

Oral Hygiene Practices of Rural and Urban School Going Children in Punjab

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Abstract: Background: The early years of life are essential for establishing a solid foundation for oral and dental health. Children with poor oral and systemic health typically have poor dietary habits and insufficient oral hygiene practices, particularly brushing.

Objective: To assess and compare the oral hygiene practices of rural and urban school-going children in Punjab.

Materials and Methods: This cross-sectional study was conducted from September 2021 to August 2022, after the approval of IRB, among five urban and five rural schools in Punjab using an interview-administered survey tool through purposive sampling of 600 students. The questionnaire was developed by the authors and validated using face validity. The data were stored and analyzed using IBM SPSS version 23.

Result: A total of 650 students were approached; out of them, 600 responded. Almost one-third of them had the habit of brushing twice daily (27%), whereas most were brushing once daily (65.4%). The rural school children used miswak, manjan, and their finger more significantly; however, toothpaste was the major agent for cleaning teeth (89.4%). The urban school children were using toothbrushes more significantly. Rural school children more frequently used Miswak and finger. Urban schoolchildren often brushed at night, whereas no difference was reported between morning and nighttime.

Conclusion: Most urban school children were using toothbrushes and toothpaste. The use of miswak and manjan was more common in rural areas. The most common time for brushing was morning and night. Rural areas need to have access to oral health education and subsidized toothpaste and toothbrushes.

Keywords: Dentifrices, Health Promotion, Hygiene, Oral Health, Toothbrushes, Toothpaste.

INTRODUCTION

The early years of life are crucial for laying the groundwork for good oral and dental health. Children with poor oral and systemic health often have poor dietary habits and inadequate oral hygiene practices, especially brushing [1].

Among the most prevalent diseases in pediatric patients, dental caries can be totally avoided, yet six to nine out of every ten children suffer from dental decay. Prior to entering kindergarten, two in ten children are thought to have severe dental decay, also known as rampant caries. In developing nations, up to 70% of children have dental cavities from feeding bottles [2, 3].

Previous literature has reported the prevalence of caries and gingivitis ranging from 26% to 56%, with a higher prevalence in

private school children [4, 5]. It has been extensively researched how plaque control, which includes but is not limited to brushing and flossing the teeth and tongue, affects gingivitis. According to the American Dental Association, brushing and flossing can eliminate 80% of plaque deposits (ADA). It is also widely acknowledged that socioeconomic level, which is strongly related to oral health knowledge, attitudes, and behaviors, has a direct impact on oral health status [6].

Instead of emphasizing prevention, Pakistan's healthcare system mostly focuses on treatment. Health-related facilities in Pakistan are limited to urban centers and developed areas [1]. Oral health facilities and activities are often overlooked in rural areas due to a lack of funding and policies. Pakistan has been designated a low-caries country despite the lack of reliable statistics [7]. Major problems that need to be resolved include higher treatment costs, limited access, and lack of awareness, particularly in rural areas [8].

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This survey aimed to assess and compare the oral hygiene practices of rural and urban school-going children in Punjab.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted from 12th September 2021 to 1st August 2022 after the approval of the Ethical Review Board of the University College of Medicine and Dentistry (UCD/ERCA/21/11gm) and the endorsement of the participating schools. Five urban schools from the city of Lahore and five rural schools outside of Lahore in the nearby villages (Shamkay Bhattian, Sundar, Kot Jahan, Tibba, and Kulanwala) were selected using purposive sampling. The sample size calculated was 650 children. Data were collected using survey forms developed by the authors and administered during the interview with the children. Two research experts from the Department of community dentistry validated the questionnaire. A pilot study was performed on 40 students, and required modifications were made. The forms were collected on the spot and checked for completion. The inclusion criteria were students aged five to fifteen who agreed to participate in the study. The exclusion criteria were children with special needs, disabilities, or diseases like juvenile diabetes, thalassemia, etc., as well as those who refused to be part of the study. The survey consisted of demographics and items regarding the oral hygiene practices of children.

STATISTICAL ANALYSIS

The data were stored and analyzed using IBM Statistical Package for Social Sciences (SPSS version 23, IBM Corporation, USA, New York). Descriptive statistics were employed to determine frequencies and percentages. The chi-square test was used to compare the categorical variables. A p-value less than or equal to 0.05 was taken as significant.

RESULT

A total of 650 respondents were approached, and out of them, 600 students responded. The response rate was 92.3%. The demographics are illustrated in Table 1.

Table 1. Demographical Data.

Demographics		N	%
Age Groups	5-10 years	303	50.5
	11-15 years	297	49.5
Gender	Male	476	79.2
	Female	124	20.6
Location	Rural	228	37.9
	Urban	372	61.9
Education	Primary	370	61.6
	Middle	220	36.6
	Lower Secondary	10	1.7

There was no statistically significant difference in the frequency of brushing between male and female students ($X^2=2.98$, $p=0.39$). The majority of them were brushing once daily (65.4%). However, almost one-third of the students habitually brushed twice daily (27%) (Fig. 1).

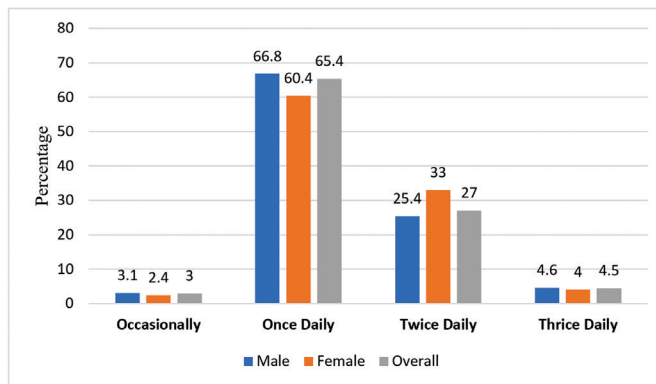


Fig. (1). Frequency of Brushing and its Gender-Wise Comparison.

The frequency and comparison of brushing agents, brushing type, frequency of brushing, and time of brushing between rural and urban school children have been tabulated in Table 2. The rural school children were using miswak and manjan more significantly when compared to urban children; however, the major agent for the cleaning of teeth was toothpaste (89.4%).

The most common agent used for brushing was a toothbrush. The urban school-going children were using toothbrushes more significantly. Rural school-going children frequently used Miswak and finger to clean their teeth.

There was a statistically significant difference between rural and urban school-going children regarding the frequency of brushing.

Regarding morning and nighttime brushing, no statistically significant difference existed between schoolchildren in rural and urban areas. However, a statistically significant difference was reported at nighttime brushing. Urban schoolchildren frequently brushed their teeth at night (Table 2).

DISCUSSION

The facilities, way of life, oral hygiene practices, and infrastructure in rural and urban areas differ significantly. Pakistan’s rural areas lack development, amenities, adequate education, and oral health awareness. In Pakistan’s rural areas, oral hygiene is frequently neglected. Moreover, cultural differences also play an important role [1, 7, 9]. According to earlier research, children from urban areas brush their teeth two to three times per day, compared to children from rural areas who reportedly only had the habit of brushing once. In contrast, assisted brushing among schoolchildren was more common in urban areas. The findings of the present study were consistent with the previous data [10].

Table 2. Frequency and Comparison of Oral Hygiene Practices between Rural and Urban School-Going Children.

Variables		%	Rural	Urban	X ²	p
Agent Using	Toothpaste	84.9	95.6	98.7	6.12	0.047
	Tooth powder	9.7	1.8	0.8		
	Manjan	3.3	1.3	0.0		
Brushing Type	Tooth Brush	97.5	67.1	96.0	93.9	<0.001
	Miswak	1.2	20.2	3.2		
	Finger	0.5	8.3	0.3		
Frequency of Brushing	Occasionally	3.0	1.3	4.0	10.1	0.017
	Once	65.4	72.8	61.0		
	Twice	27.0	22.4	29.8		
	Thrice	4.5	3.5	5.1		
Time of Brushing	Morning	92.2	92.1	92.5	4.0	0.135
	Evening	16.1	16.7	15.9	0.06	0.440
	Night	23.5	19.3	26.1	3.6	0.035
	Other	5.2	3.1	6.5	3.29	0.049

Dentifrices are adjuncts used with a toothbrush to clean the oral cavity, remove stains and deliver active ingredients like fluoride. The most common dentifrice used all around the globe is toothpaste, followed by tooth powder and mouthwash [11]. Previous literature has reported lesser use of toothpaste and toothbrush in rural areas, especially the use of fluoridated toothpaste, due to less accessibility and socioeconomic as well as cultural differences [12-14]. In the present study, most respondents used toothpaste; however, using toothpowder and manjan (a herbal dentifrice) was more common in rural areas. In Pakistan, the use of tooth powder and manjan is more common in rural areas. Manjan is an alternative herbal dentifrice to toothpaste commonly used in rural areas of Pakistan. The results of the present study were in line with the previous data [1, 12-15].

In urban areas, the availability of toothpaste and toothbrushes is more accessible, and the use of these products is seen as a sign of a modern way of life. However, chewing sticks continue to be the most popular oral hygiene tool used by most people in rural areas. This widespread use of chewing sticks also appears to be connected to customs relating to cultural and religious values [12,16]. In this study, the toothbrush was the most frequently used tooth cleaning agent; however, a significant proportion of rural schoolchildren used miswak to clean their teeth. The use of miswak (chewing sticks) is common in rural areas of Pakistan and is reportedly associated with religious as well as cultural beliefs [16, 17]. Moreover, scientific research has shown that *Salvadora persica*, also known as miswak, has antibacterial, anti-fungal, antiviral, anti-cariogenic, and antiplaque properties, in addition to anti-inflammatory, analgesic, and antioxidant properties [18].

American dental association has recommended brushing twice daily, once in the morning after breakfast, once at night, and especially after consuming acidic food using a toothbrush

with soft bristles [19]. In the present study, the majority of the schoolchildren were brushing in the morning only, followed by brushing at night. Urban school children were brushing more frequently at night than rural school children, which may be explained by the rural lifestyle, where people usually go to bed early with no nightlife [20]. Oral health promotion, education, and availability of toothbrushes and dentifrices in rural areas must be ensured. Moreover, a longitudinal study involving many rural areas in other provinces of Pakistan must be done to understand the clear picture of oral health practices, especially in the backward and neglected areas where facilities are lacking.

CONCLUSION

The majority of the school children were using toothbrushes and toothpaste, but their use was more frequent in urban areas. The use of miswak and manjan was more common in rural areas. The majority of the children from rural areas brushed once daily. The most common time for brushing was morning and night. Oral health education and subsidized toothbrushes and toothpaste must be made available in rural areas of Punjab.

AUTHORS' CONTRIBUTION

- **Hammad Hassan:** Conception and design, Drafting of the article, interpretation of data, Statistical analysis.
- **Zainab Fatima Zaidi:** Collection of data, Drafting of the article, Data interpretation.
- **Asma Shakoor:** Drafting of the article, Critical revision.
- **Rabia Asad:** Collection of data, Drafting of the article.
- **Roha Fatima:** Data interpretation, Collection of data.
- **Bersha Mir:** Critical revision, Collection of data.

CONFLICT OF INTEREST

Declared none.

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