PATTERN OF PARTIAL EDENTULISM AND ITS ASSOCIATION WITH AGE AND GENDER

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ABSTRACT

The objective of the study was to determine the pattern of partial edentulism and find its association with age and gender. This study was carried out on patients visiting the OPD of prosthodontics department of Lahore Medical and Dental College, Lahore. The duration of the study was two months. 367 patients were studied. Partial edentulism pattern was recorded by visual examination using Kennedy's classification. Class III dental arch was the most dominant pattern in maxilla with class IV being the least in number. With an increase in age, there is an increase in the Class I and Class II dental arch tendency and a decrease in Class III and class IV both in maxilla and mandible. Gender had no significant relationship with distribution of RPD classification.

Key words: *Partial edentulism; Kennedy's classification; Removable partial denture*

INTRODUCTION

Edentulism (partial or complete) is an indicator of the oral health of a population.[1] It may also be a reflection of the success of various preventive and treatment modalities put in place by the health care delivery system.[2, 3] With the changing trends in dental treatment that favor retention of natural teeth, a decline in the number of complete dentures with an increase in the number of removable partial dentures (RPDs) is anticipated.[4] There are more than 65,000 possible combinations of partial edentulism in opposing arches. It is logical to classify partially edentulous arches that share common attributes, characteristics, qualities or traits.[5] The primary purpose for the classification of partial lyedentulous arches is to identify potential combinations of teeth to edentulous ridgesin order to facilitate communication among dental colleagues, students, and technicians.[4, 5] A classification also allows a longitudinal comparison of various classes of RPDs to determine whether the teaching of RPD design is consistent with the relative frequencies of RPD use.[6]

Several methods of classification of partially edentulous arches have been proposed and are in use e.g. by Beckett, Godfrey, Swenson, Friedman, Wilson, Skinner, Applegate, Avant, Miller and others. At present, Kennedy's classification is probably the most widely accepted one.[5,6] Kennedy's classification provides immediate visualization, recognition of prosthesis support and assessment of design features of removable partial denture.[5]

The pattern of tooth loss has been evaluated in many selected populations in different countries.[3-11] Hoover and McDermount reported a higher prevalence of edentulism in males than females.[12] Marcus et al observed that the prevalence of edentulism had no relationship with gender.[13] The trends in the incidence of the various classes of removable partial dentures should be reviewed periodically to serve as teaching guidelines.[6]

The objective of the study was to find the pattern of tooth loss and its relationship with age and gender.

METHODOLOGY

This study was conducted in patients, attending the Prosthodontics OPD – Lahore Medical & Dental College, Lahore for partial denture. 367 patients were examined. Age range of the patients was between 20 to 70 years. Patients were divided into five groups according to their age.

Group I:	20 – 29 years
Group II:	30 – 39 years
Group III:	40 – 49 years
Group IV:	50 – 59 years
Group V:	60 years and above.

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Partial edentulism pattern was recorded by visual examination. Kennedy's classification system with Applegate's modification rules was used to determine pattern of partially edentulous arches.[4] Modification areas were not included in analysis to avoid complexity. Data was tabulated and analyzed using SPSS 10.0 for windows. Analysis include cross tabulations, calculation of means and frequency. Association between discrete variables was determined by Chi-Square test.

RESULTS

Mean age of the patients was 43 years. Gender distribution was 43% (157) male and 57% (210) females. Distribution of gender in different age groups is shown in Table 1. Table 2 & 3 describe the gender distribution in various Kennedy's classes in maxilla and mandible respectively.

Distribution of various classes in different age groups is shown in Fig 1. It reveals that class III has the highest incidence and is mostly present in group I (20 – 29 years). With increasing age there is transition of bounded saddles into free end saddles. This transition is quite evident in line graph (Fig 2). However class II (unilateral free end saddle) outnumbered the Kennedy's class I (bilateral free end saddle) in groups IV and V.

TABLE 1: GENDER DISTRIBUTION IN DIFFERENT AGE GROUPS

	Group – I (20–29 Years)	**Group – II (30–39 Years)**	**Group – III (40–49 Years)**	**Group – IV (50–59 Years)**	**Group – V (60–70 Years)**
Male	33	29	41	24	30
Female	36	52	46	46	30
TOTAL	69 (19%)	81 (22%)	87 (24%)	70 (19%)	60 (16%)

TABLE 2: GENDER DISTRIBUTION IN VARIOUS KENNEDY'S CLASSES IN MAXILLA

	Class – I	**Class – II**	**Class – III**	**Class – IV**
Male	19	31	66	4
Female	23	41	97	11
TOTAL	42(11.4%)	72(19.6%)	163 (44.4%)	15(4%)

TABLE 3: GENDER DISTRIBUTION IN VARIOUS KENNEDY'S CLASSES IN MANDIBLE

	Class – I	**Class – II**	**Class – III**	**Class – IV**
Male	18	41	75	3
Female	26	57	105	4
TOTAL	44(11.9%)	98(26.7%)	180 (49%)	7(2%)

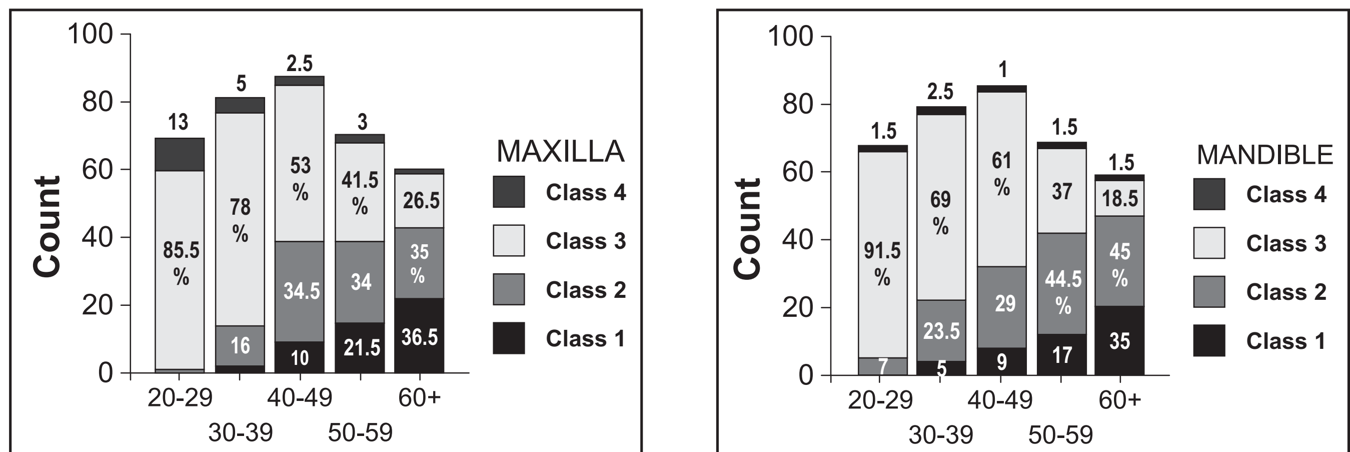

Fig 1: Distribution of Kennedy Classes in Different Age Groups

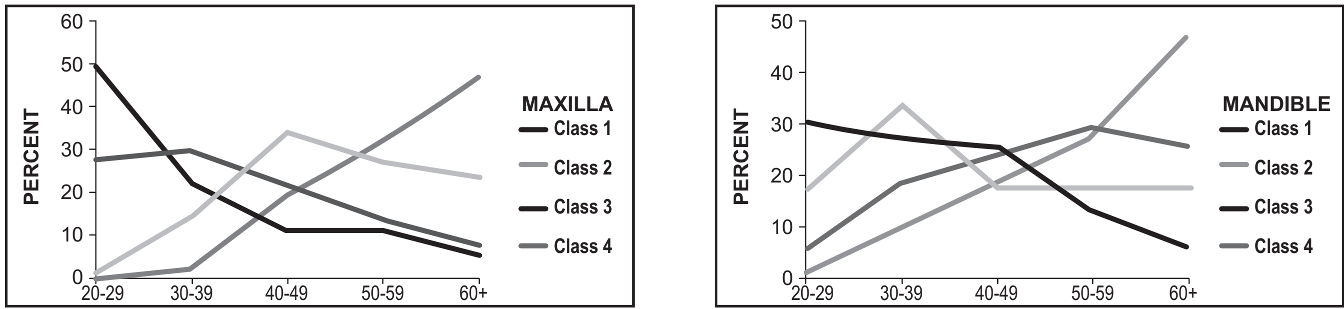

Fig 2: Pattern of Partial Edentulism in various Age Groups

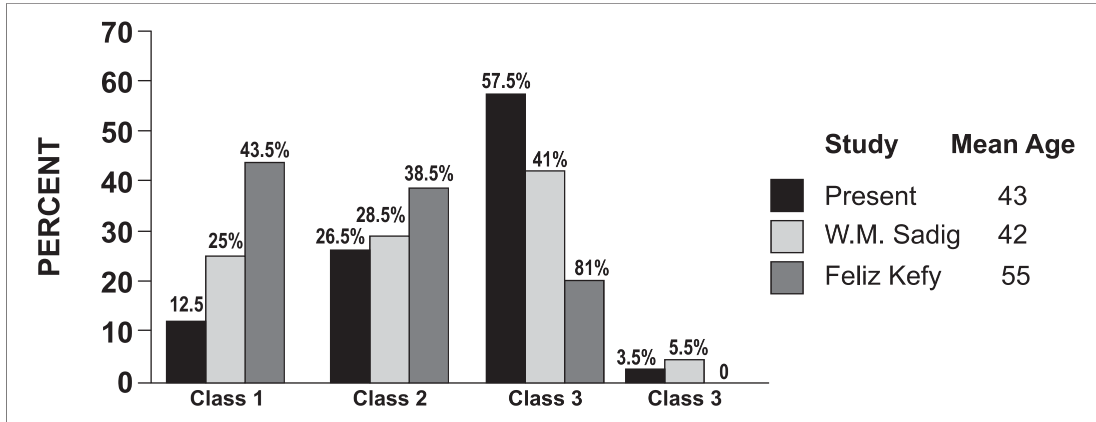

Fig 3: Percentage distribution of various Kennedy's classes in various studies

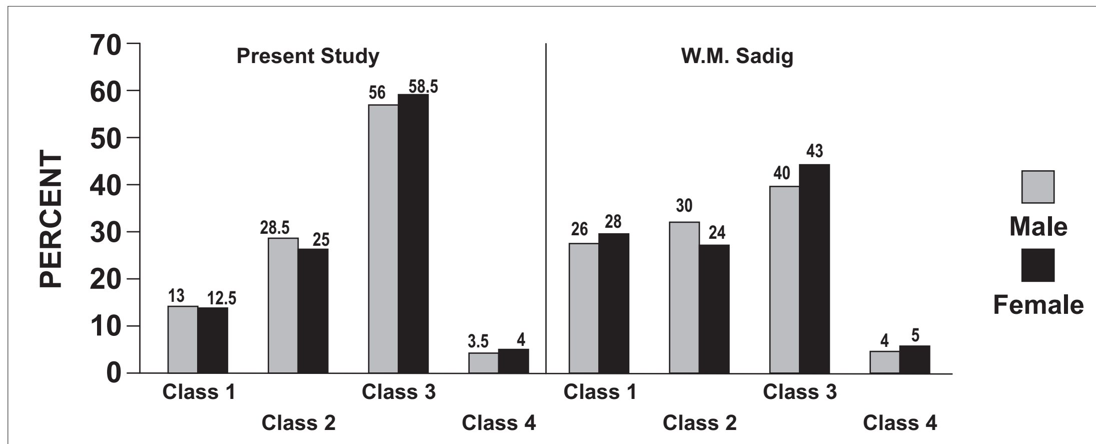

Fig 4: Gender association with various Kennedy's classes

DISCUSSION

Tooth loss usually occurs as a result of caries, periodontal diseases, trauma, tooth impaction, orthodontic reasons, hypoplasia, over eruption, supernumerary teeth, attrition, neoplastic and cystic lesions. Many studies have consistently shown the role of specific diseases like dental caries and periodontal disease as a major cause of tooth loss.[3] These two diseases were noted as major causes of tooth loss in early childhood and adolescence in the present study.

The primary purpose in using a classification for RPDs is to simplify the description of potential combinations of teeth to ridges. In the present study, the Kennedy classification was preferred to fulfill this purpose. One of the principal advantages of the Kennedy classification is that it permits the immediate visualization of the partially edentulous arch, and enables a logical approach to the problems of design. In addition, it makes possible the application of sound principles of partial denture design, and is therefore a logical method of classification.[5]

Ulusoy and Pamir analyzed the distribution of partial edentulous patients and evaluated that Class I had a large distribution (36%), while class IV exhibited a 6% distribution. Class II was 28% and class III was 30%.[14]

Filiz KEYF[14] (2001) and Walid M. Sadig[4] (2002) performed the similar studies. A comparison of percentage distribution of various Kennedy's classes with these studies is shown in the form of bar graphs in Fig 3. It was revealed that the results of present study are in line with W. M.Sadig.

Incidence of Kennedy's class III is high in relatively younger age groups. It is found to be 49% in group I (20 – 29 years) and above 55% in group II (30 – 39 years). This may be because of early loss of first molar due to caries and afterwards the extension of the existing saddle due to further loss of teeth with increasing age.

Kennedy's class IV is also higher in group I (20 – 29 years). One of the most common reasons is the trauma to maxillary central incisors at early childhood stage.

There is increase in percentage of class I & II in later stages as more teeth are extracted due to multiple causes in older age.[7-9] Okoisor further established that the disease factors responsible for tooth loss was age related; with caries and periodontal diseases being the major causes of tooth mortality in children and adult respectively.[3] The percentage of Kennedy's class I is increased upto 30% in group V (above 60 years). However the incidence of unilateral distal extensions remains higher than bilateral in both groups IV & V. The rise in the incidence of class II RPDs is consistent with trends in the prevention of tooth loss.

Previous reports indicate that mandibular distal extension RPDs (Classes I and II) are more common than maxillary distal extension RPDs (Classes I and II).[15] The opposite case with Class III and Class IV RPDs is supported by this study and is in agreement with the established patterns of tooth loss.[7-10, 16]

A comparison between studies where age and gender distribution of the RPDs was indicated, reported that more Class I followed by Class II RPDs were found in a study with a higher proportion of older adults (>50 yrs) and females. On the contrary, in a study where there were higher proportions of younger adults (<50 yrs), and males, more Class III followed by Class II RPDs were found.[4]

In present study gender had no significant relationship with distribution of RPD classification. Same result has been reported by Sadig. A comparison is presented in Fig 4.

CONCLUSION

With an increase in age, there is an increase in the Class I & Class II dental arch tendency and a decrease in Class III & class IV. Gender had no significant relationship with distribution of RPD classification.

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