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### RESEARCH ARTICLE

#### PATTERN OF PREVALENCE OF PARTIAL EDENTULISM – A RETROSPECTIVE STUDY IN A PRIVATE DENTAL INSTITUTION IN SOUTHERN PART OF JEDDAH, SAUDI ARABIA.

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#### Abstract

**Introduction:** There is a significant variation in tooth loss distribution. These disparities may be attributed partly to the increased availability and accessibility to oral diseases prevention and control programs, as well as to increase in the awareness of the importance in oral health. Identifying the prevalence of pattern of edentulism helps in understanding the impact of oral hygiene care methods and prosthetic needs of a given population. This study will contribute the current data on the prevalence of partial edentulism in the population from across the world.

**Aims and objective:** To identify most common pattern of edentulism prevailing according to Kennedy's classification in the given population and correlating it to age, gender.

**Material and method:** Patients who received removable prosthesis for replacement of their missing teeth department of prosthodontics, ISNC, Jeddah were included in the study. Patient files and student log book were screened for the information such as age, gender, type of Kennedy's classification and design of the major connector were recorded. The data was subjected to statistical analysis.

**Conclusion:** Among 450 patient who received RPD, the class III modification 1 was the most common followed by class I.

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#### Introduction:-

Edentulism is defined according to Glossary of prosthodontic terms GPT(8) as state of being partially edentulous. Partially edentulism refers to loss of few teeth but not all. Teeth are important part of the stomatognathic system along with muscles of mastication and TMJ. Loss of teeth can be due various reasons from being extracted because of caries, periodontal disease, impactions, trauma and associated with cystic degenerations.<sup>(3)</sup> Dental caries and periodontal disease have been documented as the major causes of tooth loss in early childhood and adolescence<sup>[2,5]</sup>. Studies have also documented that age correlates positively with partial edentulism.<sup>[2,3,4]</sup>

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Partial edentulism leads to several drawbacks to the subjects including clinical challenges and lifestyle compromises. Clinically, partial edentulism results in drifting and tilting of adjacent teeth, supra eruption of opposing teeth, altered speech, changes in facial appearance and tempero-mandibular disorders. <sup>(1,2,6)</sup> On the lifestyle compromises, partial edentulism restricts dietary options, which leads to weight loss. Further, it leads to lack of confidence and confined social activities, which may adversely affect the quality of life and lead to psychological dissatisfaction. <sup>(9)</sup>

Understanding the pattern of edentulism is important to understand level of or impact of preventive measures practiced among the given population along with their awareness towards dental care. This also helps in understanding type of prosthetic intervention that is required in a given population.

The pattern of partial edentulism has been evaluated in many selected population in different countries. <sup>(3,4,5,6)</sup> Owing to the large population, a nationwide survey is difficult to do. However, the epidemiological features of partial edentulousness of one community can be assessed on the basis of a cross-sectional study.

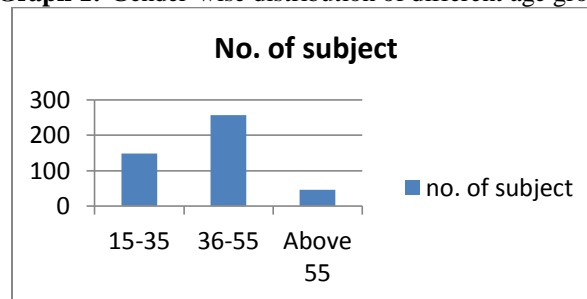
The present study was conducted with objective to find most prevalent pattern of partial edentulism in patients treated to receive RPD in southern part of Jeddah, Saudi Arabia and to continue contributing to the existing data in literature on pattern of prevalence.

### Materials and methods:-

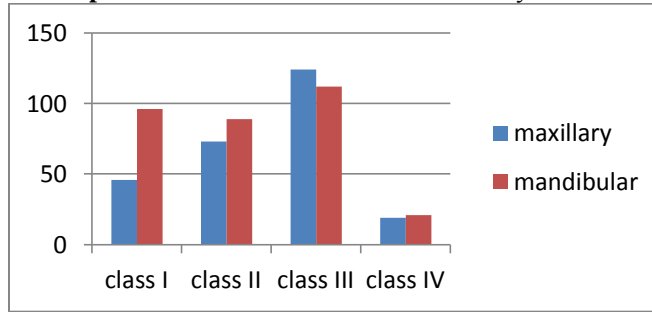
A retrospective study was conducted on patients who received partial denture prosthesis in the department of prosthodontics in past 3 years. A total of 450 patient files that were treated with removable partial denture prosthesis were checked. The patient files and student's portfolios were verified and patient's age, gender and type of Kennedy's class and type of major connector used were recorded. As the patients were treated according to phases of treatment, the teeth indicated for extraction were extracted early in the treatment and that therefore did not influence the Kennedy's classification of the arch. Kennedy's classification for the maxillary and mandibular arch as recorded in the department case history format in the students portfolio was used to identify the patterns of missing teeth. Classification mentioned in the case history was re-verified after checking the post treatment photographs of the patient. Type of major connector used in the removable prosthesis was also recorded. The data obtained was subjected to statistical analysis.

### Results:-

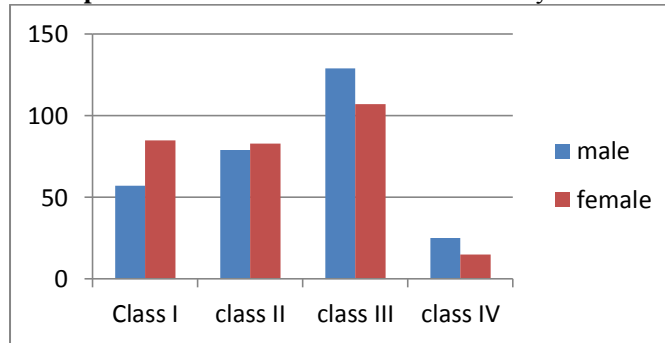
**Graph 1:-**Gender-wise distribution of different age group



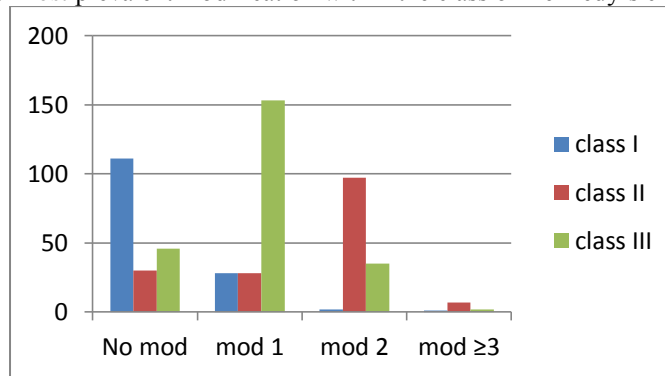
**Graph 2:-** Arch-wise distribution of Kennedy's classes



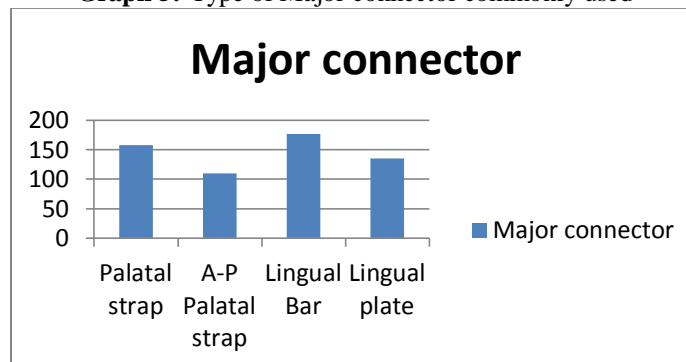
**Graph 3:-** Gender-wise distribution of Kennedy's classes



**Graph 4:-** Most prevalent modification within the class of Kennedy's classification



**Graph 5:-** Type of Major connector commonly used



### **Data interpretation and Discussion:-**

Many studies have been conducted to see the most prevalent pattern of distribution of partial edentulism. Owing to the vast population and difficulty in conducted survey on entire population it seems to be novice approach to find the prevalence of edentulism in a cross section of population. This adds to the current data available on the prevalence. Such study also provides insight on preventive measures that are practiced in the given population along with their effectiveness. This in turn will aid in national health program planners to address the key issues.

It becomes necessary to classify partially edentulous arches as there is variation in number and location of edentulous space and its relation to remaining natural teeth. These disparities may be attributed partly to the increased availability and accessibility to oral diseases prevention and control programs, as well as to increase in the awareness of the importance in oral health.<sup>8</sup>

It is increasingly recognized that the impact of the disease on quality of life should be taken into account when assessing health status. It is likely that tooth loss, in most cases being a consequence of oral diseases, which affects the oral health-related quality of life. These all reasons justify the need for study which is of continuous in nature and is conducted in select population across the world.

Classifying partially edentulous arches also facilitates communication among dental colleagues, students and technicians. Kennedy's classification proposed by Edward Kennedy in 1925 is most widely used and universally accepted as it allows immediate visualization of edentulous state.<sup>7</sup> Hence Kennedy's classification was used in the study.

Graph 1 shows number subjects who reported to our clinic for partial denture prosthesis were mainly in the Age group between 36-55 years. This indicates that this age group seek dental care which can be attributed to their importance given to standard dental care required to rehabilitate function along with esthetics.

Graph 2 indicate that Kennedy's class III (40.68%) was most prevalent in the given population in both maxillary and mandibular arches followed by Class II (27.93%) and Class I (24.48%) pattern. Class IV (6.89%) was least prevalent classification. Arch-wise evaluation indicated Kennedy's class III to be more prevalent in maxillary arch (47.32%) than mandibular arch (35.22%). It was also noted that Class I Kennedy was prevalent in mandibular arch (30.18%) than maxillary arch (17.55%). This finding is in line with many studies.<sup>10,13,14</sup>

Though Kennedy's class III was more commonly seen in maxillary arch, overall prevalence of partial edentulism was noted in mandibular arch was higher (54.82%). This finding was in harmony with many studies.<sup>11,12</sup> attributing to the fact that mandibular teeth erupt earlier in oral cavity and are more prone for higher caries experience. In our study we found Kennedy's class IV to be least prevalent which is also in accordance with another similar study by Abdel-Rahman HK et al.<sup>6</sup>

Many studies have indicated that partial edentulous state was more prevalent in males compared to females, but results Gender wise distribution (Graph: 3) in our study showed that gender had no statistically significant effect on prevalence of various Kennedy's classes. This finding is in line with the finding of study by Al-Dwairi, et al.<sup>14</sup> On further evaluating the data (Graph:4) it was noted that among Kennedy's Class III, it was class III with modification one was more common (64.83%) and in Kennedy's Class I it was Class I with no modification was more prevalent (78.16%). This finding is comparable with earlier studies<sup>8,12,14</sup>

In our study on verifying the data it was also noted that in maxillary cast partial dentures, palatal strap (27.24%) was more commonly used as major connector followed by antero-posterior palatal strap (18.96%). In mandibular cast metal RPD it was noted that lingual bar (30.51%) was used more commonly as major connector followed by lingual plate (23.27%). This finding was also found to be in accordance with other studies where type of major connector was noted.<sup>5,6,8</sup>

### **Conclusion:-**

Kennedy's class III pattern of partial edentulism was found to be more common followed by Kennedy's class I. Partial edentulism was more common in mandibular arch than maxillary arch. Gender had no statistically significant effect on pattern of partial edentulism.

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