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Prevalence of full mouth extraction among patients visiting a dental college - A retrospective analysis

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ABSTRACT

Extraction of teeth is one of the most common procedures carried out in dental clinics. This study was done to assess the prevalence of full mouth extraction among patients visiting a dental college. A review of the records of patients who had undergone tooth extraction in Saveetha Dental College between June 2019 to March 2020 was retrieved. Data was then analyzed for patients who had undergone full mouth extractions. Data was cross-tabulated based on gender. A total of 4539 patients had undergone extractions. Most of the patients were above the age of 40. There was a slightly higher predilection of males who had undergone extractions compared to females. 2.8% of the population had undergone full mouth extraction. Within the limits of the present study, it can be concluded that the prevalence of full mouth extraction cases in a dental college in Chennai was minimal, with a slightly higher predilection towards males.

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INTRODUCTION

Extraction of teeth is one of the most common procedures carried out in dental clinics. The consequence of most dentoalveolar diseases is tooth loss (Adeyemo, 2012). In today's economy, most patients are presenting with severe dental problems ranging from multiple tooth decay to advanced generalized periodontitis because they have put off dental treatment either due to fear of discomfort or fear of cost. The major reason for finally reporting to the clinic is because of unbearable pain or if the infection has worsened. This could be due to poor oral hygiene, dental genetic malformations, hereditary issues or unhealthy diet consumption (Nazarian, 2011). Degree of urbanization has also been found to affect the pattern of tooth extractions. (Taiwo et al., 2017).

Populations with poorer socioeconomic conditions show higher prevalence and extent of teeth loss, with increasing age (C Susin et al., 2005; Susin et al., 2006; Barbato et al., 2007). The prevalence and risk indicators for tooth loss were studied in a Brazilian population, showing that 94% of the subjects had experienced tooth loss (C Susin et al., 2005; Gupta et al., 2010). A decline in the tooth loss can be verified in developed countries in the last years (Marcus et al., 1988; Hiidenkari and Parvinen,

1997; Suominen-Taipale, 1999), which may be due to the preventive programs and easier accessibility to the oral health care that have been decreasing the extractions (Haugejorden and Klock, 2002; Soory, 2010). India is a country in development progress, and very few studies have verified the prevalence of tooth extractions among the Indian population.

Tooth loss (TL) is a crucial measure of oral healthcare and the efficacy of oral disease management (Petersen et al., 2005). Despite improvements in awareness and treatment worldwide, tooth loss remains a major public health issue (Clarkson and McLoughlin, 2000; Hujoel, 2004). Tooth loss cannot only impair mastication, but also self-esteem and social interactions due to its effects on appearance, the ability to have a conversation, and the willingness to laugh (de Lima Saintrain and de Souza, 2012; Yang, 2016). These problems can significantly reduce the quality of life. (Willett et al., 1996; Naito, 2006; Barbosa and Gavião, 2008).

Previously our team had conducted numerous clinical trials (Ashok, 2014; Venugopalan, 2014; Ganapathy et al., 2016), In vitro studies (Duraisamy, 2019; Ajay et al., 2017; Jain et al., 2017), surveys (Ashok and Suvitha, 2016; Jyothi, 2017; Basha et al., 2018) and reviews (Selvan and Ganapathy, 2016; Subasree et al., 2016; Vijayalakshmi and Ganapathy, 2016) over the past 5 years.

Now we are focusing on epidemiological surveys. The ideas for this survey stemmed from the current trends in our community. Thus, the aim of this study was to describe the epidemiological data of the prevalence for full mouth extractions in a convenience sample of patients visiting a dental college in Chennai. (Ganapathy et al., 2017; Ariga, 2018; Kannan and Venugopalan, 2018)

MATERIALS AND METHODS

Records of patients who had undergone extraction of teeth at Saveetha Dental College, Chennai between June 2019 to March 2020 were retrieved. The advantage of this study was that it was done on a population with similar ethnicity. The disadvantage was that the area of the study was not that large. The study was approved by the Institutional Review Board. Two reviewers were involved in this study. The total sample size included 4539 patients who underwent extractions. To minimise sampling bias, we included all the available data; no sorting of data was done. Internal validity of the study was that all full mouth extraction patients were identified. The external validity of the study was treatment planning with verification of homogeneity in the general population and replication of results in different time periods.

We reviewed patient records and analysed the data of 4539 patients between June 2019 to March 2020. The data of patients who underwent extraction was reviewed. Primary teeth extractions were excluded from the study. Data was verified by one external reviewer. The data was then imported to SPSS and the variables were verified. Chi-square test was performed on the data using SPSS software by IBM. Gender, age and ethnicity were considered as independent variables. Full mouth extraction was considered as a dependent variable and correlation analysis was done.

RESULTS AND DISCUSSION

The data collected from the patient management software was tabulated in SPSS, and descriptive statistics were done. The X-axis represents the gender distribution. Y-axis represents the percentage of patients undergoing full mouth extractions. Out of a total of 4539 patients, only 129 patients had undergone full mouth extractions, of which 56(43.3%) were females and 73(56.6%) males as blue and red graphs, respectively. The frequencies are depicted in [Figure 1].
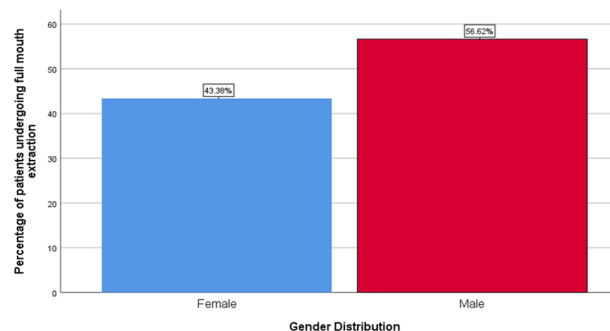

Figure 1: This bar graph represents the gender distribution of patients who underwent full mouth extraction.
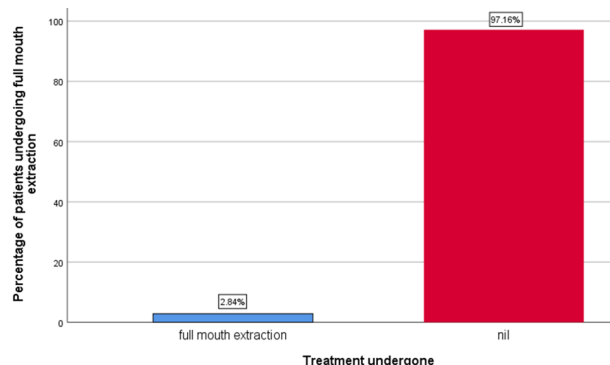

Figure 2: This bar graph depicts the distribution of patients who have undergone extractions.
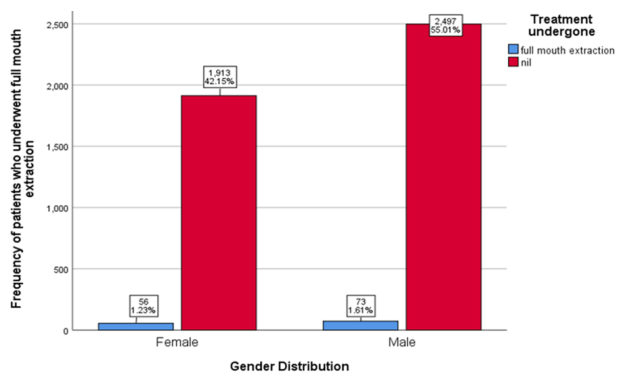
Figure 3: The graph represents the association between gender and the treatment undergone by the patient.
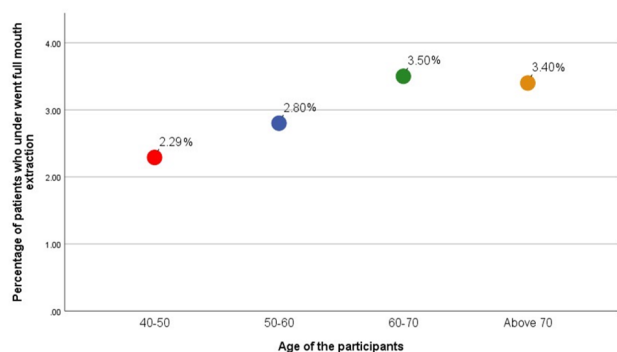

Figure 4: The scatter plot represents the correlation between the age and the percentage of patients who underwent full mouth extractions.

The frequency of full mouth extraction among both females and males in comparison to the rest of the population that had undergone extraction was calculated. Blue bar represents the patients who underwent full mouth extraction-2.8% (129) and red bar represents the patients those who did not undergo full mouth extraction-97.2%(4410), which is depicted in [Figure 2]. The X-axis represents the treatment done; Y-axis represents the percentage of patients.

Association between gender and prevalence of full mouth extraction was done [Figure 3]. Chi-Square test was done. Results showed no significant correlation between gender and full mouth extraction (p>0.05). In this study, we observed that the prevalence of full mouth extraction among the study population was 2.8% with a slightly higher predilection in males. The X-axis represents the gender distribution. Y-axis represents the total number of patients. Blue bars represent the patients who have undergone full mouth extraction, and Red bars represent the patients who did not undergo full mouth extraction. There was a slightly higher predilection among males; however, there was no significant association

between gender and the type of treatment. Pearson Chi-Square value -.000, p-value-0.994, p-value>0.05 statistically insignificant.

Conversely, a study conducted by Barbato *et al.* (2007) stated that there was a higher prevalence of tooth loss in females compared to men. Certain other studies conducted in India also proved that females had higher tooth loss compared to males.

When considering full mouth extractions, the age of the patients was above the age of 40, and the rate of extraction increased with increase in their age [Figure 4]. The X-axis represents the age of the participants in years. Y-axis represents the percentage of patients who underwent full mouth extractions. The red dot represents the 40-50 years age group (2.29%), the blue dot represents the 50-60 years age group (2.80%), the green dot represents the 60-70 year age group (3.50%) and the yellow dot represents the above 70 age group (3.40%). There was an increase in the rate of full mouth extractions with increasing age and a slight decrease in the patients who were above 70, and there was a significant association between age and full mouth extraction. One sample t-test -, p-value-0.002, p-value <0.05 statistically significant.

This was found to be similar to previous studies that confirmed evidence for the increased prevalence of tooth loss with increase in age (Agerholm and Sidi, 1988; Lopez and Baelum, 2003). Age was strongly associated with edentulism. This was due to the cumulative effect of dental caries and periodontal diseases, as well as treatment planning. Differential treatment choice due to socio-economic conditions also plays a major role such as endodontics versus extraction of the teeth (Kaira and Dabral, 2014). We can include more subjects and could also expand the time of the study.

Reasons for extraction, education, literacy level, systemic diseases were not included for this study. A greater awareness should be created regarding proper dental hygiene and timely treatment. Additional research is needed to determine the relationship between tooth loss and various etiological factors.

Because of fear or finances, patients will often avoid visiting the dentist's office. This allows small problems to grow progressively worse. When these problems persist for a long period of time, a full mouth extraction might be the only option.

Anxiety has also been shown to be an important factor inhibiting regular dental attendance. Dental anxiety is presumably a consequence of negative dental experiences in the past and/or a result

of a social learning process. Once present, anxiety is thought to be a self-maintaining or self-reinforcing mechanism, because anxious patients have distorted beliefs about the likelihood of positive and negative events, which raise their anxiety. The process of not visiting the dentist is described as a vicious cycle in which anxiety plays a crucial role and might result in avoidance behaviour leading to the deterioration of the dentition. This might increase the perceived likelihood of pain and the need for restorative treatment followed by negative experiences with dental visits, through which dental anxiety is reinforced, etc. If this vicious cycle is not broken, full mouth extraction seems to be the eventual consequence.

Within the clinical practice, a time may come where the dental provider will encounter a patient who might need full-mouth extraction due to severe decay or infection. Being able to perform full-mouth extractions in a fast and atraumatic way for the patient will help eliminate stress for everyone. Using a method that takes advantage of efficient Class I lever principles, as well as the biochemical properties while conserving bone and soft tissue will ensure more efficiency and effectiveness. The study was single centred with small sample size and similar ethnicity. Further multicentric research should be conducted in a larger population.

CONCLUSION

Within the limits of the present study, it can be concluded that the prevalence of full mouth extraction cases in a dental college in Chennai was minimal, with a slightly higher predilection in males. There was an increase in the rate of full mouth extractions with increasing age and a slight decrease in the patients who were above 70. Further research can be conducted to explore reasons for poor oral hygiene which leads to tooth loss among the general population.

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Conflict of Interest

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

REFERENCES

Adeyemo, W. L. 2012. Oral health-related quality of life following non-surgical (routine) tooth extraction: A pilot study. *Contemporary clinical dentistry*, 3(4):427–432.

Agerholm, D. M., Sidi, A. D. 1988. Reasons given for extraction of permanent teeth by general dental practitioners in England and Wales. *British Dental Journal*, 164(11):345–348.

Ajay, R., *et al.* 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):154–160.

Ariga, P. 2018. Determination of Correlation of Width of Maxillary Anterior Teeth using Extraoral and Intraoral Factors in Indian Population: A Systematic Review. *World Journal of Dentistry*, pages 68–75.

Ashok, V. 2014. Lip Bumper Prosthesis for an Acromegaly Patient: A Clinical Report. *Journal of Indian Prosthodontic Society*, 14(Supple 1):279–282.

Ashok, V., Suvitha, S. 2016. Awareness of all ceramic restoration in rural population. *Research Journal of Pharmacy and Technology*, 9(10):1691–1693.

Barbato, P. R., Nagano, H. C. M., Zanchet, F. N. 2007. Tooth loss and associated socioeconomic, demographic, and dental-care factors in Brazilian adults: an analysis of the Brazilian Oral Health Survey, 2002-2003. *Cadernos de Saúde. SciELO Brasil.*, 23(8):102–311.

Barbosa, T. S., Gavião, M. B. D. 2008. Oral health-related quality of life in children: Part II. Effects of clinical oral health status. A systematic review. *International Journal of Dental Hygiene*, 6(2):100–107.

Basha, F. Y. S., Ganapathy, D., Venugopalan, S. 2018. Oral Hygiene Status among Pregnant Women. *Research Journal of Pharmacy and Technology*, 11(7):3099–3102.

C Susin et al. 2005. Tooth loss and associated risk indicators in an adult urban population from south Brazil. *Acta odontologica Scandinavica*, 63(2):85–93.

Clarkson, J. J., McLoughlin, J. 2000. Role of fluoride in oral health promotion. *International Dental Journal*, 50(3):119–128.

de Lima Saintrain, M. V., de Souza, E. H. A. 2012. Impact of tooth loss on the quality of life. *Gerodontology*, 29(2):e632–e636.

Duraisamy, R. 2019. Compatibility of Nonoriginal Abutments With Implants: Evaluation of Micro gap at the Implant-Abutment Interface, With Original and Nonoriginal Abutments. *Implant dentistry*, 28(3):289–295.

Ganapathy, D., *et al.* 2016. Effect of Resin Bonded Luting Agents Influencing Marginal Discrepancy in

All-Ceramic Complete Veneer Crowns. *Journal of clinical and diagnostic research*, 10(12):67–70.

Ganapathy, D. M., Kannan, A., Venugopalan, S. 2017. Effect of Coated Surfaces influencing Screw Loosening in Implants: A Systematic Review and Meta-analysis. *World Journal of Dentistry*, 8(6):496–502.

Gupta, A., Dhanraj, M., Sivagami, G. 2010. Status of surface treatment in endosseous implant: A literary overview. *Indian Journal of Dental Research*, 21(3):433–438.

Haugejorden, O., Klock, K. S. 2002. Expectation of retaining natural teeth for a lifetime and its predictors among Norwegian adults. *Community dental health*, 19(2):73–78.

Hiidenkari, T., Parvinen, T. 1997. Edentulousness and its rehabilitation over a 10-year period in a Finnish urban area. *Community dentistry and oral epidemiology*, 25(5):367–370.

Hujoel, P. P. 2004. Endpoints in periodontal trials: the need for an evidence-based research approach. *Periodontology*, 36(1):196–204.

Jain, A. R., Ranganathan, H., Ganapathy, D. M. 2017. Cervical and incisal marginal discrepancy in ceramic laminate veneering materials: A SEM analysis. *Contemporary Clinical Dentistry*, 8(2):272–278.

Jyothi, S. 2017. Periodontal Health Status of Three Different Groups Wearing Temporary Partial Denture. *Research Journal of Pharmacy and Technology*, 10(12):4339–4342.

Kaira, L. S., Dabral, E. 2014. Prevalence of complete edentulism among Udaipur population of India. *The Saudi Journal for Dental Research*, 5(2):139–145.

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.

Lopez, R., Baelum, V. 2003. Classifying periodontitis among adolescents: implications for epidemiological research. *Community Dentistry and Oral Epidemiology*, 31(2):136–143.

Marcus, S. E., *et al.* 1988. Tooth Retention and Tooth Loss in the Permanent Dentition of Adults: the United States. *Journal of dental research*, 75(Supple 2):684–695.

Naito, M. 2006. Oral health status and health-related quality of life: a systematic review. *Journal of oral science*, 48(1):1–7.

Nazarian, A. 2011. An efficient approach to full-mouth extractions. *Dentistry today*, 30(8):94–96.

Petersen, P. E., *et al.* 2005. The global burden of oral diseases and risks to oral health. *Bulletin of the World Health Organization*, 83(9):661–669.

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.

Soory, M. 2010. Oxidative Stress Induced Mechanisms in the Progression of Periodontal Diseases and Cancer: A Common Approach to Redox Homeostasis? *Cancers*, 2(2):670–692.

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.

Suominen-Taipale, A. L. 1999. Edentulism among Finnish adults of working age. *Community dentistry and oral epidemiology*, 27(5):353–365.

Susin, C., *et al.* 2006. Tooth loss in a young population from south Brazil. *Journal of public health dentistry*, 66(2):110–115.

Taiwo, A. O., *et al.* 2017. Tooth extraction: Pattern and etiology from extreme Northwestern Nigeria. *European Journal of dentistry*, 11(3):335–339.

Venugopalan, S. 2014. Magnetically retained silicone facial prosthesis. *Nigerian journal of clinical practice*, 17(2):260–264.

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

Willett, W. C., Douglass, C. W., *et al.* 1996. The Impact of Edentulousness on Food and Nutrient Intake. *The Journal of the American Dental Association*, 127(4):459–467.

Yang, S. E. 2016. Association between dental pain and tooth loss with health-related quality of life: the Korea national health and nutrition examination survey: A population-based cohort study. *Medicine*, 95(35):4707–4707.