Influence of Gender in Selecting Fixed and Removable Prosthesis

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ABSTRACT

Tooth loss is a common dental problem. Impairment of oral functions and masticatory efficiency is a result of tooth loss. The negative effects of tooth loss can be managed by the fixed and removable prosthesis. This study was conducted to determine the influence of gender in selecting prosthesis. This study was a retrospective observational study conducted in a university hospital in Chennai. Data collection was done with the help of the electronic dental record of the university-Dental information archiving software (DIAS). It records all patients data from initial visit to last visit chronologically. This was followed by Excel tabulation. Data was analysed using SPSS Software. The association of study variables was calculated using the Chi-Square test. Within the limits of the study, female patients were willing for replacement of teeth than male patients (55%). There was a significant difference in choosing the type of prosthetic treatment. It was seen that fixed partial denture was chosen over removable prosthesis (59.8%).

INTRODUCTION

Teeth play a vital role in the overall wellness of an individual. After dental caries and periodontal diseases, edentulism (either partial or complete) is considered as the third most commonest cause for which patients visit a dentist (Emami et al., 2013; Jain et al., 2019). Tooth loss is a hindrance to perform essential oral functions such as communication, mastication and smiling (Xie et al., 2015; Jyothi et al., 2017). It also affects the appearance of a person, especially when it involves the anterior teeth (Escan et al., 2004; Harrison, 1991; Duraisamy et al., 2019). Tooth loss not only affects the body physiology but also disturbs the psychology of the individual (Ganapathy et al., 2016; Subasree et al., 2016). Thereby it affects oral as well as general health with a substantial impact on quality of life. Edentulism (partial or complete) has been described as an irreversible and debilitating condition (Behr et al., 2014; Selvan and Ganapathy, 2016).

The negative effects of tooth loss can be managed by removable or fixed prosthesis. A removable prosthesis can be either partial or complete dentures (Jain et al., 2017). Fixed prosthesis can be bridges or implants. The choice of prosthesis is determined by patient’s choice, the age, gender, economic status of the patient, available technology and the number of missing teeth (Vijayalakshmi and Ganapathy, 2016; Kannan, 2017). The choice of treatment can also be influenced by factors like...
patient choice, age, gender, socio-economic status of the patient. Factors like concerns about damaging the neighbouring teeth, pain, post-operative sensitivity, dental phobia, available technology and number of missing teeth can also determine the choice of treatment (Al-Quran et al., 2011; Ashok and Suvitha, 2016).

When a few teeth are absent, it is generally managed with fixed dentures (FDs), while the consideration for removable partial dentures (RPDs) increases with the number of teeth to be replaced. In addition, removable dentures may be a more appropriate option if it provides the most cost-effective form of treatment (Ashok et al., 2014). A higher frequency of removable dentures is present in older age groups, in people living in rural areas, and in those from a lower socio-economic status (Zitzmann et al., 2007; Venugopalan et al., 2014). The removable dentures however, have the disadvantage of having to be removed every night before going to bed to allow the underlying supporting tissue to rest (de Castellucci Barbosa et al., 2008; Kannan and Venugopalan, 2018). Complete denture (CD) is the most common form of prosthetic rehabilitation for edentulism. In contrast to a partial denture, a complete denture is constructed when there are no more teeth left in an arch, it is an exclusively tissue-supported prosthesis.

Management of few missing teeth with tooth supported dentures is a solution in patients who preferred fixed restoration and cannot afford more expensive implant-supported prostheses (Budtz-Jörgensen, 1996; Basha et al., 2018; Ajay et al., 2017). However, this has the disadvantage of tampering with sound tooth structure.

There are different studies conducted on demographic factors associated with selecting fixed and removable prosthesis. However, there is a lack of data on the influence of gender in selecting dental prosthesis. Therefore this study was designed to evaluate the gender influence on selecting removable and fixed prosthesis.

MATERIALS AND METHODS

This study was a retrospective observational study conducted in a university hospital located in South India. The study was conducted with the approval of the Institutional Ethics Committee [SDC/ SIHEC/ 2020/ DIASDATA/ 0619-0320]. All case sheets between June 2019- March 2020 were reviewed. Data collection was done with the help of reviewing 86000 patient records. Incomplete records were excluded from the study. Randomization was done in order to minimise the sampling bias. Patients who have undergone fixed and removable prostheses were noted. Cases were cross verified by another examiner.

This was followed by Excel tabulation. Data analysis was done using SPSS Software. The association between study variables was calculated using chi-square test, where P<0.05 was considered statistically significant (Yemm, 1985).

RESULTS AND DISCUSSION

The need for dental prosthesis was most commonly seen in the age group between 29-38 years (21.2%) and followed by the age group between 49-58 years (19.2%). The age group between 39-48 years also had an almost equal need for prosthesis. The correlation between age and type of prosthesis gave a chi-square value P=0.000, which is statistically significant (Figure 1). The age distribution of our study when compared to previous studies gives a similar result. Yunus et al. has stated the younger age group were willing for fixed and removable prosthesis than older age groups 87% (Yunus et al., 2001). Joan et al. also stated that the age below 50 years were in need of prosthesis than the older age group (Enabulele and Omo, 2018). This may be due to the awareness among younger age groups about the importance of replacement of missing teeth. This also could be influenced by factors like aesthetics and speech, which may have an impact on self-esteem.

![Figure 1: The graph represents the correlation of age and type of prosthesis.](image)

The gender distribution reveals that females selected both fixed and removable prosthesis than men (55%). The correlation between gender and prosthesis was analysed by chi-square test P=.450 (statistically not significant) (Figure 2), where X-axis denotes gender and Y-axis denotes the type of prosthesis.
This finding of our study goes in hand with the study of Joan et al. He stated that selecting prosthesis had a female predilection. Nupur et al. also highlighted a female predominance when selecting both fixed and removable prosthesis (Shrirao et al., 2016). The main reason behind this is that females are more concerned about aesthetics than men. Another possible reason is that the level of awareness about the replacement of missing teeth may be higher in females.

Figure 1 shows a blue colour denotes CD, red denotes FPD and green denotes TPD, where X-axis depicts different age groups, and the y-axis depicts the type of prosthesis. Need for dental prosthesis commonly seen in the age group between 29-38 years (21.2%). Followed by the age group between 49-58 years (19.2%). Pearson Chi-square value - 57.730, p-value - 0.000, p value < 0.005, significant

Figure 2 shows a blue colour denotes CD, red denotes FPD and green denotes TPD. Females selected both fixed and removable prosthesis than men (55%). Pearson Chi-square value-1.598, p-value -0.450, p-value >0.05, insignificant

Figure 3 shows the X-axis denotes the type of prosthesis, whereas the Y-axis denotes the number of patients. Fixed prosthesis was more preferred when compared to removable prosthesis 59.8%.

The following graph reveals that fixed prosthesis was more preferred when compared to removable prosthesis 59.8% (Figure 3). The most common prosthesis selected goes in hand with the study of Asif Ulla Khan. He stated that 59% of the patients preferred fixed prosthesis. This may be due to reasons like limited number of missing teeth, easy maintenance and also the durability of fixed prosthesis. However, Damyanov et al, Carlson GE et al stated that the removable prosthesis were more preferred than fixed prosthesis (Damyanov et al., 2013; Carlsson and Omar, 2006). The reasons behind this could be multiple missing teeth and also because the removable prosthesis is more economical when compared to fixed prosthesis. Different geographic location and larger population are also factors associated with this finding.

The limitations of the present study are, it is a single centred study, it does not represent ethnic groups, and patient satisfaction is not recorded. In future, this research can be done on a larger population. Patient satisfaction could also be recorded.

CONCLUSIONS

Within the limits of the study, it can be concluded that the female patients were willing for replacement of teeth than male patients. There was a significant difference in choosing the type of prosthetic treatment. It was seen that fixed partial dentures were chosen over the removable prosthesis.

Conflict of interest

The authors declare that they have no conflict of interest for this study.

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REFERENCES

Ajay, R., Suma, K., Ali, S., Sivakumar, J. K., Rakshagan, V., Devaki, V., Divya, K. 2017. Effect of surface modifications on the retention of cement-retained implant crowns under fatigue loads: An In vitro study. Journal of Pharmacy And Bioallied Sciences, 9(5):154–154.
Al-Quran, F. A., Al-Ghalayini, R. F., Al-Zu’bi, B. N. 2011. Single-tooth replacement: factors affecting different prosthetic treatment modalities. BMC Oral Health, 11(1).

Ashok, V., Nallaswamy, D., Begum, S. B., Nesappan, T. 2014. Lip Bumper Prosthesis for an Acromegaly Patient: A Clinical Report. The Journal of Indian Prosthodontic Society, 14(S1):279–282.

Ashok, V., Suvitha, S. 2016. Awareness of all ceramic restoration in rural population. Research Journal of Pharmacy and Technology, 9(10):1691–1691.

Basha, F. Y. S., Ganapathy, D., Venugopalan, S. 2018. Oral Hygiene Status among Pregnant Women. Research Journal of Pharmacy and Technology, 11(7):3099–3099.

Behr, M., Zeman, F., Baitinger, T., Galler, J., Koller, M., Handel, G., Rosentritt, M. 2014. The Clinical Performance of Porcelain-Fused-to-Metal Precious Alloy Single Crowns: Chipping, Recurrent Caries, Periodontitis, and Loss of Retention. The International Journal of Prosthodontics, 27(2):153–160.

Budtz-Jörgensen, E. 1996. Restoration of the partially edentulous mouth — a comparison of overdentures, removable partial dentures, fixed partial dentures and implant treatment. Journal of Dentistry, 24(4):237–244.

Carlsson, G. E., Omar, R. 2006. Trends in Prosthodontics. Medical Principles and Practice, 15(3):167–179.

Damyanov, N. D., Witter, D. J., Bronkhorst, E. M., Creugers, N. H. 2013. Tooth Replacement Related to Number of Natural Teeth in a Dentate Adult Population in Bulgaria: A Cross-Sectional Study. The International Journal of Prosthodontics, 26(1):34–41.

de Castellucci Barbosa, L., Ferreira, M. R. M., de Carvalho Calabrich, C. F., Viana, A. C., de Lemos, M. C. L., Lauria, R. A. 2008. Edentulous patients’ knowledge of dental hygiene and care of prostheses. Gerodontology, 25(2):99–106.

Duraisamy, R., Krishnan, C. S., Ramasubramanian, H., Sampathkumar, J., Mariappan, S., Sivaprakasam, A. N. 2019. Compatibility of Nonoriginal Abutments With Implants: Evaluation of Micropog at the Implant-Abutment Interface, With Original and Nonoriginal Abutments. Implant dentistry, 28(3):289–295.

Emami, E., de Souza, R. F., Kabawat, M., Feine, J. S. 2013. The Impact of Edentulism on Oral and General Health. International Journal of Dentistry, 2013:1–7.

Enabulele, J. E., Omo, J. 2018. Socio-Demographic Distribution of Patients with Fixed Dental Prosthesis in a Developing Economy. Periodontics and Prosthodontics, 04(01).

Esan, T. A., Olusile, A. O., Akeredolu, P. A., Esan, A. O. 2004. Socio-demographic factors and edentulism: the Nigerian experience. BMC Oral Health, 4(1).

Ganapathy, D., Sathyamoorthy, A., Ranganathan, H., Murthykumar, K. 2016. Effect of resin bonded luting agents influencing marginal discrepancy in all ceramic complete veneer crowns. Journal of Clinical and Diagnostic Research, 10(12).

Harrison, A. 1991. Fenn, Liddelow and Gimson’s clinical dental prosthetics: A. Roy MacGregor. Elsevier, page 310.

Jain, A., Ranganathan, H., Ganapathy, D. 2017. Cervical and incisal marginal discrepancy in ceramic laminate veneering materials: A SEM analysis. Contemporary Clinical Dentistry, 8(2):272–272.

Jain, A. R., Nallaswamy, D., Ariga, P. 2019. Determination of Correlation of Width of Maxillary Anterior Teeth with Extraoral Factor (Interpupillary Width) in Indian Population. Journal of Clinical & Diagnostic Research, (7):13–13.

Jyothi, S., Robin, P. K., Ganapathy, D., Anandiselvaraj 2017. Periodontal Health Status of Three Different Groups Wearing Temporary Partial Denture. Research Journal of Pharmacy and Technology, 10(12):4339–4339.

Kannan, A. 2017. Effect of Coated Surfaces influencing Screw Loosening in Implants: A Systematic Review and Meta-analysis. World, 8(6):496–502.

Kannan, A., Venugopalan, S. 2018. A systematic review on the effect of use of impregnated retraction cords on gingiva. Research Journal of Pharmacy and Technology, 11(5):2121–2121.

Selvan, S. R., Ganapathy, D. 2016. Efficacy of fifth generation cephalosporins against methicillin-resistant Staphylococcus aureus-A review. Research Journal of Pharmacy and Technology, 9(10):1815–1815.

Shrirao, N., Deshmukh, S., Pande, N., Radke, U. 2016. An evaluation of patient’s decisions regarding dental prosthetic treatment. The Journal of Indian Prosthodontic Society, 16(4):366–366.

Subasree, S., Murthykumar, K., Dhanraj 2016. Effect of Aloe Vera in Oral Health-A Review. Research Journal of Pharmacy and Technology, 9(5):609–609.

Venugopalan, S., Ariga, P., Aggarwal, P., Viswanath, A. 2014. Case Report: Magnetically retained silicone facial prosthesis. Nigerian Journal of Clinical Practice, 17(2):260–264.

Vijayalakshmi, B., Ganapathy, D. 2016. Medical man-
agement of cellulitis. Research Journal of Pharmacy and Technology, 9(11):2067–2067.

Xie, Q., Ding, T., Yang, G. 2015. Rehabilitation of oral function with removable dentures - still an option? Journal of Oral Rehabilitation, 42(3):234–242.

Yemm, R. 1985. Analysis of patients referred over a period of five years to a teaching hospital consultant service in dental prosthetics. British Dental Journal, 159(9):304–306.

Yunus, N., Abdullah, H., Hanapiah, F. 2001. The use of implants in the occlusal rehabilitation of a partially edentulous patient: A clinical report. The Journal of Prosthetic Dentistry, 85(6):540–543.

Zitzmann, N. U., Hagmann, E., Weiger, R. 2007. What is the prevalence of various types of prosthetic dental restorations in Europe? Clinical Oral Implants Research, 18:20–33.