

EVALUATION OF PARTIAL EDENTULISM BASED ON KENNEDY'S CLASSIFICATION AND ITS RELATION WITH AGE AND GENDER

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ABSTRACT

The aim of this study was to evaluate the proportion of the partially edentulous condition according to Kennedy's classification of edentulous arches and to find out the pattern of tooth loss & its relationship with gender & age.

This study was carried out at the department of prosthodontics of Ministry of Health, Amman, Jordan. The data were collected from 100 patients, aged above 20 years of both genders.

Partial edentulism pattern was recorded by clinical examination using Kennedy's classification.

Kennedy's class III was found to be the most frequent pattern in both maxilla 47.2% & mandible 46.8%. Class IV was the least common pattern.

Partial edentulism is more common in mandible than in the maxilla.

An overall greater turnover of males was found than females.

Key Words: Kennedy classification, tooth loss, partial edentulism.

INTRODUCTION

Oral health contributes significantly towards quality of life (QOL).¹ Loss of one or more teeth disturbs the functional balance of the remaining teeth and may result in migration, widening of proximal contacts and food impaction, bone resorption, occlusal interferences, loss of vertical dimension, altered mastication, anterior overloading, temporomandibular dysfunction with para-functional activities, altered phonetics, and aesthetics and psychological problems such as affected self-esteem and confidence.² Tooth loss has been reported to be mainly due to dental caries and periodontal disease.^{3,4,5} History of high tobacco consumption is also a risk factor for tooth loss.³

Edentulism (partial or complete) is a key indicator of the oral health of a population.⁶ An edentulous space in the dental arch is normally formed by one or multiple missing tooth.⁷ Edentulism also reflects the preventive dental treatment provided in populations. The partial prosthodontic replacement of missing teeth requires to restore the function.⁸

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.⁹ The primary purpose for the classification of partially

edentulous arches is to identify potential combinations of teeth to edentulous ridges in order to facilitate communication among dental colleagues, students, and technicians.^{9,10}

There are numbers of classification to classify the partially edentulous arches. The common ones are Cummer, Kennedy, Applegates, Neurohr, Bailyn, Wild, Skinner, Avant. Every classification has advantages and disadvantages.^{11,12} At present, Kennedy's classification is most commonly used and widely accepted because it provides immediate visualization and it allows the differentiation.^{13,14}

A positive relationship between tooth loss and age has been documented.¹⁵ The correlation between the pattern of tooth loss and socio-economic status has also been established.¹⁶ Literature review revealed that tooth loss differs by arch^{10,15}, with tooth loss being more common in maxilla than in the mandible, and posterior tooth loss usually preceding anterior tooth loss.¹⁷ According to Hoover and McDermont the prevalence of edentulism is higher in males than females.¹⁸

The pattern of tooth loss has been evaluated in many selected populations in different countries^{10,19,16,20,21} but a few studies have been carried out in Jordan. The objective of the study was to find out the pattern of tooth loss and its relationship with age and gender.

METHODOLOGY

This study was performed on a sample of partially edentulous patients who visited the diagnostic clinic

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in ministry of health centers in Amman, where they referred these patients to the Prosthodontic department in order to construct removable partial dentures. The sample was composed of 100 patients (55 males and 45 females), aged above 20 years old, having partial edentulous areas in one or both jaws. Any patients who was completely edentulous or had only missed third molars were precluded from this study. The patients were examined clinically under artificial light, using a sterile dental mirror and recorded the patterns of partial edentulism according to Kennedy's classification after consent. Descriptive statistics was carried out using SPSS 16.

RESULTS

Out of 100 patients, gender distribution was 55 males and 45 females Table 1. Frequency of partial edentulism was higher in mandibular arch (51%) as compared to maxillary arch (49%). Table 2 and 3 show gender distribution in different Kennedy's classes for maxillary and mandibular arches respectively. Kennedy's class III was the most common pattern in both arches (47.05%) followed by the class I (28.1%), class II (21.5%) and lastly class IV (3.2%). Distribution of various Kennedy's classes in maxillary arch (Table 4) and mandibular arch (Table 5) is summarised.

TABLE 1: DISTRIBUTION ACCORDING TO GENDER

Gender	Frequency	Percent
Male	55	55%
Female	45	45%

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

Gender	Class I	Class II	Class III	Class IV	Total
Male	11	10	16	1	38
Female	10	6	19	1	36
Total	21	16	35	2	74
Percentage	28.3%	21.6%	47.2%	2.7%	

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

Gender	Class I	Class II	Class III	Class IV	Total
Male	13	9	18	2	42
Female	9	8	19	1	37
Total	22	17	37	3	79
Percentage	27.8%	21.5%	46.8%	3.8%	

TABLE 4: DISTRIBUTION OF VARIOUS KENNEDY'S CLASSES IN MAXILLA

Type of classes	Frequency	Percentage
Class I	10	13.51
Class II	5	6.75
Class III	25	33.78
Class IV	2	2.7
Class I modification 1	6	8.1
Class I modification 2	5	6.75
Class II modification 1	5	6.75
Class II modification 2	6	8.1
Class III modification 1	6	8.1

TABLE 5: DISTRIBUTION OF VARIOUS KENNEDY'S CLASSES IN MANDIBLE

Type of classes	Frequency	Percentage
Class I	12	15.18
Class II	8	10.12
Class III	20	25.31
Class IV	3	3.79
Class I modification 1	7	8.86
Class I modification 2	3	3.79
Class II modification 1	5	6.32
Class II modification 2	4	5.06
Class III modification 1	10	12.65
Class III modification 2	7	8.86

DISCUSSION

In this study, Kennedy's classification were used as it provides immediate visualisation of edentulous space and easy description of the potential combination of ridge and teeth. In this study, patients of age groups 20-70 were surveyed, it was seen that the number of partially edentulous males 55 (55%) exceeded the female 45 (45%). The occurrence of partial edentulous in mandible higher than maxilla.

These result is in conformity with the result of Naveed et al study²² where the frequency of partial edentulism in mandible (67.4%) was higher than in the maxillary arch (63.2%) and the males show a higher proportion of edentulousness than females.

Another study was carried out by Curtis et al. At the University of California, school of dentistry¹⁹, the result of this study was also similar to the present study i.e the frequency of partial edentulism was higher in mandibular arch than maxillary arch. Kennedy's class

III is the most frequent type of partial edentulism (40.05%), followed by class I (28.1%), class II (21.5%) and the least common pattern class IV (3.2%).

This results show identity with Al-Dwairi's study.²¹ Al Dwairi's in a study, investigated the frequency of different patterns of partial edentulism of 200 patients in Jordan, out of 200 patients, 150 patients had partially edentulous maxilla and mandible of which class 3 Kennedy's classification was the most common pattern of edentulism in both maxilla (47%) and mandible (45%), where the Kennedy's class IV were the least common pattern observed.

These results are in agreement with the study of Sadiq and Idowu¹⁰, where the study was carried out on a Saudi population. They concluded that out of 422 partially edentulous arches examined, Kennedy's class III was the most common pattern found in both upper and lower arches and Kennedy's class IV was the least common pattern.

As the first molars erupts at around six years of age they are more vulnerable to development of dental caries and possibly representing for Kennedy's class III. More studies are needed in different centers in Jordan to form a national database of partial edentulous pattern which help us in identification of the causes of such tooth loss and their prevention.

CONCLUSION

The study concluded that class III is the most common in both arches. Partial edentulism was found to be more common in mandibular arch than in maxillary arch. Teeth loss appears to have an important role in the loss of esthetics and mastication, prosthodontic treatment is usually needed to restore these functions.

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