

STUDY OF PREVALENCE OF DENTAL CARIES AMONG THE POPULATION OF JAGDALPUR, CHHATTISGARH

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ABSTRACT

BACKGROUND

Dental caries is a major and significant oral health condition that affects about 50 to 60% of the population in India among oral diseases. Unfortunately in rural areas oral health care is often limited due to lack of perceived need for dental care among the rural population, financial constraints as well as shortage of dental manpower.

AIM

This study aims to determine the prevalence of dental caries among the general population of Jagdalpur and also determine the important factors that could have contributed to the disease.

SETTING AND DESIGN

Case records of patients who reported to the Department of Dentistry were studied retrospectively. Information about decayed, missed, filled teeth, occupation, oral hygiene techniques as well as dental visits was recorded.

METHODS AND MATERIAL

Retrospective data of 100 patients who visited the Department of Dentistry was collected from the medical records division. Case sheets having incomplete information or patients who were aged below 5 years and above 75 years were not considered for the study.

STATISTICAL ANALYSIS

Was done using software SPSS 17.0 version. Chi square test (Descriptive Statistics) was done to test the significance of non-parametric analysis. P values were considered significant at 0.05% level.

RESULTS

Of the 100 case records that were examined, dental caries was more prevalent in males than females with asymptomatic significance of both dental caries and missing teeth to be statistically significant. Restored teeth contributed to almost 72.72% of the population.

CONCLUSION

The prevalence of dental caries among the rural general population is significantly high. Less frequent dental visits and improper or inadequate brushing technique/methods could have contributed to the high incidence of dental caries. Creating awareness regarding proper oral hygiene methods as well as regular dental checkup is recommended.

KEYWORDS

Dental Caries, Prevalence, Rural Population.

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INTRODUCTION

Dental caries has been aptly defined as an irreversible microbial disease of the calcified tissues of the teeth, characterized by demineralization of the inorganic portion and destruction of the organic substance of the tooth, which often leads to cavitation (Shafer 1993).¹ Among the oral diseases, dental caries is a major concern among the rural population and if neglected it leads to pain and spread of infection to the paraoral structures. Various studies regarding

the prevalence of dental caries in India have been published, but have concentrated mostly on school children.^{2,3,4,5} There is paucity of literature regarding the prevalence of dental caries in the general population, especially in the rural regions which have significant diverse cultures and habits. World Health Organization (WHO) recommends basic oral health surveys in the age groups of 5 years, 12 years, 17–18 years, 35–44 years and 65–74 years. Epidemiological data is not only essential to update about the recent trends of the disease, but also plays a very vital role in the prophylaxis as well as treatment planning.

METHODS

Retrospective data of 100 patients who visited the Department of Dentistry was collected from MRD (Medical Records Division). Data regarding decayed, missing, filled teeth, occupation, oral hygiene methods and dental visits of every patient was compiled and subjected. Patients whose case records had inadequate data and who were aged less

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than 5 years and above 75 years were not included in the study.

Ethics

This study involved retrospective collection of data. Ethical Committee approval is not applicable.

Statistical Procedures

For non-parametric analysis, Chi square test was used. P values were considered statistically significant at 0.05% level.

RESULTS

In this study, higher incidence of dental caries was seen at the either end of the age spectrum (Table-1). Males were more affected than females. The prevalence of dental caries and missing teeth was statistically significant at 0.030 and 0.049 values respectively; however, almost 72.72% of the study population had restored teeth (Tables-2 and 3). Based on the occupation it is seen that professionals had a higher rate of dental caries than students (Table-4). Almost 78.9% of the subjects had a dental visit due to caries (Table-5).

Age Group (Years)	No. of Individuals with Dental Caries	No. of Individuals without Dental Caries	Total
5-15	9 (75%)	3 (25%)	12 (12.12%)
16-25	11 (53.3%)	10 (47.6%)	21 (21.21%)
26-35	13 (65%)	7 (35%)	20 (20.20%)
36-45	15 (78.94%)	4 (21.05%)	19 (19.19%)
46-55	10 (83.3%)	2 (16.6%)	12 (12.12%)
56-65	8 (100%)	0 (0%)	8 (8.8%)
65-75	6 (85.7%)	1 (14.28%)	7 (7.7%)
		Sub Total =	99 (100%)

Table 1: Age Distribution of the Study Group

Gender	Dental Caries				Total (%)	Asymp Sig	Missing Teeth				Total (%)	Asymp Sig
	Yes (%)	Ex-pected	No. (%)	Ex-pected			Yes (%)	Ex-pected	No (%)	Ex-pected		
Male	58 (78.3%)	53.8	16 (21.6%)	20.2	74 (74.7%)	Sig 0.030	31 (49.8%)	26.9	43 (58.1%)	47.1	74 (74.7%)	Sig 0.049
Female	14 (56.0%)	18.2	11 (44.0%)	6.8	25 (25.2%)		5 (20%)	9.1	20 (80%)	15.9	25 (25.2%)	
Total	72 (72.7%)	72.0	27 (27.2%)	27.0	99 (100%)		36 (36.3%)	36.0	63 (63.0%)	63.0	99 (100%)	

Note: 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.82.

Table 2: Prevalence of Dental Caries and Missing Teeth

Asymp = Asymptomatic
Sig = Significance

	Yes	No	Total
Filled	72 (72.72%)	27 (27.27%)	99 (100%)

Table 3: Restored/Filled Teeth of the Study Population

Occupation	No. of Individuals with Dental Caries	No. of Individuals without Dental Caries	Total
Profess	39 (78%)	11 (22%)	50 (50.50%)
Students	17 (58.6%)	12 (41.37%)	29 (29.29%)
Others	16 (80%)	4 (20%)	20 (20.20%)
Total	72 (72.72%)	27 (27.27%)	99 (100%)

Table 4: Study Group Distribution Based on Occupation

	No. of Individuals with Dental Caries	No. of Individuals without Dental Caries	Total
Dental Visit	60 (78.9%)	16 (21.05%)	76 (76.76%)
Brushing	69 (72.63%)	26 (27.36%)	95 (95.95%)

Table 5: Distribution of Dental Caries in Individuals Based on their Habits

DISCUSSION

In India approximately 72% of the population reside in the rural regions. It is very important to establish data regarding the prevalence of dental caries in these areas, so that the quality of life can be improved. In most of the studies conducted in India, there is a lot of variation in the prevalence of dental caries. This may be attributed to different study population, difficult study setting, dietary habits, varied cultural practices, oral hygiene habits and also fluoride content of water.⁶

In this study, we have followed the age group pattern which was recommended by WHO. The prevalence of dental caries in this study almost corroborates with other studies between the age group of 25-55 years.^{7,8} Ramachandran K et al⁹ reported the prevalence of dental caries was 65.9% in

children aged 4–6 years and according to National Oral Health survey of India caries prevalence among 5-year-old children was 51.9%. Statistically, in this study for age group between 5–15 years it is 75% when compared with other age groups. In a study by Shubha PE.¹⁰ Prevalence of dental caries in the age group of 60 years and above was 77.7%. For the similar age group in this study it is 85.7%; however, this value is much higher when compared to the study done by Shah N and Sundaram KR.¹¹ who reported only 64.2%.

When we compare the prevalence of dental caries among the sex distribution of this study population, it was found that males (74.7%) had a higher incidence than females (24.2%). In the overall population, even though 72.72% had filled teeth and 78.9% had a dental visit the prevalence of dental caries and missing teeth were statistically significant. This could be due to lack of awareness towards oral hygiene in general and improper/inadequate use of oral hygiene technique in particular or lack of motivation to have regular dental checkup.

From this study, it can also be inferred that there is little correlation between the literacy rate and oral health care, as almost 78% of the professionals suffered from dental caries when compared to the other groups.

There are many limitations to this study. As this was a retrospective study, it was difficult to find out the exact cause of missing tooth which could have been due to severe dental caries or due to severe periodontal disease or any other pathology. The other limitation was that the dietary habits of the population were not known, which could have contributed or could have been one of the factors for such a high prevalence rate of dental caries. Lastly, the fluoride content of the water which plays a vital role in dental caries could not be determined due to technical limitations.

CONCLUSION

The prevalence of dental caries among the rural general population is significantly high. Less frequent dental visits and improper or inadequate brushing technique/methods could have contributed to the high incidence of dental caries. Creating awareness regarding proper oral hygiene methods as well as regular dental checkup is recommended.

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