Prosthesis For Replacing Missing Maxillary Anteriors In Middle Aged Adults - A Retrospective Study

Research Article

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Abstract

Aesthetics and functions of the orofacial region are very important aspects of human life which can be highly affected by tooth loss and have an impact on the quality of life. Need for prosthesis is important for maintaining diet and nutritional status. Hence the aim of this study was to evaluate the frequency of different prosthetic treatments opted by middle aged adults with missing maxillary anteriors. A retrospective study was carried out. Data was collected through reviewing the records of 86000 patients visiting a hospital in Chennai from June(2019) to March(2020). A total of 898 patients of age group 35-50 years who reported with missing maxillary anteriors were evaluated. Data such as age, gender, missing tooth and type of prosthesis were noted. Both frequency and Chi-square tests were done through IBM SPSS statistical analysis. In this study, 53% of the patients were males and 47% were females. About 41% of the participants preferred FPD and 36% preferred RPD. In the age group of 35-40, FPD was highly preferred and in the age group of 45-50, RPD was highly preferred. The present study provided epidemiological information of different prosthetic treatments opted by patients with missing maxillary anteriors which provides data for future oral health care services.

Keywords: Anterior Missing Tooth; FPD; Implant; Middle Aged Adults; Prosthesis; RPD.

Introduction

Oral health is essential to improve the quality of life of the individuals. Tooth loss or dental mortality is one of the most important indicators of oral health status which reflects the lifelong cumulative effects of both disease and social factors. [1] Tooth loss is a multifactorial process involving dental caries, periodontal diseases, socioeconomic status, educational levels, access to care, general health status and trauma [2]. It impairs the quality of life and affects various aspects of life including oral functions, appearance and interpersonal relationship.

The upper anterior tooth occupied strategic position in the dental arch. This helps in maintaining arch continuity, give fullness and youthfulness to the face and also maintain proper vertical dimension of the face. [3] Loss of tooth also leads to decrease in the height and width of the alveolar bone which in turn decrease the size of denture bearing area causes alteration in the facial appearance, reduced masticatory efficiency leading to diminished nutritional status. [4]

In order to prevent these occurrences removable or fixed prosthetic treatment is often recommended. Prosthetic needs of the patient differ with individuals depending on various factors including age, gender, educational status, marital status, income, dentition, attitude towards health. [5]

For planning the oral health care, it needs systematic data collection. There are very few epidemiological data studies done regarding the prosthetic needs of adults with missing teeth. Previously our team has a rich experience in working on various research projects across multiple disciplines [6-20].

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Hence in this study, the primary aim was to evaluate the dental prosthetic status and treatment needs among middle aged adults with missing maxillary anteriors.

Materials And Methods

This study was conducted in a university setting. The study samples were chosen from the patients visiting a hospital in Chennai from June (2019) to March (2020).

The retrospective study was carried out among patients of age group 35-50 with missing maxillary anteriors. Data collection was done through reviewing the records of 86000 patients between June(2019) - March(2020). Data such as age, gender, missing tooth number and type of prosthesis they opted. The data collected was cross verified with intraoral photographs.

Only the patients of age 35-50 with missing anterior teeth(single/ multiple) were included in this study. Patients with dentofacial trauma, completely edentulous dentition and who were under special care were excluded. Patients with censored/incomplete data were excluded too.

Ethical clearance was obtained from the institutional scientific review board of the university (SDC/SIHEC/2020/DIASDA-TA/0619-0320).

Data was analysed through frequency and cross tabulations using SPSS software.

Results And Discussion

A total of 898 patients reported with missing maxillary anterior teeth (single/multiple) in the age group of 35-50 years.

The mean age of the study population was 43.1. About 37.31% of the patients belong to the age group of 35-40, 27.06% of the patients belong to the age group of 40-45 and about 35.63% of the participants were in the age group 45-50 (Graph 1).

Among them, 52.78% were males and 47.22% were females(Graph 2). In this study, 349 patients reported with missing upper right central incisors(11), 248 reported with missing upper right lateral incisors (12), 150 reported with missing upper right canines(13). 361 with missing upper left central incisors(21), 260 with missing upper left lateral incisors(22) and 169 patients with missing upper left canines(23).

About 40.87% of the study population opted Fixed Partial Denture (FPD) 36.64% of the patients opted Removable Partial Denture (RPD), 8.69% of the patients opted implant as their prosthetic treatment. Only 4.90% of the patients were not willing for any prosthetic management(Graph 3).
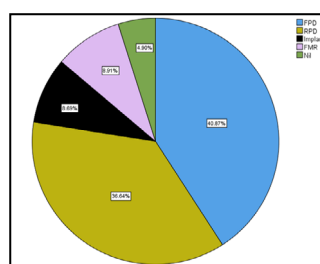

Graph 1: Bar graph representing distribution of study population with the missing maxillary anteriors based on age group. X-axis shows the age group distribution and Y-axis shows the number of the study population. There was a higher incidence of missing maxillary anteriors in the age group of 35-40 years(37.31% - dark blue).
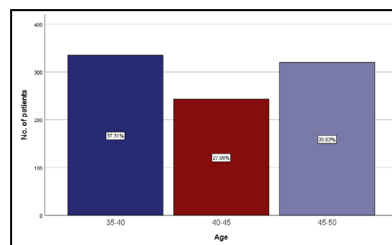
Graph 2: Pie chart representing distribution of study population with the missing maxillary anteriors based on gender. There was a higher incidence of missing maxillary anteriors among males(52.78%-violet) compared to females(47.22%-grey).
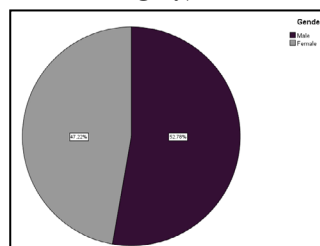
Graph 3: Bar graph representing distribution of study population with the missing maxillary anteriors based on prosthetic treatment they opted. FPD(40.87%-blue) and RPD(36.64%-yellow) were the most common treatment options chosen by middle-aged adults with missing maxillary anteriors.

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In the present study, a higher percentage of patients of age group 35-40 preferred FPD while RPD was highly preferred among the patients of age group 45-50(Graph 4). According to the gender, there was a statistically higher preference of FPD and RPD in both genders(Graph 5).

FPD was highly preferred by the patients with missing central incisors(19.70%) but there was a relatively higher preference of RPD among patients with missing maxillary lateral incisors(13.38%) and maxillary canines(10.31%)(Graph 6).

Tooth loss is one of the major dental problems faced by the majority of the population. It affects various aspects of life including function, appearance, interpersonal relationship and even career opportunities among individuals.[21]

In the present study, 898 patients in the age group of 35-50 presented with one or more missing maxillary anteriors. Previous study by Idowu et al [22] on partial edentulous indicates high prevalence of missing maxillary anteriors. A study by Anand et al [23] reported high incidence of missing maxillary anteriors among middle aged adults(35-44 years) with dental and periodontal diseases as the most common cause of that tooth extraction.

In the present study, there was no significant difference in the gender distribution with maxillary missing anteriors. Few studies reported similar findings with no significant difference of tooth loss with different genders [24, 25]. However, a study by Barbato et al [26] reported higher incidence of tooth loss among females.

In the present study, canines were the least missing maxillary anteriors. This is in accordance with previous studies, who reported canines to be the least extracted tooth in adults [27, 28].

Replacement of missing teeth is ultimately based on knowledge of alternative treatments, attitude towards prosthetic treatment,
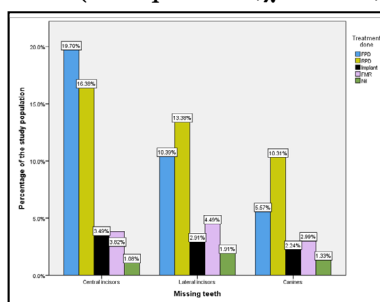
Graph 4: Bar graph representing distribution of the study population with missing maxillary anteriors based on prosthetic treatment they opted according to the age group. X-axis shows the age group distribution and Y-axis shows the number of the patients. Higher percentage of patients of age group 35-40 preferred FPD(19.49%-blue) while patients of age group 45-50 preferred RPD(17.93%-yellow), which was statistically significant(Chi square test;$\chi2$=61.487, df=8, pValue= 0.000(<0.05)).
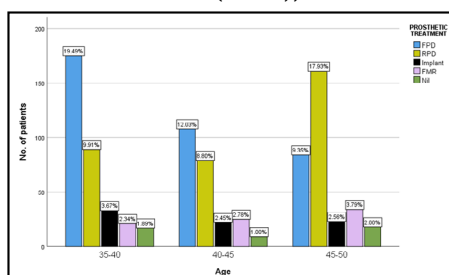
Graph 5: Bar graph representing distribution of the study population with missing maxillary anteriors based on prosthetic treatment they opted according to the gender. X-axis shows the gender distribution and Y-axis shows the number of the patients. There was higher preference of FPD among males(23.61%-blue), meanwhile both FPD and RPD were equally preferred by the females(17.26%-blue and yellow). This finding was statistically significant(Chi square test;$\chi2$=17.847, df=4, pValue= 0.001(<0.05)).
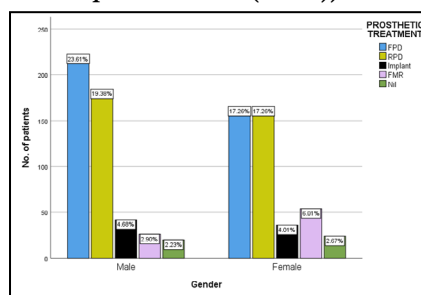
Graph 6: Bar graph representing distribution of the study population with missing maxillary anteriors based on prosthetic treatment they opted. X-axis shows the distribution of missing teeth and Y-axis shows the percentage of the patients. FPD was highly preferred by the patients with missing central incisors(19.70%-blue) but there was a relatively higher preference of RPD among patients with missing maxillary lateral incisors(13.38%-yellow) and maxillary canines(10.31%-yellow). This finding was statistically significant(Chi square test;$\chi2$=41.074, df=8, pValue= 0.000(<0.05)).

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economic status, dental condition, awareness in impact of tooth loss in individuals etc,.[29]

In the present study, only a few patients(4.90%) were not willing for any prosthetic management. While the remaining 95.10% of the participants presented with prosthesis. This finding is relatively higher compared to many other studies by Talabani et al [30], Khalifa et al [31], Teofilo et al [32] who reported very few participants were inclined for prosthetic rehabilitation. However Teofilo et al [33] reported that the patients who returned for prosthetic treatment mainly consisted of subjects with missing maxillary anterior. This may be due to the increased impact on aesthetics with anterior tooth loss.

In the present study, there was a significant difference between different prosthetic needs. FPD was highly considered(40.87%) compared to RPD(36.64%) and implant(8.69%). This is in accordance with the studies conducted by Elagra et al [33], Mukatash et al [29] and Peeran et al [34] who reported higher demand for fixed prosthesis compared to removable prosthesis. In this study, removable prosthesis was highly required by patients of higher age compared to patients of age group 35-40. Elagra et al [33] reported the higher use of removable prosthesis among the patients of older ages. This may be due to the less concern towards aesthetics among patients of older age and may also due to the increased fear of teeth preparation in FPD and cost.

In this study, RPD and FPD were highly preferred by both genders, which was statistically significant. However, a study by Al-Quran et al [35] reported that females had received more FPD and implants than males.

In the present study, only 8.69% of the patients reported with use and willingness of implant placement. This is in accordance with the study by Peeran et al [34] who reported similar findings. This may be due to higher cost, complex treatment procedure and less knowledge about the implant procedure. Our institution is passionate about high quality evidence based research and has excelled in various fields [34-46].

This study has several limitations. Since this was a retrospective study, the sample size was very less and was limited to certain geographical locations. Many parameters such as etiology of tooth loss, reasons for treatment option, knowledge and attitude towards different prosthetic management were not included. Cohort study with the inclusion of these parameters with larger geographical locations is needed for future scope.

Conclusion

Within the limitations of this study, the prosthetic rehabilitations among middle aged adults with maxillary anteriors was high. FPD was the most preferable treatment option followed by RPD compared by implants. There is a need to improve public awareness about the importance of oral health and various treatment modalities for effective dental care.

Author's Contribution

All authors contributed to the design and implementation of the research, analysis of the results and to the writing of the manu-script.

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