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Original Research Article

Oral Hygienic Practices and Oral Health Status among Government School Children in Rural Field Area

Sunit Kumar[1], Shakila Mulla[2], Uma Shankar Shukla[3]

[1]PG Resident, Department of Community Medicine, Jhalawar Medical College, Jhalawar
[2]Senior Professor and Head of Department, Department of Community Medicine, Jhalawar Medical College, Jhalawar
[3]Assistant Professor cum Statistician, Department of Community Medicine, Jhalawar Medical College, Jhalawar

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Corresponding author: Dr. Shakila Mulla
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Abstract

Background: Oral health is a fundamental part of the general health and well-being of an individual. Oral hygiene refers to the practice of maintaining a clean oral cavity to prevent dental problems like dental cavities, bad breath, gingivitis, and periodontitis which contributes to general well-being the dental caries among Indian children over the past 25 years was reported to be 56.7%. Oral health problems also reduce people's ability to smile, eat, and talk, and have a detrimental effect on their social and mental health The age of 12 years has been universally accepted as global monitoring age for caries since all permanent teeth except third molars would most likely have erupted by this age thus assessing oral hygiene practices are even more meaningful at this age.

Material & Methods: A Cross-sectional study carried out in 341 school children from two school in rural field area of Mandawar between class 5 to 10 standard. The self-structured questionaries were used to collect information regarding oral health practices and oral health status. The data obtained from the responses copied in Microsoft excel software. Statistical analysis done with the help of IBM SPSS software (trial version 27.0) using chi square test. Chi square test is used to measure the data. Oral health status is significantly associated for the applied statistical tests.

Observation: The study conducted among school-going children in rural area that show plaque and mottling present 62.9% and 60.3% respectively. Oral health status such as carries, mottling, bleeding gums, and ulcer are significantly associated.

Conclusion: Oral hygiene practices were poor needs educational modification regarding duration of brushing, appropriate way to brush the teeth and use of mouth washing.

Introduction

Oral health is a fundamental part of the general health and well-being of an individual. Oral hygiene is defined as "a standard of health of the oral and related issues which enables an individual to eat, speak, and socialize without active disease, discomfort, or embarrassment and which contributes to general well-being". [1]

In India, the prevalence of dental caries in children aged 5 years is 50%. The prevalence of dental caries in children aged 12 years is 52.5%, and in 15-year-old children it is 61.4%. In our country, the majority, i.e., 65% of the population, live in rural areas. [2] Children having poor oral health care are 12 times more likely to have more restricted days, including missing school, than those who do not. Each year, more than 50 million hours are lost from school due to oral diseases. [3] The age of 12 years has been universally accepted as the global monitoring age for caries since all permanent teeth except third molars would most likely have erupted by this age. In Rajasthan, dental fluorosis is very common. [4]

Oral diseases are among the most widespread non-communicable diseases globally, affecting nearly half of the world's population (3.5 billion people). Untreated dental caries (tooth decay) in permanent teeth is the most common health condition, according to the World Health Organization (WHO). [5] In India, studies have shown a high prevalence of oral health problems in children. A national study found that at least 8 out of 10 children suffer from an oral health issue. Poor oral health significantly affects a child's ability to learn and attend school. Children with untreated dental caries are more likely to experience pain, which can lead to

difficulty concentrating and an increased number of missed school days. [6] Oral health problems can also negatively impact a child's overall well-being and social life, leading to issues such as low self-esteem and difficulty with daily activities like eating and speaking. [7] Dental caries remains a major health problem in most industrialized countries, affecting 60-90% of school-aged children. Untreated dental caries in permanent teeth is the most common health condition globally. [8]

In India, a national study revealed that two out of three children have cavities or are at a high risk of developing them. The prevalence of dental caries among Indian children has been reported to be as high as 56.7%. [9] Poor oral hygiene and tobacco use are the main risk factors for periodontal (gum) disease, which is estimated to affect more than 1 billion cases worldwide. [10]

In a survey in Madhya Pradesh, India, researchers found that about 1 in every 15 children aged 12 in urban areas uses tobacco. Oral diseases are a significant burden on the poor and disadvantaged populations in both developing and developed countries. [11]

Students with dental caries are 31% more likely to be absent from school. Untreated dental caries can lead to a vicious cycle of pain, making it difficult for children to chew, which in turn affects their diet and nutrition. Poor oral health is linked to a 50% higher chance of poor academic performance in students. [12]

Oral health problems can lead to difficulty in sleeping and speaking, which negatively impacts a child's overall well-being. Educating children about oral health from an early age can have a significant impact on their oral health throughout their lives. Schools are considered the best place to improve oral health, as approximately one billion children worldwide spend much of their daily lives there.

An increase in knowledge about risk factors for oral diseases is directly correlated with better oral care practices. Oral health education should be tailored to the social, economic, and cultural realities of the target audience to be effective in the long term. [13]

Objectives

- To assess oral hygiene practices and oral health status among school children.
- To impart them health education regarding oral hygiene and practices.

Material and Methods

Study Design: Cross sectional study

Study Setting: The present study was undertaken among the school going children in the field practice area of the Rural Health and Training Centre (RHTC) of Jhalawar Medical College.

Study Population: All students between of class 5-10 and fulfil the study inclusion criteria has been selected from two school of our RHTC.

Study Period: Three months (September 2023 to November 2023)

Inclusion Criteria

- Students who were present on the day of the examination was included in the study**.**
- Students present in classes 5 to 10 were included in the study.

Exclusion Criteria: Student not willing to participate in study**.**

Sampling Technique: There are two government schools present in rural field practice area of RHTC. Complete enumeration of participants from both the schools were selected for this study.

A Cross-sectional study carried out among 341 school children from two schools of Mandawar.

The self-structured questionaries were used to collect information regarding oral health practices and oral health status. The data obtained from the responses were entered in Microsoft excel software.

Statistical analysis done with the help of IBM SPSS software (trial version 27.0) using appropriate statistical test.

Results

Total study participants were 341. Most of the participants belonged to low socio-economic status.

Out of these 341 participants 34 students present with caries, 214 students suffering from plaque, 205 present with mottling, 2 students present with ulcer, 11 students present with bleeding gums.

Table 1: Frequency distribution of oral health status of students

Oral Health Status		Frequency	%
1.Caries	Present Absent	34 306	10 90
2.Plaque	Present Absent	214 126	62.9 37.1
3. Mottling	Present Absent	205 135	60.3 39.7
4. Ulcer	Present Absent	2 338	0.6 99.4
5. Bleeding gums	Present Absent	11 329	3.2 96.8
6. Dental Treatment	Present Absent	1 339	0.3 99.7

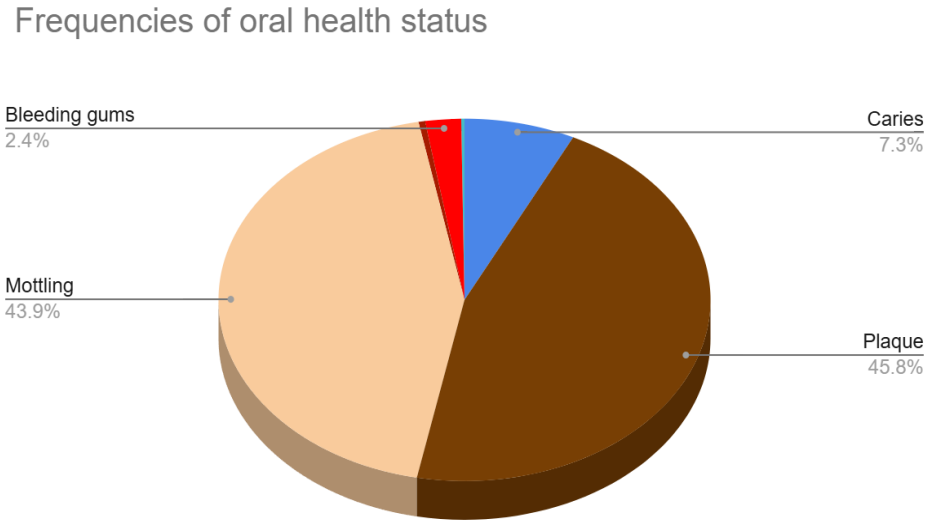

Figure 1:

Table 2: Association of practice regarding oral hygiene with dental caries

Practice regarding oral hygiene	Caries		Total	P value
	Present	Absent		
Poor	24(9.0%)	243(91.0%)	267(100.0%)	**0.235**
Good	10(13.7%)	68(86.3%)	73(100.0%)	
Total	34(10.0%)	306(90.0%)	340(100.0%)	

Table 3: Association of practice regarding oral hygiene with dental plaque

Practice regarding oral hygiene	Plaque		Total	P value
	Present	Absent		
Poor	157(58.8%)	110(41.2%)	267(100.0%)	**0.003***
Good	57(78.1%)	16(21.9%)	73(100.0%)	
Total	214(62.9%)	126(37.1%)	340(100.0%)	

Table 4: Association of practice regarding oral hygiene with mottling

Practice regarding oral hygiene	Mottling		Total	P value
	Present	Absent		
Poor	151(56.6%)	116(43.4%)	267(100.0%)	**0.007***
Good	54(74.0%)	19(26.0%)	73(100.0%)	
Total	205(60.3%)	135(39.7%)	340(100.0%)	

Table 5: Association of practice regarding oral hygiene with dental ulcer

Practice regarding oral hygiene	Ulcer		Total	P value
	Present	Absent		
Poor	2(0.7%)	265(99.3%)	267(100.0%)	
Good	0(0.0%)	73(100.0%)	73(100.0%)	**0.458**
Total	2(0.6%)	338(99.4%)	340(100.0%)	

Table 6: Association of practice regarding oral hygiene with bleeding gums

Practice regarding oral hygiene	Bleeding gums		Total	P value
	Present	Absent		
Poor	11(4.1%)	256(95.9%)	267(100.0%)	
Good	0(0.0%)	73(100.0%)	73(100.0%)	**0.078**
Total	11(3.2%)	329(96.8%)	340(100.0%)	

Table 7: Association of practice regarding oral hygiene with dental treatment

Practice regarding oral hygiene	Dental treatment		Total	P value
	Present	Absent		
Poor	1(0.4%)	266(99.6%)	267(100.0%)	
Good	0(0.0%)	73(100.0%)	73(100.0%)	**0.601**
Total	1(0.3%)	339(99.7%)	340(100.0%)	

Discussion

This study finds a significant relationship between oral health status, including caries, plaque, mottling, and ulcer and bleeding gums. In this study, it was found that there is an increase in the prevalence of dental caries with age. In this study 60.3% students are suffering from mottling which could be because of high fluoride content in drinking water.

Inadequate toothbrushing and high sugar consumption are leading causes of caries. This suggest that factors other than brushing frequency, such as diet, water quality (related to fluorosis), or socioeconomic conditions, may have a greater influence on caries in school going children.

A 2019 study showed that two out of three children in India either have cavities or are at a high risk of developing them, while a majority reported a pooled prevalence of 56.7% among Indian children over 25 years. This difference may be due to the specific age group, geographical location, or other socio-environmental factors unique to the rural field area of Rajasthan.

Poor oral hygiene practices are significantly associated with a high prevalence of plaque (62.9%). The World Health Organization (WHO) and other studies confirm that poor oral hygiene is a primary risk factor for periodontal diseases, which are estimated to affect over 1 billion people worldwide.

The critical need for effective oral health education programs in rural areas. Studies have shown that an increase in oral health knowledge and awareness directly translates into better oral care practices. Since study was conducted in government schools, this highlights the potential for school-based programs to serve as an effective platform for intervention. The findings suggest that such programs should not only focus on brushing techniques but also on diet modification and raising awareness about fluorosis and its impact. High plaque, mottling, and even a small percentage of ulcers and bleeding gums can be linked to the broader impact on a child's quality of life, indicates that oral health problems, including untreated dental caries and gum disease, can lead to pain, difficulty eating and sleeping, and may also be associated with reduced school performance.

Increase in oral health knowledge and awareness for better oral care practices. Since study was conducted in government schools, this highlights the potential for school-based programs to serve as an effective platform for intervention. The findings suggest that such programs should not only focus on brushing techniques but also on diet modification and raising awareness about fluorosis and its impact.

This study shows that gender can play a role in oral health outcomes, with some studies indicating a vital role of gender in the association between dental caries and school performance.

A gap between oral hygiene practices and actual oral health outcomes. This could be discussed in the context of a lack of knowledge or ineffective brushing habits. One study in Chennai, India, found that only 30.9% of children brushed their teeth before going to bed. The need for school-based oral health screening programs. Oral diseases can be largely prevented and treated in their early stages. The importance of establishing good habits.

The government consider implementing mandatory, evidence-based oral health programs in schools, particularly in rural areas, that include education, screenings. The success of oral health promotion in rural areas often depends on community-based efforts.

The importance of involving local community health workers or teachers as educational mediators to provide accessible approach to oral health education for both students and their parents. Factors such as genetic predisposition, diet, and water fluoride content (as seen with the high mottling rate) can interact and influence oral health outcomes. Recommend that future educational interventions focus on practical demonstrations of proper brushing techniques.

Conclusion

There is a need to prevent dental caries that increase with the age by practicing good oral hygiene. It is important to prevent restricted day for individuals with poor oral hygiene. The fluoride content of water can be reduced by defluorination of water sources to prevent mottling.

The study's finding of a surprisingly low dental caries prevalence (10%) in the rural school children is a key outcome that contradicts broader national and international trends. This highlights a potentially unique characteristic of this specific population.

The high prevalence of plaque (62.9%) in the study population indicates that despite low caries rates, poor oral hygiene is a significant and widespread problem. This suggests a need for interventions focused on effective cleaning practices rather than just caries prevention.

The 60.3% prevalence of dental mottling strongly confirms that dental fluorosis is a major public health concern in this region of Rajasthan. The conclusion should emphasize the urgency of implementing strategies to reduce fluoride exposure, such as water defluorination.

The study highlights a clear gap between the act of brushing and its effectiveness, as evidenced by the high plaque rates. This suggests that current oral hygiene practices are either insufficient or improperly performed.

The finding of a very low rate of dental treatment (0.3%) points to a critical issue of limited access to professional dental care. This is a significant barrier to addressing existing oral health issues.

The results underscore the necessity for school-based oral health education programs. These programs should address the specific needs of the population, focusing on effective brushing techniques, dietary habits, and the prevention of fluorosis.

The study's outcomes may be influenced by socioeconomic factors, as children from disadvantaged backgrounds often face unique challenges related to diet and access to healthcare, which can impact their oral health.

The conclusion should address the discrepancy between the study's findings on caries and the higher national prevalence rates (52.5% for 12-year-olds) point for further investigation. Although not directly measured in the study, the high prevalence of oral health problems like plaque and bleeding gums could negatively impact the children's overall well-being and daily activities. The findings provide a strong justification for policymakers to prioritize oral health in public health agendas, particularly in rural and underserved areas. The conclusion should recommend that schools serve as a primary platform for oral health interventions, as they provide a direct and accessible way to reach a large number of children.

To ensure the sustainability of any program, the conclusion can suggest the involvement of community health workers and teachers to act as local educators and motivators.

The study's focus on school children highlights the critical window for intervention, as habits formed during these formative years can have a lifelong impact on oral health.

The conclusion should suggest areas for future research, such as a longitudinal study to track the long-term effects of oral health issues and a more detailed investigation into the dietary habits of the population.

Acknowledge the limitations of the study, such as its cross-sectional design and the potential for a small sample size to not fully represent the entire rural population.

The conclusion should restate the key finding that oral health is not just about tooth decay but also encompasses conditions like plaque, mottling, and gingival issues, all of which were highly prevalent in the study.

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