

To Evaluate the Oral Health Hygiene Among High School Children's in Rajasthan, India

Sandeep Sidhu¹, Navneet Singh Kathuria², Jaskirat Sidhu³, Gagandeep Kaur Sidhu⁴, Vandana Katoch⁵, Bela Mahajan⁶

¹Associate Professor, Department of Oral Pathology & Microbiology Maharaja Ganga Singh Dental College, Sriganganagar

²Associate Professor, Department of Oral Pathology & Microbiology Maharaja Ganga Singh Dental College, Sriganganagar

³Associate Professor, Department of Periodontics Maharaja Ganga Singh Dental College, Sriganganagar

⁴Associate Professor, Department of Oral Pathology & Microbiology Maharaja Ganga Singh Dental College, Sriganganagar

⁵Reader, Department of Oral Pathology and Microbiology. Institute of Dental Sciences, Jammu

⁶Professor & HOD, Department of Oral Pathology and Microbiology. Institute of Dental Sciences, Jammu

Received: 09-01-2022 / Revised: 20-02-2022 / Accepted: 11-03-2022

Corresponding author: Dr. Gagandeep Kaur Sidhu

Conflict of interest: Nil

Abstract

Aim: To evaluate the oral health hygiene among high school children's in Rajasthan, India

Methods: A cross-sectional research was conducted. Data was collected in various private high schools using the population probability sampling approach until the appropriate sample size was reached. The research included adolescent students in the eighth through tenth grades. Students who wore orthodontic brackets were barred from participating. They were inspected for oral health, the presence of cavities, lost, filled, or missing teeth, and so on. A semi-structured, indigenous, interviewer-based questionnaire was used to gather data on brushing frequency, toothbrush replacement, usage of tongue cleaner, mouth wash, and so on. Confidentiality was upheld.

Results: The respondents' average age was 13.9+0.77 years. The majority of the girls claimed they clean their teeth once a day (75%), 37% were unclear of the sort of toothbrush they used, and 35% of the youngsters indicated they use a medium toothbrush. Only a few students (15%) used fluoride toothpaste, whereas 72 percent were uninformed of the presence or lack of fluoride in their paste. Approximately 70% of the females brush their teeth horizontally, which is considered a harmful form of brushing. Only 23% of those polled clean their tongues, and only 21% use mouthwash. After eating a meal, the majority of students (45%) rinse their mouth. According to 35% and 23% of the students, they perceive bleeding from the gums and a bad odour from the mouth, respectively. In this study, we discovered that nearly half of the participants (45%) had dental caries, with a mean DMFT score of 2.61. When questioned about toothache in the previous six months, 35% of students indicated they had it occasionally, while 31% said they had it frequently. About half of the respondents (55%) stated they only see the dentist when they have a problem, and toothache (45%) was the most prevalent reason for their most recent dental visit.

Conclusion: The research population's oral health hygiene practices were inadequate and need to be addressed. Pupils' awareness of the need of keeping excellent oral health can be increased by incorporating school instructors, who are viewed as role models by the students.

Keywords: oral health hygiene, high school children's.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Health is a universal human necessity that applies to all ethnic groupings. Without good dental health, it is impossible to achieve or sustain good overall health. The mouth is considered as the body's mirror and the portal to optimum health. Dental caries is the most common oral disease of public health concern in low-income nations. High sugar intake, a change to a westernized diet, socioeconomic position, the rate of urbanization, and the mother's level of education have all been linked to an increase in the prevalence of dental caries. Economic transformation may have an impact on these characteristics. Economic growth in a low-income nation such as India may have an impact on oral health[1].

Oral health is a significant and well-documented factor of overall health and quality of life[1]. It is widely documented that risk factors for oral health and noncommunicable illnesses are shared[2]. According to the World Health Organization, the most common oral disorders include dental caries, periodontal disease, oral cancer, oral symptoms of HIV, oro-dental trauma, cleft lip and palate, and normal. Several previous investigations have found a link between dental illness and heart problems such as coronary artery disease and myocardial infarction[3-5]. Molecular mimicry on host arteries by antibodies and T-cells released in response to gum tissue infection is one such method[5]. It is critical to maintain excellent dental health when treating individuals with heart problems[5].

Periodontal pathogens and poor dental hygiene have also been linked to respiratory diseases such as pneumonia in studies. Aspiration of pathogens, alteration of mucosal surfaces, degradation of salivary film, and release of cytokines can all explain this connection[6-9]. Improving dental health, particularly periodontal health, lowers the prevalence and development of respiratory infections in people at risk[6-9]. Diabetes and periodontal diseases have been proven to have a symbiotic association[2,10,11].

High-sugar diets, cigarette use, dangerous alcohol use, and poor dental hygiene are all common contributors to oral illnesses. There is also a very significant and constant relationship between socioeconomic position and the occurrence and severity of oral illnesses[2]. According to the global disease burden, around 3.5 billion individuals are impacted by oral illness, with nearly 530 million children suffering from dental caries of milk teeth[10]. Oral illness is a major public health concern in many nations, however it should be highlighted that the majority of disorders are preventable and treatable in their early stages[2].

Schools are the greatest venue to assess children's oral health knowledge and practise, as well as teach them, because lifetime ideas and key abilities are formed at this age. Teachers and parents have an important role in enhancing children's dental health. Regular, low-cost interventions, such as health education at

the school level, have also been shown to be successful in the short run[12].

Material and methods

In the department of oral pathology, cross-sectional research was conducted. Data was collected in various private high schools using the population probability sampling approach until the appropriate sample size was reached. The research included adolescent students in the eighth through tenth grades. Students who wore orthodontic brackets were barred from participating. They were inspected for oral health, the presence of cavities, lost, filled, or missing teeth, and so on. A semi-structured, indigenous, interviewer-based questionnaire was used to gather data on brushing frequency, toothbrush replacement, usage of tongue cleaner, mouth wash, and so on. Confidentiality was upheld.

The data was imported into a Microsoft Excel spreadsheet and analysed with the SPSS 25.0 programme. Wherever possible, descriptive statistics such as frequency tables, pie diagrams, and bar charts were employed.

Results

The respondents' average age was 13.9+0.77 years. The majority of the girls claimed they clean their teeth once a day (75%), 37% were unclear of the sort of toothbrush they used, and 35% of the youngsters indicated they use a medium toothbrush. Only a few students (15%) used fluoride toothpaste, whereas 72 percent were uninformed of the presence or lack of fluoride in their paste. Approximately 70% of the females brush their teeth horizontally, which is considered a harmful form of brushing.

Only 23% of those polled clean their tongues, and only 21% use mouthwash. After eating a meal, the majority of students (45%) rinse their mouth. According to 35% and 23% of the students, they perceive bleeding from the gums and a bad odour from the mouth, respectively.

In this study, we discovered that nearly half of the participants (45%) had dental caries, with a mean DMFT score of 2.61. When questioned about toothache in the previous six months, 35% of students indicated they had it occasionally, while 31% said they had it frequently. About half of the respondents (55%) stated they only see the dentist when they have a problem, and toothache (45%) was the most prevalent reason for their most recent dental visit.

Table 1: Age and gender of the students

Gender	Number of students	%
Male	48	48
Female	52	52
Age		
Below 13	35	35
13-15	45	45
Above 15	20	20

Table 2: Oral health hygiene indicators

Particulars	Response	Number	Percentage
Frequency of brushing teeth daily	Once	74	74%
	Twice	23	23%
	More than twice	3	3%
Type of toothbrush used	Hard Medium Soft	9	9%
	Unaware	35	35%
		19	19%
		37	37%
Use of fluoride toothpaste	Yes No	15	15%
	Don't know	13	13%
		72	72%
Different types of brushing techniques	Horizontal Vertical	70	70%
	Circular	9	9%
	Combined	7	7%
		14	14%
Frequency of changing toothbrush	Every 3 months	21	21%
	Every 6 months Yearly	13	13%
	When worn out	6	6%
		60	60%
Cleaning tongue	Sometimes	23	23%
	Always	21	21%
	Never	56	56%
Use of mouth wash	Sometimes	19	19%
	Always	11	11%
	Never	70	70%
Rinse mouth after meals	Sometimes Always	45	45%
	Never	25	25%
		30	30%
Noticed bleeding from gums	Yes	35	35%
	No	65	65%
Noticed smell from mouth	Yes	23	23%
	No	73	73%

Discussion

Oral health hygiene is often associated with being aware of and implementing healthy practices. In our investigation, we discovered that the majority of respondents cleaned their teeth at least once every day. Similar findings were found in research conducted by Pratiti D et al. among Sundarban schoolchildren, where 68.42 percent of them washed their teeth once every day. These findings contrasted with those of Nirmalya M, et al.[13,14], who

discovered that 36.4 percent of teenage females washed their teeth at night, despite attending rural schools. Approximately 36.8 percent of the participants were uninformed of the sort of toothbrush they used, and only 20% of the sample utilized soft toothbrushes.

When compared to research by Nikita J et al.[15], this proportion was much higher. Whereas 50% of respondents were uninformed of the type of tooth brush and only 10% used a soft tooth brush. In our

study, only 15% of students used fluoridated dental paste, and many were uninformed of the presence or lack of fluoride in their paste. These findings agreed with those of Kamble VS, et al, who found that only 13% of students (13.2%) used fluoridated tooth paste[16].

It is a well-known fact that fluoride is essential for the mineralization of teeth, which involves raising awareness among students about the importance of using fluoridated toothpaste. It is worth noting that 70% of respondents cleaned their teeth using the typical horizontal approach, which may be harmful to the tooth structure. Similar findings were found in a research by Nikita J, et al, in which 75% of the sample did the same[15].

It was also discovered that just 21% of the participants tested cleaned their tongue using a toothbrush or tongue cleaner. Surprisingly, these findings contrasted with those of Nirmalya M, et al., who discovered that 81.1 percent of rural teenage school girls cleaned their tongue on a daily basis[14]. This might be attributed to a lack of dental care among urban females as compared to rural girls. Only 11% of students used mouthwash, which is consistent with the findings of the Nikita J, et al. research[15]. In addition, according to a research by Siraj A, et al., just 25% of students rinse their mouth after meals[17]. Among teenagers living in a North Indian urban area (21.6 percent). This missing and extremely fundamental approach of maintaining dental hygiene is a clear indicator of ignorance. Approximately one-third of the girls (35%) experienced gum bleeding, and 23% reported smelling from their mouth. These findings were reduced when compared to research by Nikita J, et al, in which 40% and 80% of the study group reported bleeding gums and unpleasant breath, respectively, indicating inadequate oral hygiene[15].

Dental caries is a major concern in both school-aged children and adults. The frequency of dental caries was found in about half of the high school pupils in the current study (45 percent). This is consistent with the findings of studies conducted by Kulkarni SS et al. among 11–15-year-old children in Belgaum and Dhar V et al. among school-aged children from rural areas in Udaipur District, which found that the prevalence of dental caries was 45.13 percent and 46.75 percent, respectively. Another research in Sundarban by Pratiti D, et al., found that the prevalence of dental caries among 13-14 year old school students was 72%, which is greater than the current study[13,18,19].

Dulal D et al. conducted research among children in West Bengal's coastal districts and discovered that the prevalence of dental caries was 28.06 percent, which is considerably lower than the frequency in the current study[20].

Another significant result in the current study was that nearly two-thirds (65%) of respondents reported having toothache in the previous six months. Similarly, toothache was reported by 58 percent of youngsters in a research conducted by Pratiti D et al[13].

Nearly half of the students (55%) attended the dentist only when they had a problem, and 20% of them never visited the dentist, but in research by Nirmalya M, et al.14, 50.8 percent of the study population never visited a dentist, which is higher than in the current study. When questioned about the cause for their most recent dental visit, the majority of the research sample claimed toothache. This conclusion differs from that of Nirmalya M, et al.[14] study.

Conclusion

The research population's oral health hygiene practises were inadequate and need to be addressed. Pupils' awareness of the

need of keeping excellent oral health can be increased by incorporating school instructors, who are viewed as role models by the students.

References

1. David J, Wang NJ, Astrøm AN, Kuriakose S. Dental caries and associated factors in 12- year-old schoolchildren in Thiruvananthapuram, Kerala, India. *Int J Paediatr Dent* 2005; 15:420-8
2. World Health Organization. Fact sheet: Oral health, 2020. Available at: <https://www.who.int/health-topics/oral-health/> Accessed on 10 July 2020.
3. DeStefano F, Anda RF, Kahn HS, Williamson DF, Russell CM. Dental disease and risk of coronary heart disease and mortality. *Briti J Med.* 1993; 306:688-91.
4. Mattila KJ, Nieminen MS, Valtonen VV, Rasi VP, Kesäniemi YA, Syrjälä SL, et al. Association between dental health and acute myocardial infarction. *Briti J Medi.* 1989; 298:779-81.
5. Seymour GJ, Ford PJ, Cullinan MP, Leishman S, Yamazaki K. Relationship between periodontal infections and systemic disease. *Clini Microbio Infec.* 2007; 13:3-10.
6. Needleman I, Hirsch N. Oral health and respiratory diseases. *Evide-base dentis.* 2007; 8:116.
7. Mojon P, Bourbeau J. Respiratory infection: how important is oral health? *Curre Opini in Pulmon Medici.* 2003; 9:166-70.
8. Gomes-Filho IS, Passos JS, Seixas da Cruz S. Respiratory disease and the role of oral bacteria. *J Oral Microbiol.* 2010;2.
9. Bansal M, Khatri M, Taneja V. Potential role of periodontal infection in respiratory diseases - a review. *J Medici Life.* 2013; 6:244-8.
10. James SL, Abate D, Abate KH, Abay SM, Abbafati C, Abbasi N, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lanc.* 2018; 392:1789-858.
11. Amar S, Han X. The impact of periodontal infection on systemic diseases. *Medical Science Monitor: Int Medi J Experimen Clini Resea.* 2003;9:RA291-9.
12. Sanadhya YK, Thakkar JP, Divakar DD, Pareek S, Rathore K, Yousuf A, et al. Effectiveness of oral health education on knowledge, attitude, practices and oral hygiene status among 12-15-year-old schoolchildren of fishermen of Kutch district, Gujarat, India. *Int Maritime Heal.* 2014; 65:99-105.