The incidence of different removable partial denture cases related to age, gender and archin a distinct population in Iraq

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Abstract:

Background: The classification of partially dentate cases allow identification the relation of teeth to edentulous ridges combinations, it investigate the partially edentulism pattern. Kennedy's classification systempermit immediate visualization and recognition of different edentulous spaces in the dental arch.

Aims of the study: Assessment the prevalence of the partially edentulous patients in Basrah city/south of Iraq and determines the correlation with age, arches and gender.

Materials and Methods: A cross-sectional study is applied for1000 partially edentulous male and female patients above 20 years age. Data collection based on face to face interview and clinical examination.

Results: According to the collected data, Kennedy's cases of Class III werethe most popular for bothgenders. The least was Class IV being less common pattern, its prevalence for males more than females.Maxilla is more than mandible in partially edentulism cases.

Conclusion: Kennedy most common classification for both maxilla and mandible dentalarches was Class III. The various classes prevalence not affected by gender, while patient age had a significant effect.

Keywords: Missing teeth, Kennedy classification, tooth-tissue supported

Introduction:

Natural teeth considered the main functional element inside the oral cavity.Missing teeth in the oral cavity lead to chewing difficulty, poor esthetics and speech alteration[1, 2].

The major cause for teeth loss in various ages was due to caries 83%then periodontal disease 17%[3].

Adult normally have 32 teeth, WHO illustrated that adult must have at least twenty oneteeth being functional to maintain ability ofgood chewing [4].

Appropriately designed removable partial denture (RPD) should restore speech, function of mastication, deglutition, improve esthetic, remaining tissues preservation and generally contribute to the health of the patient[5].

Modern dentistry focused on the preservation of natural teeth, which leads to decrease the complete denture numbers and rise the partial ones.

The tooth loss prevalence decreased significantly in many countries through the recent decades[6].

The relation of the remaining teeth with variouspattern of the edentulous space in the archnecessitates the classification of thepartially dentatedarches[7].

There are many classifications for partially edentulism, the common are Cummer,Neurohr, Kennedy, Applegates, Skinner and Bailyn, all of them have advantages and disadvantages[8, 9].

Kennedy'sclassification proposed by Edward Kennedy in 1925universally used sinceit provides visualization of the caseimmediately andpermits differentiation among teeth supported and teeth-tissue supported RPDs[10].

Kennedy divides partially edentulous arches into 4 main categories[11]:

Class I: area of bilateral edentulous spaces situated posterior toremaining functional teeth.

Class II: area of unilateral edentulous spacesituated posteriorto remaining functional teeth.

Class III: area of unilateral edentulous space with functional teethanterior and posterior to it.

Class IV: area of single but bilateral edentulous space situated anterior to remaining functional teeth.

Eight additional rules provided to Kennedy's system by Applegate in 1960.

The classification facilitates understanding and learning the RPD fundamentals design[12]. It alsoimprove the communication between dentists, dental students and laboratory technicians for the purpose of treatment planning[13, 14].

Various RPD patterns that fabricated must be periodically reviewed to give us guidelinesfor teaching[15, 16].

Objectives:

- Find the predominance of Kennedy's classification types based on age, gender and arch among the patients attending the dental collage in Basrah city/Iraqduring one year period.
- Establish databases about the frequencies of partially edentulismcases.

Materials and methods:

The current study was carriedout among patients visited department of Prosthodontics inside thecollege of dentistry/university of Basrah from October 2018 to June 2019.

One thousand patients were included (521 male and 479 female) they were categorized depend on their age into 5 groups: (20-29, 30-39, 40-49, 50-59, 60-70 years).

Pretested sheet includes details of missing teeth, name, age and sex was used. To prevent inter examiner bias, the same investigator examined all the patients using a probe and mouth mirror in sufficient light condition.

The missing teeth patterns were identified based on the Kennedy's classification.The3[rd] molars,fixed dental restoration and spaces being closedwere not deemed as lost teeth. Congenitally missing,un-erupted,loose teeth and retained roots that were indicated forextraction were excluded.

The collected data were inserted in a computerized spreadsheet (Microsoft Excel 2013) and analyzed by SPSS version 20.

Results:

A total of 1000 male and female patients were examined for the partially edentulousness incidence among both mandibular and maxillary arches, mean patients age was 45 years (ranging 20-70).

The study findings are expressed via descriptive statistic pattern.RPDs distribution according to gender in different age groups showed atTable 1.The obtained results indicatedmore gender variances, the male subjectsrevealedmoreexamined frequent cases in the current study than the femalesubjects.

Highestmale and female RPDs percentage was at age ranging from 30 to 39 years (23.1%),while the least removable frequency partial edentulous cases wasat age 20 to 29 years for female and male patients(14.6%).

The majority of the RPDs were fabricated for the maxillary arch compared to the mandibular arch, Few patients seeking both maxillary and mandibular RPDs. The distributions of various Kennedy classes in maxillary arch (table2 and figure 1) and mandibular arch (table 3 and figure 2) were summarized.

It is clear that Class III ofKennedy classification was the most frequent RPDs pattern in the maxilla39.27% and the mandible37.11%, whileClass IV ofKennedy classification was the least frequent RPD patternin the maxilla 7.72% and the mandible 7.13%.

The Class I percentages were 24.13% for maxilla and 27.71% for mandible while the percent ofClass II was28.86% for maxilla and 28.03% for mandible.

The maxillary RPD distribution patterns (Fig. 3) and mandibular RPD distribution patterns (Fig. 4).

Table: 1

Distribution of gender atvarious ages

Gender	20-29	30-39	40-49	50-59	60-70	Total	Percentage
Male	71	118	122	112	98	521	52.1%
Female	75	113	94	107	90	479	47.9%
Total	146	231	216	219	188	1000	100
Percentage	14.6%	23.1%	21.6%	21.9%	18.8%		

Table: 2

Distribution of gender at various maxilla classifications

Gender	Class I		Class II		Class III		Class IV		Total	
	N	%	N	%	N	%	N	%	N	%
Male	92	14.51	104	16.4	133	20.97	29	4.57	358	56.46
Female	61	9.62	79	12.46	116	18.29	20	3.15	276	43.53
Total	153	24.13	183	28.86	249	39.27	49	7.72	634	100

Table: 3

Distribution of gender at various mandibular classifications

Gender	Class I		Class II		Class III		Class IV		Total	
	N	%	N	%	N	%	N	%	N	%
Male	99	16.04	95	15.39	128	20.74	26	4.21	348	56.4
Female	72	11.66	78	12.64	101	16.36	18	2.91	269	43.59
Total	171	27.71	173	28.03	229	37.11	44	7.13	617	100

Figure 1: Distribution of maxillary Kenned's classification according to gender

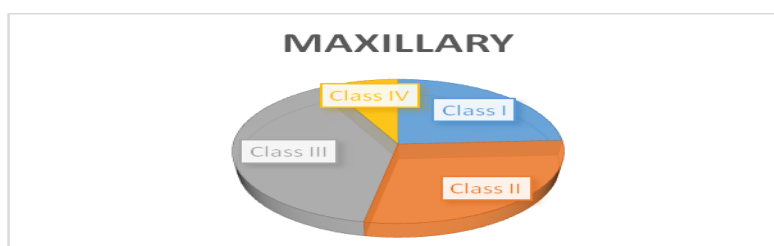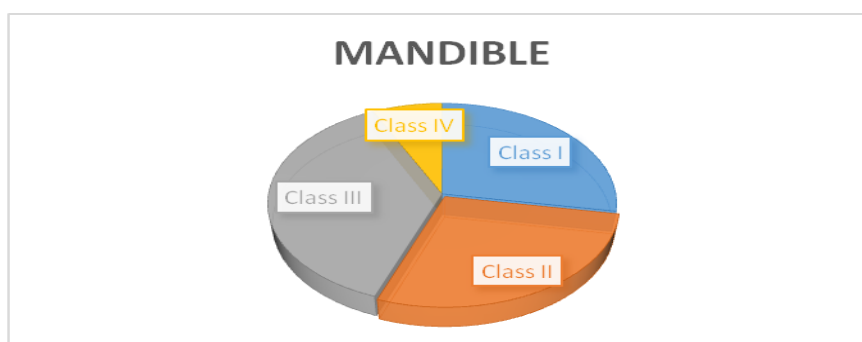Figure 2: Distribution of mandibular Kenned's classification according to gender

Figure 3: Various types of Kennedy's classification in maxilla

Figure 4: Various types of Kennedy's classification in mandible

Discussion:

Lost teeth associated with local factors like smoking, caries, pulpal diseases and poor oral hygiene measure. Ide et al., proved an intense correlation between extracted teeth number and the impact of oral health[17].

The fundamentalobjective in utilizing RPDs categorization is forsimplifyingteeth description to combination ofridges. In our study reaching to this purpose obtained by Kennedy classification[18].

In this paper, the menexpress higher edentulousness proportion than women which agreed with Hoover'sstudy [19].Nevertheless, various previous papers proved higher edentulousness proportion in women than men[20]. Such might attributed to different psychological factors, smoking and highsugars utilization.

The females RPDs count was more pronounced between 30–39 years of age, while for males RPDs count was more pronounced between 40-49 years of age, this results may be due to the low calcium level for the pregnant female between 30 and 39 year, or it may be attributed to the oral hygiene measure.

This study shows increased awareness among 30-49 years age group with big numbers of younger patients reporting to the department of prosthodontics for replacing their missing teeth.The early lost of teeth among young aged patients may be related to theirpoor oral hygiene and low socioeconomic status.

The present study results mention that maxillary edentulism frequency was more compared to mandibular edentulism among population study, possibly due to the general tooth loss pattern.

RPDs ofClass III pattern was detected being mostly predominant design among males and females in our study, this edentulism pattern most commonly located in both maxilla (39.27%) and mandible (37.11%) which is   agreed with of Shah et al[21].This findings may be related to the higher frequency of younger age groups was included, whereas higher frequency of older age was noticed in other studies. Also the present study agrees with Abdel-Rahman HK et al, 2013 for the least common mandibular class IV Kennedy's classification[22]. The limited use of class IV RPDs could be due to the fact of using implants or fixed prosthesis for anterior teeth when they are missing to give more natural and esthetic appearance.It was observed that mostly encountered Class I in mandibular archand Class IV in maxillary arch (Khalil A et al.,)[23]. The fabrication of free end RPDs could be attributed to masticatory purpose. Class I RPDs most commonly seen in lower arch than upper arch, whichrelated to that lower teeth erupt earlier and prone for higher caries rate and higher teeth extraction chance.

Conclusion:

 1. The upper jaws are more partially edentulous compared tothe lower jaws.

2. More male patients are asking for treatment inprosthodontics departmentcompared to females.

3. Class III patternwasthe most frequently cases observed whereas class IV pattern was the least partially edentulous cases.

4. Prevalence of different RPDs cases is a reflection of teeth loss pattern and also patients demand.

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