

### Reasons Lying the Cause of Extraction in The Population of Bihar

Dr Kaushal Singh<sup>1</sup>, Dr Aaysha Nabi Tabinda<sup>2</sup>, Dr Nitu Broto Biswas<sup>3</sup>, Dr Anindita Banerjee<sup>4</sup>

<sup>1</sup>Senior Lecturer, Department of Periodontology, Hazaribagh College of Dental Science & Hospital, Hazaribagh.

<sup>2</sup>Senior Lecturer, Department of Periodontology, Buddha Institute of Dental Sciences, Patna

<sup>3</sup>Professor, Department of Periodontology, Buddha Institute of Dental Sciences, Patna

<sup>4</sup>Professor & Head of Department, Department of Periodontology, Buddha Institute of Dental Sciences, Patna

**Corresponding Author:** Dr Kaushal Singh, Senior Lecturer, Department of Periodontology, Hazaribagh College of Dental Science & Hospital, Hazaribagh

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#### Abstract

**Background:** The purpose of this study was to investigate the reasons for and patterns of extraction of permanent teeth in a population of Bihar.

**Materials and Methods:** A cross sectional study was conducted in a sample population of patients attending the Department of Oral Surgery in BIDSJH for extraction from November 2014 to January 2015.

Patients are referred to the Department for extraction due to various reasons. For each patient, age and gender, type of tooth extracted, reasons for tooth extraction and caries and its sequel, periodontal disease, orthodontic reasons, prosthetics, surgical indications, tooth injury was clinically examined and recorded.

**Result:** Present study is conducted on 883 patients. Mean age of patients is  $44.46 \pm 16.08$  with range of 15 years to 88 years. There are 225 (25.5%) patients with age less or equal to 30 years and remaining are with more than 30 years of age. Among total, 444 (50.3%) are males and 439 (49.7%) are females. Thus sex ratio in present study is 1:1. Most common cause of extraction of teeth is caries (53.9%) followed by mobility due to periodontitis (38.5%), mobility due to trauma (3.9%), mobility due to

pathology (1.8%) and orthodontic reason (0.3%). Mean age of patients with extracted teeth due to dental caries is  $39.06 \pm 14.71$ . It is  $53.19 \pm 14.08$  in patients with periodontal problems whereas  $38.58 \pm 15.61$  in patients with other cause of extraction of teeth.

**Conclusion:** The results of this study show that dental caries and its sequel is the principal reason for extraction of teeth followed by periodontal disease. Nearly half of the teeth were extracted due to dental caries and its sequel whereas more than one third teeth extracted due to periodontal disease.

**Keywords:** Teeth, Periodontal Disease, Periodontitis, Edentulism

#### Introduction

Dental diseases and periodontal diseases are a major public health problem in low income nations. In the last 20 years treatment needs have changed dramatically in most countries. The real aim should be constructed so as to increase the time period with the natural dentition or at least to delay the edentulism. <sup>(1,2)</sup> Tooth extraction is one of the dental treatments which should be considered the last option. The number of extracted teeth can serve as an indicator of socio-economic and oral hygiene level. <sup>(3)</sup> In

order to improve oral health, understanding the pattern and the causes for tooth loss in a population is of great importance. There are several studies investigating the reasons for tooth extraction in different countries. (4) Most of these surveys were similar as they investigated the amount of tooth loss, the reasons behind tooth extraction, and the distribution of tooth loss according to age, gender, education, and tooth type. Dental caries and periodontal disease were the predominant reasons for tooth 1-6 extraction. It is a commonly held view that older patients lose more teeth as a result of periodontal disease. WHO states good oral health as an indicator of good health and one of the global goals to be achieved by the year 2000 is 85% of the population should have all teeth by the age of 18 years. Extraction due to periodontal reasons predominated in the age group above 40 years. Caries and its sequel remain the most important cause of tooth loss throughout adult life along with periodontal diseases at later stages. (5) This survey aimed to determine the reasons for teeth extraction and its association with age, gender and type of tooth extracted in patients attending to Buddha Institute of Dental Sciences and Hospital, Patna.

### Materials and Methods

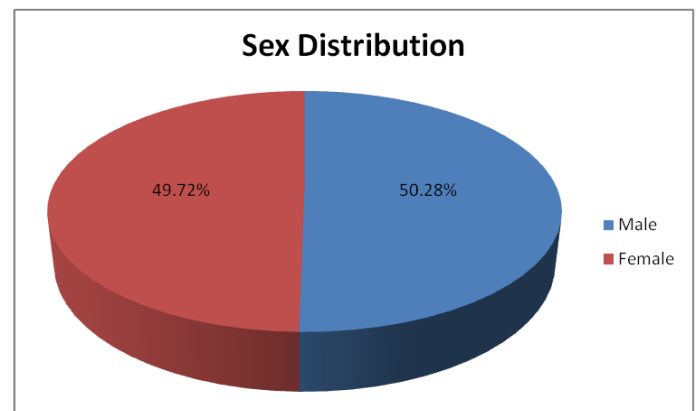
A cross sectional study was conducted in a sample population of patients attending the Department of Oral Surgery in BIDSJH for extraction from November 2014 to January 2015. Patients are referred to the Department for extraction due to various reasons. Some of which may be dental caries and its sequel, periodontal disease, orthodontic reasons, failed restorations, impacted teeth, trauma etc. Clinical examination was conducted in each patient using a mouth mirror and probe. For each patient, age and gender, type of tooth extracted, reasons for tooth extraction and caries and its sequel (pulpitis, crown failure, cellulites/abscess, restorative and endodontic failure), periodontal disease, orthodontic reasons,

prosthetics, surgical indications, tooth injury was clinically examined and recorded. Questionnaires were received and data collected were statistically analyzed to see if there is any association between variables like cause age and sex. Chi-square test was applied to see the significance differences and 5% level of significance was the standard p-value. For data analysis computer software SPSS 15 was used.

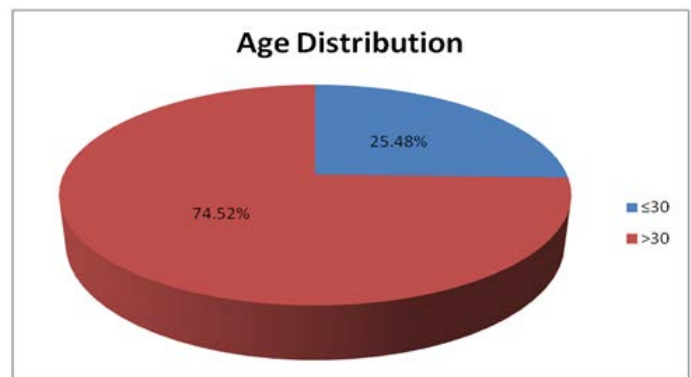
### Result

A total of 883 patients were examined. Among total, 444 (50.3%) are males and 439 (49.7%) are females. Thus sex ratio in present study is 1:1. (Graph 1)

Graph 1: Sex Wise Distribution

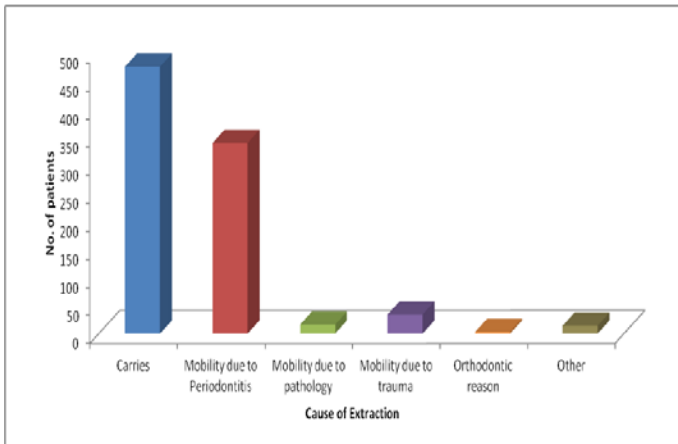


Graph 2: Age Wise Distribution



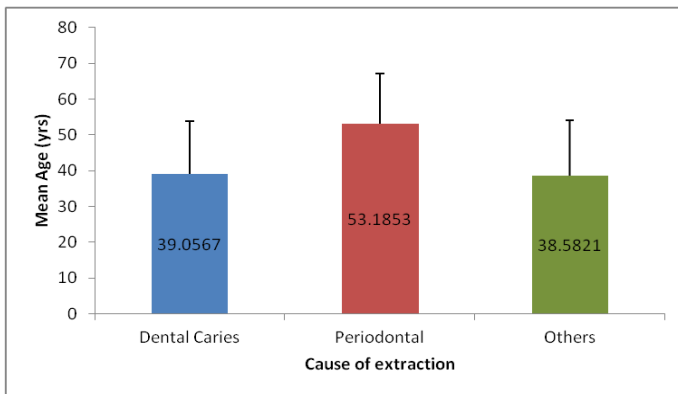
Out of total patient examined most common cause of extraction of teeth is caries (53.9%) followed by mobility due to periodontitis (38.5%), mobility due to trauma (3.9%), mobility due to pathology (1.8%) and orthodontic reason (0.3%). (Graph 3)

**Graph 3: Distribution of Patients According To Cause of Extraction**



Mean age of patients with extracted teeth due to dental caries is  $39.06 \pm 14.71$ . It is  $53.19 \pm 14.08$  in patients with periodontal problems whereas  $38.58 \pm 15.61$  in patients with other cause of extraction of teeth. To check significant difference between mean age of patients with various cause of extraction, one way ANOVA test with post hoc test is applied. It shows significant difference in mean age between dental caries and periodontal patients. Mean age is significantly higher among periodontal patients as compare to dental caries (p-value <0.01). (GRAPH 4 & TABLE 1)

**Graph 4: Comparison of mean number of teeth for various cause of extraction**



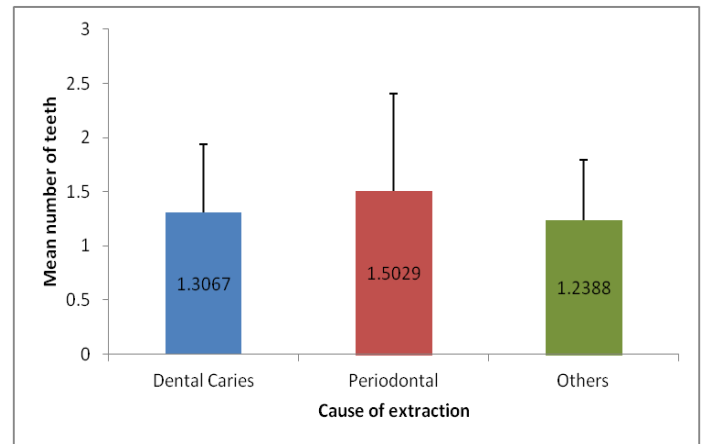
**Table 1: Comparison of mean number of teeth for various cause of extraction**

Cause of extraction	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Dental Caries	476	39.0567	14.70535	.67402	37.7323	40.3811	15.00	78.00
Periodontal	340	53.1853	14.07830	.76350	51.6835	54.6871	15.00	88.00
Others	67	38.5821	15.60803	1.90682	34.7750	42.3892	17.00	73.00
Total	883	44.4609	16.08091	.54117	43.3988	45.5231	15.00	88.00

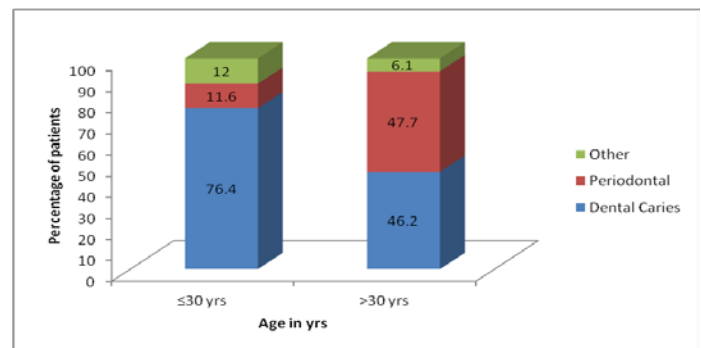
Mean no. of extracted teeth is  $1.372 \pm 0.757$  among male and  $1.383 \pm 0.746$  among female. There is no significant difference in mean extracted teeth between male and female (p-value = 0.827).

Among 444 male patients, 49.1% have extracted teeth due to dental caries whereas out of 439 female patients 58.8% have same cause. There is significant relation between gender of patient and cause of extraction (p-value <0.001). (GRAPH 5)

**Graph 5: Mean no. Of extracted teeth in male and female By cause**



**Graph 6: Corelation between age and cause**



Among patients with less than 30 yrs. 76.4% has extracted teeth due to dental caries whereas those among patients

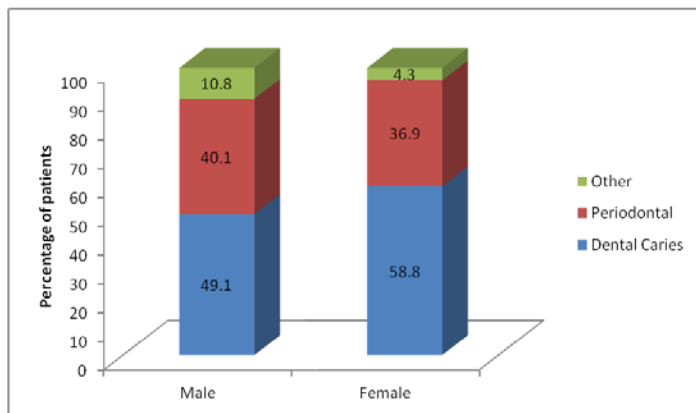
with more than 30 yrs. only 46.2% have dental caries. There is significant relation between age of patient and cause of extraction (p-value <0.001) . (graph 7 & table 2)

**Table 2: Correlation between gender and cause**

Gender	Cause			Total
	Dental Caries	Periodontal	Others	
Male	218 (49.1%)	178 (40.1%)	48 (10.8%)	444 (100%)
Female	258 (58.8%)	162 (36.9%)	19 (4.3%)	439 (100%)
Total	476 (53.9%)	340 (38.5%)	67 (7.6%)	883 (100%)

	Value	df	P-value
Pearson Chi-Square	16.639	2	<0.001

**Graph 7: Correlation between gender and cause**



**Discussion**

In this study the main reason for tooth extraction was caries (53.9 %) and the second important reason for tooth extraction was periodontal disease (38.5%). Caries was the most important cause for the tooth extractions in all age groups and also periodontal reason for the tooth extraction increasing with age, in accordance with the literature.<sup>(6)</sup> which is in direct favour of present study. While caries was the main reason for extraction in some

studies, in others periodontal disease was the main reason for extraction or caries and periodontal reasons were equal causes for tooth extraction .<sup>(10)</sup>

It has been shown in a previous study that 62% of extractions of permanent and primary teeth in Saudi Arabia were due to caries, with periodontal disease being the main reason for extraction in patients over 40 years of age which is in favour of our present study.<sup>(7)</sup>

In the present study it has been elucidated that there is higher percentage of extraction in less than 30 years of age with the cause of caries and higher percentage of extraction with the cause of periodontitis in age group above 30 years of age which is in direct accordance with the study conducted by Dixit et al.<sup>(1)</sup>

In the present study the maximum number of teeth extracted was 53.18 % because of periodontitis where as teeth extracted due to caries is 39.03% which is contrary to the study done by Yadav et al.<sup>(5)</sup>

The cause of extraction in the present study other than dental caries and periodontitis was more predominant in males than females which is in contradiction to study created by George et al.<sup>(8)</sup> .

Retention of a complete dentition throughout life should be one of the main goals of the dental profession. Extending the life span of the dentition, either by prevention or treatment of dental disease, is a major objective of dental care. Dental caries in the Kingdom is perhaps, the main obstacle for achieving such a goal. Various methods should be available to prevent or decrease the impact of the disease.<sup>(9)</sup>

The limitation of present study is a convenient sample technique was employed where as radiographic aids were not used for the survey.

**Conclusion and Summary**

The results of this survey indicated that carries and periodontal disease were the principal reasons for tooth

extraction. The majority of patients had incomplete secondary education or lower and had even more teeth extracted than patients having higher levels of education. The best predictors for tooth loss due to caries were age, gender, marital status, time of last dental visit, tooth type and having had a previous extraction.

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### References

1. Dixit LP, Gurung CK, Gurung N and Joshi N. Reasons underlying the extraction of permanent teeth in patients attending Peoples Dental College and Hospital. *Nepal Med. Coll. Journal*, 2010; 12(4): 203-206.
2. Burt BA, Ismail AI, Morrison EC. and Beltran ED. Risk factors for tooth loss over a 28-year period. *J. Dent. Res.* 1990; 69: 1126- 1130.
3. M. Jafarian , A. Etebarian. Reasons for Extraction of Permanent Teeth in General Dental Practices in Tehran, Iran *Iran Med Princ Pract* 2013;22:239–244
4. Lee CY, Chang YY, Chang CS. Reasons for Permanent Tooth Extractions in Taiwan *Asia Pacific Journal of Public Health* 2015, Vol. 27(2) NP2350–NP2357
5. Yadav A and Karikal A. Reasons Underlying the Extraction of Permanent Teeth in Patients Attending A.B.S.M.I.D.S. NUJHS Vol. 6, No.3, September 2016, ISSN 2249-7110
6. Türkiye'nin K Doğu B Daimi D Cekim N: Pilot Çalışma. Reasons for Extraction of Permanent Teeth in the Northern East of Turkey: A Pilot Study. *Ondokuz Mayıs Üniversitesi Dişhekimliği Fakültesi Dergisi*: 2002; 3 (2): 80-83
7. Alesia K, Khalil H S. Reasons for and patterns relating to the extraction of permanent teeth in a subset of the Saudi population *Clinical, Cosmetic and Investigational Dentistry* 2013;5 51–56
8. George B, John J, Saravanan S, Arumugham IM. Prevalence of tooth loss among children and adults in a suburban area of Chennai. *Indian J Dent Res* 2011;22: 364
9. Naragond AS, Kenganal S. Serial Extractions – A Review *Journal of Dental and Medical Sciences (JDMS)* Volume 3, Issue 2 (Nov.- Dec. 2012), PP 40-47
10. Jamila M. A. Farsi, Common Causes Of Extraction Of Teeth In Saudi Arabia. *The Saudi Dental Journal*, Volume 4, Number 3, September 1992