Comparison Of Number Of Teeth Lost In Periodontitis And Dental Caries In Age Group Of 30-60 Years.

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Abstract: Tooth loss can have profound effects on the individual< hence the prevention and treatment of the etiology of tooth loss is very important. The aim of the study is to compare the number of teeth lost due to periodontitis and dental caries in the age group of 30-60 years of age. Data was reviewed and analysis of the data of 110 patients were done. The data collected was from patients visiting the OP department, the data was then tabulated and statistical analysis was done in SPSS statistical analysis by IBM and the results were obtained. Out of 110 patients that were studied, 54.54% were female subjects and 45.45% were male subjects. The most common reason for extraction was found to be due to dental caries. The overall age group that underwent tooth extraction were 32-48 years with a gender predilection of females. Awareness programs must be initiated for various oral hygiene maintenance focusing on the prevention and the treatment of oral diseases.

Keywords: Tooth loss; Periodontal disease; Periodontitis; Dental Caries; Inflammation

INTRODUCTION:

Tooth loss is a multifactorial process which involves factors such as dental caries; periodontal disease; and a variety of socio-environmental factors such as socio-economic status (SES), educational levels, access to care, and insurance status; and general health status etc. The most common cause of tooth loss is due to Periodontal disease and Dental Caries. These two diseases are caused by microorganisms present in the oral cavity. Soft deposits form on the tooth surface are termed as dental plaque.

Periodontal disease is a chronic inflammatory disease of the periodontium and the advanced form is characterized by the loss of periodontal ligament and destruction of the surrounding alveolar bone (1) which is the main cause of tooth loss and is considered as one of the two biggest threats to oral health. (2), (3) There are approximately 800 species of bacteria identified in the oral cavity (4) and some of the species are commensals and have symbiotic relationship with the host. They are mostly gram positive aerobic bacteria. When they accumulate below the sulcus in the form of biofilm they tend to grow as communities. As more and more organisms colonize, oxygen deprivation occurs and paves the way for the growth of anaerobic organisms like Porphyromonas gingivalis, A.actinomycetem comitans. These organisms release toxins and modify the immune response of the host causing destruction of our own tissues. This destruction leads to attachment loss and bone loss leading to periodontal disease. Periodontal disease is the most common oral condition of the human population secondary to dental caries. The prevalence and incidence statistics of periodontal diseases in different parts of the world vary because of bias, case misclassification, and the number of teeth and the sites examined. (5) Periodontal treatment aims at restoring the lost structures by regeneration and in cases where its not possible repair is done. Attachment loss in the form of gingival recession can be managed by gingival augmentation procedure and root coverage procedures like Coronally advanced flap (CAF). CAF is a predictable treatment for isolated Miller's class I and II recession defects. Some researchers used Platelet Rich Fibrin (PRF) along with root coverage procedures for effective regeneration. The addition of PRF to CAF provided no added advantage in terms of root coverage except for an increase in GTH. (6)

Dental caries is the most prevalent chronic disease worldwide. It's an infectious disease characterized by a multifactorial etiology and slow evolution that leads to the destruction of dental hard tissues. The risk factors for dental caries can be classified into biological, socio- behavioral and economical. Socioeconomic factors such as income, literacy level and number of family members impact the disease incidence. Many other factors such as dietary factors, oral hygiene practices and frequency of dental visit play a role as well. (7) It is well established that saliva plays an important role in the health of soft and hard tissues in the oral cavity. The early stages of this

disease are reversible by the elimination of etiological factors (such as plaque biofilm and diet) and increasing protective factors (such as fluoride exposure and salivary flow).Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (8–31)

The implementation of preventive measures, the need to invest in the education for the correct oral hygiene practices of oral health, associated with preventive and continuous medical and dental care, are key to the awareness of populations of its existence and to the decline of its prevalence (32).

MATERIALS AND METHODS:

This study was done in a university setting i.e. patients visiting the OP department. The pros being the data availability and similar ethnicity and the cons being that the data is not location specific. The data obtained was from the institution and scientific review board. There are three people involved in the research namely the researcher, the reviewer and the guide. The data was collected from a particular time period which was June 2019 to March 2020. Cross verification of the data was done by photographs. Inclusion of all data was all done to reduce minimise sampling bias. Internal validity present by excluding confounding factors. External validity results can be applied to practical situations. A study sample of 110 cases were included in this study.

Data collection and tabulation- data collection was done by Dental Information Archiving Software- periodontitis- treatment report- no of teeth lost and dental caries. Censored and incomplete data, patients with healthy gingiva, pregnant or breastfeeding, drugs influencing gingival inflammation were excluded from the study.

The statistical analysis used was chi square test and the statistical analysis used was SPSS by IBM. The list of independent variables includes tooth number and the dependent variable includes age and gender. The type of analysis done was correlation and association.

RESULTS AND DISCUSSION:

A total of 110 cases were collected and tabulated. Out of which 68.2 % of the extractions were due to dental caries and 31.82% were found to be due to Periodontitis (figure 1). The most common age group that underwent extractions due to periodontitis was 48 years of age (figure 2) and the common age group that underwent extractions due to dental caries were 32 and 40 years of age (figure 3). The highest frequency of extractions due to periodontitis were among male subjects for dental caries (figure 4) and female subjects for periodontitis (figure 5).
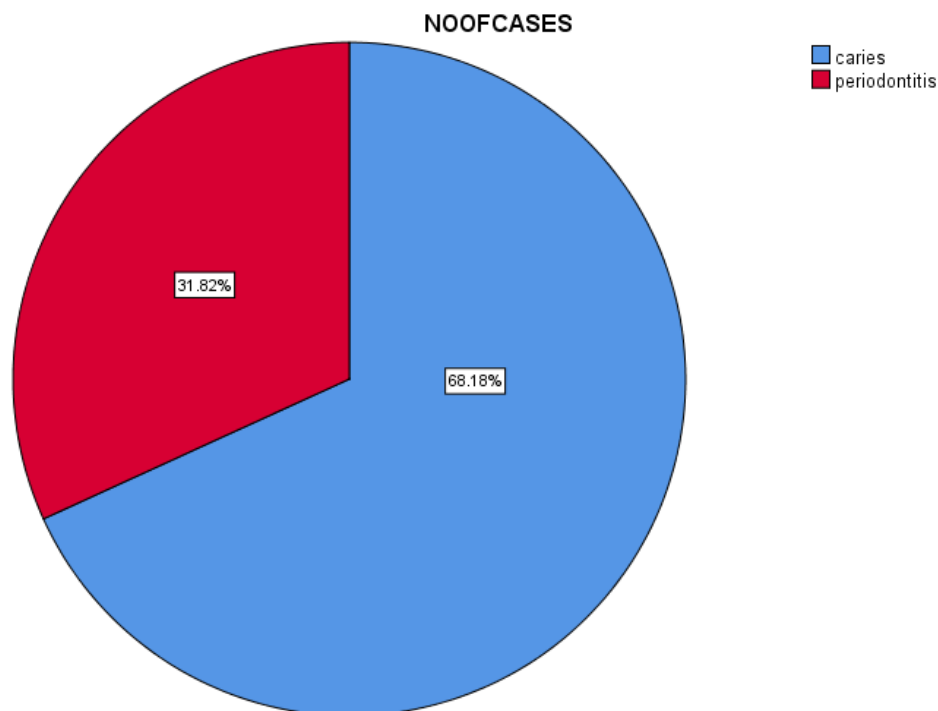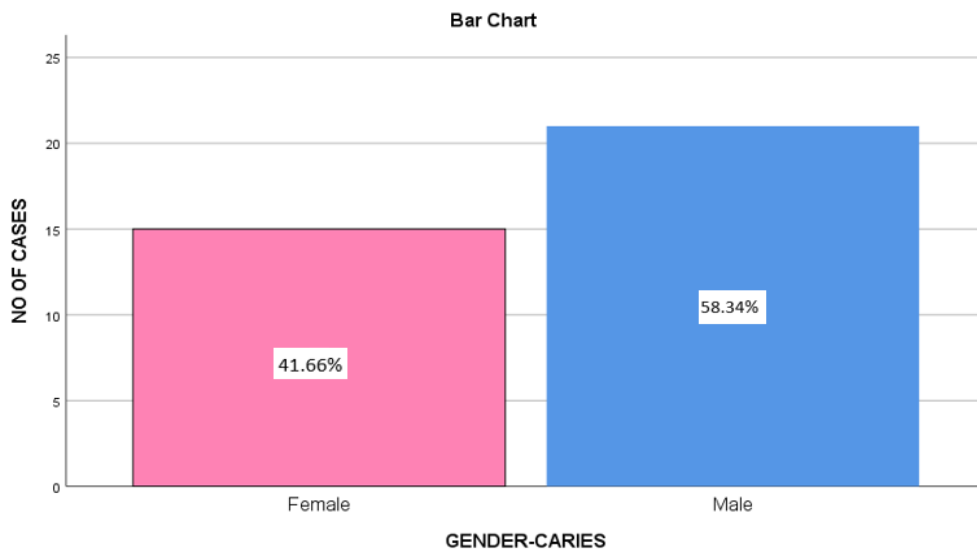

Fig.1: Pie chart represents the number of cases of tooth loss due to periodontitis and caries showing higher frequency of extractions due to dental caries compared to periodontitis. The percentage of extraction due to caries was 68.2% (blue colour) and that of periodontitis was 31.8%. (red colour) chi square test, p value=0.001, <0.5 statistically significant).
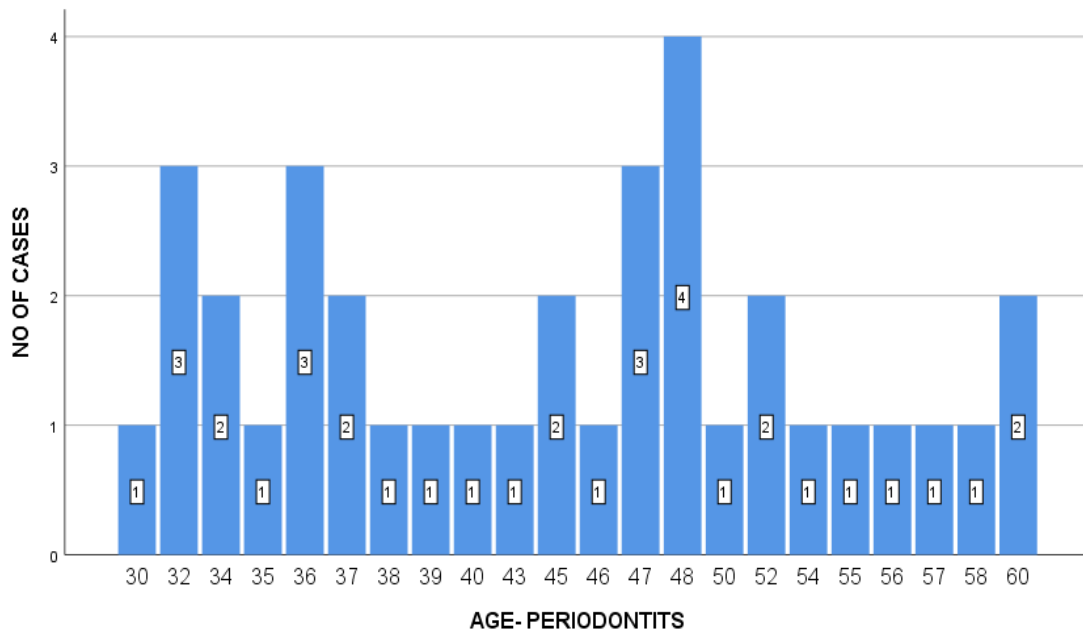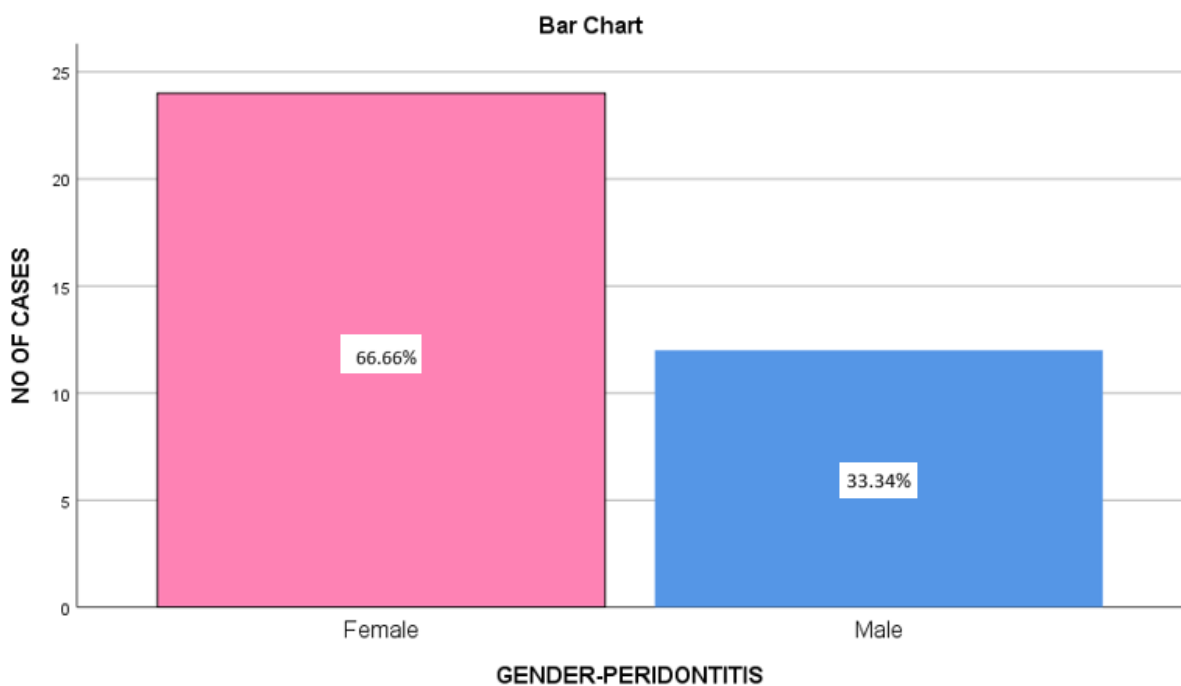
Fig.2 : Graph represents the number of cases of tooth lost due to periodontitis based on age. The x axis represents the age of the patients and the Y axis represents the number of patients. The most common age group that underwent extractions due to periodontitis was 48 years of age.
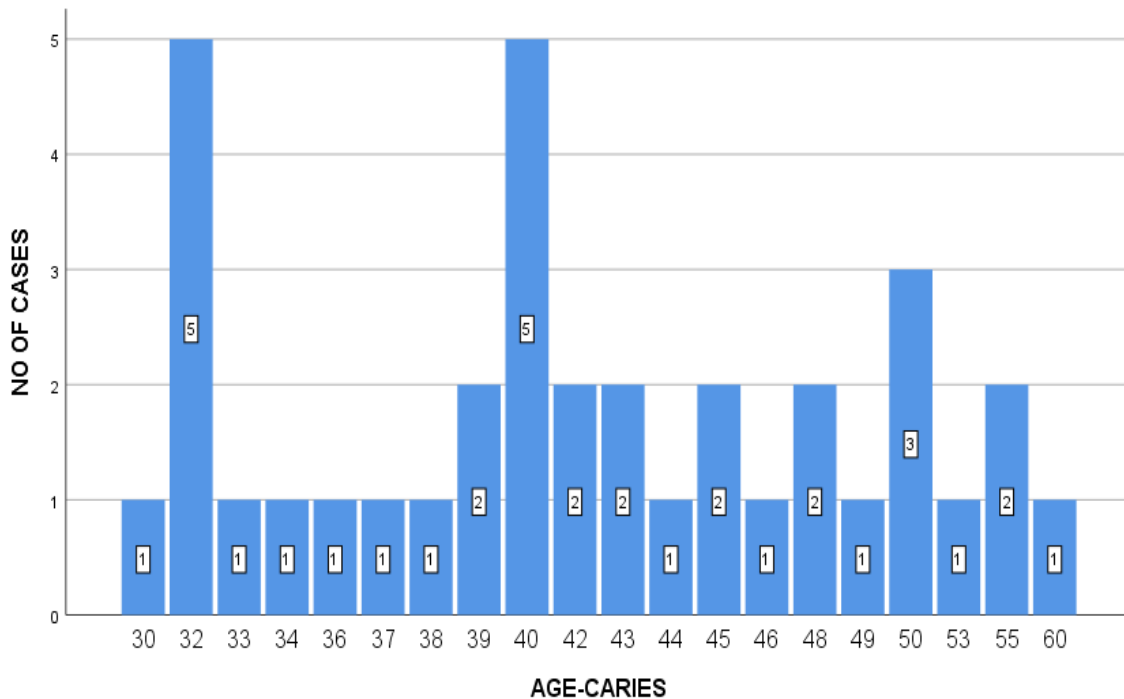
Fig.3: Graph represents the no of cases of tooth lost due to caries based on age of the patient. The x axis represents the age of the patients from 30 to 60 years and the Y axis represents the number of patients. The most common age group seen for extractions due to dental caries were found to be 32 and 40 years of age.

Fig.4 : Graph shows the number of cases of tooth lost due to caries based on gender. The x axis represents the gender of the patients and the Y axis represents the number of patients. Male subjects shown as blue colour in the graph were subjected to more extractions (Chi square test was done, P value- 0.425 <0.5 significant) compared to female subjects shown as pink colour in the graph. The frequency of males subjects was found to be 58.3 %.

Fig.5 : Graph represents the number of cases of tooth lost due to periodontists based on gender. The x axis represents the gender of the patients and the Y axis represents the number of patients. Extractions due to periodontitis were seen more commonly in female subjects (66.66%) (Chi square test was done, P value- 0.356 <0.5 significant) shown as pink colour in the graph than male subjects shown as blue colour in the graph.

The mouth is a mirror of the health of the body. Maintenance of a good oral health represents a being free from pain in the oral and facial region; absence of oral sores and lesions; free from periodontal diseases, dental caries, tooth loss, and many other abnormalities that affect oral cavity. Oral health is considered as an important factor of public health, and oral diseases are among the preventable non spreadable diseases (33)

Gingivitis is the mild form whereas periodontitis is an irreversible loss of supporting structures of the teeth. Though periodontal pathogens form a important component in the etiopathogenesis of periodontitis, there is a strong evidence suggesting that oxidative stress play a major role in the disease initiation and progression. (34) Periodontitis is nothing but a chronic bacterial infection characterized by persistent inflammation, connective tissue breakdown and alveolar bone destruction mediated by pro-inflammatory mediators. (35) Aggressive periodontitis which is the most severe form of periodontal disease affects an individual at an early age. (36)

Once these tissues are lost, the primary goal of periodontal therapy is to regenerate the diseased tissues lost, approximately to their original form, architecture, and function. (37) it is found that Hiora and Chlorhexidine mouthwashes are equally effective in the treatment of gingivitis (38) Growth factors can prolong their activity for quite a longer period and can stimulate tissue regeneration effectively. (39), (40) Interleukin-21 (IL-21) has been associated with systemic diseases such as rheumatoid arthritis and Crohn's disease which follow a chronic inflammatory cascade. Similarly recent studies have associated Interleukin-21 levels with periodontitis. (41) A study conducted in Saveetha dental College concluded Serum ET-1 is increased in chronic periodontitis and reduces after periodontal therapy. Further studies are required to establish ET-1 as a biomarker for periodontal disease. (42), (43) similarly, The salivary β Glucuronidase level was higher in Diabetic patients with periodontitis than nondiabetic periodontitis patients. (44) Some evidence suggests that periodontopathogens play a role in causing respiratory infections (45) Periodontitis and atherosclerosis represent a chronic inflammatory process. (46)

Advanced diagnostic images such as CBCT should be strongly recommended in evaluating the position of IAN preoperatively before advanced implant surgical techniques, nerve repositioning, and any other surgical procedures (47) Farista et al. observed that a combination of laser-assisted crown lengthening with lip-repositioning surgery where gingival contouring was done to correct the gingival asymmetry showed satisfactory esthetic outcome only at 6-month follow-up, but there was a mild recurrence at the 1-year follow-up. (48)

The total number of populations that were studied were 110 out of which 54.54% were females and 45.45% were males. The most common reason for tooth loss were dental caries compared to periodontitis. The most common age group that underwent tooth extraction were 32-48 years overall with a gender predilection of females.The most common age group in periodontitis- 48 years. TThe risk of periodontal disease increases with the advancing age that is why the high prevalence of periodontal disease is seen among elderly population. (49) Research identified that age is associated with periodontal disease, and clinical AL was significantly higher among individuals aged 60-69 years compared with groups of adults 40-50 years. (50)

The most common gender that underwent tooth extraction due to periodontitis were females. The reason being hormonal changes in women increase the likelihood of periodontal disease. Females may experience gingival inflammation before menstruation and during ovulation due to a high level of progesterone which blocks the repair of collagen fibers and causes the dilation of blood vessels. Similarly, pregnant women most frequently exhibit gingival changes, gingivitis, and sometimes localized growth of gingival tissues. (51)

The most common gender in tooth loss due to dental caries were found to be males. According to previous international findings, women tend to have a higher DMFT index than men. (52) This is due to a complex aetiology, including hormonal fluctuations, genetic variations, different saliva composition and flow rate, dietary habits, and social roles in the family. (53) The most common age group that was found to be higher was 32 years of age. Our institution is passionate about high quality evidence based research and has excelled in various fields ((13,54–59)This study results can be supported by a study conducted in India in 2004 13- A very extensive and comprehensive National Health Survey was conducted in 2004 throughout the entire country of India in order to ascertain the oral health status and prevalence of dental disease in representative age groups. The following percent prevalence of dental caries was reported for the various age groups examined, for both coronal and root surfaces: 51.9% in 5 year-old children 53.8% in 12 year-old children 63.1% in 15 year-old teenagers 80.2% in adults aged 35-44 years-old (60)

CONCLUSION:

Tooth loss can have a profound effect on the quality of life of older individuals by restricting food choices, impairing chewing ability, affecting speech, limiting social interaction and lowing the self-esteem of the individual. Our study concludes that the majority of patients who had tooth loss was due to dental caries compared to periodontal disease. Hence more awareness programmes required to motivate patients to maintain oral hygiene to prevent tooth loss.

CONFLICT OF INTEREST:
The authors would like to declare that there is no conflict of interest among the authors.

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