

# PREVALENCE OF TIME DURATION FOR ESTHETIC ZONE REPLACEMENT AFTER EXTRACTION.

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## ABSTRACT:

An implant supported crown or a conventional fpd is the most common treatment for the replacement of maxillary anterior teeth. The maxillary anterior region claims both esthetic and functional rehabilitation. The important factors involved in the replacement are - bone in the edentulous area, occlusal function, systemic conditions, socioeconomic status and willingness of the patients. The aim of this study was to assess the prevalence of time duration for esthetic zone replacement after extraction. The study was conducted as a retrospective university-based study. Data of patients who underwent fpd treatment in maxillary anterior region was collected and analysed using SPSS software and the results were obtained. Chi square test was used to find the association between groups. The frequency rate of replacement of maxillary anterior was highest in the age group between 26 - 45 years (63.4 %). The frequency of replacement was higher in males (59.7 %) than in females. Most of the replacements were done at 2 months time interval. However, no statistically significant association was found between the groups.

Keywords: abutment, fixed dental prosthesis, fabrication, prosthetic rehabilitation.

## INTRODUCTION:

Loss of tooth can be due to several reasons that involves - dental caries, trauma, periodontal pathology etc. (Rosenstiel and Land, 2006) Fixed dental prosthesis is used to restore the tooth function both functionality and aesthetically. Most of the people prefer aesthetic replacement of missing teeth (all ceramic), though it is not very popular in rural areas. It is capable of transferring an unhealthy, non - attractive dentition into a comfortable healthy occlusion that is capable for years and greatly enhances the esthetics. (Northeast et al., 1992) Various anthropometric factors are used to assess the size and type of teeth to be replaced to give it a more esthetic appearance. The longevity of the prosthesis depends upon the construction of the prosthesis, proper cementation and proper maintaining of the prosthesis. FPD basically has three parts the pontic, connectors and retainers. The pontic is the artificial tooth in an FPD that restores the functions of the natural teeth. Retainers are extracoronal restorations that are attached to the prepared abutment. Connectors are joint connections between the pontic and the retainers. Abutment tooth is the tooth that serves as an attachment to the fpd. Since the forces that are normally absorbed by the missing tooth is transmitted through pontic connectors and retainers, the restoration should be made in such a way that it could withstand occlusal forces. (Grossmann and Sadan, 2005; Sumeet et al., 2014) Fabrication of the prosthesis is an integral part of successful treatment. The restoration should satisfy several requirements like pulp protection, stability, occlusal function, self cleansable or easily cleansible, marginal adaptation, wear resistance, strength and aesthetics. (Regish et al., 2011)

Implant supported fpds are another group of treatment modalities for anterior missing teeth. But, adequate bone height and width is an important factor for the implant placement. In case of trauma, the anterior bone should initially be assessed with a cbct (cone-beam computed tomography). Because in such cases there are high chances of damage to the bone in the maxillary anterior region that caused the avulsion of the tooth. However, the tooth to implant survival rate is usually lower, than the individual abutment tooth or the implant supporting it. (Ting et al., 2019; Vijayalakshmi and Ganapathy, 2016)

Previously our team has conducted numerous studies which include clinical studies(Duraisamy and Krishnan, 2019; Ganapathy et al., 2016; Jyothi et al., 2017; Ranganathan et al., 2017; Venugopalan et al., 2014; Vijayalakshmi and Ganapathy, 2016) in-vitro studies (Ajay et al., 2017), reviews, (Jain et al., 2018; Kannan and Others, 2017; Kannan and Venugopalan, 2018; Selvan and Ganapathy, 2016; Subasree et al., 2016) survey (Ashok and Suvitha, 2016; Ganapathy and Venugopalan, 2018), clinical report (Ashok et al., 2014). Now we are focusing on retrospective studies. The aim of this study was to assess the prevalence of time duration for esthetic zone replacement after extraction.

## **MATERIALS AND METHODS:**

### **Study setting:**

This study was conducted as a retrospective university - based study. The outpatients visiting Saveetha Dental College in need of a fixed dental prosthesis in the maxillary anterior region were included in the study. Ethical approval was obtained from the Institutional ethical committee - Saveetha Dental College. (SDC/SIHEC/2020/DIASDATA/0619-0320)

### **Sampling:**

The study was conducted as a retrospective study for one year from June 2019 to march 2020. 41,000 case sheets of patients who reported to the dental out patient ward were evaluated and sorted with respect to fixed dental prosthesis in the maxillary anterior region. A total of 132 maxillary anterior fpd cases were collected along with extraction history in the case sheet. The cases were selected based on, from the date of extraction till the time period the prosthesis were fixed. The collected data were cross verified by another reviewer to minimise sampling bias.

Inclusion criteria: Anterior fpd cases with extraction history.

Exclusion cases: Incomplete cases or cases without extraction history

### **Data collection and Tabulation:**

Cases of patients were retrieved. The collected data was tabulated in Microsoft Excel sheet.

### **Statistical analysis:**

The Excel data was transferred to a host computer and processed in SPSS. Chi - square test was done to find the association and correlation with age and gender as independent variables and tooth replaced and time interval as dependent variables.

## **RESULTS AND DISCUSSION:**

The replacement of maxillary anterior was common in 25 - 45 years age group. On assessment of the gender distribution it was found that males have the highest frequency of replacement compared to males.

The time interval required for the replacement of maxillary anterior was assessed and found to be two months. There was statistically no significant association between age groups and teeth replaced or gender distribution and teeth placed.

The replacement of maxillary anterior teeth is important more esthetically than functional requirement. The loss of anterior teeth has major detrimental social implications for the sufferer and significantly affects the normal social integration. The cause for the anterior tooth loss can be due to trauma, periodontal disease, dental caries and persisting oral habits. Since the loss of anterior teeth compromises the patients quality of life it is important that the replacement of the tooth should be done as early as possible. (Haralur and Al-Qahtani, 2013)

The association between age groups and tooth replaced was assessed (graph 1). The participants in our study were categorised into 3 groups based on their age. Category 1: 18 to 25 years with the frequency rate of 20.1 %. Age category 2: 26-45 years, which has a significantly highest frequency rate of 63.4 %. Age category 3: 46 years and above has the lowest frequency rate of 16.4 %. Aljoharah et\_al has done a similar study in which the sample size is highest between 31 to 45 years of age group. (Al-Sinaidi and Preethanath, 2014) However, another article by Abdul razak et\_al states tooth loss increases with age due to several reasons like progression of periodontal disease, trauma, root caries etc. (Razak et al., 2014) The time interval for the replacement and its association with different age groups. Regardless of the age group the most frequent time interval for replacement of maxillary anterior tooth was 2 months duration. Proper impression and proper fabrication of the prosthesis is important as it should satisfy stability, marginal integrity, esthetics. Marginal seal is important for the success of the prosthesis. Proper bonding of the prosthesis to the abutment is also vital. Resin cements exhibit greater reduction in the marginal discrepancy.

The association between the gender and the tooth replaced (graph 2). The frequency rate of replacement is slightly higher in males ( 59.7 %) than in females (40.2 %). But a previous study conducted by Kelias et\_al about the magnitude of dental caries showed dental caries were more common in females than in males. (Msyamboza et al., 2016) However, other causations like traumatic loss due to accident or contact sports are more common in males. Also, males have poor brushing habits compared to females. Eleni mamai et\_al studied the gender differences in oral health status, that state females brushed their teeth more often than males. (Mamai-Homata et al., 2016) So, periodontal disease can also be a cause for tooth loss in males.

Graph 3 shows the association of the gender group with the time interval required for replacement. Regardless of the gender, the most frequent time interval for replacement is 2 months duration.

The association between teeth replaced and time interval (graph 4). The frequency rate of teeth replaced during one month interval is 18.6%. The frequency rate of teeth replaced during a 2 month interval is 35.8 %. This is the highest frequency. The frequency rate of teeth replaced during a 4 month interval is 17.9 %, this is the lowest frequency. Several factors like the socio economic status of each individual, abutment selection, type of fixed dental prosthesis chosen for fabrication, periodontal status of the abutment tooth, presence or absence of dental caries in the abutment tooth, healing of the extracted site, certain natural products can help in wound healing all of this play an important role in the time interval between extraction and cementation of the prosthesis. The material used for fabrication can influence the gingival tissue.

The limitations of the study includes smaller sample size, hence the results cannot be generalized to a larger population. Manual errors that can occur during data collection. This study can be used as a baseline for further analysis on the time required for the fabrication of each type of fixed dental prosthesis in a larger population and as a multicentric study.

OPPOSING ARTICLE: No contradictory literature findings observed.

**OVERALL CONSENSUS:** The findings from the present study adds up to the consensus of the previous studies.

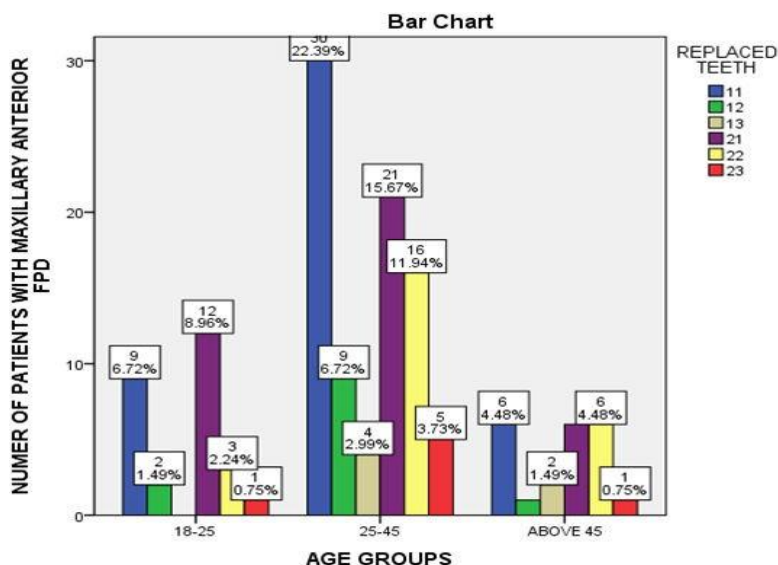
## **CONCLUSION:**

In the present study, the duration for the replacement of maxillary anterior was assessed and found to be two months. Tooth loss and replacement was significantly higher in males than in females. Further studies can be done to assess the association between the type of fpd and other factors.

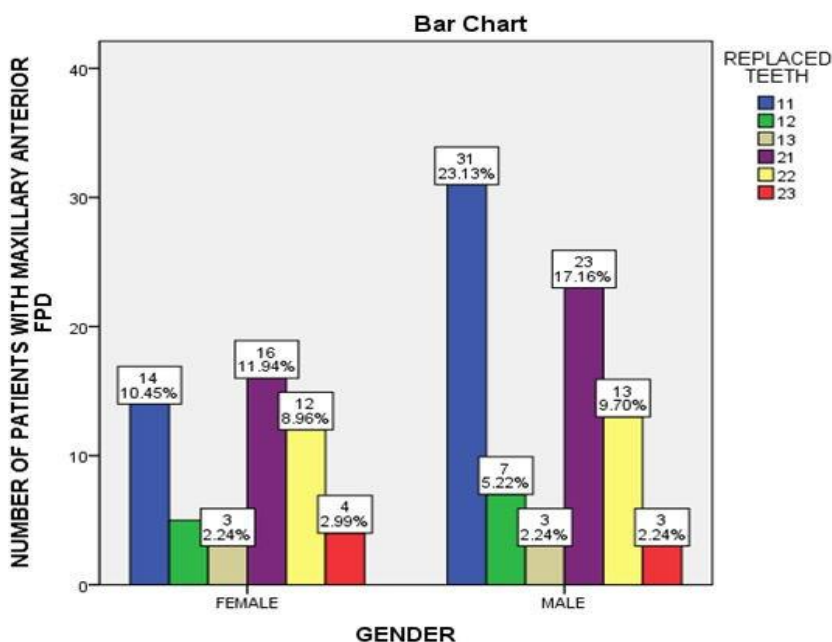
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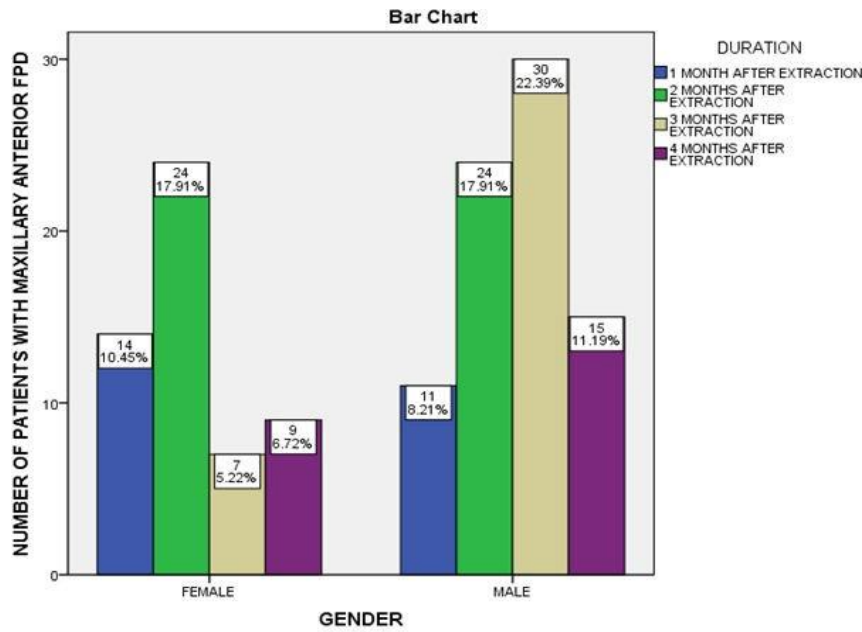
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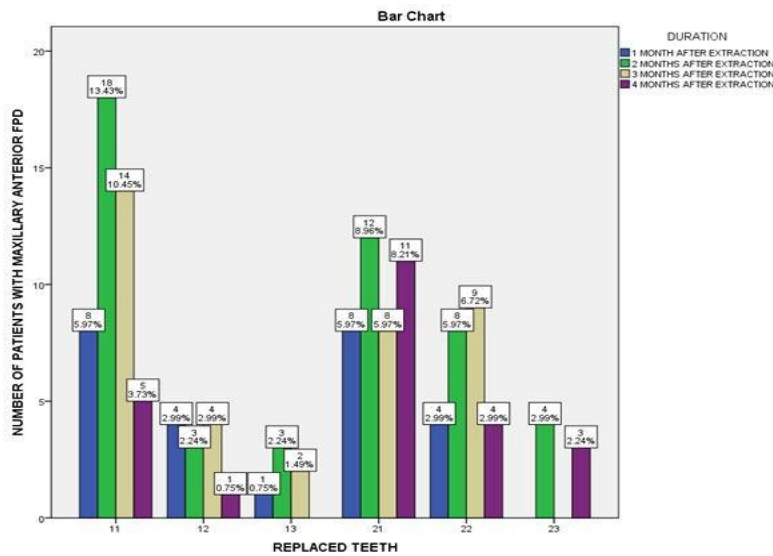
Graph 1: Bar chart shows the association between age groups and teeth replaced. X axis represents the age groups and Y axis represents the number of people undergone fpd treatment, \*\*Chi-square test (Linear by linear association) \*p value = 0.544 > 0.005. There is no statistically significant association between the age groups and the tooth replaced. The frequency of replacement was higher in the 25-45 years age group (63.4%).



Graph 2 : Bar chart represents the association between gender and tooth replaced. X axis represents the gender distribution and Y axis represents the number of people undergone fpd treatment, \*\*Chi-square test ( Linear by linear association ) \*p value = 0.106 > 0.005. There is no statistically significant association between the gender distribution and the tooth replaced. However, the frequency of replaced teeth was higher in males (59.7%) than in females (40.2%).



Graph 3: Bar chart represents the association between gender and duration for tooth replacement. X axis represents the gender distribution and Y axis represents the number of patients undergone fpd treatment, \*\*Chi - square test ( Linear by linear association) \*p value = 0.019. There is no statistically significant association between gender distribution and time interval for teeth replacement. The most frequent time interval for replacement was 2 months.



Graph 4: Bar chart represents the association between teeth replaced and duration for teeth replacement. X axis represents the replaced teeth and Y axis represents the number of patients undergone fpd treatment. \*\*Chi - square test ( Linear by linear association) \*p value = 0.149. There is no statistically significant association between replaced teeth and time interval for teeth replacement. The most frequent time interval for replacement was 2 months.