

## Original Research

### Prevalence of pulpally infected permanent posterior teeth in the department of Endodontics and conservative dentistry in UCMS, Nepal

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#### ABSTRACT:

**Background:** Unmanaged caries and neglected oral hygiene are the most common conditions of oral cavity. The present study was conducted to evaluate the prevalence of pulpally infected permanent posterior teeth in the department of Endodontics and conservative dentistry in UCMS, Nepal. **Materials and methods:** The present cross sectional retrospective study was conducted for a period of 1 month from 05 October 2019 to 05 November 2019 in UCMS College of dental surgery on the basis of departmental records from July 2018 to July 2019 of 18-40 years old patients. The pulpally affected posterior teeth were noted down by single examiner to rule out possibility of operator's error. All the data thus obtained was arranged in a tabulated form and analysed using SPSS software. **Results:** The mean age of the subjects was 32.54+/- 4.56 years. More number of female patients were presented with pulpal involvement than males. More molars had pulpal involvement than premolars. Mandibular first molar was the most infected tooth among all the posteriors. **Conclusion:** The present study clearly demonstrated significant proportion of subjects with pulpal infection, clearly indicating lack of oral health awareness.

**Key words:** Pulpal, Infected, Posterior.

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#### INTRODUCTION

Dental pulp gets severely infected due to dental caries. Pulp infection is an important caries sequel and the endodontic treatment should be planned according to disease prevalence. The study of endodontic epidemiology may contribute to increase this knowledge. Previous studies have investigated the mechanisms of microbial aggression to the dental pulp, the development of apical periodontitis (AP), and treatments for pulp injuries.<sup>1,2</sup> It was also reported that maxillary teeth are more susceptible to demineralization than mandibular teeth<sup>3</sup>. Morphologically, the occlusal surfaces of molars are made up of three to five cusps, divided by fissures, grooves, and pits and linked together by ridges. The maxillary molars may be more

susceptible to demineralization because of the oblique ridges found on the occlusal surfaces of maxillary molars<sup>4</sup>. Evaluation of the oral health condition in the adults is vital as it presents crucial information for planning management in dental care and produces data on the outcome of dental care given to the population during lifetime<sup>5</sup>. The present study was conducted to evaluate the prevalence of pulpally infected permanent posterior teeth in the department of Endodontics and conservative dentistry in UCMS, college of dental surgery, Nepal.

#### MATERIALS AND METHODS

A cross-sectional retrospective study was conducted in the department of Endodontics and conservative dentistry in UCMS, college of dental surgery, Nepal for

a period of 1 month from 05 october 2019 to 05 november 2019. All the patients of 18–40 years old, visiting to the department from July 2018 to July 2019 on the basis of departmental records were evaluated for the study. On retrospective evaluation of dental records, 1384 dental records of male and female patients of 18–40 years old who had received endodontic dental treatment were included in the study. Maxillary and mandibular posterior teeth were included in the study. The pulpally affected posterior teeth were noted down by single examiner to rule out possibility of operator’s error. Ethical clearance was taken from the ethical review board of the college. All the data thus obtained was arranged in a tabulated form and analyzed by using SPSS version 20.

**RESULTS**

A cross-sectional retrospective study was conducted on 1384 subjects with majority 60% females and 40% were males(Graph 1). The mean age of the subjects was 32.54+/-4.56 years. 1468 teeth were endodontically treated in 1384 subjects. Graph 2 shows the distribution of endodontically treated teeth according to age and

gender. Females showed the greatest prevalence in all the age groups except the age group of 18-23 years. More number of female patients were presented with pulpal involvement than males. Out of 1468 endodontically treated teeth, 894 teeth were posteriors. 408 maxillary posteriors and 486 mandibular posteriors were pulpally infected teeth. Table 1 was showing the distribution of posterior permanent teeth with pulpal involvement treated teeth according to patients’ age. Mandibular posterior teeth were more pulpally infected than maxillary posteriors. Among maxillary posteriors, 6.5% were first premolar, 6.9% were second premolar, 18.1% were first molar and 14.1% were second molar. Among mandibular posteriors, 2.6% were first premolar, 7.1% were second premolar, 25.1% were first molar and 19.6% were second molar. More molars had pulpal involvement than premolars. Mandibular first molar was the most infected tooth among all the posteriors. 36-40 years age group was the most and 18-23 years age group was the least pulpally infected group in all the posteriors of both the arches, clearly indicating that prevalence of pulpally infected posteriors were increased with age.

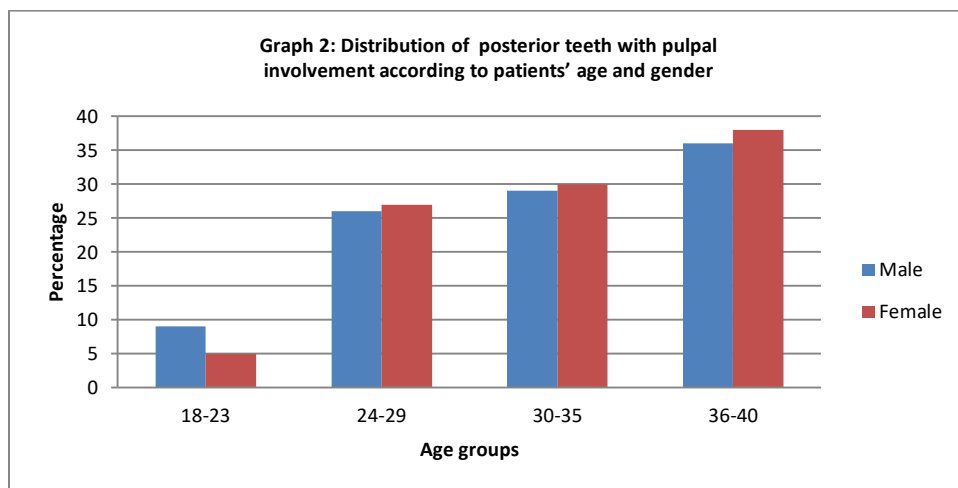
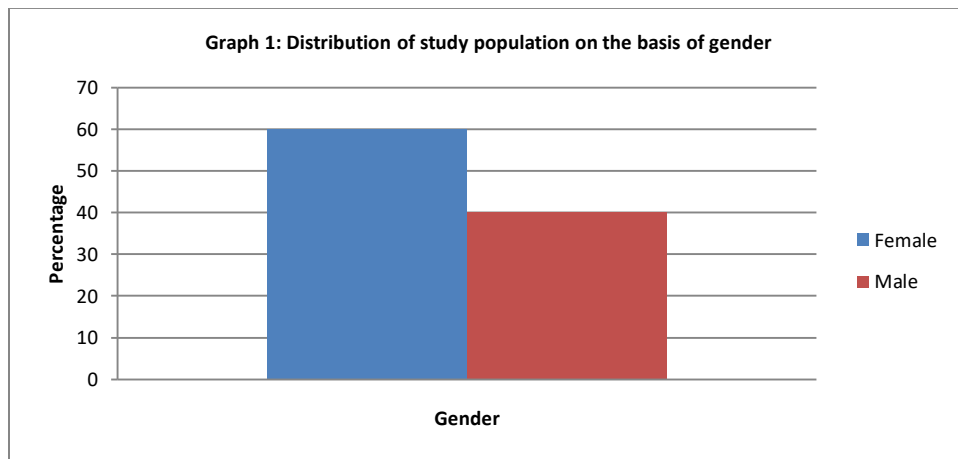


Table 1: Distribution of posterior permanent teeth with pulpal involvement treated teeth according to patients' age

| Age group | Max1PM | Max2PM | Mand1PM | Mand2PM | Max1M | Max2M | Mand1M | Mand2M | Total |
|-----------|--------|--------|---------|---------|-------|-------|--------|--------|-------|
| 18-23     | 8      | 10     | 3       | 11      | 6     | 12    | 17     | 12     | 79    |
| 24-29     | 10     | 6      | 3       | 14      | 32    | 10    | 23     | 21     | 119   |
| 30-35     | 17     | 20     | 8       | 19      | 41    | 43    | 48     | 33     | 229   |
| 36-40     | 23     | 26     | 9       | 20      | 83    | 61    | 136    | 109    | 467   |
| Total     | 58     | 62     | 23      | 64      | 162   | 126   | 224    | 175    | 894   |
| Total %   | 6.5    | 6.9    | 2.6     | 7.1     | 18.1  | 14.1  | 25.1   | 19.6   | 100   |

Max1PM:maxillaryfirstpremolar;Max2PM:maxillarysecondpremolar;Mand1PM:mandibularfirstpremolar;Mand2PM:mandibularsecondpremolar; Max1M:maxillary first molar; Max2M:maxillary second molar; Mand1M:mandibular first molar; Mand2M:mandibular second molar.

## DISCUSSION

The present study was conducted for the assessment of prevalence of pulpally infected permanent posterior teeth. In the present study, females showed the greatest prevalence in all the age groups except the age group of 18-23 years. More number of female patients were presented with pulpal involvement than males. In a study done by Al-Madi EM et al<sup>6</sup>, a significantly higher number of females had pulpal involvement in young permanent posterior teeth (74%) compared to males (26%). Tooth eruption occurs earlier in girls than boys; therefore, caries exposure and subsequently pulpal involvement could occur earlier<sup>7</sup>. Females have also been reported to visit the dentist more frequently than males<sup>8</sup>. The number of young permanent posterior teeth with pulpal involvement and their treatment significantly increased as age increased.

In the present study, mandibular posterior teeth were more pulpally infected than maxillary posteriors. Among maxillary posteriors, 6.5% were first premolar, 6.9% were second premolar, 18.1% were first molar and 14.1% were second molar. Among mandibular posteriors, 2.6% were first premolar, 7.1% were second premolar, 25.1% were first molar and 19.6% were second molar. These results were in contrast with reports from American and European countries, where prevalence is much lower<sup>9-12</sup>. More molars had pulpal involvement than premolars. Mandibular first molar was the most infected tooth among all the posteriors. 36-40 years age group was the most and 18-23 years age group was the least pulpally infected group in all the posteriors of both the arches, clearly indicating that prevalence of pulpally infected posteriors were increased with age. This result was in accordance with those Kirkevang LL et al<sup>13</sup> found that significantly more molars had been endodontically treated (8.1%) than premolars (5.4%) or anterior teeth (2.5%). Similar results were found in study done by Al-Madi EM et al<sup>6</sup> in which there were significantly more molars involved than premolars. The first mandibular molar was more prevalent within all age groups. The first molar has been quoted as the most caries-prone tooth in permanent dentition, probably due to its early exposure to the oral

environment and its morphological features being pitted and fissured, inducing plaque and caries formation<sup>14</sup>. On the contrary, in studies done by Hollanda ACB et al<sup>15</sup> and Lupi-Pegurier L et al<sup>16</sup>, the most prevalent teeth were maxillary premolars followed by maxillary molars and mandibular premolars and molars.

## CONCLUSION

High prevalence of pulpally infected posteriors is indicating the lack of oral health awareness among the subjects. There is an urgent need to reinforce the importance of oral hygiene by organizing oral health hygiene awareness education programs among the population.

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