

Original Article

Assessment of Dental Caries Pattern in Rural Area- A Community Health Survey

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ABSTRACT:

Background: Dental caries is the most prevalent and chronic oral disease. The present study was conducted to assess dental caries pattern in rural population. **Materials & Methods:** The present study was conducted on 1285 subjects between 18-80 years of age of both genders (males- 470, females- 815). The number of decayed teeth with crown or root caries (DT), missing teeth due to caries (MT), and filled teeth due to caries (FT) were recorded. The prevalence of dental caries was percentage of subjects who suffered from crown or root caries to the total number of subjects. **Results:** Out of 470 males and 815 females, dental caries was seen in 220 (46.8%) males and 510 (62.5%) females respectively. Type of caries was smooth surface in 56% males and 62% females, root caries in 12% males and 21% females and pit & fissure caries in 32% males and 175 females. The difference was significant ($P < 0.05$). 64% males and 70% females were illiterates and 36% males and 30% females had upto high school education. Family income of 55% males and 62% females had <10000 and family income of 45% males and 38% females had >10000. The difference was significant ($P < 0.05$). **Conclusion:** Dental caries is highly prevalent in adults. Family education, income plays an important role. Most common type of caries was smooth surface and pit and fissure caries.

Key words: Adults, Dental caries, Education

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INTRODUCTION

Dental caries is a common disease among the elderly, which can result in pain and chewing difficulties, thus decreasing their overall health and quality of life. Epidemiological studies show that the prevalence of dental caries is low among children, adolescents, and middle-aged adults in countries where easy access to health care, preventive measures and medical insurance system are available. Dental caries is a progressive infectious process with a multifactorial etiology characterized by destruction of organic and inorganic portion of tooth. Dietary habits, oral microorganisms that ferment sugars, and host susceptibility have to coexist for dental caries to initiate and develop. Dental caries has high morbidity potential.

Thus, it has been the main focus of dental health professionals.¹

In cases where disease is not uniformly distributed in a population, and there are effective interventions, risk assessment can play a significant role in the treatment of infectious diseases like dental caries. Rather than expending resources on an entire population, many of whom are not at risk for a disease, targeting preventive and interceptive strategies to at-risk populations is a sound public health and private practice strategy.²

The World Health Organization (WHO) oral disease surveillance systems, in addition to information acquired from other oral epidemiological studies applying WHO methodology. In the developed countries, decline in dental caries prevalence has been attributed to population-based

preventive programmes with use of fluoride, improved participation in oral health programmes and changes in oral hygiene and sugar intake habits. On the other hand, in many developing countries an increase in dental caries has resulted from unhealthy dietary habits, limited use of fluoride and poor access to oral health services.³ Conclusive evidence show an association between frequent sugars intake and dental caries. Shifts in caries prevalence have been noticed during wars when there were sugar cutbacks. In modern societies, dental caries prevalence and sugar consumption have also been linked to ethnic background, socio-economic class and parents' educational level. The present study was conducted to assess dental caries pattern in rural population.

MATERIALS & METHODS

The present study was conducted on 1285 subjects between 18-80 years of age of both genders (males- 470, females- 815). Parents were informed regarding the study and

written consent was obtained. Ethical clearance was obtained prior to the study.

General information such as name, age, gender etc. was recorded. Careful oral examination was done to detect dental caries.

The number of decayed teeth with crown or root caries (DT), missing teeth due to caries (MT), and filled teeth due to caries (FT) were recorded. The prevalence of dental caries was percentage of subjects who suffered from crown or root caries to the total number of subjects. Crown caries were diagnosed as the presence of either cavities, or destruction under enamel, or lesions of the cave at pits and fissures or smooth surface using the CPI probe. Root caries were diagnosed when the tooth root had been exposed, and soft leather-like lesions were found using the CPI probe. Results thus obtained were subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

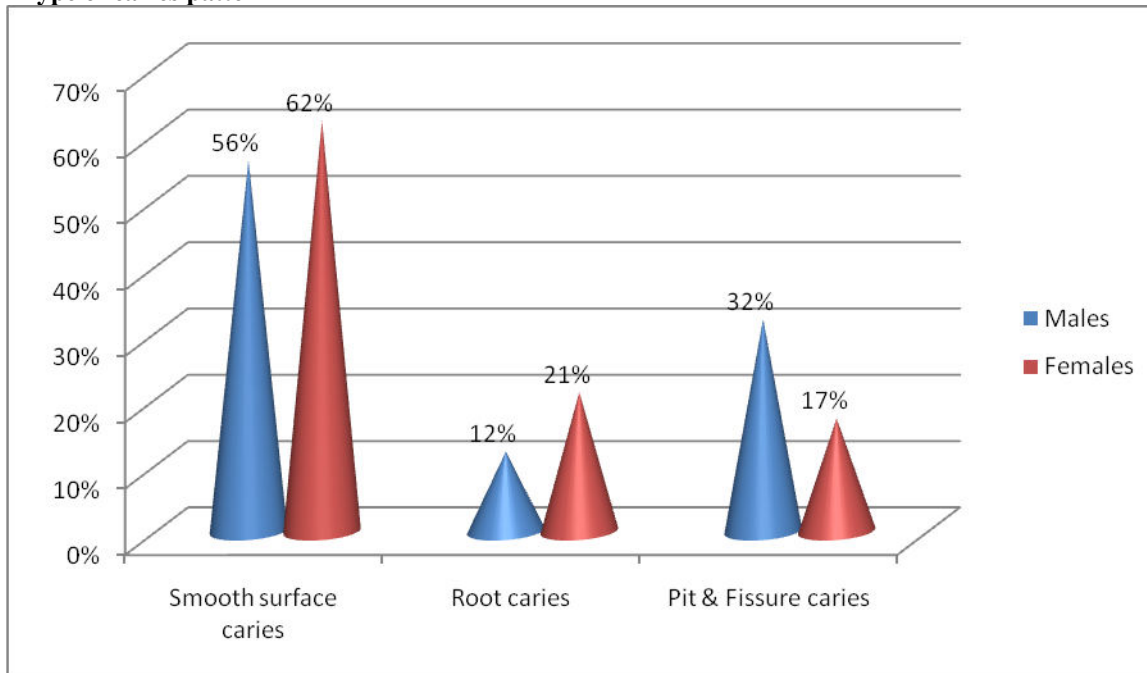
RESULTS

Table I Prevalence of dental caries

Total- 1285		
Gender	Males	Females
Total	470	815
Caries	220 (46.8%)	510 (62.5%)

Out of 470 males and 815 females, dental caries was seen in 220 (46.8%) males and 510 (62.5%) females respectively.

Graph I Type of caries pattern



Type of caries was smooth surface in 56% males and 62% females, root caries in 12% males and 21% females and pit & fissure caries in 32% males and 175 females. The difference was significant (P< 0.05).

Table II Socio- economic status

Parameters		Males	Females
Family education	Illiterate	64%	70%
	High school	36%	30%
Family income	<10000	55%	62%
	>10000	45%	38%

64% males and 70% females were illiterates and 36% males and 30% females had upto high school education. Family income of 55% males and 62% females had <10000 and family income of 45% males and 38% females had >10000. The difference was significant ($P < 0.05$).

DISCUSSION

Dental caries is caused by dental plaque deposits on the tooth surface. After intake of fermentable carbohydrates, streptococcus mutans undergo fermentation and produce copious amount of acid and lowers the local pH to a level where the minerals of enamel and dentine dissolve. The frequent intake of sweets, dry mouth, and poor oral hygiene increase the chances for cavities.⁴ Dental caries is a multi-factorial disease. In many developing countries, most oral health services provide symptomatic treatment with little priority given to restoration and prevention. This might be associated with copious acid production by cariogenic bacteria like Streptococcus mutans that are adherent to teeth as a result of fermentation of the sweet foods. Later the enamel of the tooth went into tooth decay. Moreover, poor habit of tooth cleaning is associated with dental caries. Those who clean their teeth usually have a lower prevalence of dental caries. It is generally true that cleaning teeth will remove away the food debris from the oral. Therefore, Streptococcus mutans cannot get enough nutrient and time for growth and no acid production that causes dental caries development.⁵

In present study, Out of 470 males and 815 females, dental caries was seen in 220 (46.8%) males and 510 (62.5%) females respectively. Rajiv et al⁶ found that of the 510 adults, 45.6% were having dental caries. 87.2% subjects cleaned their teeth using traditional method. Grade level, poor habit of tooth cleaning, dental plaque and toothache were significantly associated with dental caries.

Type of caries was smooth surface in 56% males and 62% females, root caries in 12% males and 21% females and pit & fissure caries in 32% males and 175 females. This is in agreement with Champ et al.⁷ Liu et al⁸ found that 67.5% of elderly subjects reported dental caries (average DFT = 2.6863.40), and the prevalence was higher in urban areas ($P < 0.01$). Missing teeth accounted for 80.72% of DMFT, and filled teeth due to caries accounted for 2.08% with a rate higher in urban areas ($P < 0.01$). Logistic regression analysis indicated significant association among elderly population in urban areas (OR 1.713; 95% CI 1.337–2.195), smoking (OR 1.779; 95% CI 1.384–2.288), and individuals without dental insurance (OR 2.050; 95% CI 1.120–3.754) with dental caries.

Ajay et al⁹ found that subjects with fluorosis experienced less caries than those with no fluorosis. Although the difference between fluorosis and caries experience was not statistically significant

($P > 0.05$), there was an inverse correlation between fluorosis and the number of carious teeth ($P < 0.001$). Caries prevalence and mean dmft were 70% and 2.90 ± 2.14 for the former group with fluorosis and 77% and 4.53 ± 3.27 for the latter group with no fluorosis. This study shows that dental caries and nursing caries experience among children exposed to fluoride was lower than for those living in localities with less fluoride in the drinking water

CONCLUSION

Dental caries is highly prevalent in adults. Family education, income plays an important role. Most common type of caries was smooth surface and pit and fissure caries.

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