



ORIGINAL RESEARCH PAPER

Dental Science

ORAL HEALTH STATUS & TREATMENT NEEDS AMONG THE POPULATION OF TIGIRIA BLOCK, CUTTACK

KEY WORDS: Dental caries, Gingivitis, periodontal pocket

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ABSTRACT

Background: Oral health is indispensable for general health and well-being of an individual. Poor oral health is a major public health issue of the world and especially in Indian sub-continent.

Material & methods: Sixteen villages were selected by systematic random sampling from the available list in Tigiria block. Population attending the screening camp were screened by using, WHO 1997 criteria.

Results: Caries prevalence was found to 60.9% among 1-10years & 58.1% in 71-80 years. 49.4% among females and 45.2% among males were affected by dental caries in the study population. Gingival bleeding was found to be 11% among the 1-10 years age group.

Conclusion: In the present study dental caries was found to be more prevalent in extremes of age groups. Females were having more caries in comparison to males in the population.

INTRODUCTION:

Oral health is indispensable for general health and well-being of an individual. Poor oral health is a major public health issue of the world and specially in Indian sub-continent. Loss of working man-hours is the burden caused by oral problems such as pain, agony, functional, and aesthetic problems. Oral diseases are significant in terms of personal suffering and financial burden for both individuals and society. Hence, in the long run, they are bound to have a significant impact on our economy.⁽¹⁾

Oral diseases like dental caries, periodontal disease, malocclusion, edentulous-ness, precancerous lesions are largely preventable in nature. However, due to lack of awareness among the population these diseases are contributing significantly to the burden of non-communicable diseases of the country. As per the available data the prevalence of dental caries varies from 50 to 85% in the country among 5 to 85 years age group.⁽²⁾

Approximately 72% of people reside in rural areas under unfavourable socioeconomic conditions. According to World Health Organization, 80% of the global population suffering from oral diseases live in developing countries, indicating that oral diseases are strongly correlated with low income.⁽³⁾

Poor oral health adversely affects dietary intake and nutrition and influences general health of a person. Fight against oral diseases such as dental caries, periodontal diseases, and oral cancer makes a significant contribution toward improving quality of life of population. In India, there are several challenges in delivering oral healthcare services to the rural population, including poor accessibility, lack of manpower, poverty, and illiteracy.⁽⁴⁾

Therefore, it is necessary to assess oral health status and treatment needs in rural population. Odisha is a state of eastern part of India with about 83% of population living in rural areas.⁽⁵⁾ In addition to that Odisha has high prevalence of tobacco use in all forms due to wide cultural acceptance. Very few studies are available regarding the oral disease burden of the rural population in this region. Hence this cross-sectional study was conducted to determine the prevalence of oral diseases among the rural population of Tigiria Block of Cuttack district.

MATERIAL AND METHODS:

This study was carried out by the Department of Public Health Dentistry, SCB Dental College & Hospital, Cuttack. There are 50 villages under 10 gram panchayats, within Tigiria block near Cuttack, with a population of 74,639 as per the Census 2011.^(6,7) Out of the available list of villages, every third village was included to prepare a list of sixteen villages from which the population will be screened for oral diseases. Propaganda was done in the selected villages a week before conducting oral health screening camp. All screening camps were conducted in the nearest health centres or Anganwadi centers of the villages. On the day of scheduled camp all the patients who walked in for consultation regarding oral health problem were screened to record the oral health status. WHO 1997 criteria were used to record the oral diseases⁽⁷⁾ using a proforma designed for this study to record the dental caries and periodontal disease status. Patients were screened by using plain mouth mirror and WHO probe in artificial light.

RESULTS:

A total of 2561 people were screened to record the burden of oral diseases out of which 43.7% were females and 56.3% were males (Table-1). At the extremes of age group caries prevalence was found to be higher i.e 60.9% among 1-10years & 58.1% in 71-80 years (Table-2). Caries prevalence was found to be 49.4% among females compared to 45.2% among males in the study population (Table-3). Mean def (t) among the deciduous dentition was found to be higher among the 6-10 years age group i.e. 1.42 (Table-4). Caries experience in permanent dentition i.e DMF (T) was highest among the 61-70 years age group (Table-5). Maximum individuals were in need of one surface restoration in both primary and permanent dentition (Table-6 & 7) Prevalence of calculus deposit was found to be 15% among the 1-10 year age group. As the age group increased the calculus deposition also found to increase among the population. More than 90% of population above 40 years age group were having calculus deposits. Gingival bleeding was found to be lowest among the 1-10 years age group. Prevalence of gingival bleeding was found to be >80% after 4th decade of the population under observation. Periodontal pocket was found to be highest i.e 22.9% among the 41-50 years age group and almost nil among 1-10 years age group (Table-8).

DISCUSSION:

There are very few studies conducted in the rural areas of Odisha reporting the oral health status of the population. In this study 2561 rural population of Tigiria block were

screened for recording the oral health status. There were 43% females and 56% males in the study population which is similar to studies conducted by Kumar et al⁽⁶⁾. However a study conducted in tribal areas of Jharkhand had 60% male and 40% female population.⁽⁹⁾ The overall prevalence of dental caries in the study population was found to be 46.8% which is similar to the finding of study reported by Athuluru, et al⁽¹⁰⁾. Caries prevalence was found to be 60% among the age group below 10 years in this study. This is higher than the prevalence reported among 5-year-old children in National oral health survey and fluoride mapping, India⁽²⁾. Caries prevalence was found to be higher in females (49%) compared to males (45%) which is similar to the findings reported by Kumar et al⁽⁶⁾. Self reported oral health problem like dental caries is higher in females compared to males as per findings of National oral health survey, India. Mean def (t) among 1-5-year-old children was found to be 1.11± 0.34 in the present study which is similar to the findings reported by National Oral Health Survey i.e 1.9. Mean DMF(T) was found to be highest among 11-20 year age group in the present study which is lower compared to the available national data.⁽²⁾ Among the 11-15 year age group, 95 children were in need of treatment of primary teeth out of which 36 needed at least one remaining primary teeth to be extracted. National data reported about 5.5% of children below 5 years needing extraction. Among the 11-20-year age group 219 children needed some form of dental treatment. 53 children needed two surface restorations in the present study compared to 6% needing similar restoration in the available national data. 95% of individuals in 51-60 years age group had calculus as per this study which was found to be highest in 35-44 year age group i.e 37%, as per the national data.^(2,11,12) Pockets were found to be highest among the 41-50 year age group i.e 22% which is very high compared to the national data which revealed 5-6% of individuals above 35 years had periodontal pockets.

SUMMARY & CONCLUSION:

The oral health status of the population of Tigiria block is poor compared to the available national level data. Dental caries is found to be higher in extreme age groups of the study population. There is a higher treatment need among the study population due to consequences of dental caries and periodontal disease. However, further periodical studies are needed in the rural areas in the vicinity of this institution to get the overall scenario of oral disease burden in this locality.

Table-5: Mean DMF (T) in permanent dentition:

Age group(years)	Decayed(D)	Missing(M)	Filled(F)	Mean DMF (T)
	Mean ± SD			
6-10	1.2 ± 0.3	0.0 ± 0.0	0.0 ± 0.0	1.2 ± 0.13
11-20	1.6 ± 0.2	0.1 ± 0.04	0.0 ± 0.0	1.7 ± 0.08
21-30	1.3 ± 0.6	0.17 ± 0.03	0.02 ± 0.01	1.4 ± 0.24
31-40	0.7 ± 0.6	0.2 ± 0.04	0.04 ± 0.01	0.94 ± 0.37
41-50	0.9 ± 0.3	0.2 ± 0.03	0.02 ± 0.01	0.13 ± 0.19
51-60	1.0 ± 0.4	0.3 ± 0.02	0.01 ± 0.01	1.31 ± 0.21
61-70	1.4 ± 0.2	0.6 ± 0.05	0.0 ± 0.0	2.0 ± 0.19
71-80	1.3 ± 0.3	0.5 ± 0.03	0.0 ± 0.0	1.8 ± 0.17

Table -6: Treatment Need for dental caries among the Primary Dentition:

Age (years)	Children In need of Dental	One surface restoration	Two or more surface restoration	Crown	Pulp care	Extraction
1-5	89	36(40.4%)	28(31.4%)	00(0%)	32(35.9%)	49(55.05%)
6-10	78	48(61.5%)	26(33.3%)	05(0.06%)	29(37.1%)	21(26.9%)
11-15	95	33(34.7%)	18(18.9%)	00(0%)	15(15.7%)	36(37.8%)

Table -7: Treatment Need among the Permanent Dentition:

Age (years)	Individuals in need of Dental Treatment	Sealant	One surface restoration	Two or more surface restoration	Crown	Pulp care	Extraction
6-10	163	34(20.8%)	29(17.7%)	38(23.3%)	18(11%)	32(6.7%)	15(0.1%)
11-20	219	13(5.9%)	42(19.1%)	53(24.2%)	23(10.5%)	38(17.3%)	12(5.4%)
21-30	78	12(15.3%)	23(29.4%)	44(56.4%)	17(21.7%)	29(37.1%)	21(26.9%)
31-40	15	02(13.3%)	06(40%)	03(20%)	04(26.6%)	05(33.3%)	09(60%)

Table-1: Age & Gender wise distribution of study sample

Age (years)	Gender		Total
	Female	Male	
1-10	239	258	497
11-20	321	321	642
21-30	33	244	277
31-40	15	31	46
41-50	139	140	279
51-60	107	128	235
61-70	135	154	289
71-80	131	165	296
Total	1120(43.7%)	1441(56.3%)	2561

Table-2: Age wise distribution of Dental caries

Age (years)	Dental Caries		Total
	Present	Absent	
1-10	303 (60.9%)	194 (39.1%)	497 (100%)
11-20	277 (43.1%)	365 (56.9%)	642 (100%)
21-30	78 (28.1%)	199 (71.9%)	277 (100%)
31-40	15 (32.6%)	31 (67.4%)	46 (100%)
41-50	111 (39.7%)	168 (60.3%)	279 (100%)
51-60	105 (44.6%)	130 (55.4%)	235 (100%)
61-70	139 (48%)	150 (52%)	289 (100%)
71-80	172 (58.1%)	124 (41.9%)	296 (100%)
Total	1200 (46.8%)	1361 (53.2%)	2561 (100%)

Table-3: Gender wise distribution of dental caries

Gender		Dental Caries		Total
		Absent	Present	
Female	567 (50.6%)	553(49.4%)	1120(43.7%)	
	790(54.8%)	651(45.2%)		
Male	1357(53%)	1204(47%)	2561(100%)	

Table-4: Mean def (t) in primary dentition:

Age group (years)	Mean Decayed(d)	Mean Missing(e)	Mean Filled(f)	Mean def (t)
	Mean ± SD			
1-5	1.10 ± 0.6	0.01 ± 0.02	0.00 ± 0.0	1.11 ± 0.34
6-10	1.28 ± 0.3	0.04 ± 0.01	0.10 ± 0.03	1.42 ± 0.18
11-15	1.10 ± 0.2	0.02 ± 0.01	0.30 ± 0.05	1.42 ± 0.09

41-50	111	14(12.6%)	32(28.8%)	61(54.9%)	18(16.2%)	21(18.9%)	13(11.7%)
51-60	105	0(0%)	27(25.7%)	34(32.3%)	12(11.4%)	17(16.1%)	19(18%)
61-70	139	0(0%)	36(25.8%)	44(31.6%)	8(5.7%)	21(15.1%)	28(20.1%)
71-80	172	0(0%)	19(11%)	86(50%)	31(18%)	46(26.7%)	25(14.5%)
51-60	225(95.7%)	10(4.3%)	198(84.2%)	37(15.8%)	25(10.6%)	210(89.4%)	
61-70	272(94.1%)	17(5.9%)	264(89.1%)	25(10.9%)	39(13.4%)	250(86.6%)	
71-80	267(90.2%)	29(9.8%)	271(91.5%)	25(8.5%)	22(7.4%)	274(92.6%)	

Table-8: Distribution according to periodontal disease

Age(years)	Calculus		Gingival Bleeding		Periodontal pocket	
	Present	Absent	Present	Absent	Present	Absent
1-10	78(15.6%)	419(84.4%)	56(11.2%)	441(88.8%)	0(0.0%)	497(100.0%)
11-20	284(44.2%)	358(55.8%)	282(43.9%)	360(56.1%)	12(1.8%)	630(98.2%)
21-30	160(57.7%)	117(42.3%)	118(42.5%)	159(57.5%)	53(19.1%)	224(80.9%)
31-40	32(69.5%)	14(30.5%)	17(36.9%)	29(63.1%)	10(21.7%)	36(78.3%)
41-50	268(96.0%)	11(4.0%)	234(83.8%)	55(16.2%)	64(22.9%)	215(77.1%)
51-60	225 (95.7%)	10 (4.3%)	198 (84.2%)	37 (15.8%)	25 (10.6%)	210 (89.4%)
61-70	272 (94.1%)	17 (5.9%)	264 (89.1%)	25 (10.9%)	39 (13.4%)	250 (86.6%)
71-80	267 (90.2%)	29 (9.8%)	271 (91.5%)	25 (8.5%)	22 (7.4%)	274 (92.6%)

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