

# Sociodemographic Factors and Partial Edentulism: An Exploratory Study

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## ABSTRACT

**Introduction:** 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 temporomandibular disorders. Also, the loss and continuing degradation of the alveolar bone, the adjacent teeth, and also the supporting structures will influence the difficulty to achieve an adequate restoration in a partially edentulous patient. So the present study was conducted to assess the sociodemographic factors and partial edentulism.

**Materials and methods:** Individuals of age 21 to 35 years were involved in the study. Information was collected by using a structured proforma. The pro forma consisted of sociodemographic factors, such as age, gender, socioeconomic status, demographic background, purpose for replacement of teeth. Clinical examinations were conducted in accordance with the procedures and diagnostic criteria recommended by the World Health Organization (WHO), 1997. Kuppaswamy scale was used to assess socioeconomic status of the individuals. Chi-square test was used to assess the difference between the variables and  $p < 0.05$  was considered as statistically significant.

**Results:** The present study comprised 378 individuals, out of which 147 (48.1%) males and 159 (51.9%) females were partially edentulous, 30 (73.1%) and 11 (26.9%) were dentulous, and 16 (51.6%) and 15 (48.4%) were edentulous respectively. And there was a statistically significant between the genders. Most of the subjects (46.5%) lost their teeth due to periodontal disease. Majority of the partially edentulous subjects were belonging to upper-middle class (51.7%). Most of the subjects replaced their teeth because of function/esthetic reason.

**Conclusion:** The present study concluded that prevalence of partial edentulism among study population was high.

**Keywords:** Kennedy classification, Partial edentulousness, Socioeconomic status, Tooth loss.

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## INTRODUCTION

Teeth are the main functional component of the oral cavity. Teeth have various functions that include mastication, speech, and esthetics. Absence of teeth in the oral cavity results in difficulty in chewing food, alteration of speech, and poor esthetics, which greatly affect the quality-of-life.<sup>1</sup>

Edentulism is the important problem throughout the world population. As irreversible condition it can lead to functional impairment, physical, psychological, and social disability. Dental diseases (especially dental caries and periodontal diseases) play an important role in tooth loss in the adult population throughout the world due to their high prevalence. At the age of 65 to 74 years,<sup>2</sup> 30% of the world population experience edentulous. Tooth loss has been associated with several sociodemographic, behavioral, or medical factors.<sup>3</sup>

Partial edentulousness is a dental arch in which one or more but not all natural teeth are missing. Generally, it occurs by caries, periodontal problems, traumatic injuries, impactions, supernumerary teeth, neoplastic, and cystic lesions. Some studies have reported caries as the main causative agent for tooth loss. According to Zaigham and Muneer<sup>4</sup> and Abdel-Rahman et al,<sup>5</sup> dental caries and periodontal disease were the major causes of tooth loss in early childhood and adolescence. Also, studies have documented that age correlates positively with partial edentulism.

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 temporomandibular disorders. Also, the loss and continuing degradation of the alveolar bone, the adjacent teeth, and also the supporting structures will influence the difficulty to achieve an adequate restoration in a partially edentulous patient. On the lifestyle compromises,

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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>6</sup>

Information about the frequency of tooth loss and its risk factors in developing countries is sparse. Relatively very few studies have been conducted to know the risk indicators related to tooth loss among Indian adults.<sup>7</sup> They reported that perceived need and attitudes toward dental care had an important influence on the use of care. The older people prompted to have a fatalistic attitude and were least likely to attend the dentist. So the present study was aimed to determine the relationship between sociodemographic factors and partial edentulism, and also to evaluate the prevalence of various classes of partial edentulism by using Kennedy's classification.

## MATERIALS AND METHODS

The present cross-sectional study was conducted at Rajiv Gandhi College of Dental Sciences, Bengaluru. Ethical approval was obtained from Institutional Review Board and informed consent was obtained from all the participants.

The study subjects were taken from the outpatient department of prosthodontics. Participants who are in the age group of 21 to 35 years were involved in the study. Information was collected by using a structured pro forma. The pro forma consisted of sociodemographic factors, such as age, gender, socioeconomic status, demographic background, purpose for replacement of teeth.

Clinical examinations were conducted in accordance with the procedures and diagnostic criteria recommended by the WHO, 1997.<sup>8</sup> Kuppaswamy scale<sup>9</sup> was used to assess socioeconomic status of the individuals.

Statistical Package for the Social Sciences (SPSS) version 20 was used to analyze the data. Chi-square test was used to assess the difference between the variables, and  $p < 0.05$  was considered as statistically significant.

## RESULTS

The present study comprised 378 individuals out of which 147 (48.1%) were males and 159 (51.9%) females were partially edentulous, 30 (73.1%) and 11 (26.9%) were dentulous, and 16 (51.6%) and 15 (48.4%) were edentulous respectively. In addition, there was a statistically significance between the gender shown in Table 1.

Table 2 reveals majority of the partially edentulous subjects; 172 (56.3%) were from urban when compared with rural. Most of the subjects (46.5%) lost their teeth due to periodontal disease (Graph 1). Majority of the partially edentulous subjects were belonging to upper-middle class (51.7%), as shown in Table 3. Majority of the subjects

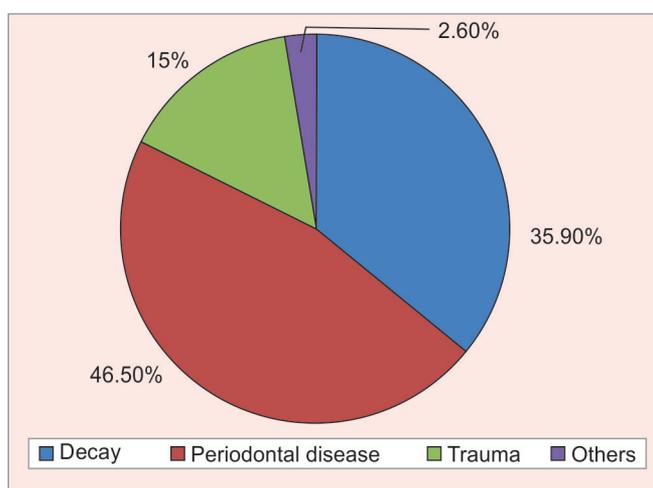
**Table 1:** Distribution of study subjects according to gender and type of edentulousness

Gender	Partially edentulous (%)	Dentulous (%)	Edentulous (%)	p-value
Males (218)	147 (48.1)	30 (73.1)	16 (51.6)	0.0001
Females (160)	159 (51.9)	11 (26.9)	15 (48.4)	HS
Total	306 (80.9)	41 (10.9)	31 (8.2)	

$p < 0.05$ ; HS: Highly significant

**Table 2:** Type of residence and edentulousness among study subjects

Residence		Partially edentulous (%)	Dentulous (%)	Edentulous (%)
Urban	Males	82 (47.6)	21 (72.4)	10 (50)
	Females	90 (52.4)	8 (27.6)	10 (50)
	Total	172 (56.3)	29 (70.7)	20 (64.5)
Rural	Males	56 (41.7)	7 (58.3)	6 (54.5)
	Females	78 (58.3)	5 (41.7)	5 (45.5)
	Total	134 (43.7)	12 (29.3)	11
Overall		306 (80.9)	41 (10.9)	31 (35.5)



**Graph 1:** Different reason for loss of teeth among partially edentulous subjects

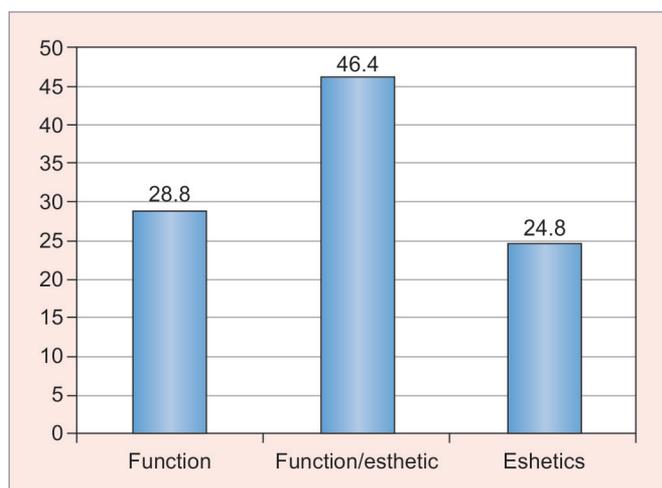
**Table 3:** Social class and edentulousness among study subjects

Edentulousness	Upper class (%)	Upper middle (%)	Lower middle (%)	Lower upper (%)
Partially edentulous	12 (3.9)	158 (51.7)	126 (41.2)	10 (3.2)
Dentulous	0 (0)	16 (39)	20 (48.8)	5 (12.2)
Edentulous	0 (0)	12 (38.7)	15 (48.4)	4 (12.9)

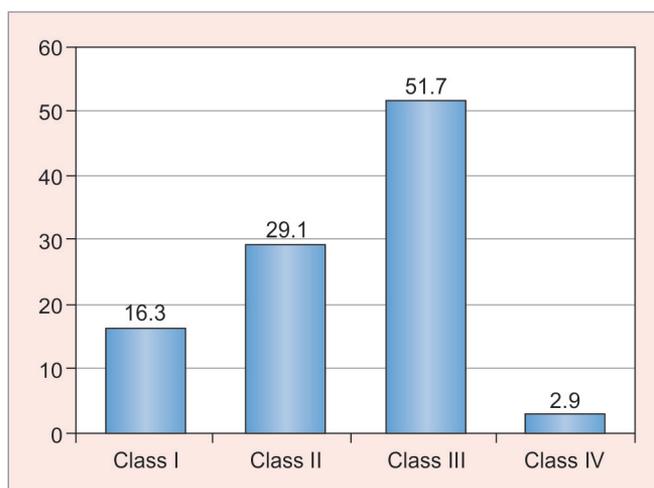
replaced their teeth because of function/esthetic reason (Graph 2). Kennedy's classification for upper and lower jaw is shown in Graphs 3 and 4 respectively.

## DISCUSSION

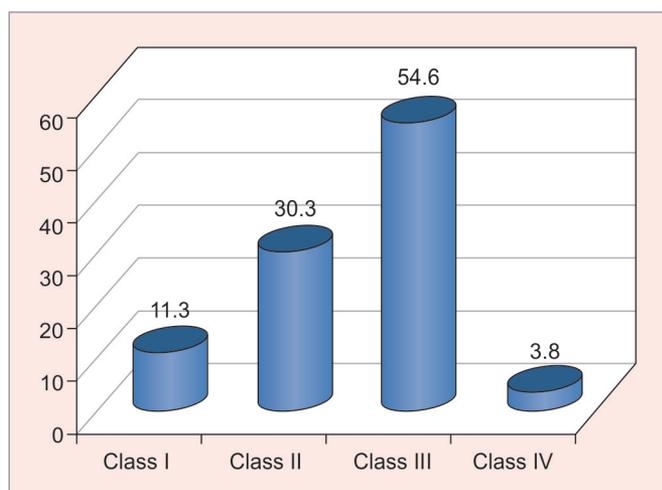
Tooth loss increases with progressing age. As age increases the number of partially edentulous patients decreases,



**Graph 2:** Reason for replacement among partially edentulous patients



**Graph 3:** Kennedy's classification for upper jaw



**Graph 4:** Kennedy's classification for lower jaw

leading to complete edentulousness. World Health Organization (WHO) Global Indicators of Oral Health state that 75% of the population should have at least 20 functional teeth at the age of 35 to 44 years. Above 60 years, 50% of the population should have at least 20 teeth.<sup>10</sup>

The present study comprised 378 subjects in that 306 were partially edentulous, 31 were completely edentulous, and 41 were completely dentulous patients, which is in contrast with the few studies,<sup>11</sup> where complete edentulousness was more prevalent among rural adults.

The number of partially edentulous females, 159 (51.9%), outnumbered the males, 147 (48.1%). This is in accordance with earlier studies, which have reported more females than males having partial edentulousness.<sup>12,13</sup> Females in this surveyed group had a lower level of education and employment status, because of which they had to depend on the male members of the family to take them for treatment. This could be a possible reason for more females being partially edentulous. A higher proportion of males 30 (73.1%) were dentulous compared

with females 11 (26.9%). This could be because most males were employed and had better access to treatment.

It is observed that the percentage of population who are in the upper-middle and lower-middle income groups exhibited a greater proportion of partial edentulousness [158 (51.7%) and 126 (41.2%)] as compared with the high income group (3.9%). This could be attributed to the fact that the lower income group people could not have afforded treatment procedures that would have saved their tooth in question and therefore opted for extraction, which contributed to high percentage of tooth loss. These results are similar to the studies.<sup>14,15</sup> The population who had basic primary education or less had a higher percentage of partially edentulous people than those who had secondary education or above. This could be due to lack of awareness about oral health among less educated people.

In the present study, the main reason for tooth loss is periodontal disease (46.50%). Dental caries and periodontal disease are the two main risk factors for partial tooth loss. Studies on self-perception of prosthodontic needs demonstrated that oral function and esthetics are important elements in improving the quality-of-life.<sup>16</sup>

In the present study, the main reason for replacement of teeth is for function and esthetic purpose. It is similar to the study<sup>17</sup> observed that most of the patients had missing teeth in the posterior regions, indicating lack of function as the main reason for replacement of teeth. However, when patients had missing teeth in the anterior region along with missing teeth in the posterior region, their primary reason for replacement was esthetics.

In the present study, Kennedy's class III is the most frequent type of partial edentulousness in upper and lower jaw, i.e., 51.7 and 54.6% respectively, followed by class II, class I, and lastly class IV. It was also found that partial edentulousness was more common in the mandible as compared with the maxilla. This could be due to the fact

since the molar is the first tooth to erupt in the oral cavity, having a higher caries percentage or periodontal problem and a higher chance of the tooth being extracted. Mandibular teeth were lost early because lower teeth erupt earlier in the oral cavity and this is probably related to the general pattern of tooth loss.<sup>18</sup>

## CONCLUSION

Within the limitation, the present study concluded that prevalence of partial edentulism among study population was high. Also, prevalence of partial edentulism is more common in mandibular jaw than maxillary jaw.

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