

Partial edentulousness and its correlation to the educational status of the population in the southwest coastal region of India

R. Nirupama, Manoj Shetty, D. Krishna Prasad

Department of Prosthodontics, A.B. Shetty Memorial Institute of Dental Sciences, Nitte University, Deralakatte, Mangalore, Karnataka, India

Keywords

Awareness, educational status, Kennedy's classification, partial edentulousness, treatment needs

Correspondence

R. Nirupama, Department of Prosthodontics, A.B. Shetty Memorial Institute of Dental Sciences, Nitte University, Deralakatte, Mangalore, Karnataka, India.
Phone: +91-9449772977.
Email: niru_nidh@rediffmail.com

Received 22 February 2017;

Accepted 24 March 2017

doi: 10.15713/ins.idmjar.63

Abstract

Background: The pattern of partial edentulism has been studied in different countries in various selected populations by correlating between several parameters and the influencing factors such as socioeconomic status, educational status, age, and gender. Education is an important factor associated with the awareness of dental disease and its treatment needs.

Aim: The present survey was conducted to assess the prevalence of partial edentulousness and awareness of its prosthodontic treatment needs based on the educational status in rural population of southwest coastal Karnataka and Kerala.

Materials and Methods: A total of 100 patients reporting with request for removable prostheses were randomly selected and included in the study after obtaining the consent from the Institutional Ethics Committee. The patients were categorized into three groups as, below 10th Grade, 10th Grade to II pre-university college (PUC) and graduation and above. Subjects having edentulous space were further grouped according to Kennedy's Classification. The data were recorded and then analyzed using Chi-square test.

Results: Among the 100 subjects evaluated, 55 subjects were male and 45 were females. 46 subjects were below 10th standard grade, 16 were between 10th and II PUC and 38 were graduation and above group. Prosthodontic treatment need awareness was highest in Class III Kennedy's Classification of partial edentulous space in both maxillary and mandibular arches. The maximum awareness about the implant placement for the treatment of partial edentulousness was among the graduation group. The awareness regarding the effect of missing teeth was high among the graduation and above group.

Conclusion: Under the limitations of this study, it was found that the percentage of awareness of various prosthodontic treatment need increased as the subjects educational status increased.

Clinical Significance: Educational status of an individual has a huge impact on the overall general awareness of one's health needs and the treatment options available. Therefore, it justifies there is a greater need to educate not only the younger generation but also the elderly and less privileged, regarding the importance of oral health.

Introduction

Oral health has a huge contribution towards the quality of life. Loss of teeth and compromised oral health negatively affect the diet and nutrition of an individual. This ultimately results in poor general health and also denies them the pleasure of taking food of their choice.^[1]

An edentulous space can be called a gap in the dental arch which could've been occupied by one or more teeth. It can be

complete or partial. A dental arch in which one or more but not all natural teeth are missing is partial edentulousness. There could be various reasons for tooth loss among which; caries, periodontal diseases, and trauma are the ones commonly enlisted. Many studies have stated caries as the main cause for tooth loss; however, periodontal diseases have also been cited to be contributing factor to tooth loss in children as well as adults.^[2,3]

The pattern of partial edentulism has been studied in different countries in various selected populations by correlating

between several parameters and the influencing factors such as socioeconomic status, educational status, age, and gender.^[1,4-6] In 1923, Kennedy devised a system that became popular due to its simplicity and ease of application. A tremendous number of possible combinations can be reduced to four simple groups. There are also studies which have analyzed the treatment needs and awareness regarding edentulousness in the screened populations.^[4,5] Education is an important factor associated with the awareness of dental disease and its treatment needs. Some studies have stated that patients with lower levels of education status exhibited higher risk of becoming completely edentulous.^[7,8]

The present survey was conducted to assess the prevalence of partial edentulousness and awareness of its prosthodontic treatment needs based on the educational status in rural population of southwest coastal Karnataka and Kerala.

Materials and Methods

A total of 100 patients reporting to the Department of Prosthodontics Outpatient Clinic at A.B. Shetty Memorial Institute of Dental Sciences with request for removable prostheses were randomly selected and included in the study after obtaining the consent from the Institutional Ethics Committee. A written consent was acquired before enrolling the patients into the study. The inclusion criteria were patients with edentulous spaces to be restored or edentulous space that has to be restored inclusive of tooth that needs extraction and which will become a part of the edentulous space. The exclusion criteria were patients requesting for maxillofacial prostheses such as obturators and ancillary prosthesis like splints. The screening and evaluation was done by a Prosthodontist and then classified based on the educational status. The patients were categorized into three groups as, below 10th Grade, 10th Grade to II pre-university college (PUC) and graduation and above. Subjects having edentulous space were further grouped according to Kennedy's classification. The data were recorded and then analyzed using Chi-square test. Data less than 0.05 were considered as statistically significant.

Results

Among the 100 subjects evaluated, 55 subjects were male and 45 were females. 40 subjects were in the age group of 20-40 years, 35 subjects in 40-60 years age group, and 25 subjects above the age of 60 years. Furthermore, when educational status was compared in this study 46 subjects were below 10th standard grade, 16 were between 10th and II PUC, and 38 were graduation and above group [Table 1]. Comparison of sex and age with the educational status showed no significant difference in the prevalence and awareness of prosthodontic treatment need for partial edentulousness [Table 2].

Prosthodontic treatment need awareness was highest in Class III Kennedy's classification of partial edentulous space in both maxillary (14 and 11) and mandibular (14 and 16) arches

Table 1: Partial edentulousness in relation to educational status with respect to age

Educational status	Age group		
	Between 20 and 40 years	Between 40 and 60 years	Above 60 years
Below 10 th standard	14	21	11
10 th standard to II PUC	6	5	5
Graduation and above	20	9	9

Chi-square value=5.84(4), p-value = 0.21(NS). *P<0.05 statistically significant - P>0.05 NS. NS: Nonsignificant. PUC: Pre-university college

Table 2: Partial edentulousness in relation to educational status with respect to gender

Educational status	Male	Female
<10 th standard	23	23
10 th standard to II PUC	7	9
Graduation above	25	13

Chi-square value=3.07(2), p value = 0.22(NS). *P<0.05 statistically significant - P>0.05 NS. NS: Non significant, PUC: Pre-university college

Table 3: Partial edentulousness in relation to educational status according to Kennedy's classification

Kennedy's classification	Below 10 th standard	10 th standard to II PUC	Graduation and above
Class I maxillary	9	1	6
Class II maxillary	2	3	7
Class III maxillary	14	7	11
Class IV maxillary	2	3	7
Class I mandibular	8	2	3
Class II mandibular	3	2	1
Class III mandibular	14	8	16
Class IV mandibular	2	1	5

PUC: Pre-university college

among the subjects with educational level 10th standard and below and graduation and above, respectively [Table 3].

The maximum awareness about the implant placement for treatment of partial edentulousness was among the graduation group, i.e., around 19 subjects and only 1 subject of the 10th standard and below group and 1 subject of the group between 10th and 12th grade were aware [Figure 1].

The awareness regarding the effect of missing teeth, only 5 subjects of the 10th standard and below group and 5 subjects of the group between 10th and 12th grade were found, whereas 12 subjects of the graduation and above group were aware [Figure 2].

Discussion

Partial edentulism and its patterns of occurrence have been studied in different countries in various selected populations by correlating between several parameters and the influencing

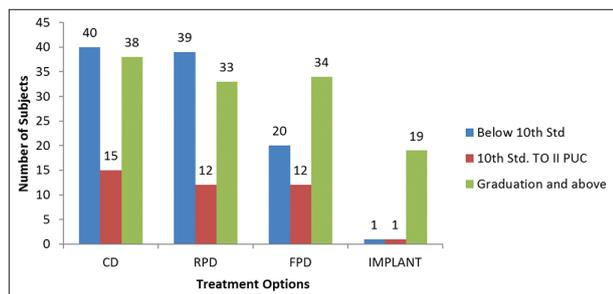


Figure 1: Partial edentulosity in relation to educational status with respect to treatment options. [#]Chi-square test, ^{##}Fisher’s exact test, * $P < 0.05$ statistically significant, $P > 0.05$ NS: Nonsignificant, P value: 0.048^{##}, CD: Complete denture, RPD: Removable partial denture - 0.55 (NS), FPD: Fixed partial denture - $<0.001^{**}$, Implant - $<0.001^{*#}$

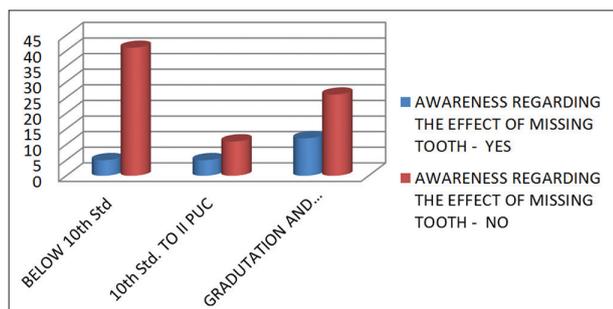


Figure 2: Partial edentulosity in relation to educational status with respect to effect of missing teeth. Chi-square=6.15 (2), p value=0.046*. * $P < 0.05$ statistically significant - $P > 0.05$ NS: Nonsignificant

factors such as socioeconomic status, educational status, age, and gender.^[1,4-6] There are studies which have analyzed the treatment needs and awareness regarding edentulosity in the screened populations.^[4,5] Education is an important factor associated with the awareness of dental disease and its treatment needs. Studies have stated that patients with lower educational status exhibited higher risk of becoming completely edentulous.^[7,8]

In this study, comparison of sex and age with the educational status showed no significant difference in the prevalence and awareness of prosthodontic treatment need for partial edentulosity. In a similar study conducted by Abdurahiman *et al.*, there was no significant gender difference in the partial edentulosity; however, women were more aware than men to restore it.^[5] Another study showed that the percentage of replacement of missing teeth was higher in females. This could be because women have better health seeking attitude and are more conscious with regards to their appearance; proving to be one of the main reasons that females are visiting dental clinic more frequently than males.^[1] The level of edentulosity was found to be high, more so in rural than in urban people and more so in advancing age, with no significant difference between male and females.^[9]

In this study, Kennedy’s Class III was seen to be highest in the group of below 10th Grade group and also in the graduation

and above group. Zaigham and Muneer stated that as the age increases, there was an increase in Class I and II dental arch tendency and a decrease in Class III and IV. This could be due to the trauma to maxillary central incisors at early childhood stage and early loss of the first molar due to caries. As age advances, due to further loss of teeth, extension of existing saddle leads to Class I and II.^[10]

The awareness regarding the effect of missing teeth, only 5 subjects of the 10th standard and below group and 5 subjects of the group between 10th and 12th grade were found; whereas 12 subjects of the graduation and above group were aware. This shows that educational status of the individual has a great impact on the awareness of treatment needs. It was also seen that the subjects with educational status of graduation and above had the highest demand for implants as prosthesis.

Partial edentulism depends on various socioeconomic parameters such as family income, educational status, and occupation. It has also been observed by various authors that partial edentulism decreases in the employed group and when family monthly income increases. The lower income group people cannot afford to the treatment procedures that can save their questionable teeth, so they usually opt for extraction. Lower education group subjects are not much aware about oral health care and the associated treatment options available. People who are educated and employed are more concerned about their aesthetics and opt for dental treatment. Socioeconomic parameters also have a direct influence on the replacement of missing teeth and the various modalities available for the same.^[1,2,6,11] Prabhu *et al.* have stated that need of motivation and awareness was the most responsible reason for the lack of seeking treatment.^[12]

Conclusion

Under the limitations of this study, it was concluded that the prevalence of Kennedy’s Class III classification of edentulous space was highest in both maxillary and mandibular arches. Furthermore, the percentage of awareness of various prosthodontic treatment need increased as the subjects educational status increased. It can also be concluded that there is no gender and age correlation for partial edentulism when compared with the educational status. However, educational status of an individual has a huge impact on the overall general awareness of one’s oral health needs and the treatment options available. It justifies the greater need to educate not only the younger generation but also the elderly and less privileged, regarding the importance of oral health. Hence, education is an indispensable asset for one’s general and oral health well-being with requirement of special efforts to educate the entire population for a healthy nation.

References

1. Sapkota B, Adhikari B, Upadhaya C. A study of assessment of partial edentulous patients based on Kennedy’s classification

- at Dhulikhel Hospital, Kathmandu University Hospital. Kathmandu Univ Med J (KUMJ) 2013;11:325-7.
2. 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 Diagn Res 2015;9:ZE14-7.
 3. Bruce I, Nyako EA, Adobo J. Dental service utilisation at the Korle Bu teaching hospital. Afr Oral Health Sci J 2001;3:64-7.
 4. Shinawi LA. Partial edentulism: A five year survey on the prevalence and pattern of tooth loss in a sample of patients attending King AbdulAziz University - Faculty of dentistry. Life Sci J 2012;9:2665-71.
 5. Abdurahiman VT, 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 Indian Prosthodont Soc 2013;13:461-5.
 6. Reddy NS, Reddy NA, Narendra R, Reddy SD. Epidemiological survey on edentulousness. J Contemp Dent Pract 2012;13:562-70.
 7. Eklund SA, Burt BA. Risk factors for total tooth loss in the United States; Longitudinal analysis of national data. J Public Health Dent 1994;54:5-14.
 8. Caplan DJ, Weintrub JA. The oral health burden in United States: A summary of recent epidemiologic studies. J Dent Educ 1993;7:853-62.
 9. Shah N, Parkash H, Sunderam KR. Edentulousness, denture wear and denture needs of Indian elderly-A community-based study. J Oral Rehabil 2004;31:467-76.
 10. Zaigham AM, Muneer MU. Pattern of partial edentulism and its association with age and gender. Pak Oral Dent J 2010;30:260-3.
 11. D'Souza KM, Aras M. Association between socio-demographic variables and partial edentulism in the Goan population: An epidemiological study in India. Indian J Dent Res 2014;25:434-8.
 12. Prabhu N, Kumar S, Dsouza M, Hegde V. Partial edentulousness in a rural population based on Kennedy's classification: An epidemiological study. J Indian Prosthodont Soc 2009;9:18-23.

How to cite this article: Nirupama R, Shetty M, Prasad DK. Partial edentulousness and its correlation to the educational status of the population in southwest coastal region of India. Int Dent Med J Adv Res 2017;3:1-4.

This work is licensed under a Creative Commons Attribution 4.0 International License. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/> © Nirupama R, Shetty M, Prasad DK. 2017