

Evaluation Of Factors And Pattern Of Dental Extraction In Chengalpattu Medical College- A Retrospective Study

*Running title: Factors and pattern of Dental extraction
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Abstract

Aim: To evaluate the factors leading to dental extraction and its pattern, in the population attending the department of Dental Surgery, Chengalpattu Medical college and hospital. **Method:** Data of patients who underwent dental extraction was collected and analyzed retrospectively from the department extraction register from 2016 to 2019. All Statistical analyses were done using SPSS v. 25. **Result:** The maximum number of extracted teeth (23.3%) was in the 45-54 age group. Dental caries with 43.0% was the most common factor for dental extraction followed with very little marginal difference by Periodontal problems. Teeth extracted due to Dental caries were higher in the younger population below 45 years of age and teeth extracted due to periodontal problems were higher in the older population above 45 years of age. The maximum number of extracted teeth was in the mandibular posterior teeth (32.3%) followed by maxillary posterior teeth (26%). **Conclusion:** Dental caries were the most common factor leading to dental extraction and with aging periodontal disease becomes the main cause of tooth extraction. In the pattern of extraction, posterior teeth are extracted in higher numbers than the anterior.

Keywords: Humans: Dental Caries: Periodontal Diseases: Tooth Extraction: aging

INTRODUCTION:

Dental extraction has been a basic form of treatment in dentistry since time immemorial. Despite the advancement in the field of dentistry, dental extraction due to various reasons is still inevitable. Oral health and functions are impacted by tooth extraction.¹ Loss of tooth is morbidity and it affects the general health of the population. Therefore, the knowledge of the various factors leading to dental extraction becomes essential for planning adequate health policies to prevent tooth loss and to improve the overall health of the general population. The important factors leading to dental extraction vary throughout the world. According to Silva-Junior et al., the decision of the patient to save or remove the tooth depends on the treatment cost and duration.² The socio-economic and oral health of a population can be estimated according to the number of dental extractions.^{3,4} Dental problems and dental care provided in a community can be determined by the factors leading to dental extraction and can help in implementing preventive oral health measures in the target population. ²Hence this retrospective study was done to evaluate the factors leading to dental extraction and its pattern, in the population attending the department of Dental Surgery, Chengalpattu Medical college and hospital.

MATERIAL AND METHODS

This retrospective study was conducted in the Department of Dental Surgery Chengalpattu Medical College and Hospital Tamilnadu India. Patient Data for Dental extraction was obtained from the department extraction register from 2016 to 2019.

The inclusion criteria were 1) age: 15 to 84 years 2) Gender: male & female and 3) All permanent teeth.

Exclusion criteria were 1) Deciduous teeth 2) supernumerary teeth 3) incomplete or missing data. The reasons contributing to dental extraction were categorized as Dental Caries, Periodontal Problems, traumatic injury, prosthetic, Endodontic failure and impaction. Teeth extracted were categorized as Maxillary anterior and posterior and Mandibular anterior and posterior. All data on the patient age, gender, reason for extraction and teeth extracted were collected by the authors and the patient privacy was kept confidential. SPSS 25 IBM, USA was used for making data entry and conducting statistical analysis.

Results

Based on the selection criteria of this study 12027 patient records were included in this study. The number of teeth extracted was higher in females (57.94%) than in males (42.06%) as shown in graph 1. Table 1 and Graph 2 shows that the majority of teeth extracted was in the 45-54 age group (23.3%) followed by the 55-64 age group (22.5%). The most common factor was dental caries with 43.0%, followed by a little marginal difference in periodontal problems 39.4%. The results show that teeth extracted in young people below 45 years were due to Dental caries and in older people above 45 years was due to periodontal problems. The mandibular posterior teeth (32.3 %) were the most extracted, followed by maxillary posterior teeth (26 %) as shown in table 2 and graph 3. Dental caries was the primary cause for the extraction of posterior teeth and Periodontal problems were the primary cause for extraction in anterior teeth.

Discussion

Tooth extraction is a common dental procedure and its popularity is due to its low cost and single visit. This retrospective study evaluated the factors of dental extraction in a rural population seeking free dental treatment in Government Medical College hospital and most of them are expected to be in lower socio-economic group with a financial burden to undergo specialty Dental care. In this study, Dental caries was the most common cause of dental extraction which is similar to the study by Anand, Kuriakose, who reported that dental Caries is the main cause for teeth extraction in a college in South India ⁵ and also with the studies conducted in different geographical location. ⁶⁻⁸ Teeth extracted due to periodontal problems was the second common reason with a very marginal difference with Dental caries and found in the older population above 45 years of age. According to various studies, the main reason for teeth extraction due is Periodontitis.⁹⁻¹¹ From this study it can be concluded that with aging periodontal disease becomes the main cause of teeth extraction which is in agreement with previous studies.^{8,12-14} This study

shows that the maximum number of dental extractions is done between 46-60 years of age, while a minimal number of extractions was done in patients below 25 years and above 60 years of age. This pattern is because dental caries and Periodontal problems are accumulative with aging hence a lesser number of the extracted tooth at a younger age and this finding is consistent with other studies with the same results.^{3,7,13,14} In this study the mandibular posterior teeth followed by maxillary posterior teeth were the most extracted teeth followed by maxillary and mandibular anterior. Da'ameh in his study claims that the rate of extraction is high in posterior teeth compared to anterior teeth.

CONCLUSION

Dental caries was the most common factor leading to dental extraction and with aging periodontal disease becomes the main cause of tooth extraction. In the pattern of extraction, posterior teeth are extracted in higher numbers than the anterior. This study recommends the importance of oral hygiene instruction and awareness about dental caries in the general population to prevent tooth loss and to improve the overall health of the general population.

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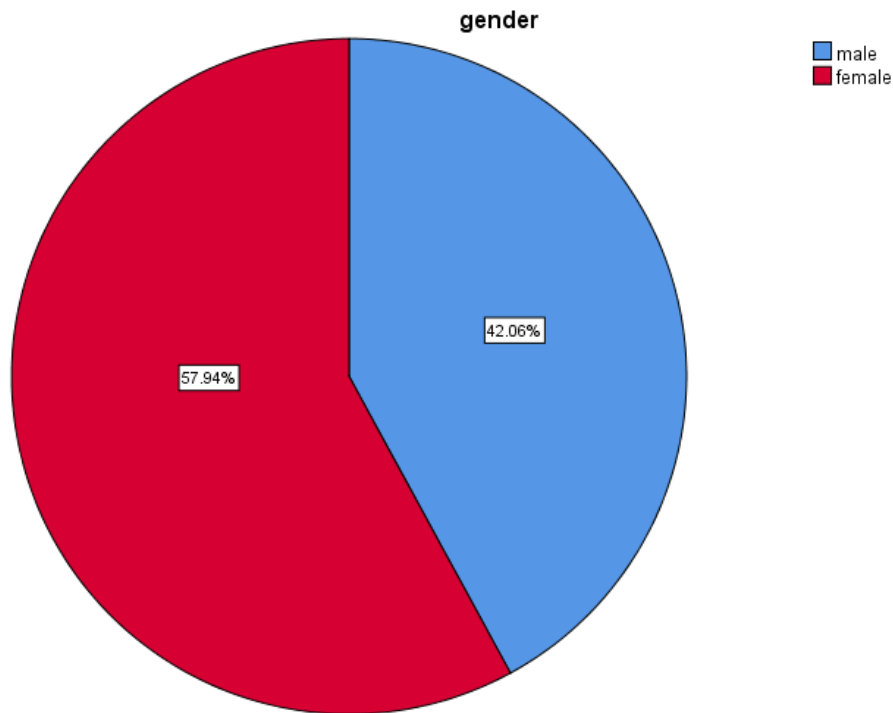
Table 1: Factors of Dental extraction in different age groups

Factors		Age							Total
		15-24	25-34	35-44	45-54	55-64	65-74	75-84	
Dental caries	Count	724	889	1169	1045	796	393	156	5172
	% of Total	6.0%	7.4%	9.7%	8.7%	6.6%	3.3%	1.3%	43.0%
Periodontal problems	Count	0	123	757	1577	1269	710	298	4734
	% of Total	0.0%	1.0%	6.3%	13.1%	10.6%	5.9%	2.5%	39.4%
Traumatic injury	Count	132	66	65	98	197	66	0	624
	% of Total	1.1%	0.5%	0.5%	0.8%	1.6%	0.5%	0.0%	5.2%
Prosthetic	Count	18	34	140	35	437	52	123	839
	% of Total	0.1%	0.3%	1.2%	0.3%	3.6%	0.4%	1.0%	7.0%
Failed endo	Count	8	37	32	34	7	2	0	120
	% of Total	0.1%	0.3%	0.3%	0.3%	0.1%	0.0%	0.0%	1.0%
Impaction	Count	81	307	134	16	0	0	0	538
	% of Total	0.7%	2.6%	1.1%	0.1%	0.0%	0.0%	0.0%	4.5%
Total	Count	963	1456	2297	2805	2706	1223	577	12027
	% of Total	8.0%	12.1%	19.1%	23.3%	22.5%	10.2%	4.8%	100.0%

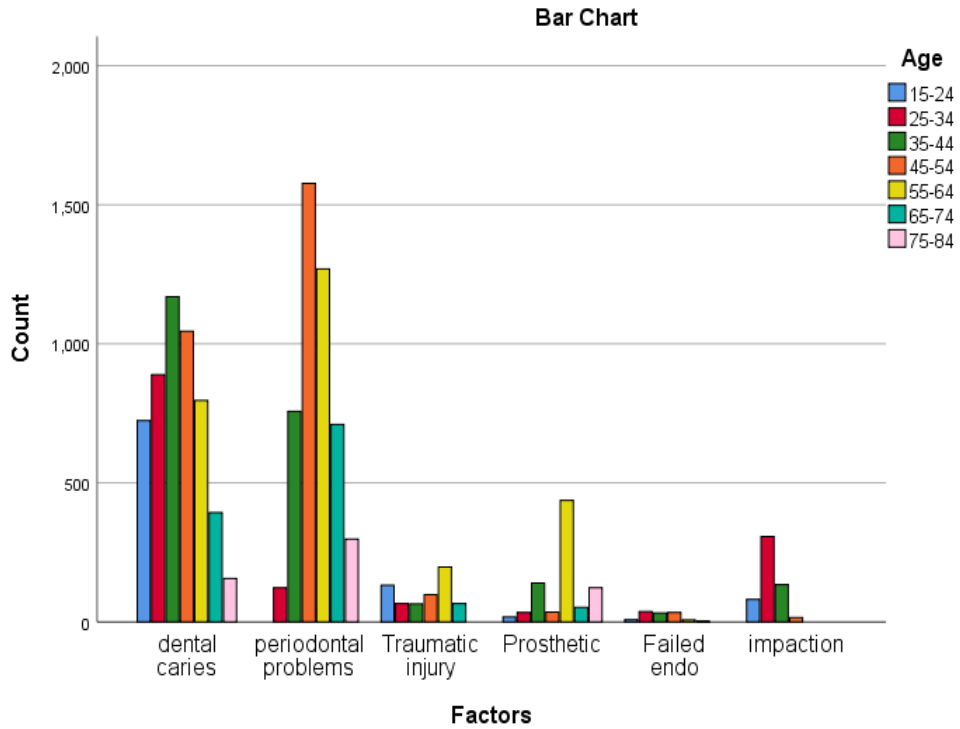
Table 2: Factors for extraction by Dental Quadrant

Factors		Maxillary anterior	Maxillary posterior	Mandibular anterior	Mandibular posterior
		Count	586	1863	382
Dental caries	% of Total	4.9%	15.5%	3.2%	19.5%
	Count	1426	732	1673	903
Periodontal problems	% of Total	11.9%	6.1%	13.9%	7.5%
	Count	296	62	213	53
Traumatic injury	% of Total	2.5%	0.5%	1.8%	0.4%
	Count	586	1863	382	2341
Total	% of Total	4.9%	15.5%	3.2%	19.5%
	Count	1426	732	1673	903
Total	% of Total	11.9%	6.1%	13.9%	7.5%
	Count	296	62	213	53
Total	% of Total	2.5%	0.5%	1.8%	0.4%
	Count	586	1863	382	2341

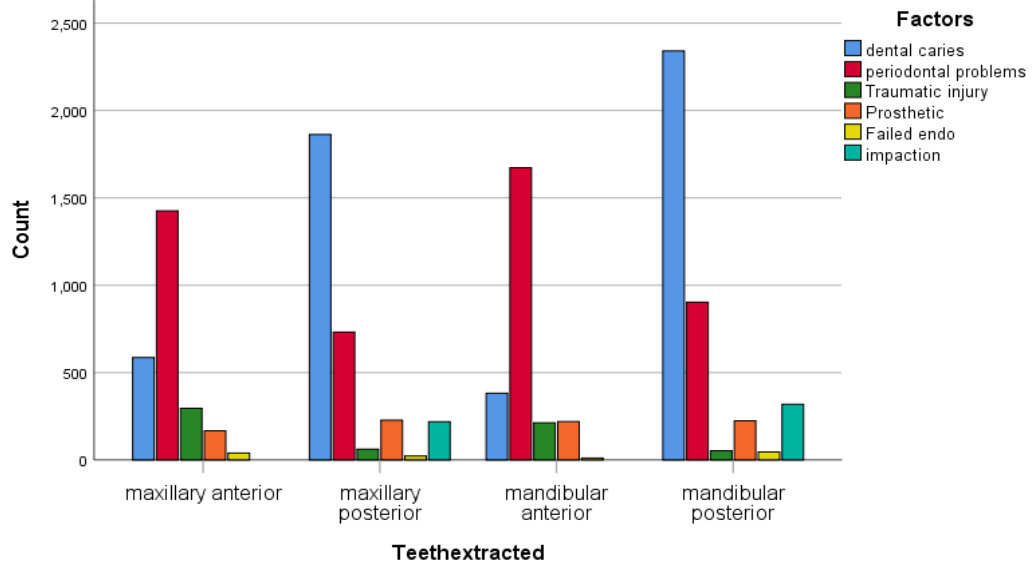
Prosthetic	Count	167	228	220	224	839
	% of Total	1.4%	1.9%	1.8%	1.9%	7.0%
Failed endo	Count	40	23	11	46	120
	% of Total	0.3%	0.2%	0.1%	0.4%	1.0%
Impaction	Count	0	219	0	319	538
	% of Total	0.0%	1.8%	0.0%	2.7%	4.5%
	Count	2515	3127	2499	3886	12027
	% of Total	20.9%	26.0%	20.8%	32.3%	100.0%



Graph 1: Pie chart of gender distribution of extracted teeth



Graph 2: Number and factors of Dental extraction in different age groups.



Graph 3: Factors for extraction by Dental Quadrant

