Partial Edentulism and its Association with Age and Gender-A Research Article

Dr. Raisa Rashid[1], Dr. Waseem-ul-Ayoub[2]
PG Scholar[1, 2]
Department of Prosthodontics
Government Dental College, Srinagar, Jammu & Kashmir, India

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 Government Dental College, Srinagar. The duration of the study was three months. 389 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

I. INTRODUCTION

Edentulism (partial or complete) is an indicator of the oral health of a population.[1] Partial edentulousness is a dental arch in which one or more but not all natural teeth are missing. According to Zaigham et al., and Abdel Rahman et al., dental caries and periodontal disease were the major causes of tooth loss in early childhood and adolescence [3,5]. Also, studies have documented that age correlates positively with partial edentulism [2, 4, 5]. Partially edentulous arches have been classified by various methods.

The possible combinations of partial edentulism are more than 65,000 depending on their incidence in maxillary and mandibular arches [3, 11]. The primary objective of the classification is to facilitate the communication about the combination of missing teeth to edentulous ridges among students, dental practitioners and laboratory technicians [2, 5, 11-16].

Among the various methods of classification like Kennedy, Applegates, Avant, Neurohar, Eichner, ACP (American College of Prosthodontics) etc,

Kennedy's classification is widely studied and clinically accepted by Dental Community [3, 4, 10, 15]. As per Kennedy's classification, there are four main types of partially edentulous arches as Class I, Class II, Class III and Class IV.

Kennedy's classification is widely accepted due to its advantages of immediate visualization and recognition of prosthesis support [3, 4, 11]. The objective of the study was to find the pattern of tooth loss and its relationship with age and gender.

II. METHODOLOGY

This study was conducted in patients, attending the Prosthodontics OPD – government Dental College, srinagar for partial denture. 389 patients were examined. Age range of the patients was between 30 to70 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.

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.[5]

Modification areas were not included in analysis to avoid complexity. Data was tabulated and analyzed using SPSS 10.0. Analysis includes calculation of means and frequency. Association between variables was determined by Chi-Square test.

III. RESULTS

Mean age of the patients was 47 years. Gender distribution was 48% (186) male and 52% (203) 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. However classII (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

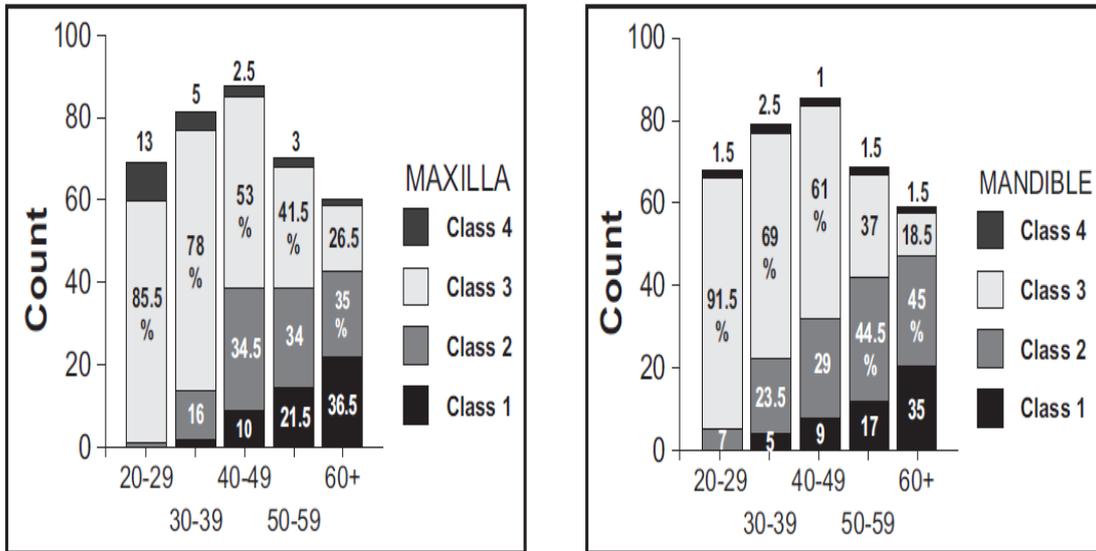|	Class – I	Class – II	Class – III	Class – IV
Male	18	41	75	3
Female	26	57	105	4
TOTAL	44(11.9%)	98(26.7%)	180(49%)	7(2%)

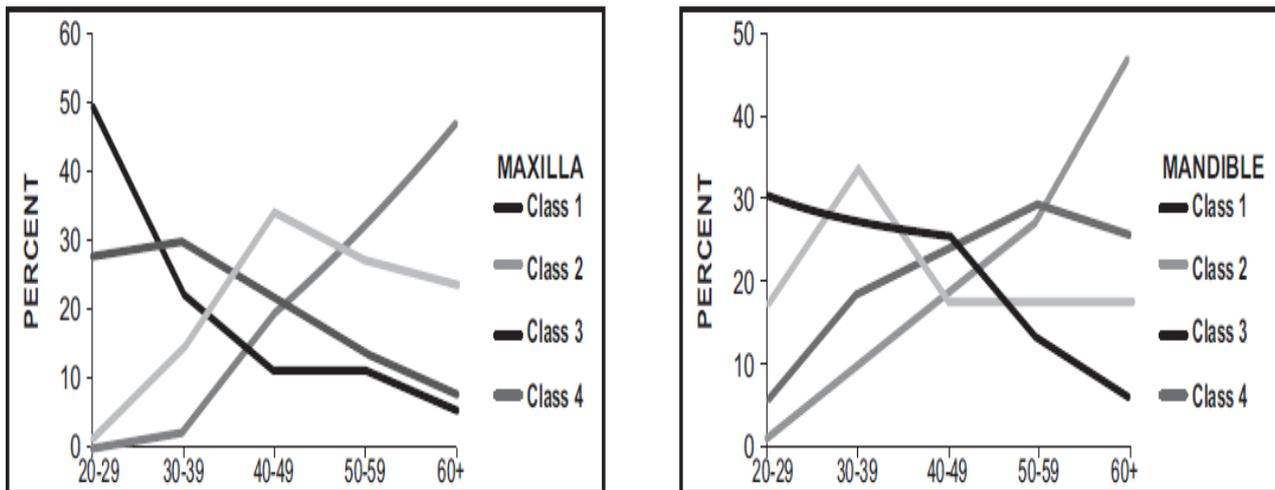Fig 1: Distribution of Kennedy Classes in Different Age Groups

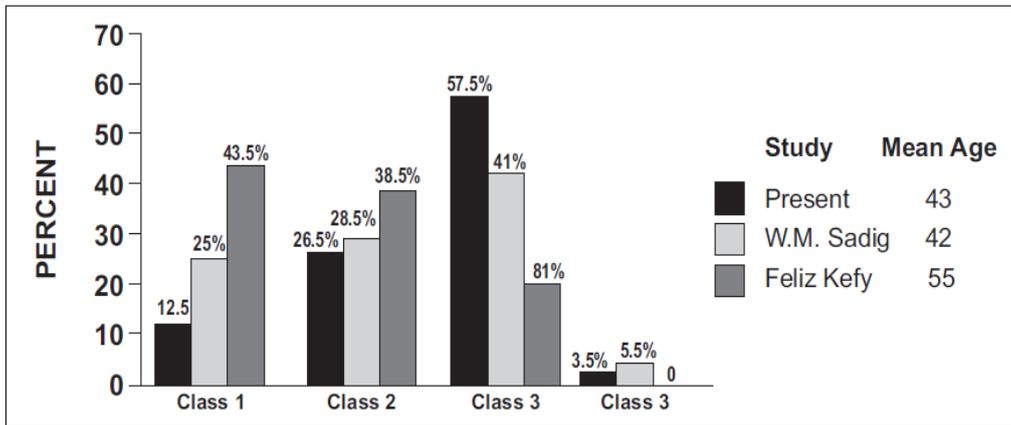Fig 2: Pattern of Partial Edentulism in various Age Groups

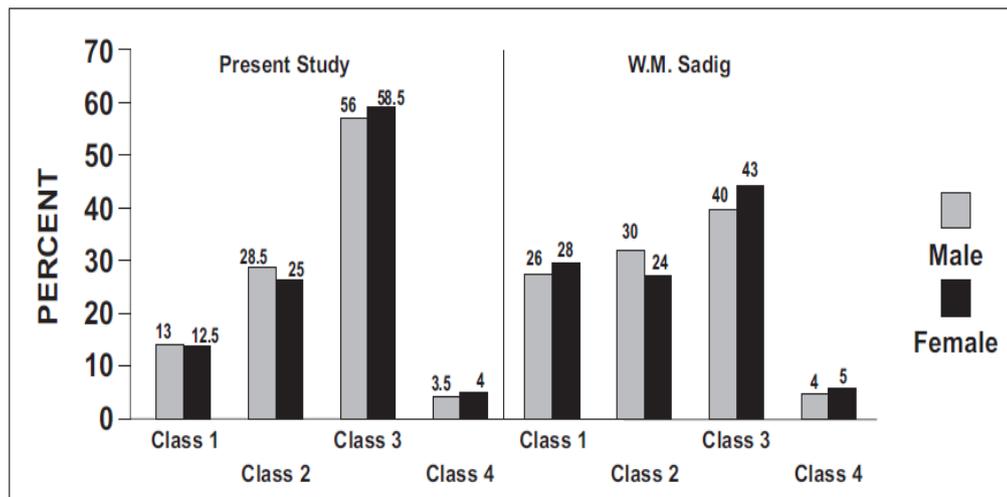Fig 3: Percentage distribution of various Kennedy's classes in various studies

Fig 4: Gender association with various Kennedy's classes

IV. DISCUSSION

Edentulism or tooth loss, can rob you much more than the ability to chew and properly digest food. It has serious social, psychological and emotional consequencies, impacting ypur quality of life, self image and self esteem. Edentulism results when one or more teeth are missing, or need removing due to injury or disease. With full edentulism, all teeth are missing with partial edentulism, one or more teeth are missing. Many studies have consistently shown the role of specific diseases like dental caries and periodontal disease as a major cause of tooth loss.[4] 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.[6] 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%.[15] Filiz KEYF14 (2001) and Walid M. Sadig4 (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 inFig 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 inlater 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.[4] 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 commonthan maxillary distal extension RPDs (Classes I and II).[16] 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. 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.

V. CONCLUSION

It's concluded that there is no gender correlation for partial edentulism. Also, prevalence of partial edentulism is more common in mandibular arch than maxillary arch. Younger adults had more Class III and IV RPDs. Older adults had more distal extension RPDs Classes I and II. This may be due to fewer sample size of the study, poor oral hygiene status of that particular locality, etc. Further evaluation based on bigger sample size, multi-location studies with details on the oral hygiene status of locality would be helpful. Further, it's observed that categorisation of modification spaces for Kennedy's Classes, prosthetic status, prosthetic need of the subject and their preference of the type of prosthesis are topics less studied. These topics could be prioritised by dental care experts in future studies.

VI. REFERENCES

[1]. Brodeur JM, Benigeri M, Naccache H, Olivier M, Payette M: Trends in the level of Edentulism in Quebec between 1980 and1993. J Can Dent Assoc1996; 62(2):159-160. 162–66.

[2]. Muneeb A. Causes and pattern of partial edentulism/ exodontia and its association with age and gender: semi rural population, Baqai Dental college, Karachi, Pakistan. *Idjsr*. 2013; 1(3):13-18.

[3]. Zaigham AM, Muneer MU. Pattern of partial edentulism and its association with 3. age and gender. *Pakistan Oral and Dental Journal.* 2010; 30(1):260-63

[4]. Ehikhamenor EE, Oboro HO, Onuora OI, Omanah AU, Chukwumah NM, [3] Aivboraye IA. Types of removable prosthesis requested by Patients who were presented to the university of Benin teaching hospital dental clinic. *J Dent Oral Hyg*. 2010; 2(2):15-8.

[5]. Abdel-Rahman HK, Tahir CD, Saleh MM, et al. Incidence of Partial edentulism [4] and its relation with age and gender. *Zanco J Med Sci*. 2013; 17:463-70.

[6]. Prabhu N, Kumar S, D'souza M, Hegde V. Partial Edentulousness in a rural [5] population based on Kennedy's classification: An Epidemiological study. *J Indian Prosthodont Soc.* 2009; 9(1):18-23.

[7]. Reddy NS, Reddy NA, Narendra R, Reddy SD. Epidemiological survey on [6] edentulousness. *J Contemp Dent Pract*. 2012; 13(4):562-70.

[8]. Akinboboye B, Azodo C, Soroye M. Partial edentulism and unmet prosthetic needs amongst young adult Nigeria. *Odontostomatol Trop*. 2014; 37(145):47-52.

[9]. Abdurahiman VT, Kahdar 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(4): 461-65.

[10]. McGarry TJ, Nimmo A, Skiba JF, Ahlstrom RH , Smith CR , Koumjian JH, et al. [9] classification System for Partial Edentulism. *J Prosthodont*. 2002; 11:181-93.

[11]. Naveed H, Aziz MS, Hassan A, Khan W, Azad AA. Patterns of Partial Edentulism [10] among armed forces personnel reporting at armed forces institute of dentistry Pakistan. *Pakistan Oral and Dental journal*. 2011; 31(1):217-21.

[12]. Keyf F. Frequency of the various Classes of removable partial dentures and selection of major connectors and direct/indirect retainers. *Turk J med sci*. 2001; 445-49.

[13]. Sadiq WM, Idowu AT. Removable Partial denture design: A study of a selected [12] population in Saudi Arabia. *J Contemp Dent Pract*. 2002;3(4):1-11.

[14]. Curtis DA, Curtis TA, Wagnild GW, Finzen FC. Incidence of various Classes of removable partial dentures. *J Prosthet Dent*. 1992;67:664-67.

[15]. Patel JY, Vohra MY, Hussain JM, et al. Assessment of Partially edentulous patients [14] based on Kennedy's classification and its relation with Gender Predilection. *International Journal of Scientific Study.* 2014;2(6):32-36.

[16]. Khalil A, Hussain U, Iqbal R, Ali W, et al. Patterns of partial edentulism among [15] patients reporting to Department of Prosthodontics, Khyber College of Dentistry, Peshawar. *JKCD*. 2013;3(2):42-45.