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Original Article

Oral Hygiene Behaviors and Oral Health-Related Quality of Life among Senior Secondary School Students in Urban Nigeria: Findings from a Large Cross-Sectional Survey

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ABSTRACT

Despite ongoing efforts, recent data indicate that periodontal conditions remain widespread among adolescents. This highlights the continued need for school-based strategies that encourage effective oral hygiene routines. Establishing baseline information on adolescents' hygiene behaviors and how these behaviors relate to their oral-health-related quality of life is essential for planning targeted interventions. Because oral health-related quality of life reflects the extent to which oral conditions interfere with daily functioning, it offers a comprehensive way to involve individuals in decisions about their oral care and their willingness to maintain preventive habits. To determine how oral hygiene behaviors influence the oral-health-related quality of life of adolescents. A cross-sectional survey was administered to 1,800 adolescents aged 14–18 years enrolled in 36 Senior Secondary Schools across metropolitan Ibadan, Nigeria. Information was obtained using a self-completed questionnaire covering sociodemographic details, oral hygiene behaviors, and OHRQoL assessed with COHIP-SF19. Analyses were conducted with SPSS version 25, adopting a significance level of $p < 5\%$. Participants had a mean age of 15.16 (±1.16) years. A total of 1,094 (60.3%) brushed their teeth at least twice daily, 126 (7.0%) brushed after meals, and 1,519 (84.4%) replaced their tooth-cleaning materials every three months or sooner. Additionally, 1,215 (67.5%) spent three minutes or longer brushing. Only 238 (13.2%) practiced interdental cleaning and 137 (7.6%) used dental floss. Reported OHRQoL scores ranged from 9–76, with 1,612 (93.5%) experiencing at least one negative impact. Brushing at least twice daily was associated with better OHRQoL (OR = 1.6, 95% CI = 1.1–2.4, $p = 0.025$), while those who did not clean interdentally were more likely to report better OHRQoL (OR = 2.8, 95% CI = 1.2–6.5, $p = 0.014$). Overall, oral hygiene behaviors were below ideal standards. Adolescents who brushed twice or more per day reported fewer impacts on OHRQoL, whereas those who performed interdental cleaning showed greater impacts than their peers.

Keywords: Adolescents, Oral health, Oral hygiene, Habits, School, Quality of life

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Introduction

The World Health Organization describes health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity" [1], underscoring the value of self-reported indicators in evaluating health. Such indicators can be captured through Health-Related Quality of Life (HQoL) measures, which summarize how health influences day-to-day functioning [2], or through patient-reported outcomes (PROs) that document individuals' perceptions of how specific conditions affect their lives [3]. Likewise, Oral-Health-Related Quality of Life (OHRQoL) reflects the degree to which dental conditions interfere with overall quality of life, with dental PROs offering a focused assessment for oral conditions [3]. Because oral health contributes meaningfully to general well-being [4, 5], OHRQoL

serves not only as a marker of HQoL [6] but also as a guide for understanding how people choose and maintain oral care practices [6, 7].

Oral conditions—including dental caries, periodontal diseases, and halitosis—are linked with diminished OHRQoL [8]. Globally, these problems are highly prevalent, particularly in Low- and Middle-Income Countries (LMICs) [9, 10], where limited access to care exacerbates disease burden when compared with High-Income Countries (HICs) [9]. Yet many of the most common oral diseases can be prevented through routine behaviors such as twice-daily brushing with an appropriate toothbrush, the use of fluoride toothpaste, correct brushing technique, consuming a diet low in free sugars, and attending regular dental checkups [11-13].

Although behaviors such as smoking, diet, and dental service use have been connected to OHRQoL among young adults [14], far less is understood about how daily hygiene practices affect OHRQoL among adolescents—a group transitioning toward adult independence. This knowledge gap is particularly important given the emerging evidence that periodontal problems are increasing in adolescents [15]. Schools, where adolescents spend substantial time, have been proposed as key platforms for promoting oral hygiene through health-promoting school initiatives [16, 17]. Although these programs have not yet been formally implemented nationwide in Nigeria [18], many informal school-based dental education activities have been reported [19-21]. However, the effectiveness of these efforts remains unclear. Therefore, it is necessary to assess current hygiene practices among school-going adolescents and determine how these practices influence OHRQoL. Such information can guide revisions of existing education programs and national oral health policies and can strengthen the case for implementing structured oral health programs in schools.

Consequently, this study examined the oral hygiene habits of adolescents in Ibadan, Nigeria, and evaluated how these behaviors affect their OHRQoL. The working hypothesis was that better hygiene habits would be associated with improved OHRQoL.

Materials and Methods

Study design and settings

This investigation adopted a cross-sectional approach and involved adolescents enrolled in randomly chosen public secondary schools located in Ibadan, Nigeria.

Participants

A total of 1,800 students took part in the study. They were selected through a multistage sampling process. First, four Local Government Areas within metropolitan Ibadan were chosen at random using opaque sealed envelopes by an independent assistant. Next, nine schools were picked from each selected Local Government Area through another ballot draw conducted by a different assistant. In the final stage, 50 learners from each school's Senior Secondary School I classes were identified using a random-number table. Only students who returned signed parental consent forms and provided personal assent were included. Those who were sick or absent during data collection were excluded.

Study size

Using STATA, the required sample size was estimated as 1,460, based on a design effect of 0.78, a power of 80%, and a 5% significance level. After adjusting for an anticipated 15% non-response rate, the minimum sample increased to 1,717. Assuming at least 50 students per school, 36 schools were calculated, yielding a final sample of 1,800 participants.

Variables

The primary outcome measured was OHRQoL. Oral hygiene behaviors served as the main explanatory variables.

Data sources and measurements

Approval for the study was granted by the Oyo State Review Board (Ref No: AD 13/479/743). After obtaining authorization from school principals, the research team met with students in either classrooms or assembly halls, depending on availability. The study aims and procedures were explained, and students were encouraged to ask questions. Consent forms were then distributed for parents to review and sign.

Information was gathered using a self-completed questionnaire. Sociodemographic items covered age, sex, and parents' occupations. The latter was regrouped into skilled, unskilled, and dependent categories following a locally adapted version of the Office of Population Censuses and Surveys classification [15]. Oral hygiene–related questions, adapted from WHO guidelines [22], included the type of tooth-cleaning tool used, brushing frequency, and toothbrush texture (soft, medium, hard/very hard). For multivariate analysis, toothbrush type was dichotomized as "medium-textured" versus "other." Additional items assessed the timing of brushing ("after meals" versus alternatives), brushing duration ("three minutes or longer" vs. "under three minutes"), whether interdental cleaning was practiced ("Yes/No"), the type of

interdental aid used (dental floss, interdental brush, or other implements such as toothpicks or blades), and history of dental clinic visits ("Yes/No").

OHRQoL was measured using the COHIP-SF19 instrument [23]. The tool contains 19 items: 17 negatively phrased and 2 positive. Responses were scored on a 0–4 scale ("never" to "almost all the time"). Scores for the 17 negatively worded questions were reversed to compute an overall score, which ranged from 0 to 76, with higher values indicating better OHRQoL. For analysis, responses were recoded into "no impact" for "never" and "impact" for all other options. The questionnaire was piloted among 50 students in a different school not included in the main study.

Questionnaire administration took place with students seated at their desks, with research assistants present to provide clarification. To evaluate test–retest reliability, the survey was repeated after one week among 20 randomly selected students.

Bias

To reduce potential selection bias, participants were chosen through probability-based simple random sampling rather than non-random methods.

Data management and statistical methods

Analysis of the dataset was performed with SPSS version 25. Categorical variables were summarized using frequency distributions and percentages, while numerical variables such as age and COHIP-SF19 scores were described using means and standard deviations. Chi-square tests were applied to explore relationships between oral hygiene behaviors and the adolescents' sociodemographic factors. The same test was used to examine associations between OHRQoL (categorized as "impact" vs. "no impact") and oral hygiene indicators. To identify which hygiene practices were related to OHRQoL, binary logistic regression was conducted, including only variables with significance levels of 0.5 or below in preliminary tests. Both crude Odds Ratios (OR) and Adjusted Odds Ratios (AOR) were reported. Statistical significance was defined as a p-value <5%.

Results and Discussion

All 1,800 students who were approached agreed to participate. The questionnaire demonstrated strong internal consistency, yielding a Cronbach's alpha of 0.873, with values ranging from 0.835 to 0.870 when individual items were removed.

Sociodemographic characteristics of the study participants

Participants' mean age was 15.16 ± 1.16 years. All were in the tenth grade, and 930 (51.7%) were male. A large proportion, 1,569 (87.2%), had parents in the unskilled occupational category, while 167 (8.3%) belonged to skilled workers and 64 (3.6%) had parents classified as dependents.

Oral hygiene habits

Most adolescents (1,726; 96%) brushed their teeth using a toothbrush. Among them, 832 (46.1%) used a medium-textured brush. Toothbrushing twice a day or more frequently was reported by 1,094 (60.3%), and 126 (7.0%) brushed after meals. Additionally, 1,519 (84.4%) replaced their cleaning tool every three months or sooner. A total of 1,215 (67.5%) brushed for three minutes or longer. Only 238 (13.2%) practiced interdental cleaning, and 137 (7.6%) used dental floss. Visits to a dentist were reported by 82 (4.6%) participants **(Table 1)**.

Table 1. Oral hygiene habits of the adolescents.

Oral Hygiene Practice	Category	n (%)
Tooth-cleaning material used	Toothbrush and toothpaste	1,726 (95.9)
	Chewing stick	15 (0.8)
	Cotton wool or other materials	59 (3.3)
Type of toothbrush	Soft	394 (21.9)
	Medium	830 (46.1)
	Hard / Very hard / No toothbrush	576 (31.9)
Frequency of tooth cleaning per day	Less than twice daily	706 (39.2)
	Twice or more daily	1,094 (60.8)
Timing of tooth cleaning	After meals	126 (7.0)
	Before meals	1,674 (93.0)
Frequency of changing tooth-cleaning material	Every 3 months or less	1,519 (84.4)
	More than 3 months	281 (15.6)
Duration spent cleaning teeth	3 minutes or more	1,215 (67.5)
	Less than 3 minutes	585 (32.5)
Interdental cleaning performed	Yes	238 (13.2)
	No	1,562 (86.8)
Interdental cleaning aid used	Dental floss	137 (7.6)

	Broom stick, toothpick, knife, matchstick or none	1,663 (92.4)
History of dental visit	Yes	82 (4.6)
	No	1,718 (95.4)

Association between sociodemographic characteristics and oral hygiene habits

As shown in **Table 2**, female students were more likely than males to clean interdentally (16.0% vs. 10.6%, $X^2 = 11.137$, $p = 0.001$). Conversely, males had a higher rate of dental service use (5.7% vs. 3.3%, $X^2 = 5.789$, $p = 0.016$). Students with parents in skilled occupations brushed more frequently than those whose parents were unskilled or dependent (65.9% vs. 60.9% vs. 43.8%, $X^2 = 9.615$, $p = 0.008$). Similarly, adolescents with skilled-worker parents were more likely to use medium-textured toothbrushes (53.3% vs. 46.0% vs. 31.3%, $X^2 = 9.171$, $p = 0.010$). Those with slightly younger ages tended to brush more often (15.1 ± 1.1 vs. 15.3 ± 1.3, $t = 2.501$, $p = 0.012$), brush after meals (15.0 ± 1.1 vs. 15.2 ± 1.12, $t = 2.062$, $p = 0.039$), and spend longer brushing (15.3 ± 1.1 vs. 15.1 ± 1.2, $t = 2.310$, $p = 0.021$).

Table 2. Oral hygiene habits and sociodemographic characteristics of the adolescents.

Oral Hygiene Practice	Category	Male	Female	χ^2	p-value	Occupational Class – Skilled	Unskilled	Dependent	χ^2	p-value
Type of toothbrush	Medium	426 (45.8%)	404 (46.4%)	0.072	0.789	89 (53.3%)	721 (46.0%)	20 (31.3%)	9.171	0.010*
	Other types	504 (54.2%)	466 (53.6%)			78 (46.7%)	848 (54.0%)	44 (68.8%)		
Frequency of tooth cleaning per day	<2 times daily	381 (41.0%)	325 (37.4%)	2.459	0.117	57 (34.1%)	613 (39.1%)	36 (56.3%)	9.615	0.008*
	≥2 times daily	549 (59.0%)	545 (62.6%)			110 (65.9%)	956 (60.9%)	28 (43.8%)		
Timing of tooth cleaning	Before meals	862 (92.7%)	812 (93.3%)	0.287	0.592	153 (91.6%)	1,460 (93.1%)	61 (95.3%)	1.023	0.600
	After meals	68 (7.3%)	58 (6.7%)			14 (8.4%)	109 (6.9%)	3 (4.7%)		
Frequency of changing cleaning material	>3 months	144 (15.5%)	137 (15.7%)	0.024	0.878	23 (13.8%)	245 (15.6%)	13 (20.3%)	1.502	0.472
	≤3 months	786 (84.5%)	733 (84.3%)			144 (86.2%)	1,324 (84.4%)	51 (79.7%)		
Duration of tooth cleaning	≥3 minutes	612 (65.8%)	603 (69.3%)	2.516	0.113	110 (65.9%)	1,069 (68.1%)	36 (56.3%)	4.181	0.124
	<3 minutes	318 (34.2%)	267 (30.7%)			57 (34.1%)	500 (31.9%)	28 (43.8%)		
Interdental cleaning	Yes	99 (10.6%)	139 (16.0%)	11.137	0.001*	20 (12.0%)	210 (13.4%)	8 (12.5%)	0.291	0.865
	No	831 (89 .4%)	731 (84.0%)			147 (88.0%)	1,359 (86.6%)	56 (87.5%)		
Interdental cleaning aid	Dental floss	61 (6.6%)	76 (8.7%)	3.028	0.082	14 (8.4%)	117 (7.5%)	6 (9.4%)	0.478	0.788
	Other aids / none	869 (93.4%)	794 (91.3%)			153 (91.6%)	1,452 (92.5%)	58 (90.6%)		
Utilization of dental services	Yes	53 (5.7%)	29 (3.3%)	5.785	0.016*	8 (4.8%)	71 (4.5%)	3 (4.7%)	0.027	0.987
	No	877 (94.3%)	841 (96.7%)			159 (95.2%)	1,498 (95.5%)	61 (95.3%)		

Oral health-related quality of life

Most respondents (93.7%) indicated at least one adverse impact of oral health on daily functioning. COHIP-SF19 scores ranged from 9 to 76, with an average of 61.0 ± 12.0. The most frequently affected item was "pain" reported by 860 (47.8%), followed by "discolored teeth" (743; 41.3%). The least affected items were "missing school" (302; 18.3%) and "avoiding speaking/reading aloud because of oral issues" (348; 19.3%) **(Table 3)**.

Table 3. COHIP-SF 19 OHRQoL items impacted upon by oral health.

COHIP-SF 19 Item (experienced at least "sometimes" in the past 3 months)	n	%
Pain in the teeth or toothache	860	47.8
Discolored teeth or spots on teeth	743	41.3
Crooked teeth or spaces between teeth	540	30.0
Bad breath	549	30.5
Bleeding gums	640	35.6
Difficulty eating foods you would like to eat	590	32.8
Trouble sleeping	445	24.7
Difficulty saying certain words	484	26.9
Difficulty keeping your teeth clean	519	28.8
Feeling unhappy or sad	640	35.6
Worries or anxiety	650	36.1
Avoiding smiling or laughing with others	563	31.3
Feeling that you look different	586	32.6
Worried about what other people think about your teeth or mouth	565	31.4
Being teased or bullied by other children because of your teeth/mouth	405	22.5
Missed school for any reason because of your teeth or mouth	302	18.8
Not wanting to speak or read out loud in class because of teeth/mouth	348	19.3
Feeling confident*	642	35.7
Feeling attractive (good-looking)*	581	32.3

Associations between oral hygiene habits and oral health-related quality of life

A greater proportion of adolescents who brushed twice or more daily reported no OHRQoL impact compared with those who brushed less often (7.3% vs. 4.7%, $X^2 = 5.077$, $p = 0.024$) **(Table 4)**. By contrast, fewer adolescents who practiced interdental cleaning reported being impact-free (2.5% vs. 6.9%, $X^2 = 6.578$, $p = 0.010$).

Other hygiene behaviors did not show statistically significant associations, although trends suggested that medium-textured toothbrush use and brushing after meals were linked with fewer OHRQoL impacts **(Table 4)**.

Table 4. Bivariate analysis of impact of oral hygiene habits on OHRQoL.

Oral hygiene practices	COHIP-SF 19 (Oral Health-Related Quality of Life)				
		Impact n (%)	No impact n (%)	χ^2	p-value
Type of toothbrush	Soft	371 (94.2)	23 (5.8)	3.166	0.205
	Medium	771 (92.7)	61 (7.3)		
	Very hard / hard / no toothbrush	545 (94.9)	29 (5.1)		
Frequency of tooth brushing	Less than twice a day	673 (95.3)	80 (4.7)	5.077	0.024*
	Twice a day or more	1,014 (92.7)	33 (7.3)		
Timing of tooth brushing	After meals	117 (92.9)	9 (7.1)	0.172	0.678
	Before meals	1,570 (93.8)	104 (6.2)		
Toothbrush replacement interval	≤3 months	1,421 (93.5)	98 (6.5)	0.500	0.480
	>3 months	266 (94.7)	15 (5.3)		
Duration of each brushing session	≥3 minutes	1,146 (94.3)	69 (5.7)	2.278	0.131
	<3 minutes	541 (92.5)	44 (7.5)		
Use of interdental cleaning	Yes	232 (97.5)	6 (2.5)	6.578	0.010*
	No	1,455 (93.1)	107 (6.9)		
Type of interdental cleaning aid	Dental floss	129 (94.2)	8 (5.8)	0.048	0.826
	Other aids	1,558 (93.7)	105 (6.3)		
Regular dental visits	Yes	5 (6.1)	77 (93.9)	0.005	0.945
	No	108 (6.3)	1,610 (93.7)		

*Statistically significant; X^2, Chi-square statistics.

Multivariate analysis indicated that adolescents who brushed their teeth more often (at least twice daily) had higher odds of reporting better OHRQoL (OR = 1.61, 95% CI = 1.1–2.4, p = 0.025). In addition, those who did not practice interdental cleaning were also more likely to report improved OHRQoL compared with their peers (OR = 2.8, 95% CI = 1.2–6.5, p = 0.014) **(Table 5)**.

Table 5. Multivariate analysis of oral hygiene practices and OHRQoL.

Oral hygiene practice		Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Type of toothbrush used	Medium	0.7 (0.5–1.6)	0.084	0.7 (0.5–1.1)	0.108
	Very hard/hard/no toothbrush / Soft (Ref.)	1		1	
Frequency of tooth brushing	Twice or more daily	1.6 (1.1–2.4)	0.025*	1.6 (1.0–2.4)	0.032*
	Less than twice daily (Ref.)	1		1	
Toothbrush/change of cleaning material	≤3 months or when bristles frayed	1.2 (0.7–2.1)	0.480	1.2 (0.7–2.2)	0.466
	>3 months (Ref.)	1		1	
Duration of each brushing session	≥3 minutes	0.7 (0.5–1.1)	0.132	0.7 (0.5–1.1)	0.109
	<3 minutes (Ref.)	1		1	
Use of interdental cleaning	No	2.8 (1.2–6.5)	0.014*	2.0 (1.3–6.9)	0.010*
	Yes (Ref.)	1		1	

*Significant at p < 0.05; OR, Odds Ratio; AOR, Adjusted Odds Ratio; 95% CI, 95% Confidence Interval.

Findings from this investigation revealed that many adolescents maintained frequent toothbrushing routines, often brushing before meals, and most replaced their oral-cleaning tools within three-month intervals or sooner. Only a minority performed interdental cleaning or used dental floss; several resorted to unsafe items such as knives, suggesting generally inadequate oral hygiene practices. Better oral hygiene behaviors were more common among adolescents with parents in higher occupational categories and among younger participants. Males were more likely to utilize dental care services, whereas females showed a greater tendency toward interdental cleaning. A substantial proportion of adolescents reported compromised OHRQoL, with "toothache" being the most common complaint and "missing school" the least mentioned. Frequent brushing and interdental cleaning emerged as oral hygiene behaviors significantly linked to OHRQoL. While the findings partly confirm the assumption that positive hygiene habits enhance OHRQoL—supported by the association with brushing frequency—interdental cleaning was paradoxically associated with poorer OHRQoL, and other habits showed no measurable influence.

The perfect participation rate (100%) following consent suggests strong interest among the adolescents in oral-health-related matters. Although earlier work has primarily focused on socioeconomic indicators, clinical oral conditions, or psychological aspects in relation to adolescent OHRQoL, to our knowledge, this study is the first to specifically explore how routine oral hygiene behaviors influence OHRQoL using the COHIP-SF 19. The sample size was substantial, and the sampling approach described here can be reproduced in future research. The Cronbach's alpha obtained exceeded the recommended threshold of 0.7 [24], reflecting good internal consistency and indicating that oral hygiene behaviors may serve as predictors of OHRQoL when assessed with COHIP-SF 19. Nevertheless, additional studies are required to confirm these results.

A limitation is that the study involved only public secondary-school students, so the findings might not fully represent adolescents attending private institutions. Despite this, the study provides essential baseline information—supported by a robust sample—that can guide future intervention planning, especially considering that oral-health programs in Nigeria typically begin with students from lower socioeconomic backgrounds, who primarily attend public schools.

The effectiveness of oral hygiene practices is influenced by factors such as brushing duration and frequency, type of oral-care products used, and interdental cleaning habits. Most adolescents relied on toothbrushes and toothpaste, which aligns with previous observations from Southwestern Nigeria [16, 25]. Surprisingly, about three percent lacked regular cleaning materials or used cotton wool. Although cotton wool usage among younger adolescents has been noted locally [16], its use by older adolescents is

concerning, given their usual emphasis on personal appearance [26]. Further inquiry into the reasons for this is warranted, and promoting affordable and appropriate oral-cleaning materials should be emphasized in school-based programs. This pattern may also be linked to the predominantly low socioeconomic background of many parents in this study.

Sixty percent of adolescents brushed at least twice daily, which is encouraging, especially since previous Nigerian studies reported much lower rates: 3.3% in the same city [16], 31.5% [25], and 8.7% in a semi-urban Southwestern region [27]. Even lower rates have been recorded in countries such as Malta and parts of Eastern and Southern Europe [28]. In contrast, much higher frequencies—80–89%—have been documented in Switzerland [28], with 89.2% reported in Indonesia [29]. Variability in these figures likely reflects differences in socioeconomic status, national income levels, and the age ranges studied, as lower social class, younger age, and lower-income settings have been associated with reduced brushing frequency [28, 30].

More than half of the adolescents devoted sufficient time to brushing, and up to 84.4% adhered to the recommended schedule for replacing their tooth-cleaning tools. This finding is positive, especially when compared with a previous report from the same city, which recorded a much lower proportion (39.2%) [16]. The improvement may reflect informal oral-health awareness initiatives within schools or differences in participant age, as older adolescents typically demonstrate stronger preventive behaviors [25].

Only 7.0% brushed after meals, and 7.6% used dental floss as their interdental cleaning method. These practices suggest inadequate hygiene, as brushing after eating and cleaning between the teeth are essential for effective plaque removal. Higher floss-use rates than those documented here have been found among adolescents residing in suburban Nigerian communities [25, 27] and in France [31]. The low uptake of interdental cleaning in this study may stem from limited awareness of floss and related products. This underscores the need for school-based health education to emphasize the benefits of post-meal brushing, interdental hygiene, and proper cleaning tools. Additionally, manufacturers of toothbrushes could be encouraged to bundle interdental cleaning aids in kits offered to adolescents at affordable prices.

In this study, female participants demonstrated more frequent brushing, a pattern noted in earlier research [28-30]. Females generally display greater health awareness, including oral health, and often achieve better oral health outcomes [32]. Interestingly, male adolescents made more use of dental services than females. This might result from problem-driven care-seeking behaviors, which are common both locally and elsewhere [33, 34]. It may also reflect the relatively good oral-health attitudes documented among boys in this city [16] and their higher service-utilization rates in another suburban Nigerian sample [25]. Adolescents with parents in higher occupational categories brushed more regularly than others. Similar associations between socioeconomic status and oral-hygiene practices have been documented [28, 30, 35, 36]. Social class should therefore be considered when developing school-based oral-health promotion initiatives. Providing accessible cleaning materials and creating affordable alternatives suitable for adolescents from lower-income groups may help reduce existing disparities.

The burden of oral-health–related impacts on QoL was high, with over 90% reporting at least one negative effect. This exceeds previous estimates among adolescents from this region: 21.1% in those aged 9–12 years [37], 21.4% among 6–15-year-olds [38], 41.4% in adolescents aged 10–13 years [39], and 51.5% in the 13–15-year age group [40]. Lower impacts of 57.4%–67.9% have been recorded in Albanian adolescents aged 16–19 years [41], and 57.8%–60.8% among Malaysian 10–11-year-olds [42]. Differences in oral-disease patterns and age distribution likely contribute to the variation. Older adolescents tend to be more health conscious [26], making them more likely to notice and report negative oral-health effects. The prominence of “toothache” as the most frequently cited COHIP-SF 19 item may also help explain the high engagement and perfect response rate observed.

Adolescents who brushed more often were more likely to report no adverse impact on their QoL compared with less frequent brushers. Regular brushing is an important protective habit that removes dental plaque—an initiating factor for caries and periodontal disease [43]. Conversely, adolescents who practiced interdental cleaning were more likely to report negative OHRQoL impacts. This may indicate underlying periodontal issues or food impaction, prompting the use of interdental cleaning. The use of harmful objects such as knives or broomsticks could further irritate gingival tissues, contributing to oral problems. Thus, interdental hygiene should remain a core element of oral-health education for adolescents. The frequency and timing of brushing were not related to OHRQoL. Although longer brushing and brushing after meals are inherently positive habits, their lack of association here may reflect the importance of technique, which is a critical determinant of plaque removal and disease prevention [43].

Conclusion

Overall, the adolescents exhibited suboptimal oral-hygiene behaviors. Those who brushed more frequently experienced fewer OHRQoL impacts, while adolescents who engaged in interdental cleaning reported more negative effects than their peers. Additional research—particularly qualitative studies exploring adolescents' perceptions of oral-hygiene routines and OHRQoL—would help clarify these relationships and strengthen future interventions.

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Conflict of Interest: None

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Ethics Statement: The studies involving human participants were reviewed and approved by Oyo State Ethics Review Committee. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

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