

A Survey of Partial Edentulism Using Kennedy's Classification: A Single Center Study

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ABSTRACT

Objective: To determine the frequency of Kennedy's classification in partially edentulous patients visiting Liaquat College of Medicine and Dentistry, Karachi.

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted at the Department of Prosthodontics at Liaquat College of Medicine and Dentistry, Karachi from February 2016 to March 2017.

Materials and Methods: A sample of 298 patients both male and females were examined by using Kennedy's classification in partially edentulous patients. The study included adult patients 15 years and above age group, all patients were clinical examinations follow Kennedy's classification. Kennedy's classes I, II, III and IV are classified according to age and sex of patients, also in the maxilla and mandible arch.

Results: The study also brought forth the incidence of Kennedy's Class II and Class III being the most prevalent in the oral cavity as compared to the Class I and Class IV, Class IV being the least commonly occurring.

Conclusion: The most common were Class II and Class III classification in both arches, mostly in the mandibular arch, points towards the fact of limited oral hygiene awareness in the patients.

Key Words: Kennedy classification, partial edentulism, dental arch

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INTRODUCTION

Tooth loss is prevalent amongst all age groups. A wide range of reasons can be listed as to why and how tooth loss occurs. The most common ones include gross dental caries, periodontal disease, dento-alveolar trauma, tooth avulsion due to accidents, orthodontic extractions, radiotherapy and oral cancer¹⁻³. Teeth are essential for the foremost way of obtaining nutrition, i.e., mastication. Including that, phonation and esthetics are some indispensable key attributes to the presence of teeth in the oral cavity⁴⁻⁶. It is very important at times when partial edentulousness occurs at crucial places where loss of function, e.g. phonetics or mastication, hinders patient's well-being and thus the patient loses his / her self-esteem⁷.

Partial edentulism usually refers to absence of few teeth from an arch within the oral cavity which leaves behind a space, or gap, between natural teeth, called the edentulous space¹⁶.

The different patterns which emerge with partial edentulism in patients referred for treatment indicate

the dental problems too, which can be addressed along with creating a simple classification system to confer the pattern of edentulism. Kennedy's classification of partial edentulism is used in this case.

Kennedy's classification of partial edentulism actually confers the pattern of edentulism within the oral cavity as it creates an image of the type of tooth loss. Plus, it also confers within the mind's eye the type of partial denture, its design and necessary components within it that need to be constructed, a rough idea if anything⁸⁻⁹.

According to past dental literature, there are a total of sixty-five-thousand potential combinations relating to partial edentulism prevalence in both arches within the oral cavity. To make matters simple, henceforth, a general emerging pattern is considered in a great majority of maxillary and mandibular arches, which makes the process easier to understand by the dental team of professionals¹⁷.

The objectives of this study is to determine the prevalent types of partial edentulism in the oral cavity in terms of Kennedy's classification, the arch in the oral cavity in which partial edentulism is most commonly encountered, and gender correlation with edentulism.

MATERIALS AND METHODS

A descriptive cross sectional study enrolled patients through non probability consecutive sampling. Patients were included who fulfilled the inclusion criteria and agreed to participate in the study after taking a written informed consent. An inclusion criterion includes gender, partial edentulous space in age between 15 and 80 years. The study did not include patients with lack of

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third molar, unerupted or absence of teeth, apical and loose teeth. According to previous studies, 26.9% cases were found to have a partial edentulism in mandibular arch⁶ with a power of 80%, a confidence interval of 95%, and an alpha level of 0.05, the required sample size was 298. Statistical analysis was performed on SPSS version 20 for windows. Results were presented as frequency and percentages in the form of tables and graphs.

RESULTS

A total of 97 patients were part of the edentulism in the two arches and 201 patients had only one arches with a total of 298 partially edentulous arches.

Table No.1: Demographic Characteristics of Study Participants

Mean Age (years)	35.4 ± 9.1
Gender (n%)	
Male	168(56.4)
Female	130(43.6)
Education Level (n%)	
Illiterate	66(22.2)
Primary	127(42.6)
Secondary	59(20)
Intermediate	34(11.4)
Bachelors	12(3.8)

Table No.2: Age Wise distribution of Kennedy Classes

Patient Age(years)	Kennedy Class n(%)			
	Class I	Class II	Class III	Class IV
15 - 24	0	3(5.1)	4(2.0)	0.0
25 - 34	14(50)	32(54.2)	115(57.5)	4(36.4)
35 - 44	9(32.1)	19(32.2)	57(28.5)	5(45.5)
45 - 54	4(14.2)	5(8.5)	13(6.5)	2(18.2)
55 - 64	0	0.0	5(2.5)	0.0
65 - 74	1(3.7)	0.0	3(1.5)	0.0
75 and above	0	0.0	3(1.5)	0.0

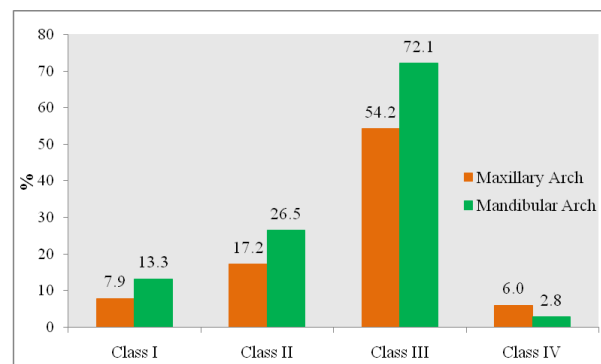


Figure No.1: Frequency of different Kennedy's classes among the maxillary and mandibular arches.

As shown in Figure 1, in both the upper jaw and the lower jaw third category of arches is the more frequent pattern partially edentulism (72% in the mandible, 54%

in the maxilla) and fourth category is the least pattern encountered (2.6% in the mandible and 6% in maxilla). Kennedy's class first, third and fourth is more common in men than women and the second category is more frequent in women.

DISCUSSION

Various studies have been undertaken on the incidence of patterns of Kennedy's classification all around the world. The Kennedy's classification is highly variable from country to country due to many factors like health and educational status, awareness of oral health care and maintenance, socio-economic status, and the importance of oral health¹⁰.

Several studies have shown that partial edentulism is more common in the mandibular arch than the maxillary^{6, 11-15}. Which agrees with the findings in the current study which also resulted in mandibular arches being more prevalent in partial edentulism, most probably due to teeth erupting in it before they erupt in the maxillary arch¹³.

Also the study demonstrated that men commonly present with partial edentulism than females. Which accounts for the dental literature, for example, Hoover *et al.* also reporting that partial edentulism is more prevalent in males than females¹⁸. However, according to another study by Marcus *et al.* stated that there was no possible correlation between partial edentulism and its prevalence in males and females being significant^{17, 19}.

The results in this study are also in agreement with the fact from other studies in the dental literature that Kennedy class III is the most prevalent in maxillary and mandibular arches²⁰⁻²⁴.

Limitations, though, in this study was that the educational status of the patients were taken in to account to determine the level of education in relation to the incidence of partial edentulism in the corresponding patients. Also, that most of the patients presenting with partial edentulism were of middle, or low, socio-economic status, so a limited group of patients was targeted, with not a large cross-section sampling as would have been preferred.

The least common but still present Kennedy's class IV classification occurred mostly in the maxilla which attributes concerns to the trauma rates and accidents mostly associated with this arch and these teeth being affected most commonly.

CONCLUSION

The most common incidence of Class II and Class III classification in both arches, mostly in the mandibular arch, points towards the fact of limited oral hygiene awareness in the patients visiting Liaquat College of Medicine and Dentistry. The need to mete out greater awareness of dental hygiene thus is brought into the limelight. The frequency of higher trauma rates in

maxilla and the resultant class III classification being relatively common associated with this arch shows that extra safety measures need be provided to patients, especially growing young adults.

Author's Contribution:

Concept & Design of Study: Irum Munir Raja
 Drafting: Muhammad Athar Khan
 Data Analysis: Farah Naz
 Revisiting Critically: Muhammad Athar Khan
 Final Approval of version: Irum Munir Raja

Conflict of Interest: The study has no conflict of interest to declare by any author.

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