

Original Research

Prevalence of dental caries among known population

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ABSTRACT:

Background: To show the prevalence of dental caries in known people. **Materials & Methods:** A study was conducted with a total of 100 participants who underwent a thorough screening process. The examinations were carried out in natural daylight following the guidelines set by the World Health Organization (WHO). The collected data were analyzed using the SPSS software.

Results: A total of 100 subjects were enrolled. The occurrence of dental caries was found to be slightly higher in females.

Conclusion: The prevalence of dental caries was higher in females.

Keywords: dental caries, prevalence, oral health.

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INTRODUCTION

Globally, oral diseases have been categorized as the fourth most expensive disease to treat. Oral conditions affected 3.9 billion people, and untreated caries in permanent teeth was the most prevalent condition evaluated for the entire Global Burden of Disease 2010. ¹ Despite being highly preventable, a substantial proportion of the Nepalese population, especially poor and marginalized individuals, experience oral health problems. ² One-fourth of Nepalese adults have been found to have self-reported dental caries. ³ A past study done in Nepal showed that majority of the adults had tooth loss due to dental caries. ⁴

Dental caries and related oral diseases like gingivitis and periodontitis are most common oral diseases throughout the world. The prevalence of these diseases is continuously increasing with change in dietary habit of peoples and increased consumption of sugar. ⁵ The prevalence of dental caries is approximately 60% – 65% in India. ⁶ However, this disease is greatly affected by many factors other than sugar consumption. Dental caries is a chronic disease displaying drastic variations in its prevalence across multiple factors and the obscurity of data on the same hinders the attainment of dental caries prevalence reduction goals set by WHO. ⁷ Considering the evolving dietary patterns in last few decades, globalization has been linked to increased consumption of sugar and growing obesity in middle and low income countries. ⁸ Some studies in developing countries such as India report a prevalence rate of 36.7% among 13–19 year olds while others like Saudi Arabia state prevalence to be as high as 83% among 6–8 year olds. ⁹ Untreated dental caries can cause pain and difficulties in eating and sleeping, pain, which in turn leads to emergency dental visit, hospitalization, need for invasive treatment, and systemic health problems thereby lowering the quality of life. ¹⁰ Caries of the permanent teeth was reportedly the most common oral condition as per the Global Burden of Disease Study of 2017. ¹¹ Globally, around 2.4 billion people suffer from caries of the permanent teeth and 486 million children suffer from caries of the primary teeth. ¹²

It has been found that the prevalence of caries is not uniform throughout the subgroups of a country. Dental caries is more prevalent in poor and low socioeconomic groups. In United States, caries prevalence was found to be 1.8 times greater in poor children. ¹³ In India also, high caries prevalence has been reported in tribal groups. ¹⁴ This could be

due to wrong brushing methods, dearth in the awareness on the significance of milk teeth, and deficiency of conveyance facilities and access to dental facilities. This clearly points that the one-size-fits-all approach cannot be implemented but different strategies are required depending on the population subgroups. Hence, this study was done to evaluate the prevalence of dental caries in known people.

Materials & Methods:

A study was conducted with a total of 100 participants who underwent a thorough screening process. The examinations were carried out in natural daylight following the guidelines set by the World Health Organization (WHO). The study included individuals aged between 15 and 70 years. Dental examinations were conducted with the aid of illumination devices, and the gathered data were subsequently recorded and subjected to analysis. Subjects were surveyed about the type of dental caries they had and the duration of their symptoms using a questionnaire. The dental caries assessment covered all exposed and accessible surfaces, and mirrors and explorers were employed during the examination. The collected data were analyzed using the SPSS software.

Results:

A total of 100 subjects were enrolled. The occurrence of dental caries was found to be slightly higher in females. Among various age groups, there is a noticeable increase in the occurrence of dental cavities within the 26 to 35-year-old population. Pit and fissure cavities are the most prevalent type, followed by smooth surface cavities.

Table 1: dental caries (gender based)

Male	Female
48 (48%)	52 (52%)

Table 2: types of caries

Recurrent caries	Smooth surface caries	Root caries	Pit and fissure caries
1%	10%	4%	85%

Table 3: dental caries in different age groups

Age groups	Percentage
15-25	10%
26-35	45%
36-45	22%
46-60	14%
61-70	9%

Discussion:

The problem related with dental caries leads to a decrease in the quality of life of the affected individuals and high economic costs for equally individuals and society, with disparities related to well-known issues of socioeconomics, immigration, lack of preventive efforts, and dietary changes.¹⁵ The burden of dental caries in children is incredibly high. The Pain from dental caries can affect school attendance, eating and speaking, and, then impair growth and development.¹⁶ Even though the overall prevalence of dental caries decrease in developed countries, caries continues to be an important public health problem in most developing countries.¹⁷ A study conducted in Lithuania showed that the overall prevalence of dental caries was 78.3%.¹⁸ Another study conducted in Brazil among adults aged 35 to 44 years showed that 82.0% consumed sugary foods up to four times a day. A study done in Brazil showed that 75% of the participants had enamel defects.¹⁹ Hence, this study was conducted to evaluate the prevalence of dental caries in known people.

In the present study, a total of 100 subjects were enrolled. The occurrence of dental caries was found to be slightly higher in females. A study by Khan AA et al, to analyze the role of different factors in the occurrence of dental caries including dietary habit. Persons suffering with dental caries were examined for the type of dental caries in relation to different factors. Incidence of dental caries was higher in female. High number of dental caries patients was observed among vegetarian population. 21–30 year age group was found to be most infected with dental caries. This study analyzed respective role of different dietary factors including protein rich diet, age, gender etc. on the prevalence of dental caries, which can be helpful to counteract the potential increase in the cases of dental caries and to design and plan preventive strategies for the persons at greatest risk.²⁰

In the present study, among various age groups, there is a noticeable increase in the occurrence of dental cavities within the 26 to 35-year-old population. Pit and fissure cavities are the most prevalent type, followed by smooth

surface cavities. Another study by Miglani S et al, oral health that is an essential component of overall well-being is often neglected in India. Basic region-wise data in the form of well-controlled surveys regarding the prevalence of dental caries across India are also not available. This is needed to frame robust preventive strategies, policies, and manpower allocation, suitable for different subgroups of the population. State-level data should be collected to know the prevalence of this disease, identify the high-risk areas and customize region-wise preventive and treatment strategies. India has the maximum number of dental schools, efforts at individual levels are needed since everything cannot be left for the government to work upon. ²¹ Khapung A et al, cross-sectional study was conducted among adults attending five different dental camps in a municipality from 1 April 2022 to 2 June 2022. The prevalence of dental caries was determined by dentition status adopted from basic oral health surveys recommended by World Health Organization. Point estimate and 95% Confidence Interval were calculated. Among 239 adults, 138 (57.74%) (51.48-64, 95% Confidence Interval) had dental caries. The prevalence of dental caries among adults in the municipality was lower than in similar studies done in similar settings. ²² Although most studies have focused on dental caries in populations under 18, an age-specific prevalence of 62% in patients above 18 years and 52% among 3–18 year olds (P < 0.0001) was observed. Janakiram et al. reported a mean prevalence of 49% in 5–12 year olds, with a steady increase of 60% to 84% in 15 years olds and 65–74 year group, respectively. ²³ Age-specific increase in dental caries can also be attributed to poor health seeking behaviors among adults, inadequate time for self-care, substance abuse, presence of comorbidities, and absence of organized programs that target prevention and reduction of dental caries in India. ^{24,25} Root surface caries is usually related with poor health of gingival area, ²⁶ they have found relatively high occurrence of root caries among males including tobacco chewers, which usually results in unhealthy gingiva, and it might result in dental caries in these areas. But they found least number of recurrent caries patients which was female; this can be well correlated with the fact that, persons who experience caries first, usually become aware for the prevention of caries. In Indian scenario females are still not in contact with this information due to male dominating society and lack of financial independence among females. But, it has been reported that, condition of oral and dental health is relatively improving in developing countries. ²⁷ Management of dental caries has changed significantly in recent years. ²⁴ The most contemporary practical approaches are based on early caries detection and prevention. They are also built on making a diagnosis based on risk indicators and risk factor assessment. ^{28,29} The new management approaches aim to preserve healthy tissue, as proposed in minimally invasive dentistry. This aims to achieve several goals, such as the implementation of a preventive philosophy, individualised risk assessments for patients, early detection of carious lesions, and remineralization of the noncavitated lesion. Restorative procedures are damaging to tooth tissue and may endanger the tooth in the long term when it enters the restoration-rerestoration cycle. ³⁰ Therefore, when restorative intervention is needed, the procedure used should be as minimally invasive as possible. This includes repairing, refurbishing, or polishing rather than replacing defective restoration. ³¹

Conclusion:

The prevalence of dental caries was higher in females and in adults of age group 26-35 years.

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