioeconomic position, economic restraint, health seeking behavior, guidance of dentist at time of extraction, and other reasons of not availing prosthesis were determined by the dichotomous scale yes or not.

Results: Mean age of the respondents was 50.5876, SD±15.03174. Male 59.8% and 40.2% were female. Monthly family income was (< 20000) of 37.1%, (> 20000 < 50000) of 30.9 % and more than 50000 but less than 100000 Pakistani Rupees per month of 32%. Among them 51.5% were rural background and 48.5% belongs to urban settings. Majority were literate 52.6% and remaining illiterate 47.4%. descriptive analysis shows majority people avoid prosthesis due to perceived fear of infection, perceived fear of discomfort with the prosthesis, fear of cleaning hurdle by the prosthesis, no importance of prosthesis, no perceived need of the prosthesis, no access to hospital, plate and wire of the prosthesis and no guidance of the dentist at time of extraction. A significant association was observed between not availing prosthesis and unacceptability to artificial teeth (0.012).

Conclusion: In low income country like Pakistan awareness regarding dental health education and early diagnosis need to enhance to prevent tooth loss and in the individual who have undergone for any tooth extraction need to visit general dentist and prosthodontics for tertiary prevention (rehabilitation and limitation of disability). Myths and misconceptions regarding prosthesis ought to reduce by health education.

Keywords: determinants; partial edentulous; complete edentulous, removable partial denture, complete Denture

INTRODUCTION

Tooth loss due to any reason required replacement with artificial teeth. Rehabilitation is required to prevent tilting or drifting of adjacent teeth, and supra eruption of opposing teeth. It is also required for esthetic and proper functioning such as speech, and mastication¹. The world health organization condemns the notion that health is only absence of physical disease and considers all physical, psychological context and social well-being of individuals². Missing tooth or teeth require tertiary prevention as rehabilitation. When one or more but not all natural teeth are missing it is called partial edentulousness while when all natural teeth are missing it is called complete edentulousness¹. Many factors lead to edentulousness for examples carious lesions, periodontal diseases, smoking, educational level, area of residence and aging, autoimmune diseases, geriatric patients³. Missing teeth might put negative effect on esthetics, functions, patient self-esteem, communication, behaviour, professional performance and quality of life.⁴ With modern techniques and advancements and new innovations revolutionized the dentistry, many improvements came in oral health and

Correspondence to dr. Faiz Rasul, Email: bayfaiz871@gmail.com
Cell: 0343-8430485

patient awareness declining edentulousness in many countries, and higher number of people tend to keep more teeth until later life to maintain lifestyle⁵.

Partially edentulous spaces can be replaced by removable partial dentures (RPDs), teeth-supported bridges, and implant supported prostheses⁶. Choice of the prosthesis depends upon oral conditions, socioeconomic status, patient preference, level of education, and general health of the individual. Acrylic dentures are the most popular material for RPD fabrication⁷. In fixed prosthesis implants are good treatment options considering economic status, esthetic demands of patients to replace single and multiple missing teeth. Main goal of implants to preserve and stabilize all remaining tissues⁸. Every treatment options have considerable different advantages. Dental implants considered 1st treatment option to replace single and multiple missing teeth and it is restricted in patients where craniofacial growth is restricted⁹.

Before extraction it is the responsibility of dentist to explain need of the prosthesis and different option of prosthesis to maintain proper masticatory function and to prevent complication due to presence of prolonged edentulous space¹⁰. Individual health seeking behavior regarding the treatment of missing teeth depend upon socioeconomic position, perceived need, perceived knowledge about the prosthesis, acceptability to artificial teeth, and disclosure of information.¹¹ Purpose of this cross sectional survey was to determine the reasons of not

¹Assistant Professor of Community and Preventive Dentistry, de'Montmorency College of Dentistry, Lahore,

²Dental Surgeon Awan Dental surgery, Lahore

³Assistant Professor of Prosthodontics, Akhtar Saeed Medical & Dental College Bahria Town Lahore,

⁴Associate Prof of Oral & Dental Surgery, BVH/ QMC Bahawalpur,

⁵HO, Rawal Institute of Health Sciences, Islamabad.

⁶Women Medical Officer, 513-c, G6/1.3, Islamabad.

getting the prosthesis after extraction of tooth or teeth among rural and urban population of Lahore, to know why people do not get artificial teeth in local settings.

MATERIALS AND METHODS

It was a cross-sectional study which was presented in the institutional review board for ethical considerations. After approval from the IRB, survey was carried out in general population of Lahore. Individuals who had one missing tooth or more than one missing teeth were included in this study. Verbal consent was taken from each individual before starting self-structured questionnaire. A total 97 individuals were interviewed having age between 20-80 years. This survey was completed within six weeks in March and April 2018. Information regarding demographic characteristics such as age, gender, residency, education, and monthly family income were recorded. Next variable was reasons of not availing the prosthesis. These variables were recorded as dichotomous scale with “Yes or No” options. Reasons of not getting the prosthesis were asked from each respondent such as financial, access to dentist or dental hospital, and perception about the problems with removable denture.

Data was entered in SPSS 21. Descriptive statistics such as mean age, frequency and percentage of education, residency, monthly family income and reasons of not availing prosthesis were measured. Chi-square association was measured by taking p-value 0.05 as significant. A chi square test was also applied between the sociodemographic variables and not availing of the prosthesis. Cross tabulations between perceived fears with the removable prosthesis, economic factors, access to dentist and avoidances of the prosthesis were measured.

RESULTS

Table 1 is depicting sociodemographic characteristics of the respondents. Mean age of the subjects is 50.5876, SD±15.03174. Male were more common than female, and illiterate people were 47%. Almost 37.1% had monthly income less than 20000, 30.9% had income less than 50000 thousand but more than 20000 per month and 32% had income more than 50000 per month. Around 51.5% were residing in rural setting and 48.5% in the urban settings.

Table 1: frequency and percentage of sociodemographic characteristics (n=97)

Demographic characteristics	n
Gender	
Male	58(59.8%)
Female	39(40.2%)
Education	
Illiterate	46(47.4%)
Less than matric	26(26.8%)
Inter and graduation	5(25.8%)
Financial Status	
Less than 20000	36(37.1%)
More than 20 thousand less than 50 thousand	30(30.9%)
More than 50000 less than 100000	31(32%)
Residency	
Urban	47(48.5%)
Rural	50(51.5%)

Table two is showing determinant of not seeking prosthesis among the respondents. Frequency and percentage of different determinants is depicting in the table.

Table 3 is depicting cross tabulation between avoidance of prosthesis and all other independent variables such age gender, residency, education, monthly family income, and perceived reasons of not getting prosthesis. Only two variables were statistically significant such as unacceptability to artificial teeth (0.012) and perceived fear of infection (0.037), all other variables were non-significant.

Table 2: frequency and percentage of reasons of not availing prosthesis (n=97)

Question	No.	%
Do you have any missing teeth?		
Yes	97	100
Do you avoid prosthesis?		
No	46	47.4
Yes	51	52.6
Perception of oral ulcer/wound due to prosthesis		
No	77	79.4
Yes	20	20.6
Prosthesis can cause halitosis		
No	81	83.5
Yes	16	16.5
Prosthesis can cause trauma		
No	78	80.4
Yes	19	19.6
Prosthesis can cause infection		
No	37	38.1
Yes	60	61.9
Prosthesis can cause oral cancer		
No	91	93.8
Yes	6	6.2
Prosthesis can cause dryness		
No	45	46.4
Yes	52	53.6
Prosthesis can cause taste problem		
No	56	57.7
Yes	41	42.3
Prosthesis can cause fungal infection		
No	48	49.5
Yes	49	50.5
Prosthesis can cause discomfort on chewing		
No	30	30.9
Yes	67	69.1
Prosthesis can cause mobility to natural teeth		
No	75	77.3
Yes	22	22.7
Prosthesis can cause damage bone		
No	85	97.6
Yes	12	12.4
Prosthesis can affect cleaning of other teeth		
No	36	37.1
Yes	61	62.9
No know how about the prosthesis		
No	52	53.6
Yes	45	46.4
Don't know the importance of the prosthesis		
No	41	42.3
Yes	56	57.7
lack of budget		
No	49	50.5
Yes	48	49.5

Unemployed		
No	67	69.1
Yes	30	30.9
Question	No.	%
Did not feel any need		
No	36	37.1
Yes	61	62.9
No access to hospital for prosthesis		
No	32	33.0
Yes	65	67.0
Difficult to visit Dentist due to Transport		
No	32	33.0
Yes	65	67.0
Long appointment schedule for prosthesis		
No	42	43.3
Yes	55	56.7
Dependency on other		
No	51	52.6
Yes	46	47.4
Gender issue		
No	72	74.2
Yes	25	25.8
Total	97	100
unacceptability to removable artificial teeth		
No	56	57.7
Yes	41	42.3

Table-3: Association between independent variables and dependent variables

Independent variable	Avoidance of prosthesis		P-value	
	No	Yes		
Sociodemographic				
Gender	Male	28 (60.9%)	30(58.8%)	0.161
	Female	18(39.1%)	21(41.2%)	
Education	Illiterate	23 (50.0%)	23 (45.1%)	0.144
	Literate	23(50.0%)	28(54.9%)	
Monthly family income	<50000	32(69.6%)	34(66.7%)	0.165
	>50000	14(30.4%)	17(33.3%)	
Residency	Urban	23(50.0%)	24(47.1%)	0.155
	Rural	23(50.0%)	27(52.9%)	
Perceived Barrier in seeking prosthesis				
Guidance of dentist at time of extraction	No	11 (23.9%)	9 (17.6%)	.149
	Yes	35 (76.1%)	42 (82.4%)	
Perceived need	No	20 (43.5%)	16 (31.4%)	0.079
	Yes	26 (56.5%)	35 (68.6%)	
Access	No	15 (32.6%)	17 (33.3%)	0.171
	Yes	31 (67.4%)	34 (66.7%)	
Transport problem	No	17(37%)	24 (47.1%)	0.099
	Yes	29 (63%)	27 (52.9%)	
Long appointment	No	20(43.5%)	22 (43.1%)	0.162
	Yes	26 (56.5%)	29 (56.9%)	
Perceived problems with the prosthesis				
Esthetic issue with RPD	No	12(26.1%)	18 (35.3%)	0.109
	Yes	34 (73.9%)	33 (64.7%)	
Unacceptability to removable artificial teeth	No	21 (45.7%)	35 (68.6%)	0.012
	Yes	25 (54.3%)	16 (31.4%)	
Plate and wire of the prosthesis	No	21 (45.7%)	23 (45.1%)	0.161
	Yes	25 (54.3%)	28 (54.9%)	
Don't want to grind adjacent	No	26 (56.5%)	35 (68.6%)	0.079
	Yes	20 (43.5%)	16 (31.4%)	

teeth (abutment)				
Surgery for implant	No	30 (65.2%)	36 (70.6%)	.147
	Yes	16 (34.8%)	15 (29.4%)	
Halitosis	No	36 (78.3%)	45 (88.2%)	0.093
	Yes	10 (21.7%)	6 (11.8%)	
Fear of Taste problems	No	30 (65.2%)	26 (51%)	0.061
	Yes	16 (34.8%)	25 (49%)	
Fear of fungal infection	No	27 (58.7%)	21 (41.2%)	0.037
	Yes	19 (41.3%)	30 (58.8%)	
Discomfort on chewing	No	13 (28.3%)	17 (33.3%)	0.151
	Yes	33 (71.7%)	34 (66.7%)	
Mobility to natural teeth by the RPD	No	35 (76.1%)	40 (78.4%)	0.184
	Yes	11 (23.9%)	11 (21.6%)	
Disturb Cleaning of natural teeth	No	19 (41.3%)	17 (33.3%)	0.120
	Yes	27 (58.7%)	34 (66.7%)	

DISCUSSION

Al-Quran et al., (2011) mentioned role of education in seeking choice of the prosthesis. Majority 72% respondents belong to the category that had education less than high school.¹² Similarly results of this study depicted that 74.2% respondents who do not get prosthesis had education less than matric either illiterate (47.4%) or between one to 9 years education (26.8%). Further they found the among high income group almost 60% chosen expensive treatment (dental implant), in the current study 37.1% respondents who do not get prosthesis have per month family income less than Rs. 20000 PK, 30.9% per month family income less than Rs. 50000 PK, and only 32% per month family income more than Rs. 50000 PK. It is obvious that 68% have less per month income that delay or avoid prosthesis. Therefore, persons of low socioeconomic status tend to seek low cost treatment. Other factor reported in their study were damage to adjacent teeth 40%, long duration of procedure 38.5% and pain (discomfort) of the procedure 38.5% however in this study perceived fear of oral ulcer due to prosthesis was 20.6%, halitosis 16.5%, damage to adjacent teeth 19.6%, perceived fear of infection 61.9%, perceived fear of taste 43.3%, perceived fear of discomfort on chewing 69.1%, perceived fear of mobility of adjacent teeth 22.7, perceived fear of hurdle in cleaning of teeth 62.9%.

Teja et al., (2015) in India found in their study that 70 % people want to replace their teeth and only 30 % people who had edentulous space did not want to have prosthesis, and major reason they found was the lack of time,¹³ however in this study we included only those people who had missing teeth but did not get replace their missing teeth. Almost 62.9% do not feel any need, about 67% respondents have access problem, similarly when further asked them about the long appointment or time related factors almost 56.7% said again yes.

Macek et al., (2004) reported that lack of time and low felt need was the chief reasons of not getting prosthesis in men and cost in female.¹⁴ Whereas in present study 62.95 % respondents said that they don't feel any need about the artificial teeth.

In a study, Pallegedara (2005), reported cost as major reason of not getting the prosthesis however 49.5%

respondents reported cost also a hurdle in replacing the missing teeth¹⁵. Shafaei, (2016) reported cost a major factor affecting the replacement of the missing teeth in Saudi Arabia¹⁶.

In the current study 79.4% respondents said that their dentist did not advise for replacement of the artificial teeth, however in Mukatash et al (2010) reported that majority respondents reported that their local dentist played a role in the motivation toward prosthesis,¹⁷ however Teja et al., (2015) reported that family members motivation was major factor and local dentist motivation toward denture seeking was second important factor. In the current study majority of the respondents do not feel need for the prosthesis around 62.9%, remaining 37.1% feel need of the prosthesis. Osterberg et al (1984) and Leake et al (1994) found that esthetic was the major factor for the replacement of missing teeth and reason of seeking dentist.^{18, 19}In another research Alhobeira et al., (2016) reported that 70% respondents did not feel with space of the missing teeth (edentulous space) and only 28% concerned with it²⁰.

Alshammari et al., (2018) reported knowledge of prosthesis among the respondents in KSA, almost 79.2%,²¹ on the other hand in the present study it was 52.3% which is low might be due to less sample size in both studies, and difference in per capita income of the respondents in both countries. Limitations of this study are small sample size and it is not nationwide representative. It is suggested to carry out nationwide study on large sample size to determine the need assessment of the not only oral prosthesis but also other oral diseases such as dental caries, and periodontal diseases which are the major dental public health issues.

CONCLUSION

In low income country like Pakistan primary prevention regarding the prevention of tooth loss need to introduce through oral health promotion and specific protection at community level in order to reduce mass burden of disease. Secondary prevention through early diagnosis and treating both major diseases such as dental caries and periodontal diseases also ought to start at individual and community level. Tertiary prevention (rehabilitation replacement of the prosthesis) need to introduce in public hospital at all levels such as primary (Rural Health Center), secondary (Tehsil Headquarter) and tertiary health care center (District Head Quarter and Teaching hospitals) for all those individuals who have missing teeth in order to prevent further damage to adjacent teeth.

REFERENCES

- Jandial S, Kotwal B, Kotwal V, Mahajan N, Kharyal S, Tomar V. Prevalence of Complete and Partial Edentulism in the Patients Visiting District Hospital of Kathua, Jammu, Jammu and Kashmir. *Int J Sci Stud* 2017;5(7):71-74.
- Saintrain MV, de Souza EH. Impact of tooth loss on quality of life. *Gerodontology* 2012;29(2):e632-6
- Bahrami M, Saleh Saber F, Hendi A Comprehensive Treatments for Congenitally Missing Teeth and Generalized Diastema. *Case Rep Dent* 2017;2017:3254873
- Rakhsan.V; Congenitally missing teeth (hypodontia): a review of the literature concerning the etiology, prevalence, riskfactors, patterns and treatment. *Den Res J* 2015; 12(1): - 13.
- Jayasinghe MR, Perera J, Jayasinghe V, Thilakumara PI, Rasnayaka S, Hanafi M, Shiraz M, Ranabahu I, Kularatna S, Awareness, attitude, need and demand on replacement of missing teeth among a group of partially dentate patients attending a University Dental Hospital. *BMC Res* 2017
- Mojon P, Rentsch A, Budtz-Jorgensen E. Association between prosthodontic status, caries, and periodontal disease in a geriatric population. *Int J Prosthodont* 1995; 8: 564-71.
- Divari S. Loss of natural dentition: multi-level effects among a geriatric population. *Gerodontology* 2012; 29: e192-9.
- Mishra KS, Chowdhary R, Patil SP, Rao BS. Replacement of missing tooth in esthetic zone with implant-supported fixed prosthesis. *AM&HS* 2017; 5: 85-8.
- Mishra SK, Chowdhary R, Patil SP, Roa BS. Replacement of missing central incisor with single implant-supported fixed prosthesis. *J Curr Res Sci Med* 2016; 2: 116-9.
- Geiballa GH, Abubaki H, Ibrahim YE. Patients' satisfaction and maintenance of fixed partial denture. *EJD* 2016; 10: 250-53.
- Hussan M, Rehman A, Memon MS, Tanveer W, Khan M. Awareness of different treatment options for missing teeth in patient visited at Hamdard university. *Pak Oral Dent J* 2015; 35(2):
- Al-Quran et al. Single-tooth replacement: factors affecting different prosthetic treatment modalities. *BMC Oral Health* 2011,11:34.
- Teja SVS, Kumar VR, George VT. A Survey to Evaluate the Awareness of Various Treatments Modalities to Replace Missing Teeth among Patients Visiting Kasturba Hospital, Manipal: A Prosthodontic Perspective. *World J Dent* 2015;6(4):217-21
- Macek MD, Cohen LA, Reid BC, Manski RJ. Dental visits among older US adults, 1999: the roles of dentition status and cost. *J Am Dent Assoc* 2004;135:1154-62.
- Pallegedara C, Ekanayake L. Tooth loss, the wearing of dentures and associated factors in Sri Lankan older individuals. *Gerodontology* 2005; 22:193-9.
- Shafaei. AA. Correlation between socioeconomic status and different types of prosthetic modalities in Hail Region, Saudi Arabia. *Dent. Oral Craniofac Res* 2016.; 2(5): 344-8.
- Mukatash GN, Al-Rousan M, Al-Sakarna B. Needs and demands of prosthetic treatment among two groups of individuals. *Ind J Dent Res* 2010;21:564-7.
- Osterberg T, Hedegard B, Sater G. Variation in dental health in 70-year-old men and women in Goteborg, Sweden: a crosssectionalepidemiological study including longitudinal and cohort effects. *Swed Dent J* 1984;8:29-48.
- Leake JL, Hawkins R, Locker D. Social and functional: impact of reduced posterior dental units in older adults. *J Oral Rehabil* 1994;21:1-10.
- Alhobeira HA, Mian RI, Siddiqui AA. Perceptions of patients seeking consultations in restorative dental clinics of Hail Region, Saudi Arabia. *J Int Oral Health* 2016;8(1):1-4.
- Alshammari MS, Alshammari AS, Siddiqui AA, Mirza AJ, Mian RI. Patients' Knowledge and Perceived Barriers toward Replacement of Missing Teeth among Respondents of Hail City, Kingdom of Saudi Arabia. *J Contemp Dent Pract* 2018;19(1):86-9.