

# A RETROSPECTIVE STUDY ON PREVALENCE OF MISSING MAXILLARY ANTERIORS AMONG YOUNG ADULT

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## ABSTRACT:

Importance of tooth loss, still ranked among the hundred health conditions. The anterior teeth play an important role in the functions of lip support, esthetics and phonetics. Loss of anterior teeth has major detrimental social implications for the sufferer and significantly affects the normal social integration. To evaluate the prevalence of maxillary anterior missing teeth in young adults (18-35 years old). A total of 1312 patients of 18-35 years old with maxillary missing anterior teeth who visited Private Dental Hospital. Data collected and tabulated in excel. Data analyzed done using SPSS Software. The overall prevalence of the anterior missing tooth is 46.7%. The common frequency of age with missing anterior is between 25-30 years old patients. The prevalence of gender with missing anterior tooth is male of 68.5%. The most common prosthesis treatment found to be FPD (46.9%) and least common prosthesis treatment is implant supported FPD (1.5%). The most common missing tooth is Maxillary Right Central Incisor (30.6%) and the least common is Maxillary Left Canine (5.7%). There is no significant association between prosthesis treatment and age, gender and missing teeth. There is a higher prevalence of tooth loss in maxillary anteriors among young adults.

**KEYWORDS:** Missing tooth, Prosthesis Treatment, Fixed Partial Denture, Implant, Implant Supported FPD, Full Mouth Prosthesis, Temporary Partial Denture.

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## INTRODUCTION:

Tooth loss that most influences the world's population, is an oral condition that leads to functional, aesthetic and social damage with impact on quality of life (Kassebaum *et al.*, 2017). Although more conservative theories in dental practice, where tooth extraction is the last treatment option and there are cases in which prosthetic treatment is the only choice (Gerritsen *et al.*, 2010). Severity of oral disease such as dental caries and periodontal disease leads to high frequency of tooth loss in young adults is higher (3).

Several longitudinal literature studies showed an yearly incidence of tooth loss from 3 to 38 per subject/years (Jafarian and Etebarian, 2013). Tooth loss incidence has not declined in recent decades and it is still considered a public health care issue (Junior, Batista and de Sousa, 2019).

In Brazil, teeth lost in adults (35-44 years) is almost four times higher than that in adolescents (15-19 years) and half of the mean number in older groups (65-74 years) (Kassebaum *et al.*, 2014). Hence, it proves that adolescents were more prone to tooth loss compared to other age groups. Loss of anterior teeth that probably affects the normal social integration. Loss of anterior teeth is commonly due to trauma, periodontal disease, dental caries, and persisting oral habits. Preventive measures should be taken at an early age, otherwise it may continue to adult age. Missing upper anteriors represents a clinical problem impairing dental esthetics as well as function from a very young age

The clinical aspects of tooth loss, such as most affected teeth, their distribution (Silva-Junior, Batista and de Sousa, 2017) and condition before tooth extraction, have been more exploited in clinical studies (Jaleel *et al.*, 2014) and may not correspond to the reality of the population. Common replacement options for missing maxillary incisors includes implants and partial dentures (Haugejorden, Klock and Trovik, 2003). The challenge faced by the dentist while treating missing maxillary anteriors to achieve the occlusion, esthetic and functional for long term. Treatment suggestions for young people with missing anteriors should be more precise and treatment plan should be dictated by the diagnosis (Barbato *et al.*, 2007).

The data on the frequency of maxillary anterior tooth loss in a population – based retrospective study mainly in young adults (18-35 years) with prosthetic treatment. Previously our team had conducted numerous clinical trials (Jyothi *et al.*, 2017), (Duraishamy *et al.*, 2019), (Ganapathy and Sathyamoorthy, 2016), (Ashok *et al.*, 2014), (Vijayalakshmi and Ganapathy, 2016), (Basha, Ganapathy and Venugopalan, 2018) and in-vitro studies (Ajay *et al.*, 2017), (Ranganathan, Ganapathy and Jain, 2017), (Ashok and Suvitha, 2016), (Venugopalan *et al.*, 2014) and literature review (Selvan and Ganapathy, 2016), (Subasree, Murthykumar and Others, 2016), (Kannan and Others, 2017), (Kannan and Venugopalan, 2018), (Jain and Nallaswamy, 2019) this vast research experience has inspired us to research about the prevalence of maxillary anterior tooth loss in age group (18-35 years) Now the growing trend in this area motivated us to pursue this project. Our team has extensive knowledge and research experience that has translate into high quality publications (Kamisetty *et al.*, 2015; Patturaja and Pradeep, 2016; Felicita, 2017; Jain, 2017; Kumar, 2017) (Neelakantan *et al.*, 2011; Jain, Kumar and Manjula, 2014; Kamisetty *et al.*, 2015; Varghese *et al.*, 2015; Azeem and Sureshbabu, 2018)

## METHODS AND MATERIALS:

### Study Setting:

This present study is conducted as a retrospective cross sectional study with consecutive non probability sampling among the patients visiting a Private Dental Hospital, Chennai, Tamil Nadu. The study setting is a University setting. The present study is ethically approved by the Institutional Ethical Committee (SDC/SIHEC/2020/DIASDATA/0619-0320). The study done in the time period of June 2019 to March 2020. The study sample included both male and female genders but were mostly south Indian population due to geographic limitations.

### Data Collection:

The data collected from the patients are demographic data (Age, Sex, Marital Status, Occupation, Address etc.). The total number of patient's case sheets reviewed in the present study is 86000 case sheets. The inclusion criteria for the study is patients who had missing maxillary anterior teeth with the age group of 18-35 years and also case sheets which are completely filled. The exclusion criteria for the study is patients who had a history of systemic illness (Eg: Syndromes, Diabetes Mellitus, Hypertension) and case sheets which do not have complete details are excluded from the study. Sampling bias is done to minimize by simple random sampling. Any gross data which had the possibility of bias and could affect the studies are not included. All the data collected is cross verified by photographic and radiographic examination.

### Data Analytics:

Data entered into a spreadsheet using Excel version 16.37 (Microsoft Corp, Redmond, Wash). The data tabulation in excel is according to S.no, PID, Age, Gender, missing tooth number, Prosthetic treatment. The data which was collected is analyzed using Statistical Package for Social sciences (SPSS) software, version 1.0.0.1347 64 bit (IBM corp., NY, USA). The data is assessed by being subjected to descriptive analysis with the help of frequencies, percentages. Non parametric chi square test is used and results are correlated and associated. In this present study, there is no significance level that is predetermined.

## RESULTS AND DISCUSSION:

The study included 1312 participants, 193 females and 421 males had missing teeth. The frequency of missing maxillary anterior teeth in patients aged 18-35 years from Private Dental hospitals are found to be 46.7%. In this present study where 1312 patients are examined, 614 are found having maxillary anterior missing. The most common frequency of maxillary anteriors occurs in the age group of 25-30 years and the least common frequency of missing maxillary anteriors occurs in the age group of 15-20 years [Graph 1]. The most common frequency of maxillary missing anteriors occurs in males (68.6%) compared to females (31.4%) [Graph 2]. The most common missing anteriors replacement with prosthetic treatment are found to be Fixed Partial Denture (46.9%) and the least common prosthetic treatment found to be Implant Supported FPD (1.5%) [Graph 3]. The most common missing tooth was found to be maxillary right central incisors [11] (30.6%) and the least common missing tooth was found to be maxillary left canine [23] (5.7%) [Graph 4].

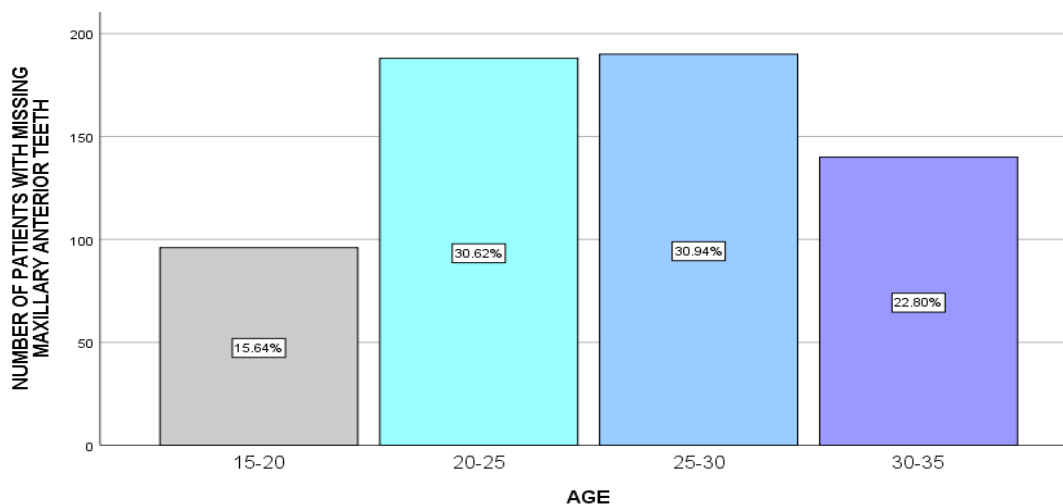
Good Oral Health provides more than just healthy teeth. It holds an individual's quality of life and serves as a factor for social, economic and personal development (Herkrath, Vettore and Werneck, 2020). With the loss of missing teeth, the functions are impaired and physically and physiologically traumatized. Extraction of teeth results in edentulous space in the dental arch (Nascimento *et al.*, 2013). The maxillary anterior teeth which plays an important role in the competency of lips, esthetics and phonetics. Size, form, and colour of anterior teeth must be in consonance with the surrounding facial environment for a completely edentulous patient (Jain and Nallaswamy, 2019). Face and smile play

an important role in the creation of emotional significance and importance of positive attitude in one's self towards attitude. Adults have greater concern about their dental health than children (Hirotoomi *et al.*, 2012).

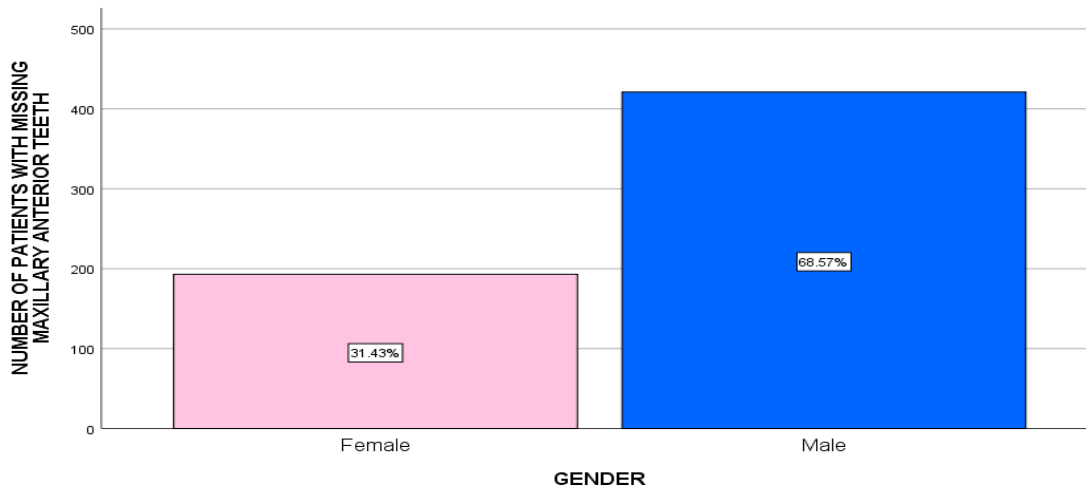
In this study, the frequency of missing anterior found to be 47% which is similar to that study of review of longitudinal studies from seven countries (Haugejorden, Klock and Trovik, 2003). The most common affected group is of 25-30 years which is similar to the result of the study conducted in Brazil, the more number of teeth lost in adults is almost four times higher than that in adolescents (Kassebaum *et al.*, 2017).

Removable acrylic resin partial dentures that affect periodontal parameters when teeth are in contact with resin base (Jyothi *et al.*, 2017). Functional performances of using non original abutments need to be evaluated to achieve higher prosthesis survival and success (Duraisamy *et al.*, 2019). The glass-, alumina-, and zirconia-based ceramics which shows varying degrees of strength, esthetics, and function. Fixed Partial denture is mostly chosen prosthetic treatment because patients always walk into clinics to remove caries present while the dental practitioners make sure the abutments are free of caries and the least prone for infection (Gerritsen *et al.*, 2010). Marginal discrepancy severely affects the long term success of All ceramic complete veneer crowns (Ganapathy and Sathyamoorthy, 2016). Implant has been widely accepted for replacing single or multiple missing teeth. For successful implant therapy and its clinical longevity, the condition of the periodontium and systemic conditions are not the only determining factors. Outcomes from this study may assist with planning adult oral health policies, because they demonstrated the eminent need for promoting basic oral health care. This restates the necessity to focus on oral health care promotion regardless of the age group of adults studied, as a continuous approach, and as early as possible, in order to prevent oral health diseases and their worsening, because they may have an impact on the other life cycles of individuals, and lead to tooth loss. Our institution is passionate about high quality evidence based research and has excelled in various fields (Pc, Marimuthu and Devadoss, 2018; Ramesh *et al.*, 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai *et al.*, 2019; Sridharan *et al.*, 2019; Vijayashree Priyadharsini, 2019; Mathew *et al.*, 2020). We hope this study adds to this rich legacy.

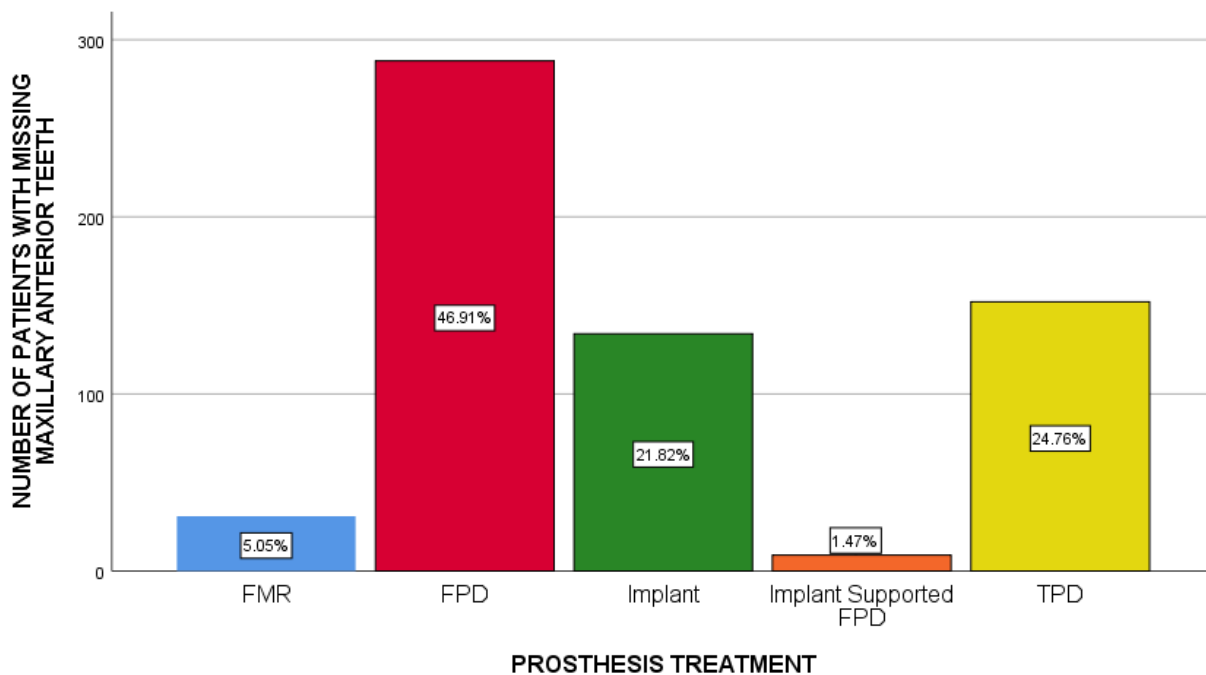
These results are similar to our present study where the most common prosthesis treatment was found to be FPD.



**Graph 1:** Bar chart showing distribution of patients with missing Maxillary Anterior Teeth, according to age of the patient. X axis denotes the distribution of patients according to age groups 15-20 years, 20-25 years, 25-30 years and 30-35 years. Y axis denotes the number of patients with missing Maxillary Anterior Teeth. The Grey bar represents patients aged 15-20 years, the Aqua bar represents patients aged 20-25 years, the Blue bar represents patients aged 25-30 years, the Purple Bar represents patients aged 30-35 years. The missing Maxillary Anterior Teeth were most common among the age group 25-30 years (30.94%) and least common among the age group 15-20 years (15.64%). Hence, the prevalence of missing Maxillary Anterior Teeth are most among the age group 25-30 years.

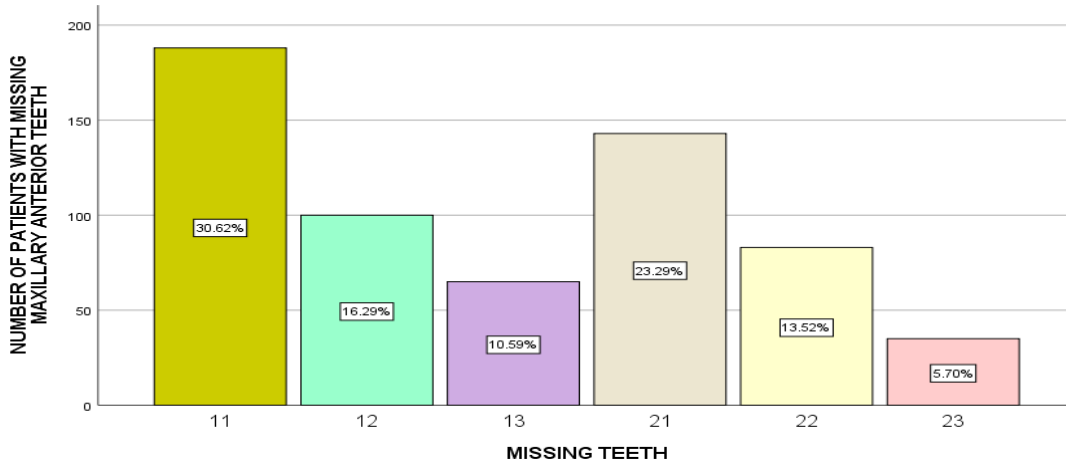


**Graph 2:** Bar chart showing distribution of patients with missing Maxillary Anterior Teeth, according to Gender of the patient. X axis denotes the distribution of patients according to Gender. Y axis denotes the number of patients with missing Maxillary Anterior Teeth. The pink bar represents female patients and blue bar represents male patients. The missing Maxillary Anterior Teeth was most common among the Male patients (68.57%) and least common among the Female patients (31.43%). Hence, the prevalence of missing Maxillary Anterior Teeth was higher among the Male patients compared to Female patients

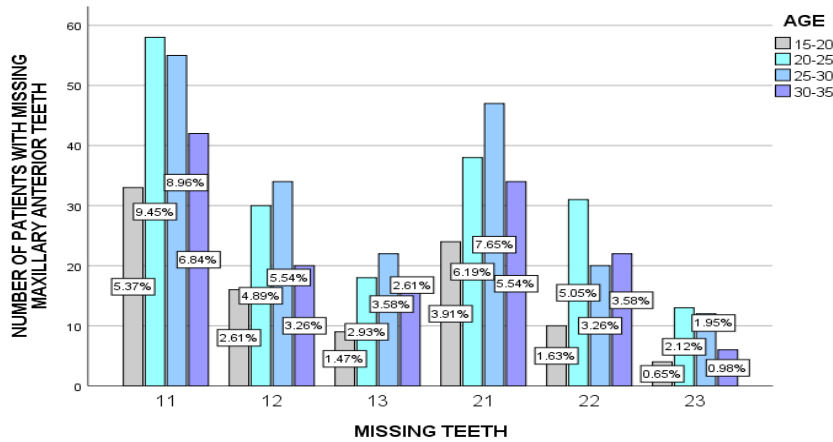


**GRAPH 3:** Bar chart showing distribution of patients with missing Maxillary Anterior Teeth, according to prosthesis treatment. X axis denotes the distribution of patients according to the prosthesis treatment. Y axis denotes the number of patients with missing Maxillary Anterior Teeth. The blue bar represents the prosthetic treatment [FMR], the Red bar represents the prosthetic treatment [FPD], the Green bar represents the prosthetic treatment [Implant], the Orange bar represents the prosthetic treatment [Implant Supported FPD], the Yellow bar represents the prosthetic treatment [TPD]. The most common missing anteriors replacement with prosthetic treatment found to be Fixed Partial Denture (46.9%) and the least common prosthetic treatment found to be Implant Supported FPD (1.5%). Hence, the prevalence

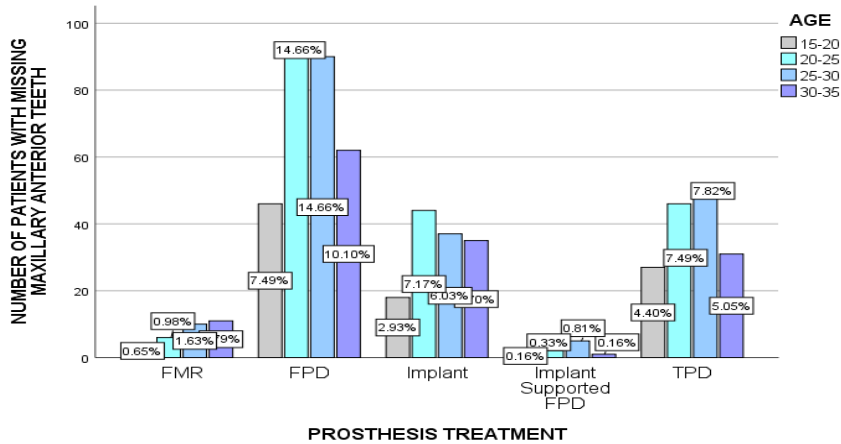
of replacement of anteriors with prosthetic treatment are most among the Fixed Partial Denture compared to other treatment



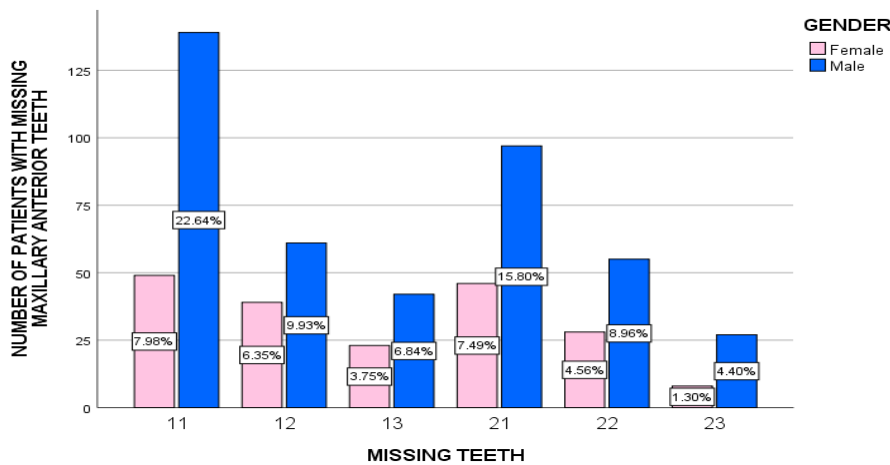
**Graph 4:** Bar chart showing distribution of patients with missing Maxillary Anterior Teeth, according to prosthesis treatment. X axis denotes the distribution of patients according to the missing teeth. Y axis denotes the number of patients with missing Maxillary Anterior Teeth. The Green bar represents the Missing teeth 11, the pale green bar represents the Missing 12, the violet bar represents the Missing 13, the Bisque bar represents the Missing 21, the Yellow bar represents the Missing 22, the light coral bar represents the Missing 23. The most common missing tooth found to be maxillary right central incisors (30.6%) and the least common missing tooth found to be maxillary left canine (5.7%). Hence, the prevalence of missing Maxillary Anterior Teeth are most among the maxillary right central incisors compared to other teeth.



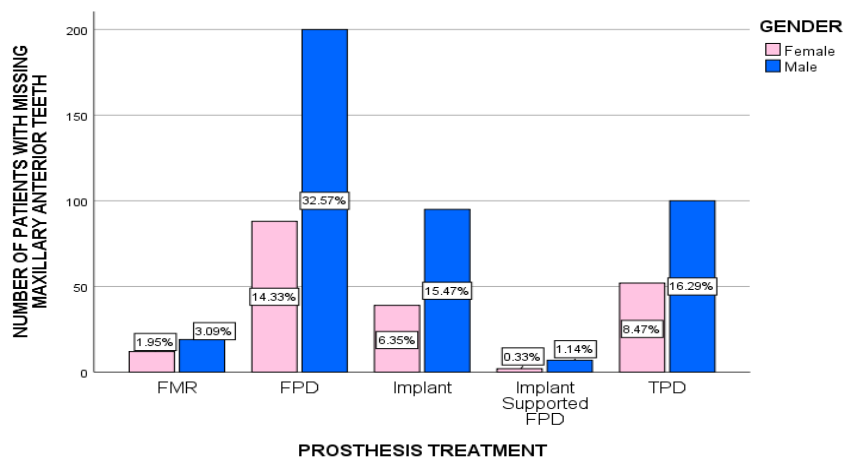
**Graph 5:** Bar chart showing association between Age and Missing teeth among patients with missing Maxillary Anterior teeth. X axis denotes the distribution of patients according to missing teeth [11,12,13,21,22,23]. Y axis denotes the number of patients with missing Maxillary Anterior teeth. The Grey bar represents patients aged 15-20 years, the Aqua bar represents patients aged 20-25 years, the Blue bar represents patients aged 25-30 years, the Purple Bar represents patients aged 30-35 years. Frequency of missing tooth [11] found to be higher at the age group of 20-25 years (9.45%), frequency of missing tooth [12] found to be higher at the age group of 25-30 years (5.54%), frequency of missing tooth [13] found to be higher at the age group of 25-30 years (3.58%), frequency of missing tooth [21] found to be higher at the age group of 25-30 years (7.65%), frequency of missing tooth [22] found to be higher at the age group of 20-25 years (5.05%), frequency of missing tooth [23] found to be higher at the age group of 20-25 years (2.12%). Chi square test performed and association between Age and Missing teeth among patients with missing Maxillary Anterior teeth found to be statistically not significant. Pearson Chi square Value = 0.197 (P>0.05),



**Graph 6:** Bar chart showing association between Age and Prosthetic Treatment among patients with missing Maxillary Anterior teeth. X axis denotes the distribution of patients according to Prosthetic Treatment such as FPD, FMR, Implant, Implant Supported FPD, TPD. Y axis denotes the number of patients with missing Maxillary Anterior teeth. The Grey bar represents patients aged 15-20 years, the Aqua bar represents patients aged 20-25 years, the Blue bar represents patients aged 25-30 years, the Purple Bar represents patients aged 30-35 years. Frequency of replacement of missing teeth with FMR found to be higher at the age group of 30-35 years (1.63%), frequency of replacement of missing tooth with FPD found to be higher at the age group of 20-25 and 25-30 years (14.66%), frequency of replacement of missing tooth with Implant found to be higher at the age group of 20-25 years (7.17%), frequency of replacement of missing tooth with Implant Supported FPD found to be higher at the age group of 25-30 years (0.81%), frequency of replacement of missing tooth with TPD found to be higher at the age group of 20-25 years (7.82%). Chi square test performed and association between Age and Prosthetic Treatment among patients with missing Maxillary Anterior teeth found to be statistically not significant. Pearson Chi square Value = 0.690 (P>0.05),



**Graph 7:** Bar chart showing association between Gender and Missing teeth among patients with missing Maxillary Anterior teeth. X axis denotes the distribution of patients according to missing teeth [11,12,13,21,22,23]. Y axis denotes the number of patients with missing Maxillary Anterior teeth. The pink bar represents female patients and blue bar represents male patients. Frequency of missing tooth [11] found to be higher at Male patients (22.64%), frequency of missing tooth [12] found to be higher at Male patients (9.93%), frequency of missing tooth [13] found to be higher at Male patients (6.84%), frequency of missing tooth [21] found to be higher at Male patients (15.80%), frequency of missing tooth [22] found to be higher at Male patients (6.96%), frequency of missing tooth [23] found to be higher at Male patients (4.40%). Chi square test performed and association between Gender and Missing teeth among patients with missing Maxillary Anterior teeth found to be statistically not significant. Pearson Chi square Value = 0.215 (P>0.05)



**Graph 8:** Bar chart showing association between Gender and Prosthetic Treatment among patients with missing Maxillary Anterior teeth. X axis denotes the distribution of patients according to Prosthetic Treatment such as FPD, FMR, Implant, Implant Supported FPD, TPD. Y axis denotes the number of patients with missing Maxillary Anterior teeth. The pink bar represents female patients and blue bar represents male patients. Frequency of replacement of missing tooth with FMR found to be higher at Male patients (3.09%), frequency of replacement of missing tooth with FPD found to be higher at Male patients (32.57%), frequency of replacement of missing tooth with Implant found to be higher at Male patients (15.47%), frequency of replacement of missing tooth with Implant Supported FPD found to be higher at Male patients (1.14%), frequency of replacement of missing tooth with TPD found to be higher at Male patients (16.29%). Chi square test was performed and association between Gender and Prosthetic Treatment among patients with missing Maxillary Anterior teeth found to be statistically not significant. Pearson Chi square Value = 0.215 (P>0.05)

## CONCLUSION:

The present study may serve as a baseline for the future evaluation of choices on frequency of anterior missing tooth and replacement of teeth. The findings indicate that the frequency of anterior missing tooth is high and wants the awareness needs to be created regarding the other functions of teeth like aesthetic and phonetics because many subjects are performed by teeth, especially among young adults in the socioeconomic group.

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