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# Evaluation of various factors for extraction of teeth in a rural dental college

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## ABSTRACT

### Keywords:

Dental caries  
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Molars  
Periodontitis

**Aims and objectives:** To investigate the various major and minor reasons for extraction of permanent teeth, taking into consideration various factors such as age, gender, type of teeth being extracted, extent of pathology and non willingness of the patient to save the teeth.

**Materials and methods:** This study consisted of 1608 patients out of which 840 were males and 768 were females. All these patients had reported to the College of Dental Science & Hospital, Rau, Indore, for extraction of teeth during October 2011 to May 2012. All possible reasons for extraction of teeth were considered and noted down in a preformed chart.

**Results:** A total of 1790 teeth were extracted in 1608 patients. Males underwent more extractions as compared to females. Middle age group patients of 30–40 years of age had the maximum number of extractions. Dental Caries was the main reason for extraction of teeth.

**Conclusion:** Dental Caries and Periodontitis still remain the two most important reasons for extraction of teeth. Knowing the etiologic factors will help us treat and prevent them so as to improve the dental health of the general population.

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## 1. Introduction

It is a well accepted fact that loss of teeth is an inevitable part of human life. There are many reasons for extraction of teeth such as dental Caries, Periodontitis, impacted teeth, supernumerary and over retained teeth, intentional extraction of teeth for orthodontic and prosthetic treatment, trauma inflicted teeth and root canal failure teeth which cannot be retained by any treatment modalities that are presently

available. This study was undertaken to evaluate the various major and minor factors for extraction of permanent teeth in a rural population and to find out its correlation to factors as age, gender and type of teeth being extracted.

Over all dental Caries and Periodontitis remain the two most important reasons for extraction of teeth regardless of the age of the patient.<sup>1</sup> Extraction of single or multiple teeth has significant effect on masticatory efficiency, esthetics, speech as well as occlusal harmony and periodontal health of the individual.

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Findings and result of various earlier studies clearly indicate that dental Caries and Periodontitis are the two main reasons for extraction of teeth and molars are extracted more in number among all other teeth.

## 2. Materials and methods

1608 patients came for extraction of teeth in the Department of Oral and Maxillofacial Surgery, College of Dental Science and Hospital. Rau, Indore, during a period, October 2011 to May 2012. Out of 1608 patients, 840 were males and 768 were females. Patients were included from 6 years of age to more than 75 Yrs of age. The total patients were divided into eleven groups with a range of 6 years difference in each age group.

Group 1: 6–12 Yrs, Group 2: 13–19 Yrs, Group 3: 20–26 Yrs, Group 4: 27–33 Yrs, Group 5: 34–40 Yrs, Group 6: 41–47 Yrs, Group 7: 48–54 Yrs, Group 8: 55–61 Yrs, Group 9: 62–68 Yrs, Group 10: 69–75 Yrs, Group 11: >75 Yrs.

All the possible reasons and aspects involved in the extraction of teeth were taken up in this study. These included Carious and Periodontally involved teeth that were not restorable and were hopeless for periodontal treatment, impacted, supernumerary, over retained teeth, intentional extractions for orthodontic and prosthetic treatment, teeth with extensive abrasion and attrition and trauma inflicted teeth that could not be saved by any restorative means. Many a time's patients were not willing to save the teeth even if it could be saved. This aspect was also taken into consideration.

All the patients were informed regarding this follow up study and duly signed consent was obtained for their participation in the study. A detailed medical and dental history was taken for all patients. All the patients were found to be fit for extraction under local anesthesia. Complete medical dental history and examination were carried out by only one investigator and findings were noted in the printed proforma so as to avoid biasness. Teeth were extracted following the normal aseptic measures under local anesthesia.

### 2.1. Clinical examination

Clinical examinations of the patients were performed by only one investigator as mentioned above.

### 2.2. Periodontal examination

Periodontal examination was carried out by considering the tooth mobility, severity of periodontal attachment loss and furcation involvement in multirrooted teeth. These above were considered the main criteria which indicated the need for extraction of periodontally involved teeth.<sup>2,3</sup>

### 2.3. Caries

The criteria for teeth extraction due to dental Caries included initial caries, recurrent caries its sequel root stump remains in cases where crown was lost due to dental caries or fracture of crown due to weakening by dental Caries.<sup>4</sup>

Root fracture as a result of trauma, impacted teeth, extractions for prosthetic treatment, were diagnosed by

radiographic examination. Failed root canal treated teeth and fracture of teeth which could not be restored were also diagnosed by radiographic examination. The criterion for tooth extraction due to orthodontic reasons was lack of space as recommended by orthodontist.

### 2.4. Statistical analysis

The main outcome variable was the reason for teeth extraction. Relations of variables such as age & gender with reasons for extraction were analyzed by chi-square test. This test was applied to calculate the "P" value for total number of patients, total number of teeth extracted and reasons for extractions by gender. The "P" value calculated was less than 0.0001 which is extremely significant statistically.

## 3. Results

A total of 1790 teeth were extracted from 1608 patients. 840 were males and 768 were females. In a total of 1790 teeth, 935 teeth were extracted in males and 851 in females (Table 1 and 2). The chi-square value for total number of patients was 53.094 and 68.144 for total number of extractions done. The "P" value calculated for both above finding was less than 0.0001 which indicates that the results of the study are extremely statistically significant as regards number of patients and number of teeth extracted is concerned.

The male patients reported more in number for extractions than females and therefore also reported more number of extractions. This study reveals that middle age group patients of 30–40 Yrs had the maximum number of extractions. The incidence of extraction increases with age but those over 75 Yrs of age reported a lower number of extractions. This difference in the number of extractions in various age groups shows a lot of statistical significance ("P" value < 0.001) as regards the number of teeth extracted in each age group (Fig. 1).

It is evident from the results that dental Caries was the main reason for extraction of teeth (53.96%) followed by Periodontitis (33.12%). In both males and females, the main reason for extraction of teeth was dental Caries (47.49%) and (61.22%) respectively. Extraction of teeth due to Periodontitis in males amounted to (37.91%) where as in females (32.07%) of extractions was due to Periodontitis.

Over all, maximum extractions were done because of dental Caries and Periodontitis as compared to all the other reasons for extraction. This difference as regards the various reasons for extraction also shows a statistical difference a "P" value of <0.0001. As regards reasons for extraction by gender, the "P" value in this table also is the same <0.0001 and is again statistically very significant.

Extractions for orthodontic reasons were more in females (1.76%) as compared to males (0.53%), while surgical extractions of impacted teeth were more in males (3.63%) as compared to females (2.45%). Failure of root canal treated teeth or fracture of teeth after root canal treatment also comprised to a few (0.22%) percent. Extractions due to other reasons such as attrited, abraded teeth, supernumerary, over

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