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ASSOCIATION OF GENDER AND MISSING TEETH - A RECORD BASED STUDY

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ABSTRACT

Loss of tooth is mainly attributed to dental caries. Gender prevalence of tooth loss is an important parameter for prevention. The aim of the present study was to evaluate the association of gender and missing teeth based on the Decayed Missing Filled Teeth (DMFT) index. A sample of 4403 patients were taken in the study. Data of the patient with DMFT index recorded was taken by reviewing the case sheets of patients visiting a private dental college. Missing teeth was tabulated in Excel. Statistical analysis of the data was done using SPSS version 19. Descriptive statistics was used. Chi-square test was done. P value for the study was set at 0.05. From this study, it was found that the frequency of males (54.9%) was more than that of females (45.1%). Frequency of missing teeth in the range of 0 to 7 was considerably higher (93.1%). Males and females have a higher incidence of missing teeth in the range of 0 to 7. The result was statistically significant. (P value-0.01) Within the limits of the study, it was concluded that 0-7 missing teeth was most prevalent among males and females when compared with other groups of missing teeth. Gender based association shows that females were more commonly affected with the highest possible number of missing teeth when compared to males.

Keywords: caries; DMFT index; gender; tooth loss

INTRODUCTION

An individual's history of dental disease and its treatment by dental services over the lifetime is often reflected upon tooth loss being an outcome [1]. The patients' and dentists' attitude towards the treatment, the dentist-patient relationship, accessibility to dental services and the prevailing philosophies of dental care are certain factors that determine tooth loss [2].

Tooth loss is the final outcome of a multifactorial process that involves not only disease related conditions but also other factors. Among psychosocial risks, there are factors which have widely been confirmed to be rare factors such as systemic diseases or depressive symptoms. Oral health behaviour, lower education, low income and smoking have been consistently demonstrated as risk factors for tooth loss [3]. Tobacco, obtained from tobacco leaves contains nicotine, an addictive ingredient [4]. Several studies have found positive association between alcohol consumption and tooth loss [5].

Oral diseases such as dental caries and periodontal diseases generally result in tooth loss. Poor oral health and tooth loss have a profound effect on general health, quality of life, leading to poor dietary habits as well [6, 7]. Dental caries is a major health problem affecting the public [8]. Dental caries

prevalence in India is 31.5% to 89% [9]. Carious lesions most commonly occur in the pits and fissure in the occlusal region of molars, as they are 8 times more vulnerable than smooth surface lesions [10-12]. Early childhood caries in children affect the successor permanent teeth. Hence, this disease should be carefully looked upon [13]. Grossly decayed teeth in children are restored with stainless steel crowns [14]. The initial lesion in dental caries is called an incipient lesion and the disease progression should be terminated here [15]. Although the patterns of dental disease are gradually changing, dental care and periodontal disease are still the most important reason for extraction of permanent teeth among the population. Because of the impact of tooth loss on the functional and social economic aspects, it is essential to identify the reasons for extraction of permanent teeth in individual populations so that dental health policies can be developed more effectively [16].

Dental caries is still a major health problem in the developed and developing countries affecting the school children and majority of the adults. In most of the developing countries, the dental caries index was low and the prevalence is increasing rapidly in

recent times. This is due to the increase in sugar consumption and inadequate use of fluorides for caries prevention. Caries prevalence in the industrial countries has been decreasing over the past 20 years. This has been largely due to the public health programmes, such as effective fluoride programmes along with healthy lifestyle and improved self-care activities. In children and adults, teeth affected due to caries are generally extracted, so that the pain or the discomfort caused is relieved. Hence, public health programmes related to tooth loss and impairment of oral function are thus expected to increase in the developing countries. Various clinical trials and reviews have been conducted by our team [17–25]. Now we are focusing on epidemiological studies. The aim of the present study is to evaluate the association of gender with missing teeth.

MATERIALS AND METHODS

The study was conducted in a university setting in Saveetha dental College. The ethical approval was procured from the ethical board of Saveetha University. Non-probability sampling was done for the study. Sampling was done from June 2019-April 2020. Number of cases that were reviewed for the study was 4403. Cross verification of the study was done photographically. The study included patients with DMFT index.

To minimise sampling bias, all the available data was included and no sorting process was done.

Data for the study was obtained from the Dental Information Archiving System (DIAS) which is a patient management software. The DMFT record of the patient was collected. The missing teeth data was tabulated. Excel tabulation of the data collected was done. Variables for the study were defined. Incomplete and censored data was excluded from the data collected for the study.

Statistical Analysis:

The data collected by reviewing the case sheets of patients which was tabulated and analysed. The data was important to SPSS version 19. Analysis of the data was done using descriptive statistics to evaluate the association of gender and missing teeth. Descriptive statistics of frequency was used for gender and missing teeth. The independent variables in the study were gender and the dependent variable is missing teeth. The type of analysis that was performed was a chi-square test to study the association between gender and missing teeth. Correlation and association type of analysis was done. P value for the study was set at 0.05.

RESULTS AND DISCUSSION

In the study, it was found that of the 4403 case sheets of DMFT patients that were studied, 2417 patients (54.84%) for males and 1990 patients (45.16%) were females. Thus, males were considerably more in number than females (**Figure 1**).

The missing teeth were grouped into four; 0-7, 8-14, 18-21, 22-28. In the study, it was found that the prevalence of patients with 0-7 missing teeth was the most prevalent which was 4100 (93.1%). About 245 (5.6%) of the patients were found with 8-14 missing teeth, 52(1.2%) of the patients had 15-21 missing teeth and 3 (0.2%) of the patient had 22-28 missing teeth (**Figure 2**).

Among males, prevalence of 0-7 missing teeth was the most significant, frequency being 2282 (51.82%). The prevalence of 8-14 missing teeth among males was 104 (2.36%). 27 (0.6%) of males had 15-21 teeth missing. Only three males of the 2416 had 22-28 missing teeth (0.07%). Among females, similar to males, 0-7 missing teeth was the most predominant, frequency being 1818 (41.28%). The prevalence of 8-14 missing people was considerably more in females, being 141 (3.20%). The prevalence of 15-21 teeth missing was 25 (0.57%) similar to males. In females, four of 1987 females (0.09%) had 22-28 missing teeth. The p value

of the above result <0.05 hence it was statistically significant (**Figure 3, Table 1**).

In the present study, it was found that males had higher prevalence of tooth loss than females. 0-7 missing teeth was most prevalent in the study. The prevalence of 0-7 missing teeth were more in males and females.

Caries variable and periodontal disease variables seem to be important predictors of occurrence of tooth loss, but at the tooth level, caries would seem to be predominant cause of tooth loss [26]. In a study conducted by Benley *et al*, it was found that 42.9% of males and 47.9% of females had tooth loss. The findings are in accordance to the present study, where females were more commonly affected than males [27]. Similar results were obtained by Reddy *et al*, a study that was done in the Kadappa district of India [28]. It has been studied that women have more missing teeth than men in some countries [1]. In a study conducted by Pradeep *et al*, it was found that dental caries was the most common cause for extraction in females (46.5%) [16]. Gomes *et al*, found that loss of 12 was the most common (32.7%). The associated risk factor for this group of individuals was found to be caries [29]. It was found that three missing teeth was most prevalent in females (43.16%) and

males (56.36%). The subjects in this study with five or more missing teeth was significantly very less compared to the present study [28].

The limitations of the present study are that the age variations and risk factors for tooth

loss are not evaluated. Early diagnosis of dental caries prevents tooth loss that results in increased functional efficiency and aesthetics.

Table 1: Association of Gender and Missing Teeth

Gender	0-7 missing teeth	8-14 missing teeth	15-21 missing teeth	22-28 missing teeth	p value
Male	2282(51.82%)	104 (2.36%)	27(0.61%)	3(0.07%)	0.001*
Female	1818 (41.28%)	245(3.20%)	52(0.57%)	3(0.09%)	

* - Statistically highly significant; Pearson chi square value 16.534

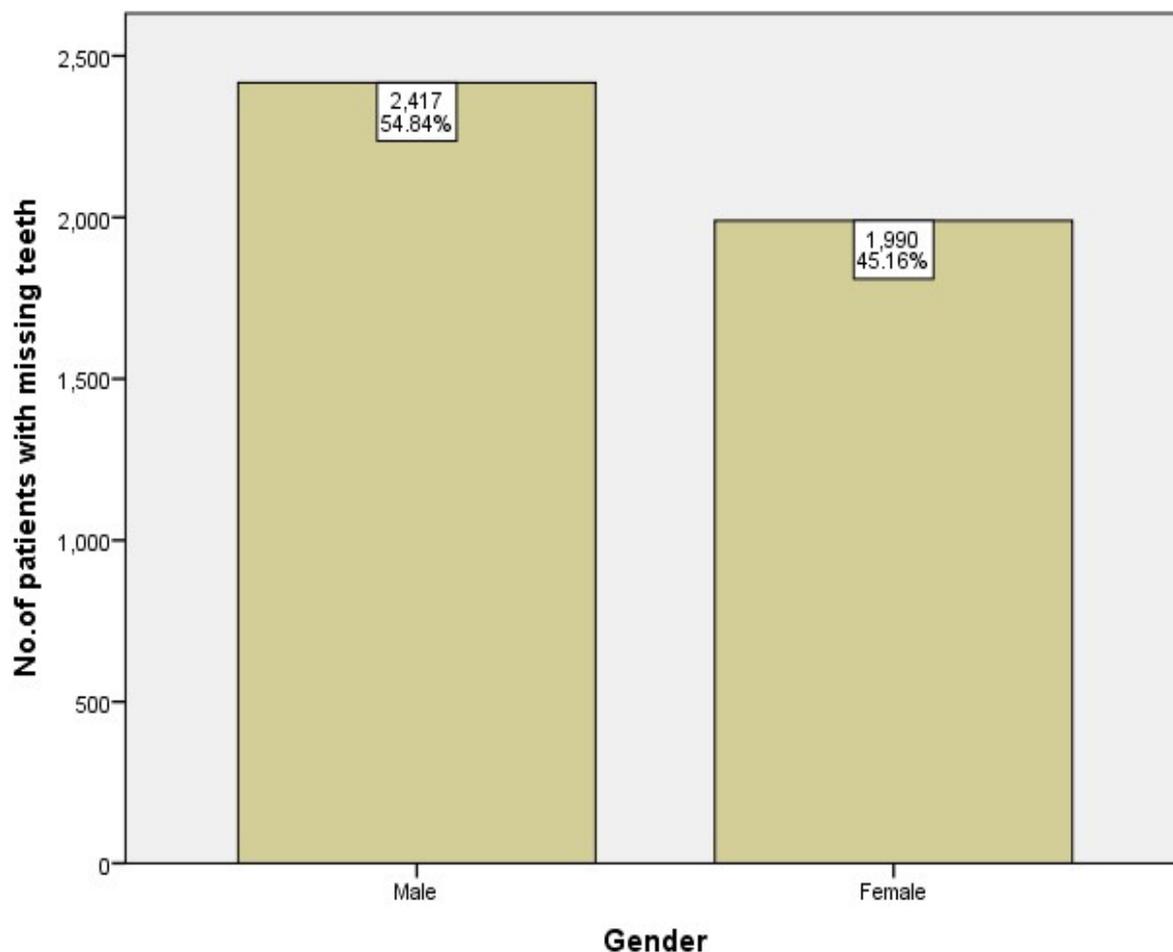


Figure 1: The above depicted bar graph shows gender based distribution of missing teeth (DMFT Index) . The X-axis denotes gender. The Y-axis denotes the number of patients with missing teeth. Males are more predominant (54.84%) than females.

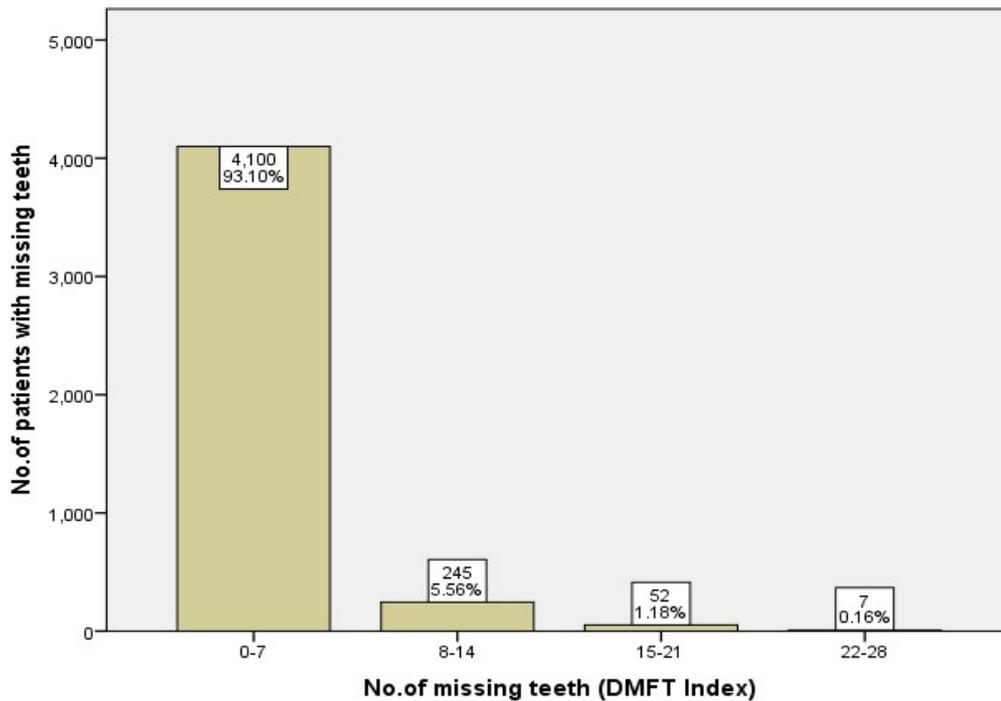


Figure 2: The above depicted graph shows frequency of missing teeth in patients. The X-axis denotes the number of missing teeth based on the DMFT index. Y-axis denotes the number of patients with missing teeth. Missing teeth in the range of 0-7 was the most predominant (93.10%) among the study population.

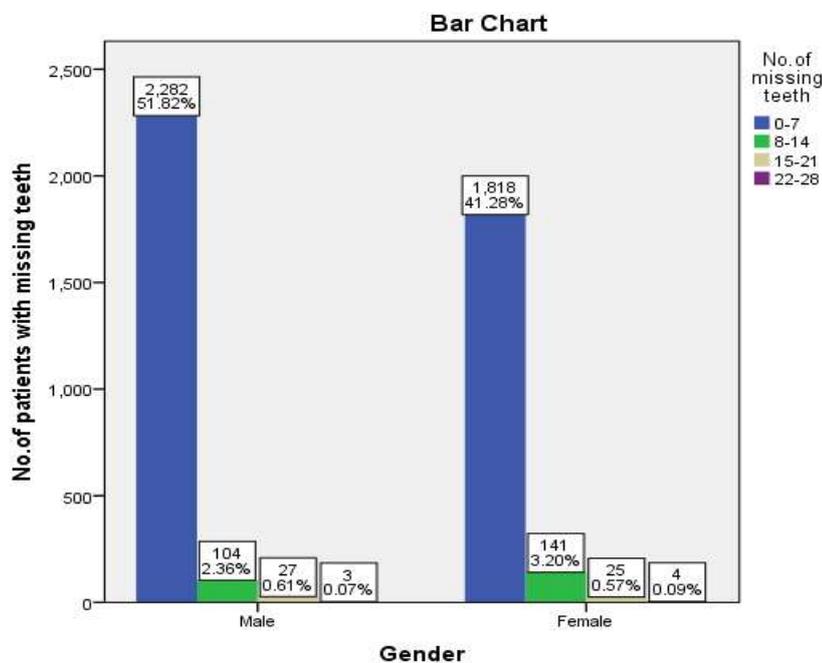


Figure 3: The above depicted bar graph shows association between gender and number of missing teeth based on DMFT index. The X-axis denotes gender and Y-axis denotes the number of patients with missing teeth. Highest possible (3.20%) number of missing teeth, 8-14 (green bar) was more common in females when compared to males and this was statistically significant. (Chi-Square test- p value:0.001).

CONCLUSION

Within the limits of the study, it was concluded that 0-7 missing teeth was most commonly present when compared to other groups of missing teeth. Gender based association shows that females were more commonly affected with the highest possible number of missing teeth when compared to males.

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CONFLICT OF INTEREST

There was no conflict of interest.

AUTHOR CONTRIBUTIONS

Keerthana Baskar, carried out the retrospective study, planning the study design, collection and analysis of data and drafted the manuscript. Dr. L. Leelavathi and Dr. Sreedevi aided in conception of the topic, supervision and appraisal of the manuscript.

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