FREQUENCY OF COMMON FACTORS RESPONSIBLE FOR NON-TREATMENT OF PARTIAL EDENTULISM

[1]MUNIR KHAN, [2]JUNAID ULLAH, [3]HINA QAZI

ABSTRACT

There are number of patient related factors which result in non-treatment of missing teeth despite having favorable conditions for replacement. the study was done to determine the frequency of the common factors responsible for non-treatment of partial edentulism.

This descriptive cross-sectional study was conducted at Bacha Khan Medical college, Mardan on 385 participants. Patiens with partial edentulism, both genders, Pakistani nationals were included. Patients using / having history of fixed or removable prostheses and patients with cognitive impairment, reduced intelligence and uncooperative behavior were excluded from the study. Personal data like age, genders including the patient socioeconomic status were recorded. Socioeconomic status were taken as the subject's present financial condition, education and occupation using the modified Kuppuswamy classification. Common factors for not replacing missing teeth were documented.. Statistical analysis of the data were done using Software Package for Social Sciences (SPSS) version 20.0. Descriptive statistics were calculated. Effect modifiers and genders were controlled by stratification using Chi-square test. P<0.05 was considered significant.

Most of the participants (n=223, 57.9%) had no knowledge about the replacement of missing teeth. Most of the participants (53.8 %) had middle socio-economic level (Kuppuswamy level III). Age and gender were not a significant factor for not replacing missing teeth (P>0.05). The most significant factor for not replacing missing teeth was socio-economic status.

CONCLUSION: *The findings of this study showed that most of the participants belong to middle socio-economic class. Socioeconomic status is most important factor for non-replacing missing teeth.*

KEY WORDS: *Missing teeth, partial edentulism, replacement of teeth*

INTRODUCTION

It has been reported in literature that bad oral health can affect general health, life quality and economic condition of the individuals.[1,2] Partially and complete edentulous condition is an essential indicator of the oral health of a population.[3] An edentulous space in maxilla and mandible is due to one or multiple missing teath. The reasons for extraction are periodontal pathologies, dental caries, traumatic injuries, as a part of orthodontic treatment and pre-prosthodontic preparation, impactions, hypoplastic tooth, hyperdontia, loss of tooth material, over-eruptions, neoplastic and cystic lesions.[4]

Patients have various reasons for not replacing missing inspite of fact that many prosthetic options are available. These include cultural and social influences, socio-economic status with measures as education, income, and occupational status, the attitude of the patient, dental attendance and awareness of the patient, treatment received in the past, dental fear and anxiety, time constraints and lack of satisfaction with the quality of oral health care, lack of resources including the cost of dental treatment, the availability and accessibility of dental services to the patient.[5,7] In addition, the number of missing teeth is also a significant factor.[8]

One of the most important factor is the knowledge of the patient which is regarded as an important predictor of patient delay in receiving any treatment for partial edentulism. Due to lack of knowledge and education they did not know about the importance of replacement of missing teeth and wait till they become completely edentulous before seeking any treatment.[9] Socioeconomic status (SES) is also a significant determinant of non-treatment and oral health related quality of life. General and oral health related quality of life is compromised in patients who do not seek any

[1] Munir Khan, BDS, FCPS (Prosthodontics), Associate professor, Bacha Khan Medical College, Mardan Address: House No. 5, Sector-K, Sheikh Maltoon Town, Mardan E-mail: munirkhan75@yahoo.com   Cell: 0333-9852375

[2,3] Trainee Prosthodontics, Bacha Khan Medical College, Mardan

treatment for missing teeth while on other hand those patients who received prosthodontic treatment had 37% improvement.[10]

A study in India revealed that there is a high need for prosthodontic treatment with 88% of the total population surveyed having no prosthesis due to low socio-economic status and awareness.[11] They defined socioeconomic status (SES) classes on basis of modified Kuppuswamy. Patients with different SES classes reported different reasons for not replacing teeth, the financial reason being the most prominent in SES classes V and IV, being 31.9% and 23.6% respectively. In other study, 89.6% of the patients had pre-existing edentulous areas and reported that financial constraint (88.8%) was the main reason for non-treatment of existing spaces. The other reasons for non replacing of missing teeth were feeling of being un-necessary(7.6%) and poor motivation(5.6%).[12] of them 69.4% of the patients have good knowledge of the dental services in government setups whereas 30.6% didn't know them at all.[13] This study aimed to determine the frequency of the most common factors responsible for non-treatment of partial edentulism in local population.

METHODOLOGY

This descriptive cross sectional study was conducted at Department of Prosthodontics of Bacha Khan Medical College, Mardan from May 2016 to October 2017. Approval was obtained from hospital research committee. Informed consent was taken from all participating subjects.

By using consecutive non probability sampling technique, total sample size were 385 keeping confidence interval at 95%, absolute precision (d) at 0.05 and anticipated population proportion of 50%[12] P at 0.05.

Data were collected from patients reporting to out-patient department for extractions of teeth and not wishing to replace existing edentulous spaces using a data collection sheet. Personal data including the patient socioeconomic status well as the duration (years) for having un-restored edentulous areas for a minimum of one year were recorded. Socioeconomic status was taken as the subject's present financial condition, education and occupation using the modified Kuppuswamy classification. Intra oral examination was carried out. The number and location of missing teeth were recorded. Common factors for not replacing missing teeth were documented. Assessment of socio-economic status, knowledge, dental services and utilization and level of interest of the patient were carried out by asking few questions.

Patients using/having history of fixed or removable prostheses and patients with cognitive impairment, reduced intelligence and uncooperative behavior were excluded from the study. Strictly exclusion criteria were followed to control confounders such as mental retardness and bias in the study.

Analysis of the data was done using Statistical Package for Social Sciences (SPSS) version 20.0. Descriptive statistics like mean and standard deviation (SD) were calculated for numerical variables like age. Frequency and percentages were calculated for categorical variables like gender and common factors responsible for non- treatment of partial edentulism (Socio-Economic Status, Knowledge about Dental Service and treatment). Effect modifiers such as age and gender were controlled by stratification using Chi-square test. $P \leq 0.05$ was considered significant.

RESULTS

In this study, 385 patients having un-treated partial edentulism presenting to Bacha Khan Medical Complex, Mardan were studied, in which 279 (72.46%) were male and 106(27.53%) were female patients. Participants age was categories into three groups, out of which least common age group was >46 years (n=86, 22.33%) and most common was age range of less than or equal to 30 years (n=177, 45.95%) and 122 (31.68%) were in age range 31-45 years. Mean age was 45.23±11.2 years. (Table 1)

Distribution of common of causes of non replacement of missing teeth showed that knowledge about dental service and treatment was found in 162(42.1%) subjects while 223(57.9%) did not have that knowledge. Most of partial edentulous area which was not replaced with artificial teeth were in patients having Kuppuswamy level III (53.8%). Least number of subjects (n=18, 4.7%) who not restored missing teeth were in class IV. (Table 2)

Age wise distribution of common causes of partial edentulism shows those elders was more prone to non-replacement of teeth than younger. Socio economic status level-III (middle socio-economic class) was found in majority of the patients having age less than 30 years (64.5%) followed by patients having more than 46 years of age (52.7%). Similar pattern was exhibited approximately by the rest of level and knowledge about dental service and treatment but all of them were statistically insignificant when stratify by age (P>0.05). (Table 3)

The majority of females i.e. 111(54.1%) presented with partial edentulism with non-replacement of teeth had socio economic status Level- III while socio economic status Level- III were found in 96(53.3%) males. Similarly 74(41.1%) males and 88(42.9%) females had knowledge about dental service and treatment.
The difference between genders were statistically insignificant (P>0.05). (Table 4)

TABLE 1: AGE DISTRIBUTION OF THE PATIENTS

Age group(year)	Frequency	Percent
≤30	177	45.97
31 – 45	122	31.68
>46	86	22.33
Total	385	100.0

TABLE 2: FREQUENCY OF DISTRIBUTION OF COMMON CAUSES OF PARTIAL EDENTULISM

Cammon cause		Patients	
		N	%
Socio-Economic Status	I	49	12.7
	II	76	19.7
	III	207	53.85
	IV	35	9.1
	V	18	4.7
Knowledge About Dental Services and treatment	Yes	162	42.1
	No	223	57.9

TABLE 3: ASSOCIATION OF COMMON CAUSES OF PARTIAL EDENTULISM WITH BY AGE GROUP

		Age group(years)			P
		≤30	31 – 45	>46	
	I	5(8.1%)	8(10.0%)	36(14.8%)	.121
	II	14(22.6%)	18(22.5%)	44(18.1%)	
	III	40(64.5%)	39(48.8%)	128(52.7%)	
	IV	0(0.0%)	11(13.8%)	24(9.9%)	
	V	3(4.8%)	4(5.0%)	11(4.5%)	
Knowledge About Dental Service and treatment	Yes	22((35.5%)	34(42.5%)	106(43.6%)	.509
	No	40(64.5%)	46(%)	137(56.4%)	

* Chi-square test

TABLE 3: DISTRIBUTION OF COMMON CAUSES OF PARTIAL EDENTULISM STRATIFIED BY GENDERS

		Gender		P
		Male	Female	
	I	25(13.9%)	24(11.7%)	.628
	II	34(18.9%)	42(20.5%)	
	III	96(53.3%)	111(54.1%)	
	IV	19(10.6%)	16(7.8%)	
	V	6(3.3%)	12(5.9%)	
Knowledge About Dental Service and treatment	Yes	74(41.1%)	88(42.9%)	.719
	No	106(58.9%)	117(57.1%)	

* Chi-square test

DISCUSSION

The objective of the current study was to determine the frequency of the most common factors responsible for non-treatment of partial edentulism in local population. In this females were more than males. The reason for more tooth loss and non-replacement in females may be due to low education of women in Pakistan. Most of the females in our population are not financially independent and hence less opportunity for dental treatment. In contrast to our study, the study conducted by Vadavadagi et al.[14] in India reported that males were affected more by partial edentulism than females. This difference in results may be due to level of education. Studies showed that literacy rate is very low in Pakistan as compared to other countries. Pakistan's literacy rate has declined from 60 percent

to 58 percent, as revealed by the economic survey of Pakistan.[15]

Partial edentulism is highly under research in dental field. The pattern of partial edentulism has been studied in many selected populations in many countries. Many researchers have evaluated the relationship between missing teeth and its influencing factors like socio-economic parameters, age, gender, and so on.[16,17] Some research papers also have investigated the awareness among the individuals to replace the missing teeth.[18,19] Most commonly, studies have been done by recording patient details through questionnaire and then by clinical examination.[20]

In the current study the most common age group was less or equal to 30 years. This show in our population tooth loss occurs earlier. This may be due to the fact that in this country preventive awareness for dental disease is less. Most of the individuals are not going to dentists for regulars check up. So tooth loss due to dental caries and periodontal disease occurs in early ages. Similar results have been reported by Vadavadagi et al.[14]

In the current study most of the individuals who have not replaced their missing teeth were belonged to Kuppuswamy level III i.e middle class. This shows that main reason for non-replacing missing teeth is socioeconomic. Dental treatment is expensive and out of the reach of middle class individuals. Lower social class's individuals give very little value to general health and particularly oral health. They give little importance for preservation of their dentition for lifelong and give preference to extraction over restoration. Similar results were reported by Vadavadagi et al[14] and Burt et al.[21]

The effect of gender and age on reasons for non replacement of teeth was not statistically significant (P>0.05) in the current study. In contrast, previous studies showed a significant association between gender and not restored partial edentulism.[22,23] The difference may due to ethnic and level of education. Zaigham et al.[24] concluded that with an increase in age, there was more loss of teeth that were not replaced. These results are not similar to current study which may due to different educational and awareness of the participants.

CONCLUSION

The findings of this study showed that most of the participants belong to middle socio-economic class. Socioeconomic is most important factor for non-replacing missing teeth. Age and gender is not significant factor in not replacing missing teeth.

REFERENCES

1. Naveed H, Malik SA, Hassan A, Khan W, Azad AA. Patterns of partial edentulism among armed forces personnel reporting at armed forces institute of dentistry Pakistan. Pak Oral Dent J. 2011;31(1): 23-31.

2. Abdel-Rahman HK, Tahir CD, Saleh MM. Incidence of partial edentulism and its relation with age and gender. Zanco J Med Sci. 2013;17(2):463-70.

3. Jeyapalan V, Krishnan CS. Partial edentulism and its correlation to age, gender, socio-economic status and incidence of various Kennedy's classes–a literature review. J Clin Diagnos Res. 2015;9(6):ZE14-8.

4. Almutairy AS, Alotaibi FM, Araby YA. Pattern of partial edentulism in correlation to age and gender among a selected Saudi population. Int J Dent Sci Res 2017;5(1):1-4.

5. Zitzmann N, Krastl G, Weiger R, Kühl S, Sendi P. Cost-effectiveness of anterior implants versus fixed dental prostheses. J Dent Res. 2013;92(12_suppl):183S-8S.

6. Al-Quran FA, Al-Ghalayini RF, Al-Zu'bi BN. Single-tooth replacement: factors affecting different prosthetic treatment modalities. BMC Oral Health. 2011;11(1):34.

7. Khan AU, Ghani F. Factors influencing the type of prosthetic restoration for partially dentate adults. J Postgrad Med Inst. 2010; 24:13-21.

8. Fueki K, Igarashi Y, Maeda Y, Baba K, Koyano K, Akagawa Y, et al. Factors related to prosthetic restoration in patients with shortened dental arches: a multicentre study. J Oral Rehabil. 2011;38(7):525-32.

9. Partida MN. Geriatric prosthodontic care. Dent Clinic. 2014;58(1):103-12.

10. Ghani F, Khan M. Missing teeth, edentulous areas and socio-demographic status adversely affect the quality of life. J Pak Dent Assoc 2010; 19:5-14.

11. Nadgere JB, Doshi AG. An evaluation of prosthetic status and prosthetic need amongst people living in and around Panvel, Navi-Mumbai-A Survey. Int J Prosthet Dent. 2010;1(1):6-9.

12. Shigli K, Hebbal M, Angadi GS. Attitudes towards replacement of teeth among patients at the Institute of Dental Sciences, Belgaum, India. J Dent Educat. 2007;71(11):1467-75.

13. Saddki N, Yusoff A, Hwang YL. Factors associated with dental visit and barriers to utilisation of oral health care services in a sample of antenatal mothers in Hospital Universiti Sains Malaysia. BMC Public Health. 2010;10(1):75.

14. Vadavadagi SV, Srinivasa H, Goutham G, Hajira N, Lahari M, Reddy GP. Partial edentulism and its association with socio-demographic variables among subjects attending dental teaching institutions, India. J Int Oral Health. 2015;7(Suppl 2):60.

15. Rehman A, Jingdong L, Hussain I. The province-wise literacy rate in Pakistan: Pacific Science Review Human Soc Sci. 2015;1(3):140-4.

16. Patel JY, Vohra MY, Hussain J. Assessment of Partially edentulous patients based on Kennedy's classification and its relation with Gender Predilection. Int J Sci Study. 2014;2(6):32-6.

17. Khalil A, Hussain U, Iqbal R, Ali W. Patterns of partial edentulism among patients reporting to Department of Prosthodontics, Khyber College of Dentistry, Peshawar. J Khyb Colleg Dent. 2013;3(2):42-5.

18. Judy H. The incidence of frequency of a various removable partial edentulism cases. MDJ. 2009;6(2):172-76.

19. Abdurahiman V, Khader MA, Jolly SJ. Frequency of partial edentulism and awareness to restore the same: A cross sectional study in the age group of 18–25 years among kerala student

population. J Ind Prosthod Soc. 2013;13(4):461-5.

20. Jeyapalan V, Krishnan CS. Partial edentulism and its correlation to age, gender, socio-economic status and incidence of various Kennedy's classes–a literature review. J Clin Diagno Res. 2015;9(6):ZE14.

21. Burt B, Ismail A, Morrison E, Beltran E. Risk factors for tooth loss over a 28-year period. J Dent Res. 1990;69(5):1126-30.

22. Medina-Solís CE, Pérez-Núñez R, Maupomé G, Casanova-Rosado JF. Edentulism among Mexican adults aged 35 years and older and associated factors. Am J Public Health. 2006;96(9):1578-81.

23. Downer M. The improving dental health of United Kingdom adults and prospects for the future. Br Dent J. 1991;170(4):154.

24. Zaigham AM, Muneer MU. Pattern of partial edentulism and its association with age and gender. Pak Oral Dent J. 2010;30(1).

CONTRIBUTIONS BY AUTHORS

1	Munir Khan:	Conception, design and analysis and interpretation of data, revising it critically for intellectual content.
2	Junaid Ullah:	Data collection and drafting of data.
3	Hina Qazi:	Data collection and final drafting of the manuscript.