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Epidemiological Study of Oral Hygiene and Prevalence of Dental Caries in Secondary School Going Children

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ABSTRACT

Introduction: Dental caries is one of the most common lifetime chronic diseases affecting the people of all regions and society that had 60%-90% of schoolchildren in most of the developed countries, and in several developing countries involving both deciduous and permanent teeth. The aim of the study is to evaluate the prevalence of dental caries among the secondary school children's in Yadgir city Karnataka

Materials and Methods: Cross-sectional study of the age group 11-16 years are considered with the sample size of 542 students from 3 different private and one government school. A Pre-tested questionnaire was given to know the information on tooth cleaning practices, dietary habits and dental experience etc, and the data that is collected from each participant is subjected to statistical analysis to know the prevalence of dental caries.

Results: Prevalence of dental caries among secondary school students are 62.36% (N=338), which is slightly more in boys compared to that of girls i.e. 73.5% & 70.9% respectively.

Conclusions: Caries are more in boys compared to that of girls, and are common with primary dentition than permanent dentition

Key words: Dental caries, Dental habitat, Dental care precautions, Deciduous and Permanent teeth.

INTRODUCTION

Dental caries is a significant but a preventable public health problem that defines the standard of health and other related conditions which can also enables an individual to eat, speak, and socialize without active disease, discomfort or embarrassment and which contributes to general well-being [1].Caries are the breakdown of teeth due to acids caused by bacteria, which are of different colour from yellow to black. The earliest sign is the appearance of a chalky white spot on the surface of the tooth, indicating an area of demineralization of enamel. As the lesion continues to dematerialize, it can turn brown but will eventually turn into a cavity. Once the enamel and dentin are destroyed, affected areas changes its colour and become soft to the touch effecting nerves of the tooth resulting in pain and it will turn worst on exposure of heat, cold, or sweet foods and drinks that may lead to Complications such as inflammation of the tissue around the tooth, tooth loss, and infection or abscess formation.

Worldwide, approximately 2.3 billion people (32% of the population) have dental caries in their permanent teeth. The WHO estimates that nearly all adults have dental caries at some point in time. In baby teeth it affects about 620 million people or 9% of the population. They have become more common in both children and adults in recent years.

The disease is most common in the developed world and a smouldering disease in the some developing countries like India. The major factors are inadequate resources for dental treatment, lack of public awareness, and motivation with increased intake of carbohydrates, poor oral hygiene, fluorosis, enamel defects, various measures of low socioeconomic status & low level of parental education

etc. Geographical location plays a great role in caries prevalence, and it varies with the change in location to location. According to the National Oral Health Survey report 2004.[2] Caries prevalence in India was 51.9%, 53.8%, and 63.1% at ages 5, 12, and 15 years, respectively, in different parts of India

The level of oral health knowledge and practices in secondary school students is necessary which requires proper investigation and this study aimed to assess the level of oral health knowledge and practices among secondary school students

MATERIALS & METHODS

A cross-sectional study is carried out in Yadgir city area to assess the prevalence of dental caries among secondary school children from 3rd to 26th April 2018 (i.e. for 24 days). A total of 2 private & 1 public secondary schools were chosen for the study, with a response of about 89% which is followed with written consent, a self-administered questionnaire that can assess the level of oral health knowledge and practices of students. The clinical examination was done by one dentists assisted by three dental assistants over a period for recording the data. As per Standard infection control guidelines all the recordings were carried out in the daylight, and the child was made to sit in ordinary chair facing away from a direct sunlight. [3]. The oral examination of the study subjects was conducted in respective schools using, a plane mouth mirror under natural light and a community periodontal index (CPI) probe, as indicated by the WHO.

RESULTS

Table 1 shows that the total study population of 542 children's ranging from 11 to 16 years with 191 is Girls& 351 are boys (Mean and SD of age is 13.59 ± 1.713 years)

Table 2 indicates the total prevalence of caries among the school children is 62.36% and the total prevalence of caries among boys is slightly high compared to that of girls i.e. 73.5% and 70.9% respectively.

Table 3 indicates the irregular distribution of primary and secondary caries in respective of age groups in girls and boys, where primary caries is more in age 11 & 12 years boys compared to that of girls, but in age group 13-16 primary caries is more in girls than boys. Whereas secondary is more in girls in almost all the ages except 14 years.

The number of students who had an acceptable level of frequency brushing teeth (i.e. twice a day) is less than 20% among them age group 13& 15 years show slightly high frequency than others.

Table 1: Age and sex distribution of children

Age (yrs)	Boys (%)	Girls (%)
11	63 (17.95)	19 (9.95)
12	59 (16.81)	32 (16.75)
13	41 (11.68)	45 (23.56)
14	52 (14.81)	37 (19.37)
15	68 (19.37)	27 (14.14)
16	68 (19.37)	31 (16.23)
Total	351 (64.76)	191 (35.24)

Mean and SD of age is 13.59 ± 1.713 years

Table 2: Sex wise Distribution of Dental Caries of the study population

Gender	Total Subjects	Caries count (%)
Boys	351	258 (73.504)
Girls	191	80 (70.948)
Total	**542**	**338 (** 62.360)

Table 3: Percentage of children with caries in primary and secondary dentition

Age	Primary Dentition Caries (%)		Secondary Dentition Caries (%)	
	Boys	Girls	Boys	Girls
11	21.52	4.92	10	10.5
12	17.09	9.84	14	21.1
13	13.29	27.87	11	15.8
14	18.35	19.67	17	10.5
15	12.03	14.75	21	26.3
16	17.72	22.95	27	15.8

Table 4: Percentage of student's among Different age levels having oral health knowledge & practices

Age	n	Twice a day Brushing habit (%)	Knowledge on importance of dental checkups (%)	Ever visited a dental Clinic (%)
11	82	11 (13.41)	9 (10.98)	14 (17.07)
12	91	15 (16)	15 (16.48)	17 (18.68)
13	86	17 (19.2)	12 (13.95)	13 (15.12)
14	89	15 (17.4)	17 (19.1)	17 (19.1)
15	95	19 (19.7)	17 (17.89)	16 (16.84)
16	99	14 (14.6)	21 (21.21)	14 (14.14)

Table 5: Percentage of Sugar consumption among different age group

Age	Students	Consuming sugary foods less than five times a day (%)
11	82	12 (14.63)
12	91	20 (21.98)
13	86	12 (13.95)
14	89	11 (12.36)
15	95	18 (18.95)
16	99	18 (18.18)

The knowledge on importance or awareness on dental check up is more in age group 16 & 14 years compared to other age children's but the students percentage who visited dental clinic is slightly high from age group 14, 12 &11 years (Table 4).

Majority of the study subjects are reported to have an acceptable level of practice of frequency of sugary food consumption but students of age group from 12, 15 &16years students are reported with high levels of sugar consumption compared to that of 11-13 years students respectively (**Table 5)**.

Although in our study twice-a-day tooth brushing has been reported, only 39.29% of students had an acceptable practice of brushing teeth at an interval of twelve hours as recommended showing that students are not informed on the importance of brushing twice a day at an interval of twelve hours.

DISCUSSION

Many studies have been conducted to identify the prevalence of caries in different parts of India. [4, 5,] However, In the present study, the prevalence of dental caries is 62.36% without major difference among boys and girls but had more caries in primary dentition when compared to permanent dentition. This is similar to the reports of some other studies. [6] This could be attributed to the fact permanent teeth has high susceptibility among deciduous teeth due to low calcium content and structural differences in deciduous teeth. [7]

The prevalence of caries in our study was slightly higher in boys than girls which is similar to that of Moses et al., Joshi et al. [8, 9.]The increased prevalence of caries in the boys may be due to the preferential feeding habitats compared to that of girls in the home and may due to snacking habit among boys during the longer outside stay. [8]

Results from this study revealed a high proportion of students have adequate level of knowledge on oral health, such as causes, prevention, and signs of dental caries and these findings are similar to those reported in other studies done in Tanzania, [10, 11] and Kuwait [12]. This could be the result of either oral health education that they might have at primary school standards or may have acquired through the media

Most of the students had adequate knowledge on importance of regular dental visits, and although this may be the truth, Kikwilu et al[14] reported that only a quarter of those who experienced oral pain or discomfort sought emergency oral care from oral health care facilities.

Nearly all of the students had an acceptable level of practice on frequency of sugary food consumption as recommended by the recent systematic analysis that free (added) sugar should remain below 10% of the energy intake and the consumption of food/drinks containing free sugars should be limited to a maximum of four times per day [15] . Contrary to the reported findings, Masalu et al. [16] found that female students were more likely believe in limited sugar consumption than their male counterparts.

Caries and chronic periodontitis diseases which are considered as public health problems may be influenced by effective and regular self tooth brushing [17.]

CONCLUSIONS

Prevalence of dental caries among secondary school students are 62.36% (N=338), which is slightly more in boys compared to that of girls i.e. 73.5% & 70.9% respectively, and the caries prevalence in primary dentition in males is 63.6%, in females is 65.1% were as in permanent dentition was in males is 26.2%, in females is 26.17%. The number of students who had an acceptable level of frequency brushing teeth (i.e. twice a day) is less than 20% shows that both parents and students need proper awareness about their oral hygiene oral practices and importance of regular dental checkups, which can be provided by encouraging the dental health camps in the schools. The one who are effected need to be identified and treated at its earliest possible stage to avoid further complication

REFERENCES

1. Kay E, Locker D. *Effectiveness of Oral Health Promotion: A Review*. London*, UK:* Health Education Authority; 1997.
2. National oral health care program implentation strategies DGHS.MOH and FW; Govt of India. 2004;29:
3. WHO. Oral Health Survey, Basic Methods. 4th ed. Geneva: WHO; 1997
4. Bhatia HP, Srivastava B, Khatri S, Aggarwal A, Singh AK, Gupta N. Prevalence of dental caries among 3-15 old school children in Ghaziabad city and its adjoining areas – A correlated survey. J Oral Health Community Dent 2012;6:135-9
5. Ingle NA, Dubey HV, Kaur N, Gupta R. Prevalence of dental caries among school children of Bharatpur city, India. J Int Soc Prev Community Dent 2014;4:52-5
6. Sudha P, Bhasin S, Anegundi RT. Prevalence of dental caries among 5-13-year-old children of Mangalore city. J Indian Soc Pedod Prev Dent 2005;23:74-9
7. Saravanan S, Kalyani V, Vijayarani MP, Jayakodi P, Felix J, Arunmozhi P, et al. Caries prevalence and treatment needs of rural school children in Chidambaram Taluk, Tamil Nadu, South India. Indian J Dent Res 2008;19:186-90.
8. Moses J, Rangeeth BN, Gurunathan D. Prevalence of dental caries, socio-Economic status and treatment needs among 5 to 15 year old school going children of Chidambaram. J Clin Diagn Res 2011;5:146-51. X6+6.93
9. Joshi N, Rajesh R, Sunitha M. Prevalence of dental caries among school children in Kulasekharam village: A correlated prevalence survey. J Indian Soc Pedod Prev Dent 2005; 23:138-40
10. Masanja IM, Mumghamba EG. Knowledge on gingivitis and oral hygiene practices among secondary school adolescents in rura and urban Morogoro, Tanzania. *International Journal of Dental Hygiene*. 2004;2(4):172–178

11. Kahabuka FK, Mbawalla HS. Oral health knowledge and practices among Dar es Salaam institutionalized former street children aged 7–16 years. *International Journal of Dental Hygiene*. 2006;4(4):174–178

12. Al-Ansari J, Honkala E, Honkala S. Oral health knowledge and behavior among male health sciences college students in Kuwait. *BMC Oral Health*. 2003;3, article 1:1–6

13. Al-Omiri MK, Al-Wahadni AM, Saeed KN. Oral health attitudes, knowledge, and behavior among school children in North Jordan. *Journal of Dental Education*.2006;70(2):179–187

14. Kikwilu EN, Masalu JR, Kahabuka FK, Senkoro AR. Prevalence of oral pain and barriers to use of emergency oral care facilities among adult Tanzanians. *BMC Oral Health*.2008;8

15. WHO/FAO. *Diet Nutrition and Prevention of Chronic Diseases*. Geneva, Switzerland: World Health Organization; 2003. (WHO Technical Report Series 916).

16. Masalu J, Mtaya M, Åstrøm AN. Risk awareness, exposure to oral health information, oral health related beliefs and behaviours among students attending higher learning institutions in Dar es Salaam, Tanzania. *East African Medical*

17. Koerber A, Burns JL, Berbaum M, et al. Toothbrushing patterns over time in at-risk metropolitan African-American 5th–8th graders. *Journal of Public Health Dentistry*. 2005; 65(4): 240–243.