

Partial Edentulism Based on Kennedy's Classification

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ABSTRACT

Objective: The aim of this study is to investigate the distribution of the partial edentulism in general population according to Kennedy's classification.

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted Isra Dental College OPD in Hyderabad from Feb 2010 to July 2011.

Materials and Methods: This is a cross sectional study carried out on 395 subjects, both males and females and belonging to age groups 35-50 years, completed during the period of one and half year. All patients' personal history was taken regarding their age and socioeconomic condition. Partial edentulism was recorded by visually examining the study sample.

Results: The results include the visual examination of 395 individual in which majority were males 246 (62 %), mostly belonging to the poor class, 231 (59 %) and in early forties 181(46%). There is high prevalence of Kennedy's class IV, 128(32 %) among sample then followed by Kennedys Class I 92(23.3%), II 76(19.2%) and III 50(12.7%). The association between partial edentulism according to Kennedy's classification with socio-demographic profiles of the sample is statistically significant (68, 17%; $p=0.04$).

Conclusion: In our study there is significant difference between gender and partial edentulism as more male patients visit the dental clinic for partial denture belongs to low income status and in 41-45 years age group.

Key Words: Kennedy's, partial edentulism, partial denture, prevalence, caries.

INTRODUCTION

Partial edentulism is the loss of some but not all natural teeth in either dental arch¹ and in many countries pattern of tooth loss has been evaluated in their population². It has been proven that poor oral hygiene increases the incidence of tooth loss which have direct effect on the general health in the form of eating problems and weight loss³. The quality of life commonly affected by tooth loss; self consciousness and embarrassment restrict the social contact and communication⁴. The partial edentulism may also be related to complex behavioral and socioeconomic factors⁵. There are wide ranges of treatment options available to fix the problem of partial edentulism which broadly includes removable prosthesis and fixed prostheses⁶.

The dental caries and periodontitis both are predominant reason for extraction among population and are directly related with tooth loss⁷. Moreover, combination of smoking and dental caries is also significantly contributed to partial edentulism⁸. It has been documented that partial edentulism was more common in females than in males⁹. Therefore, the objective of the study was to explore the study is to investigate the distribution of the partial edentulism in general population according to Kennedy's classification.

MATERIALS AND METHODS

A cross sectional study was conducted among 395 patients visiting Isra Dental College OPD in Hyderabad, from Feb 2010 to July 2011. Permission was granted by the research and ethical board of Isra University prior to the study. A close ended questionnaire consisted of two sections was designed to collect data from the participants. Section one includes questions regarding socio-demographics (age, gender, monthly income,) of respondents while section two examination of edentulism according to Kennedys classification by first author himself. Kennedy's classification system with Applegate's modification rules was used to determine pattern of partially edentulous arches.4 Modification areas were also included in the study. The socioeconomic status was evaluated from the data collected from monthly income. Participants were asked to mark the total monthly income below or above Rs. 15000. Those earning Rs. 15000 or below per month were considered as underprivileged class and those earning above Rs. 16000 were considered as privileged class. The study included both males, female's participants, aged between 35-50 years; Subjects were divided in three groups 35-40 years, 41-45 years and 46-50 years. The study excluded participants with mental health problems and handicapped. Data was analyzed using SPSS 17; frequency distributions of the sample were

calculated. Chi-squared test was applied to test the association between socio-demographics and Kennedy's classifications. Level of significance was set to be $p > 0.05$.

RESULTS

The result comprised of the responses of 395 males and females participants, included in the study sample. Table 1 show the frequency distribution of socio-demographics. There were 246 (62 %) males and 149(38%) females patients of age range from 35-50 years, divided into three groups of participants i-e 35-40 years 115 (29%), 41-45 years 181(46%) and 46-50 years 99(25%). Out of 395 participants, 231 (59 %) were belonging to underprivileged class while 164 (41%) were belonging to the privileged class.

Table No.2: Associations of Kennedy's classifications with sociodemographic profile

Kennedys Classification	Gender n (%)		socioeconomic status n (%)		AGE GROUPS (YEARS) n (%)		
	Male	Female	Poor Class*	Middle Class	35-40	41-45	46-50
Class I	54 (13)	38 (10)	64 (16)	28 (7)	33 (8)	42(11)	17 (4)
Class I (MOD)	16 (4)	10 (2)	16 (4)	10 (2)	7 (2)	11(3)	8 (2)
Class II	47 (12)	29 (7)	42 (11)	34 (9)	20 (5)	38(10)	18 (5)
Class II (MOD)	8 (2)	6 (1)	4 (1)	10 (2)	6 (1)	5 (1)	3 (1)
Class III	33 (8)	17 (4)	30 (8)	20 (5)	11 (3)	22 (6)	17 (4)
Class III (MOD)	5 (1)	4 (1)	7 (2)	2 (0.5)	1 (0.3)	6 (1)	2 (0.5)
Class IV	83 (21)	45 (35)	68 (17)	60 (15)	37 (9)	57 (44)	34 (27)

*P<0.05

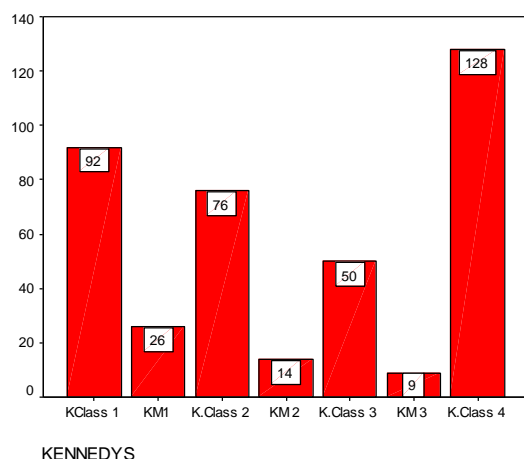


Figure No.1: Frequency Distribution of the Kennedy's Classification

The Table 2 shows the association of Kennedy's classification with socio-demographics profile of the participants. The results showed that the partial edentulism were more in male patients than females and the prevalence of partial edentulism was high in age group 41-45 years. Moreover, partial edentulism was found to be high among underprivileged (40%) than privileged group. The high prevalence of Kennedy's class IV is statistically significant in males 83(21%) in

Table No.1: Frequency Distribution of Socio-Demographics

	Number of Individuals (n)	Percentage (%)
Socioeconomic Profile		
Poor Class	231	59
Middle Class	164	41
Gender		
Male	246	62
Female	149	38
Age		
35-40 years	115	29
41-45 years	181	46
46-50 years	99	25
Total	395	100

their early forties 57 (44%) with poor socioeconomic status (68, 17%; $p=0.05$).

Results illustrates in Fig 1 explains the frequency distribution of the Kennedy classification. According to that, Kennedy's class IV, 128(32 %) has highest prevalence among all classes, then followed by Kennedy's Class I, 92(23.3%), class II, 76(19.2%) and class III, 50(12.7%), while in Kennedy's class I modification 26(6.6%), class II modification 14(3.5%) and class III modification 9(2.3%).

DISCUSSION

The results of this non probable purposive study may not be representative of the population at large. Hence, its use can only be limited to the study population of particular area. A randomized population based survey may be able to present a better picture among Pakistanis. The table 1 explain the frequency distribution of socio- demographics that the more male patients 246 (62%) were partially edentulous than females 149 (38%). These results are in accordance with a study, as they found significant gender differences in edentulism, more males becoming edentulous than females.⁸ while another study also support this study findings as they were also found more male patients with an average 2.37 requires

denture than females, an average of 2.29, with a small difference.¹⁰

Our results found maximum no of patients 181 (46%) in the 41-45 years age group, followed by 35-40 years age 115 (29 %) and least no 99 (25%) in 46-50 years with mean age of 45.8, nearly same results were documented in a Pakistani study with mean age of 35.3 \pm 9.5 years in their male participants.¹¹ and other Pakistani study also documented mean age of the patients was 43 years.¹²

Our study agreed with these two mentioned studies as we also have two types of subjects, poor class and middle class, the percentage of low income people (poor class) 231 (59%) have high demand of removable partial dentures than the middle class 164 (41%). Where as a Nigerian study documented significant association between partial edentulism with lower education level and lower socio-economic group ($p < 0.001$),¹³ also an Indian study observed that the lower and middle income peoples exhibited a greater proportion of partial edentulism (85.3 %, 83.5%) than higher income people (66.1 %).¹⁴

In present study Kennedy's class IV was the most common class 32.4%, followed by Kennedy's class I (23.3 %) and class I modification I patients were (6.6%), than Kennedy's class II (19.2%). Kennedy class II modification II was (3.5%) and last category of the patients was Kennedy's class III (12.7 %) and class III modification 2 was (2.3) less number of patients in last two categories. Where as many studies documented the most commonest was the class III, as a Jordanian study investigated total 200 patients (152 male, 48 females mean age 44.5 years) and class III was the most common encountered in maxilla (47%) and in the mandible (45%).¹⁵ same a Brazil study established edentulism more in 21-40 years age (68.9%), and Kennedys class III (57.3%) was commonest and Kennedy's class IV (26.2%) was second common among all types.¹⁶ where as our results shows the class IV is the commonest one class.

Table 2 explains the associations of Kennedy's classification with socio-demographic profile as Kennedy's class IV is more pronounced in male patients 83

(21%) belongs to poor class 68 (17%) in their middle age group 41-50 years 57 (44%) then in the class I males were 54 (13%) from poor class 64 (16%) and maximum 42 (11%) in 41-50 years age group, Class II and class III shows the 47 (12%) and 33 (18%) respectively and again maximum patients related to poor 42(11%), 30 (8%) respectively and in the 41-50 years age groups, in class I modification males were 16 (4%) ,in class II modification 8 (2%) mostly belongs to middle class in the 35-40 years age group while in class III modification more males 5 (1%) all belongs to poor class 7(2%) in 41-50 years age group.

This may draw attention that the loss of tooth in an early age is predisposed to their poor oral hygiene as the eruption time of lower anterior teeth are earlier in the life and loss of tooth in this area is common due to periodontitis, gum recession, and trauma, less attention towards conservative treatment and low socio-economic status .

Partial edentulism was most commonly treated with removable partial dentures and only few patients were treated with fixed partial dentures in both jaws.

CONCLUSION

The prevalence of partial edentulousness linked with gender, socioeconomic condition as it is a big problem for people as they feels difficulty in socialization and problem in mastication. Esthetic is the main interest of females but males are also feels difficulty in socialization if they have anterior partial edentulism and this is the main reason Kennedy's class IV is the commonest among all classes followed by Kennedy's class III, Kennedy class II and finally class I. Male edentulous ratio is higher than females and low income group had more demand of removable partial denture.

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