

Original Article

Knowledge, Attitudes, and Practices on Oral Health Among Secondary School Students in Bangladesh: A Cross-sectional Study

Fatematul Zannat ¹ , Md.Muklesur Rahman ², Kajal Chandra Paul ³

¹Assistant Professor, Dept of Orthodontics and Dentofacial Orthopaedics, Dhaka Dental College Hospital, Dhaka, Bangladesh

²Professor, Dept of Orthodontics and Dentofacial Orthopaedics, Dhaka Dental College Hospital, Dhaka, Bangladesh

³Professor, Dept of Orthodontics and Dentofacial Orthopaedics, Dhaka Dental College Hospital, Dhaka, Bangladesh

DOI: 10.61561/ssbgjms.v7i01.140

Abstract

Introduction: Oral health is a fundamental component of general health, influencing nutrition, speech, self-esteem, and overall quality of life. Poor oral hygiene among adolescents can lead to dental caries, periodontal disease, and other long-term complications. Adolescence is a critical period for establishing lifelong oral health behaviours, yet knowledge, attitudes, and practices (KAP) regarding oral hygiene are often inadequate. This study aimed to assess the knowledge, attitudes, and practices related to oral health among secondary school students in Bangladesh.

Methods: This cross-sectional study was conducted among 458 secondary school students from selected urban and rural schools in Bangladesh over six months from January 2025 to June 2025. Students from classes VIII to X were included. A multistage sampling technique was employed in this study. Data were analysed using SPSS version 25.0.

Result: Among 458 secondary school students, most were aged 15–16 years (44.1%), slightly more were female (52.2%), and the majority were from rural areas (58.3%). Knowledge of fluoride was low (46.7%). Attitudes were generally positive, but preventive practices were suboptimal: only 40.0% brushed twice daily, 43.2% used fluoridated toothpaste, and 31.9% visited a dentist in the past year. Good knowledge and positive attitudes were significantly associated with better oral hygiene, and females and urban students showed higher adherence to recommended practices ($p < 0.05$).

Conclusion: The study revealed that secondary school students in Bangladesh possess moderate knowledge and mostly positive attitudes toward oral health, but their preventive practices are inadequate, with a large proportion brushing less than twice daily and seldom visiting a dentist. Both knowledge and attitude were significantly linked to better oral hygiene behaviours, and students who were female or from urban areas showed higher compliance with recommended practices.

Keywords: Knowledge, Attitudes, Practice, Oral Health, Adolescence.

Article Information

Received Date: Dec 28, 2025

Revised Date: Feb 16, 2026

Accepted Date: Mar 04, 2026

Published Date: Mar 27, 2026

Corresponding author

Dr. Fatematul Zannat,
Assistant Professor, Dept of
Orthodontics and Dentofacial
Orthopaedics, Dhaka Dental College
Hospital, Dhaka, Bangladesh

Access this article
online



Introduction

Oral health is a fundamental component of general health and well-being, influencing essential functions such as mastication, speech, and social interaction, as well as overall quality of life. Oral diseases, particularly dental caries and periodontal diseases, are among the most prevalent noncommunicable diseases globally and impose a substantial burden on individuals and health systems, especially in low- and middle-income countries¹. The World Health Organisation (WHO) estimates that most oral diseases are preventable through appropriate oral hygiene practices, healthy dietary habits, and timely professional care, emphasising the importance of preventive strategies initiated early in life². Adolescence represents a critical stage for establishing lifelong health behaviours, including oral hygiene practices. During the secondary school years, students develop greater independence in personal care while being highly receptive to health

education. Evidence suggests that improved oral health knowledge during this period is associated with more positive attitudes and healthier practices, such as regular tooth brushing, reduced sugar intake, and increased utilisation of dental services³. However, the relationship between knowledge and behaviour is complex, and adequate knowledge does not always translate into optimal oral health practices without favourable attitudes and enabling environments. Knowledge, attitudes, and practices (KAP) studies are widely used to assess health-related behaviours and identify gaps that can be addressed through targeted interventions. In the context of oral health, KAP assessments among school-aged populations have shown that insufficient awareness, negative perceptions of oral diseases, and irregular hygiene practices contribute significantly to the high prevalence of preventable oral conditions⁴. School-based oral health promotion programmes have been identified as effective platforms for improving oral health behaviours, as they allow structured education, reinforcement of positive attitudes, and early prevention⁵. In Bangladesh, oral health remains a relatively neglected component of public health, and national-level data on adolescent oral health behaviours are limited. Available studies indicate that although many secondary school students possess basic knowledge regarding oral hygiene, substantial gaps exist in attitudes and routine practices. A study conducted among secondary school children in a district in Bangladesh reported that while most students were aware of common causes of dental problems, only a minority practised brushing twice daily and very few sought regular dental care⁶. Similar findings were observed among school-going adolescents in Sylhet district, where moderate knowledge levels coexisted with poor oral hygiene status in a considerable proportion of students⁷. Another study from Rangpur highlighted that despite awareness of the harmful effects of sugary foods and poor oral hygiene, consistent preventive practices were not universally followed⁸. These findings are consistent with international evidence demonstrating that adolescents often show a discrepancy between oral health knowledge and actual practices. Studies from other low-resource settings have shown that socio-economic status, parental education, access to dental services, and cultural beliefs significantly influence oral health behaviours among school students⁹. This study aimed to assess the knowledge, attitudes, and practices related to oral health among secondary school students in Bangladesh.

Methods

This cross-sectional study was conducted among 458 secondary school students from selected urban and rural schools in Bangladesh over six months from January 2025 to June 2025. Students from classes VIII to X who were present during data collection and provided informed assent, along with parental consent, were included, while those with systemic illnesses affecting oral health or who were unwilling to participate were excluded. A multistage sampling technique was employed in this study, and schools were purposively selected to represent urban and rural settings, and students were randomly selected from class registers using proportional allocation. Data were collected using a pre-tested, structured, self-administered questionnaire in Bangla, adapted from prior studies, covering socio-demographic characteristics, knowledge, attitudes, and practices related to oral health. Attitude items were scored on a three-point Likert scale, and practices according to adherence to recommended behaviours, with total scores categorised as good, moderate, or poor. Data were analysed using SPSS version 25.0; descriptive statistics summarised frequencies and percentages, and associations between knowledge, attitude, socio-demographics, and oral hygiene practices were assessed using the chi-square test, with $p < 0.05$ considered statistically significant. Written informed consent from parents and students was obtained, with participation voluntary, confidential, and withdrawable at any time.

Results

Among the 458 students, the largest proportion was in the 15–16-year age group (44.1%), followed by the 12–14-year age group (38.4%). Female students slightly outnumbered males (52.2% vs 47.8%). Most respondents were from rural areas (58.3%), and representation across classes VIII-X was nearly uniform [Table 1].

Table 1. Socio-demographic characteristics of the study participants (n = 458)

Variable	Frequency (n)	Percentage (%)
Age (years)		
12–14	176	38.4
15–16	202	44.1
≥17	80	17.5
Sex		
Male	219	47.8
Female	239	52.2
Class		
Class VIII	142	31.0
Class IX	167	36.5
Class X	149	32.5
Residence		
Urban	191	41.7
Rural	267	58.3

Most students correctly identified that sugary foods increase dental caries (84.9%) and that poor oral hygiene causes tooth decay (76.6%). Knowledge regarding fluoride use was comparatively low (46.7%), indicating gaps in preventive awareness [Figure 1].

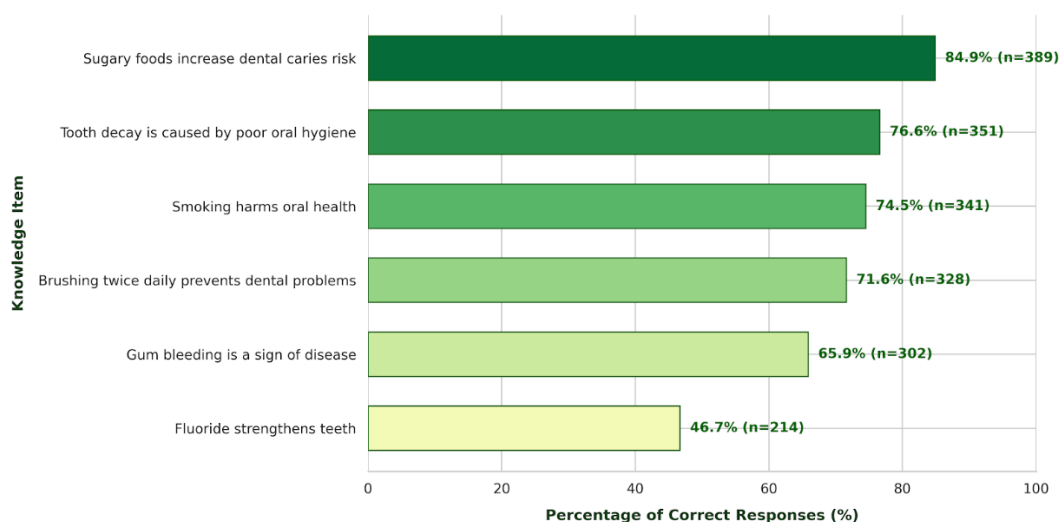


Figure 1: Knowledge regarding oral health among respondents (n = 458)

Table 2. Attitudes toward oral health among respondents (n = 458)

Attitude statement	Agree n (%)
Oral health is as important as general health	372 (81.2)
Regular dental check-ups are necessary	267 (58.3)
Dental problems should be treated early	344 (75.1)
Brushing teeth is a personal responsibility	401 (87.6)
Visiting a dentist is only needed when pain occurs	162 (35.4)

A large majority agreed that oral health is important (81.2%) and that brushing is a personal responsibility (87.6%). However, only 58.3% believed regular dental check-ups were necessary, and 35.4% still perceived dental visits as pain-driven [Table 2].

Table 3: Oral health practices among respondents (n = 458)

Practice variable	Frequency (n)	Percentage (%)
Brushing frequency		
Once daily	241	52.6
Twice daily	183	40.0
≥3 times/day	34	7.4
Use of toothpaste	413	90.2
Use of fluoridated toothpaste	198	43.2
Dental visit in the last 12 months	146	31.9
Rinse your mouth after meals	219	47.8

More than half of the students brushed once daily (52.6%), while 40.0% brushed twice daily. Although 90.2% used toothpaste, only 43.2% reported using fluoridated toothpaste. Less than one-third (31.9%) had visited a dentist in the past year [Table 3].

Good attitude (56.3%) was more common than good knowledge (47.8%) and practice (37.3%). Nearly one-third of students demonstrated poor oral health practices (30.1%), indicating a gap between awareness and behaviour [Figure 2].

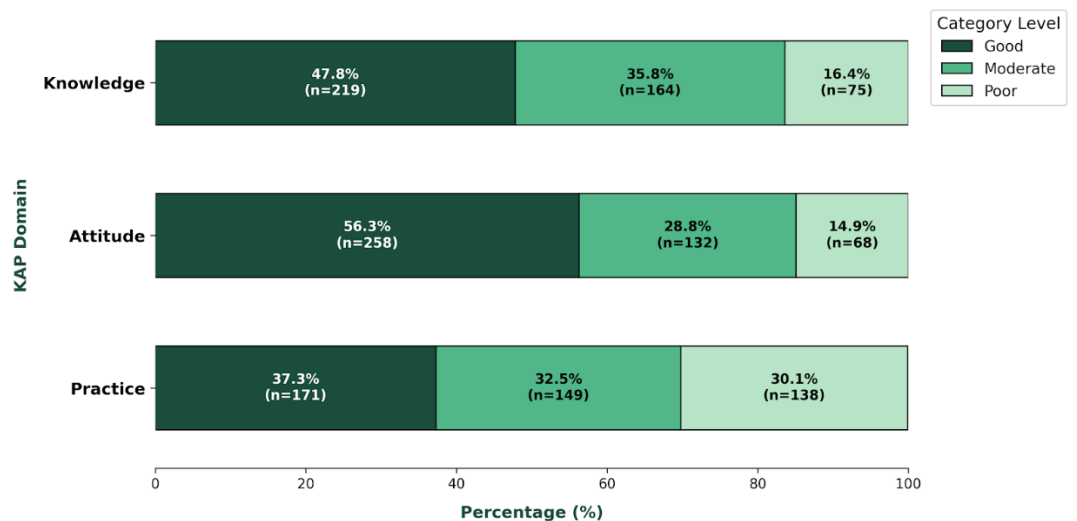


Figure 2: Overall knowledge, attitude, and practice levels (n = 458)

A statistically significant association was observed between oral health knowledge level and oral hygiene practice ($p < 0.001$). Students with good knowledge demonstrated a higher proportion of good oral hygiene practices (63.0%) than those with moderate (42.1%) or poor (25.3%) knowledge [Table 4].

Table 4. Association between oral health knowledge level and oral hygiene practice (n = 458)

Knowledge level	Good practice n (%)	Poor practice n (%)	Total	p-value
Good (n = 219)	138 (63.0)	81 (37.0)	219	<0.001
Moderate (n = 164)	69 (42.1)	95 (57.9)	164	
Poor (n = 75)	19 (25.3)	56 (74.7)	75	
Total	226 (49.3)	232 (50.7)	458	

Oral hygiene practice differed significantly according to attitude toward oral health ($p < 0.001$). Students with a positive attitude were more likely to exhibit good practices (62.4%), while poor practices predominated among those with neutral (65.2%) and negative attitudes (72.1%) [Table 5].

Table 5. Association between oral health attitude and oral hygiene practice (n = 458)

Attitude level	Good practice n (%)	Poor practice n (%)	Total	p-value
Positive (n = 258)	161 (62.4)	97 (37.6)	258	<0.001
Neutral (n = 132)	46 (34.8)	86 (65.2)	132	
Negative (n = 68)	19 (27.9)	49 (72.1)	68	
Total	226 (49.3)	232 (50.7)	458	

Female students demonstrated significantly better oral hygiene practices compared to males (55.6% vs 42.5%, $p = 0.005$). Similarly, students from urban areas showed a higher prevalence of good practices (58.6%) than those from rural areas (42.7%), and the association was statistically significant ($p = 0.001$) [Figure 3].

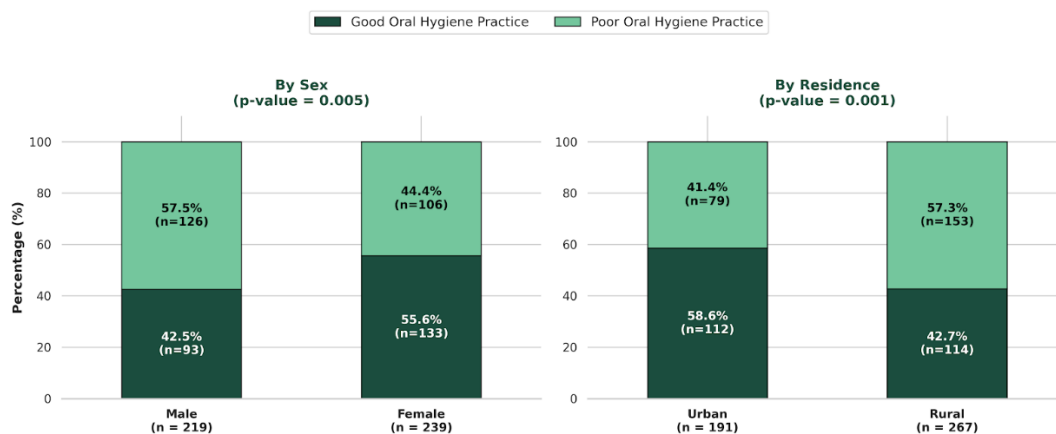


Figure 3: Association between socio-demographic variables and oral hygiene practice (n = 458)

Discussion

Regarding socio-demographic characteristics, the majority of participants were aged 15–16 years, with a slight female predominance and a higher proportion from rural areas. This age distribution is consistent with secondary school-based surveys conducted in Bangladesh. Ahmed et al. reported a similar student population aged 14–16 years in Sirajganj district, reflecting comparable school enrollment patterns¹⁰. The higher rural representation in our study may partly explain the lower levels of preventive practices observed, as rural residence has been linked to reduced access to oral health services¹¹. In terms of oral health knowledge, our study showed that 84.9% of students recognised the role of sugary foods in dental caries and 76.6% identified poor oral

hygiene as a cause of tooth decay, while knowledge about fluoride was notably lower (46.7%). Sony et al. reported that approximately 70% of adolescents in Sylhet district were aware of the relationship between sugar intake and dental caries, but fewer than half understood the protective role of fluoride, findings that closely mirror ours⁷. Similarly, Hayet et al. observed adequate general awareness but limited understanding of preventive agents among secondary school students in Rangpur⁸. These comparisons suggest that while basic oral health concepts are widely known, preventive knowledge remains insufficient. Attitudinal assessment demonstrated that 81.2% of students considered oral health as important as general health, yet only 58.3% supported regular dental check-ups. In a school-based intervention study in Bangladesh, Haque et al. reported that although most adolescents acknowledged the importance of oral health, fewer than two-thirds perceived routine dental visits as necessary before education⁵. This indicates a persistent perception of dental care as symptom-driven rather than preventive, consistent with our results. Oral hygiene practices were less satisfactory: only 40.0% brushed twice daily, and 31.9% had visited a dentist in the preceding year. Ahmed et al. found that approximately one-third of secondary school children brushed twice daily and that less than 30% had ever sought dental care, findings that closely align with our observations¹⁰. Comparable findings were reported by Sony et al., who documented infrequent dental visits among Bangladeshi adolescents despite reasonable levels of knowledge⁷. These patterns reinforce the presence of a pronounced knowledge–practice gap. In the present study, nearly half of the respondents demonstrated good oral health knowledge (47.8%), while 35.8% had moderate knowledge and 16.4% exhibited poor knowledge. This distribution suggests that although a substantial proportion of secondary school students possess basic awareness of oral health concepts, important knowledge gaps persist. Ahmed et al. reported that approximately 45% of secondary school students in Sirajganj district achieved a good knowledge score, with the remainder showing moderate to poor understanding of oral hygiene principles¹⁰. The association analyses further strengthened this observation. Students with strong knowledge were significantly more likely to practice good oral hygiene, and positive attitudes were also strongly associated with better oral hygiene practices. Haque et al. reported a significant post-intervention improvement in brushing frequency among students with higher knowledge and positive attitudes, supporting the behavioural linkage observed in our study⁵. Additionally, female students and urban residents demonstrated better practices, a trend also documented by Peres et al., who attributed such differences to socio-cultural and access-related factors¹².

Limitations of the study

This study has some limitations. Being cross-sectional, it cannot establish causal relationships between knowledge, attitudes, and practices. Data were self-reported, which may introduce recall or social desirability bias. Moreover, the study was conducted in a limited number of schools, potentially limiting generalizability to all Bangladeshi adolescents.

Conclusion

This study demonstrates that secondary school students in Bangladesh have moderate knowledge and generally positive attitudes toward oral health, yet preventive practices remain suboptimal, with many students brushing less than twice daily and rarely visiting a dentist. Knowledge and attitude were significantly associated with better oral hygiene practices, and female and urban students exhibited higher adherence to recommended behaviours.

Recommendation

Based on the findings, it is recommended that school-based oral health education programs be implemented to improve students' knowledge and promote proper oral hygiene practices.

Emphasis should be placed on habit formation, including twice-daily brushing, and on encouraging regular dental check-ups.

Ethical approval: Not applicable

Funding: No funding sources

Competing interests: The author declares that they have no competing interests.

References

1. **Petersen PE**, Ogawa H. The global burden of periodontal disease: towards integration with chronic disease prevention and control. *Periodontology* 2000. 2012 Oct;60(1):15-39.
2. **World Health Organisation**. WHO clinical consortium on healthy ageing 2023: meeting report, Geneva, Switzerland, 5-7 December 2023. World Health Organisation; 2024 Sep 6.
3. **Gambhir RS**, Nirola A, Gupta T, Sekhon TS, Anand S. Oral health knowledge and awareness among pregnant women in India: A systematic review. *Journal of Indian Society of Periodontology*. 2015 Nov 1;19(6):612-7.
4. **Kwan SY**, Petersen PE, Pine CM, Borutta A. Health-promoting schools: an opportunity for oral health promotion. *Bulletin of the World Health Organisation*. 2005 Sep;83(9):677-85.
5. **Haque SE**, Rahman M, Itsuko K, Mutahara M, Kayako S, Tsutsumi A, Islam MJ, Mostofa MG. Effect of a school-based oral health education in preventing untreated dental caries and increasing knowledge, attitude, and practices among adolescents in Bangladesh. *BMC oral health*. 2016 Mar 25;16(1):44.
6. **Bhuiyan MA**, Anwar HB, Anwar RB, Ali MN, Agrawal P. Oral hygiene awareness and practices among a sample of primary school children in rural Bangladesh. *Dentistry journal*. 2020 Apr 16;8(2):36.
7. **Sony SA**, Haseen F, Islam SS, Chowdhury SF. Knowledge and practice of oral health and hygiene, and oral health status among school-going adolescents in a rural area of Sylhet District, Bangladesh.
8. **Hayet SA**, Islam MH, Awal M. Knowledge on oral hygiene and oral health status among the secondary school students. *Int. J. Dent. Med*. 2015 Jun;1:17-21.
9. **Mohamud A**, Ashenafi W, Mezmur H, Alemu A, Adem HA, Usso AA. Early Childhood Caries Among Kindergarten School Children in Harar Town, Eastern Ethiopia. *Sage Open Paediatrics*. 2025 Sep;12:30502225251377147.
10. **Ahmed GI**, Jebin FM, Habib MA, Islam MN, Zaman S, Melar SH, Arafat MN. Oral Health Knowledge and Practice Behaviour among Secondary School Children in Shahzadpur Upazilla, Siraganj, Bangladesh. *KYAMC Journal*. 2023 Oct 10;14(02):64-8.
11. **Petersen PE**, Kwan S. Equity, social determinants and public health programmes—the case of oral health. *Community dentistry and oral epidemiology*. 2011 Dec;39(6):481-7.
12. **Damle SG**, Patil A, Jain S, Damle D, Chopal N. Effectiveness of supervised toothbrushing and oral health education in improving oral hygiene status and practices of urban and rural school children: A comparative study. *Journal of the international society of preventive and Community Dentistry*. 2014 Sep 1;4(3):175-81.

To cite: Zannat F, Rahman MM, Paul KC. Knowledge, Attitudes, and Practices on Oral Health Among Secondary School Students in Bangladesh: A Cross-sectional Study. *SSB Global Journal of Medical Science*. 2026 Mar 27; 7(01):12-8. Available from: <https://doi.org/10.61561/ssbgjms.v7i01.140>

Copyright: © 2025 by the authors. Licensee SSB Global Journal of Medical Science. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).