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A STUDY ON ORAL HYGIENE STATUS AND PRACTICES AMONG RURAL SCHOOL STUDENTS

Community Medicine

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ABSTRACT

Background: Oral health is an essential component of general health and has become a major public health concern. Proper oral hygiene practices if cultivated at an early age will ensure a life free from oral diseases.

Materials and methods: A cross sectional study was conducted in a sample of 200 rural school students in the age group of 12 to 15 years. Oral hygiene index-simplified (OHI-S) was adopted to assess oral hygiene status.

Results: The mean OHI-S score was 1.9320±1.046. Self reported oral health practices like brushing twice in a day, using toothpaste with toothbrush, appropriate method, taking >2 minutes per brushing, changing toothbrush in 1 to 3 months were significantly associated with less OHI-S scores (p=0.0000).Regular dental check-ups (P=0.0145) and less frequent consumption of sugar based foods(p=0.0490) influence positive oral hygiene.

Conclusion: Oral health programmes addressing adolescents will improve the oral health status.

KEYWORDS:

Oral health, Oral hygiene Index, Rural, Students

Introduction

Good oral health is a vital component of overall good health and well being of a person. Oral health is concerned with teeth, periodontal tissue and other soft and hard oral tissues. The health of these components is often associated with the same or similar predisposing environmental and microbial variables. Oral health problems are emerging as one of the major public health concern globally. According to WHO global oral data bank from 100 countries gingival inflammation accompanied by bleeding, plaque and calculus is more severe and more prevalent in developing countries (Bimstein, 2002). Oral health influences our ability to speak, smile, eat and show emotions. It also affects our self-esteem, performance and attendance at school or work ("Home |division of oral health|CDC", 2017). Children are at high risk to get oral health problems because of inadequate oral hygiene. About 50 million school hours are lost every year because of oral health problems in children (Sharma, Paraskar, Srivastava & Bansal, 2013). Majority (72%) of population of India reside in rural area, of which 40% constitute children. In country like India there are many challenges in rendering oral health needs and professional services to rural community than compared to urban areas. Children from rural area experience higher rate of dental diseases because of lack of awareness, poor oral hygiene and practices (Priyanka,Gireesh,Mayank,Ankita,2015).

Oral hygiene is the practice of keeping the mouth and teeth clean. It is widely recognized that good oral health practices are necessary from young age to ensure positive long term dental health hygiene. A clean tooth never decays. Good practices recommended are brushing frequently (morning and night), correct brushing techniques, flossing, rinsing mouth after food, limiting sugar based foods, and regular dental visits (Stuart,2015). Good oral health practices prevent the building of plaque, calculus and bacteria which will control caries and periodontal diseases .A plaque is a thin film of bacteria and their products adhering on the tooth surfaces and calculus is a dental plaque that is hardened as a result of deposition of minerals from saliva (Oral health survey 2011, 2011). Maintaining good oral hygiene will pave way to cut the huge burden of dental treatment cost. This study was conducted in the context of understanding the socio-behavior factors and oral hygiene of school going children in rural area which may provide inputs for future planning and implementing any comprehensive intervention programmes.

Objectives of the study

1. To determine the oral hygiene status of rural school students in the age group of 12 to 15 years.
2. To analyze the socio-demographic factors and oral health practices with the oral hygiene status of the study group.

Materials and methods

The methodology adopted for conducting the study was cross-sectional descriptive type. The study group comprised of school children who were studying in classes 7th to 10th from selected schools in our rural field practice area. The sample size for the study was 200 students, as determined based on the oral hygiene status proportion reported in a previous study with an allowable error of 10% (Ashraful, Hafizul, Awal, 2015). A convenient sampling technique was used to choose the study subjects. After obtaining verbal consent from students and teachers, a semi-structured questionnaire (in English & Tamil) was provided to the subjects to get necessary demographic and oral health behavior information. Oral examination was done by a dentist and findings recorded. The oral hygiene status of participants was assessed by oral hygiene index-simplified (OHI-S developed by Greene and Vermillion) by noting debris and calculus on specific surfaces of six index teeth. Scores were calculated separately for Debris index(DI) and Calculus index(CI).The DI and CI scores were added to get the oral hygiene index-simplified(Hiremath,2006).

Statistical analysis was done using Epiinfo software version 7. Descriptive statistics for continuous variables were presented in mean and standard deviation, whereas categorical variables were presented in percentages. comparative analysis between means of different groups was performed using Mann-Whitney and Kruskal Wallis tests.

Results

The mean age of the study group was 13.5±1.12 years. Among the 200 study subjects 130(65%) were male students and 70(35%) were female students. The mean debris score was 1.2715±0.724, calculus score was 0.6345±0.531 and oral hygiene index-simplified was 1.9320±1.046 respectively.

Based on the OHI-S scores 35.5% of the study group had good oral hygiene status(score 0-1.2),52% had fair oral hygiene status (score1.3-3) and 12.5% had poor oral hygiene status(score 3.1-6)(Fig.1).

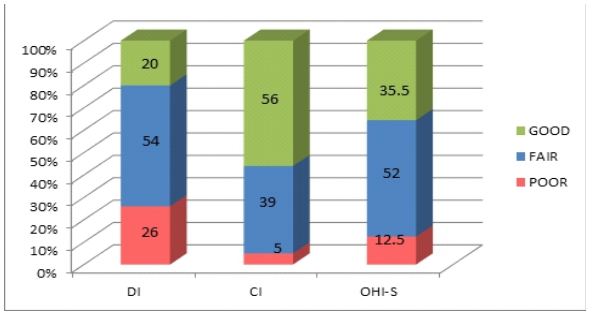

Figure 1.Oral hygiene status of study group.

Table 1. Socio-demographic factors and OHI-S scores.

S. no	Variables	n (%)	OHI-S score		P value
			Mean	Std.deviation	
1	Age in years				
	12	50(25%)	1.5520	1.0013	
	13	50(25%)	1.6240	1.1594	0.0000†
	14	50(25%)	2.0420	0.7677	
	15	50(25%)	2.5100	0.9550	
2	Sex				
	Males	130(65%)	1.9629	1.0700	0.4468*
	Females	70 (35%)	1.8629	1.0355	
3	Mother's literacy				
	Literate	168(84%)	1.7935	1.0199	0.0000*
	Illiterate	32 (16%)	2.6594	0.8795	

†Kruskal Wallis test ,*Mann Whitney test

Table 1 represents the mean OHI-S scores with respect to certain socio-demographic factors like age,sex and mothers literacy status. As the age increases the OHI-S scores also increases and the literacy status of mother's of the study subjects influence the oral hygiene status , both showing statistical significance (p=0.0000). Though the OHI-S scores are better in female students than compared to male students, the association is not statistically significant(p=0.447)

Table 2.Self reported oral practices and OHI-S scores

s. no	Practices	n (%)	OHI-S score		P value
			Mean	Std.deviation	
1	Frequency of brushing				
	One time in a day	146(73%)	2.1740	0.9559	0.0000*
	Two or more in a Day	54(27%)	1.2778	1.0065	
2	Method of brushing				
	Randomly	146(73%)	2.2055	0.9458	0.0000*
	Horizontal, vertical, rotatory	54(27%)	1.926	0.9485	
3	Materials used for brushing				
	Toothpaste +toothbrush	162(81%)	1.7444	1.0242	0.0000†
	Toothpowder+toothbrush	26(13%)	2.7846	0.6857	
	Others(finger+paste or powder, neemstick)	12(6%)	2.6167	0.7964	
4	Time taken per brushing				
	< 2 minutes	138(69%)	2.3326	0.8105	0.0000*
	>2 minutes	62(31%)	1.0403	0.5795	
5	Period of changing toothbrush				
	1 to 3 months	62(31%)	1.4855	1.0167	0.0000*
	More than 3 months	138(69%)	2.1326	0.9995	
6	Rinsing mouth with water after taking food				
	Yes	122(61%)	1.2162	0.5022	0.3001*
	No	78(39%)	1.3462	0.6827	
7	Frequency of consuming sugar based foods				
	Occasionally in a week	57(28.5%)	1.6509	1.0096	0.0490†
	Many times in a week	99(49.5%)	2.0596	1.0131	
	Many times in a day	44(22%)	2.0091	1.1185	
8	Regular visit to a dentist				
	Yes	56(28%)	1.6375	0.9830	0.0145*
	No	144(72%)	2.0465	1.0509	

†Kruskal wallis test ,*Mann Whitney test

In regard to time taken for brushing, 69% took less than two minutes and 31% took more than two minutes. Similarly 69% were changing their toothbrush after three months while 31% changed their toothbrush between one to three months.

Among the study group 61% had the habit of rinsing mouth after taking food and 28% regularly visited a dentist for check-up and advice. The frequency of intake of sugar based foods (candy, chocolates, sweets, jam, chewing gum etc) as reported shows that 28.5% consume occasionally in a week,49.5% consume many times in a week and 22% many times in a day. Oral health practices that significantly influence the OHI-S scores are frequency, method, material, time taken for brushing, period of changing toothbrush (p=0.0000), intake of sugar based foods (p=0.049) and regular visit to a dentist (p=0.0145).

Discussion

In the present study about one third of the school students (35.5%) had good oral hygiene status. It is more when compared to the study conducted in rural Chennai (17%), rural Nigeria (28%) and lower than the proportion (66%) reported in a study conducted at Bangladesh (Vyshalee.et.al,2014,Lateefat,2012,Ashraful et.al,2015).Similar oral hygiene status as in the current study was observed in studies done among urban school students also (Sharma et.al,2013, Bhayya & Shyagali, 2010). About 12.5% of the study group had poor oral hygiene in the current study. The differences may be attributed to geographical variations, socio-behaviour factors and awareness levels of the population. The study shows that with increasing age, the oral hygiene status becomes poor. Similar findings were reported by Soghi.G, 2001in a study conducted at Davangere. More exposure of the tooth to environmental factors as age increases can result in poor oral hygiene. Though females had better OHI-S scores than males the association was not statistically significant (p>0.05),which was similar as reported by few studies (Nur-E-Saud&Abdul, 2016, Gurdeep, Gurmeet, Vijay & Bhupinder, 2014).Literate mother's seem to influence good oral hygiene of their children, as they can teach good practices and also initiate early corrective measures. About 73% of study group brushed only once in a day and 27% more than one time, which was comparative with the results shown in similar studies (Gurdeep et.al, 2014, Tomar, Kasar & Tiwari,2016).Correct brushing techniques was adopted by 27%, the level being slightly higher than reported by other studies in the range of 20 to 22%. Correct brushing technique will help to eliminate microorganisms rapidly(Gurdeep et.al, 2014, Ahad & Gheena, 2015, Vishnu &Krishnaprasad,2016). Majority of the study group (81%) used toothbrush and toothpaste as material for cleaning which was in accordance with many other studies (Ashraful et.al,2015, Vishnu et.al,2016). In the present study 69% students took less than two minutes for brushing and also similar proportion took more than three months for changing their toothbrush which may deter the development of good oral health(Ahad et.al, 2015, Gupta, Sequeira & Acharya, 2012).About 61% of study group practiced the habit of rinsing mouth with water after taking food which was less than reported by Vishnu et.al,2016.

In the present study self reported oral health practices like more frequency, correct method, appropriate material, more time taken for brushing, and changing the toothbrush in 1 to 3 months had significant association with better mean OHI-S scores. Also in respect to eating habits, those students who consumed sugar based foods occasionally had good OHI-S scores compared to those who consumed frequently. Sweet consumption influences the rate of plaque proliferation and makes the oral cavity suitable environment for microbial growth (Vyshalee et.al,2014).The present study reveals that visiting a dentist regularly once in a year will promote good oral hygiene as it provides scope for professional cleaning of oral cavity and also enhance the awareness of students and their parents. The influence of regular dental visits was also reported by Lateefat,2012.

Conclusion

This study among rural school students shows that the oral hygiene status is moderate and good oral health practices will promote oral hygiene. Oral hygiene education should be included with the regular health education curriculum. States can promote schemes to gift toothbrush and toothpaste to rural school children at regular intervals, which will be an effective incentive for good oral hygiene behavior.

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