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Prevalence and Factors Associated with Hygiene Behaviours among In-School Adolescents in Ghana

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Abstract: (1) Background: Despite a global call to act to resolve communicable diseases caused by lack of clean water, sanitation, and hygiene, many people in low- and middle-income countries continue to die each year. In this study, we looked at in-school adolescents' oral and hand hygiene activities in Ghana, as well as the factors that influence them. (2) Methods: This was a cross-sectional study that utilised data on 1348 in-school adolescents from the 2012 global school-based health survey. Using Stata software version 14.2, descriptive and inferential statistics were used to analyze the data. All statistical analyses were considered significant at p-value < 0.05. (3) Results: The prevalence of good hygiene behaviour was 62.6% and 79.9% for good oral hygiene and good hand hygiene, respectively. In-school adolescents who were truant were 31% (AOR = 0.69, 95% CI = 0.51–0.92) and 28% (AOR = 0.72, 95% CI = 0.54–0.87), respectively, less likely to practise good hand and oral hygiene compared to those who were not. Adolescents whose parents supervised their homework, however, had higher probabilities of practising good hand (AOR = 2.30, 95% CI = 1.64–2.31) and oral (AOR = 2.34, 95% CI = 1.80–3.04) hygiene respectively. Adolescents aged 18 years and above were 1.33 times more likely to practice good oral hygiene than younger adolescents (AOR=1.33, 95% CI = 1.07–1.66). Adolescents who were bullied had lower odds of practicing good hand hygiene (AOR = 0.70, 95% CI = 0.52–0.94). (4) Conclusions: While good hygiene behaviour remains a major strategy in decreasing the prevalence of communicable diseases, the less than 65% prevalence of hand hygiene we observed in the current study is indicative of the country's inability to achieve water, hygiene and sanitation for all by the year 2030. To accelerate progress towards meeting the Sustainable Development Goal 6.2, there is a need for the implementation of innovative interventions which seek to promote good hygiene behaviours among adolescents and the expansion of existing interventions, such as the WASH initiative, in schools. Such interventions should focus more on younger adolescents, those who are truant, and adolescents who suffer from bullying in school.

Keywords: hand hygiene; hygiene behaviours; in-school adolescents; Ghana; oral hygiene

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1. Introduction

There has been a global call to act towards addressing diseases resulting from insufficient water, sanitation, and hygiene [1] because, the avoidance and control of communicable diseases continue to be a world challenge [2,3]. This is surprising given that the effectiveness of hygiene behaviour in the prevention of contagious diseases (such as diarrhoea, trachoma, schistosomiasis, infectious hepatitis, dental plaque and caries, periodontal disease, and other faecal-oral diseases) has been noted in the literature [3]. Good handwashing has been defined as "washing hands with soap and water after defecation and before eating food" [4]. Good oral hygiene has also been defined as brushing of teeth at least twice a day [5].

Even though bad hygiene practices in low- and middle-income countries (LMICs) can be avoided, active public health programmes must focus on identifying those who are most vulnerable [6]. As a result, research into the sociodemographic factors that influence hygiene behaviours, especially among adolescents, is pertinent.

Previous studies on the determinants of hygiene behaviour among adolescents have mostly been conducted in countries such as India [7,8], Saudi Arabia [9], and Lebanon [10], with the focus often being on oral hygiene [11–14]. Generally, male sex [15], low socioeconomic status [16], rural residence, smoking, alcohol and cannabis usage, insufficient exercise, and infrequent fruit and vegetable intake have all been linked to poor oral hygiene among adolescents in these studies. In addition, a few studies on hand hygiene [17] and sleep hygiene [18] have been conducted.

In the context of Africa, studies on hygiene behaviours include studies by Vivas et al. [19], Okemwa et al. [20], and Siziya et al. [15] in Ethiopia, Kenya, and Zambia, respectively. Okemwa et al. [20], and Siziya et al. [15], for instance, discovered that female students brushed their teeth more often than male students. Similar studies conducted in Ghana include Blay et al. [21], Danquah et al. [22], Annor and Baiden [23], Yawson and Hesse [24], Mariwah et al. [25], Monney et al. [26], and Scott et al. [27]. Monney et al. [26], who studied hand hygiene in School Feeding Program-affected schools in Ghana, is one of the studies that is directly linked to the current research. However, Monney et al. [26] were unable to provide a comprehensive picture of the factors associated with hygiene behaviours among in-school adolescents by focusing only on schools participating in the School Feeding Program. In order to fill this gap in the literature, we examined the correlates of hygiene behaviours among Ghanaian in-school adolescents aged 12–18 years, using data from the nationally representative Global School-Based Health Survey. The current research is important because it has the potential to establish priorities for successful hygiene initiatives at the school level. The findings could also be vital to the school health education programme.

2. Materials and Methods

2.1. Data Source

Data for this study came from the Global School-Based Health Survey (GSHS) of Ghana, which was conducted in 2012. The information was gathered as part of the GSHS, which was conducted as a collaborative project between the World Health Organisation (WHO) and the US Centers for Disease Control and Prevention (CDC). The GSHS has collected behavioural and health information from in-school adolescents [28]. To ensure that representative samples of the population were collected, the GSHS used a cross-sectional method. Closed-ended systematic questionnaires were used to collect information. The survey used a two-stage cluster sampling procedure to select 25 Senior High Schools from Ghana's 10 regions at the time. A total of 1984 students took part in the research. Only students with complete cases on the variables under consideration (n = 1348) were included in our analysis. A detailed description of the meths was reported in a previous study [29]. The dataset is available for free at http://www.who.int/ncds/surveillance/gshs/datasets/en/ (accessed on 27 January 2021). We relied on the Strengthening the

Reporting of Observational Studies in Epidemiology (STROBE) statement in conducting this study and writing the manuscript.

2.2. Study Variables

2.2.1. Outcome Variables

Two outcome variables were employed in this study. These are oral hygiene and hand hygiene. Hand hygiene was derived from three questions: (a) "During the past 30 days, how often did you wash your hands before eating?"; (b) "During the past 30 days, how often did you use soap when washing your hands?"; and (c) "During the past 30 days, how often did you wash your hands after using the toilet or latrine?" The responses for these questions were 1 = never, 2 = rarely, 3 = sometimes, 4 = most of the times, 5 = always. Each question was dichotomously recoded as never/rarely/sometimes/most of the time = "0" and always = 1. An index was generated where all the respondents who indicated always (1) in all the questions (a–c) were deemed as practising "good hand hygiene", coded as "1", and the rest were coded as practising poor hand hygiene, coded as "0". With oral hygiene, students were asked "During the past 30 days, how many times per day did you usually clean or brush your teeth? The responses were 1 = "I did not clean or brush my teeth during the past 30 days"; 2 = Less than 1 time per day; 3 = 1 time per day; 4 = 2 times per day; 5 = 3 times per day;, 6 = 4 or more times per day. A dichotomous variable was created where 1–3 (1 = "I did not clean or brush my teeth during the past 30 days"; 2 = Less than 1 time per day; 3 = 1 time per day) were coded as "0" and 4–6 (4 = 2 times per day; 5 = 3 times per day; 6 = 4 or more times per day) coded as "1". The codes 0 and 1 represented poor oral hygiene and good oral hygiene [6]. The questionnaire was developed and administered in the English language (see Supplementary Materials).

2.2.2. Explanatory Variables

The estimations contained twenty-one explanatory variables. Sex, age, hunger, grade, tobacco, alcohol use, fighting, truancy, bullying, assaulted, injury, having close friends, depression, suicidal ideation, suicidal intention, suicidal attempt, peer support, parental supervision, parental connectedness, parental bonding, and parental intrusion were among the factors considered. The variables were chosen because they were available in the GSHS dataset and had been shown to be predictors of oral and hand hygiene in previous studies [3,6,10,15,20]. Detailed descriptions of the variables are presented in Table 1.

Table 1. Description of the Study Variables.

Outcome Variables	Questions	Coding
Oral Hygiene	During the past 30 days, how many times per day did you usually clean or brush your teeth?	1 = I did not clean or brush my teeth during the past 30 days 2 = less than 1 time per day 3 = 1 time per day 4 = 2 times per day 5 = 3 times per day 6 = 4 or more times per day **(coded 1–3 = 0, 4–6 = 1)**
Handwashing	During the past 30 days, how often did you wash your hands before eating? (a)	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the times, 5 = always **(coded 1–4 = 0, 5 = 1)**
Handwashing with soap	During the past 30 days, how often did you use soap when washing your hands? (b)	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the times, 5 = always **(coded 1–4 = 0, 5 = 1)**
Hand washing after toilet	During the past 30 days, how often did you wash your hands after using the toilet or latrine? (c)	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the times, 5 = always **(coded 1–4 = 0, 5 = 1)**
Hand hygiene	Hand hygiene created from a–c	Coded as 1 = Always for those who indicated always to all three questions and 0 otherwise

Table 1. *Cont.*

Explanatory variables		
Suicidal ideation	During the past 12 months, did you ever seriously consider attempting suicide?	1 = Yes 0 = No **coded (1 = Yes and 0 = No)**
Suicide plan	During the past 12 months, did you make a plan about how you would attempt suicide?	1 = Yes 0 = No **coded (1 = Yes and 0 = No)**
Suicidal Attempt	During the past 12 months, how many times did you actually attempt suicide?	During the past 12 months, how many times did you actually attempt suicide?
Age	Custom age	1 = 12, 2 = 13, 3 = 14, 4 = 15, 5 = 16, 6 = 17, 7 = 18 years **(coded 0 = 12–17, 18 years = 1)**
Sex	Sex	1 = male, 2 = female
Grade	In what grade are you?	1 = SHS1, 2 = SHS2, 3 = SHS3, 4 = SHS4
Hunger	Went hungry past 30 days	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the times, 5 = always **(coded 1–3 = 0, 4–5 = 1)**
Tobacco use	During the past 30 days, on how many days did you use any other form of tobacco, such as chewing tobacco leaves?	1 = 0 days; to 7 = all 30 days **(coded 1 = 0; and 2–7 = 1)**
Alcohol use	During the past 30 days, on how many days did you have at least one drink containing alcohol?	1 = 0 days to 7 = All 30 days **(coded 1 = 0; and 2–7 = 1)**
Truancy	During the past 30 days, on how many days did you miss classes or school without permission?	1 = 0 days,2= 1 or 2 days, 3 = 3 to 5 days, 4 = 6 to 9 days, 5= 10 or more **(coded 1 = 0 and 2–5 = 1)**
Fighting	During the past 12 months, how many times were you in a physical fight?	1 = 0 times; to 8 = 12 or more times **(coded 1 = 0; and 2–8 = 1)**
Bullied	During the past 30 days, how were you bullied most often?	1 = 0 times; to 8 = 12 or more times **(coded 1 = 0; and 2–7 = 1)**
Attacked	During the past 12 months, how many times were you physically attacked?	1 = 0 days,2= 1 or 2 days, 3 = 3 to 5 days, 4 = 6 to 9 days, 5= 10 or more **(coded 1 = 0 and 2–5 = 1)**
Injury	During the past 12 months, how many times were you seriously injured?'	1 = 0 times to 8 = 12 or more times (coded as 1 = 0 and 2–8 = 1)
Close friends	How many close friends do you have?	1 = 0 to 4 = 3 or more **(coded 1 = 0, 1–2 = 1, 3 or more = 2)**
Loneliness	During the past 12 months, how many times have you felt lonely?	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time to 5 = always (coded 1 = 0 and 4–5 = 1)
Peer Support	During the past 30 days, how often were most of the students in your school kind and helpful?	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, 5 = always **(coded 1–3 = 0; and 4–5 = 1)**
Parents check homework (Parental Supervision)	During the past 30 days, how often did your parents or guardians check to see if your homework was done?	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, 5 = always **(coded 1–3 = 0; and 4–5 = 1)**
Understand problems (Parental Connectedness	During the past 30 days, how often did your parents or guardians understand your problems and worries?	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, 5 = always **(coded 1–3 = 0; and 4–5 = 1)**
Know what adolescents do in their free time (Parental or Guardian Bonding)	During the past 30 days, how often did your parents or guardians really know what you were doing with your free time?	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, 5 = always **(coded 1–3 = 0; and 4–5 = 1)**
Parental Intrusion	During the past 30 days, how often did your parents or guardians go through your things without your approval?	1 = never, 2 = rarely, 3 = sometimes, 4 = most of the time, 5 = always **(coded 1–3 = 0; and 4–5 = 1)**

2.3. Statistical Analyses

Descriptive statistics were used to describe the sample. After that both bivariable and multivariable analyses were conducted. Pearson's chi-square tests were employed for the bivariable analyses. The explanatory variables which showed significant associations with oral hygiene and hand hygiene were used for the multivariable analysis. Variance inflation factor was used to check multicollinearity (Mean VIF = 1.3, Max VIF = 2.0, Minimum VIF = 1.0). Based on the fact that the outcome variables were dichotomously coded, binary logistic regression models were used. Stata version 14.2 (Stata Corporation, College Station, TX, USA) for Mac OS was used for the analysis. The regression analysis results

were presented as Crude Odds Ratios (COR) and Adjusted Odds Ratios (AOR). Previous research [3,4,8,13,18] and a priori knowledge influenced the reference categories for all explanatory variables. The 95% confidence intervals on both sides are shown. Statistical significance is shown by p-values of less than or equal to 5%. Because of the study's multistage stratified cluster sample nature, the recorded 95% confidence intervals and p-value have been modified.

2.4. Ethical Clearance

The GSHS questionnaires were tested in advance to ensure that the survey items were understood properly. All ethical protocols for the use of students were followed in accordance with the Ghana Education Services (GES). The GES, the chosen classes, and the classroom teachers were all asked for written permission. Both students and their parents signed written informed consent forms. For students who were minors, parental permission was sought.

3. Results

3.1. Descriptive Analysis on the Prevalence of Hygiene Behaviours

Figure 1 presents the prevalence of hygiene behaviours among the participants. Hand-washing with soap, before eating, and after visiting the toilet were 30.8%, 67.4%, and 63.6%, respectively. The prevalence of good oral hygiene was 62.6% among in-school adolescents. The overall prevalence of good hand hygiene was 79.9%.

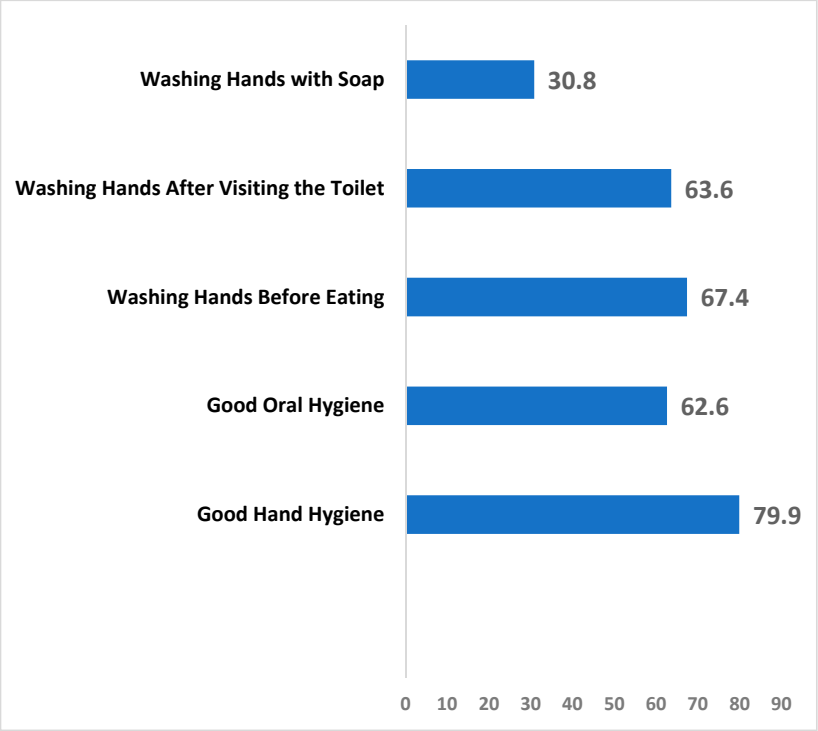

Figure 1. Prevalence of good oral and hand hygiene. Source: GSHS 2012. Good hand hygiene: proportion of those who indicated always to all three questions on hand washing. Good oral hygiene: brushing at least twice daily.

3.2. Relationship between Hygiene Behaviours and Explanatory Variables

Table 2 represents the bivariable relationships between the explanatory variables and hygiene behaviours among in-school adolescents. Age ($p < 0.05$), suicidal plan ($p < 0.001$), suicidal attempt ($p < 0.001$), truancy ($p < 0.05$), being bullied ($p < 0.01$), parental supervision ($p < 0.001$), parental connectedness ($p < 0.01$), parental bonding ($p < 0.001$), and parental intrusion ($p < 0.01$) were statistically associated with good hand hygiene. The associated

factors of good oral hygiene were hunger ($p < 0.05$), tobacco use ($p < 0.05$), alcohol use ($p < 0.001$), physical fight ($p < 0.01$), truancy ($p < 0.001$), being bullied ($p < 0.01$), physical attack ($p < 0.05$), parental supervision ($p < 0.001$), parental connectedness ($p < 0.01$), and parental bonding ($p < 0.001$).

Table 2. Bivariable Relationship between Hygiene Behaviours and the Explanatory Variables.

Variables	Weighted N	Weighted %	Good Oral Hygiene	*p*-Value	Good Hand Hygiene	*p*-Value
Age				0.835		0.011
12–17 years	606	44.9	79.6		58.1	
18 years	742	55.1	79.2		64.9	
Sex				0.246		0.250
Male	690	51.2	78.2		60.4	
Female	658	48.8	80.8		63.4	
Grade				0.570		0.605
SHS1	332	24.6	78.8		62.6	
SHS2	351	26.0	81.6		64.1	
SHS3	370	27.5	80.1		59.3	
SHS4	295	21.9	76.9		62.1	
Ever Went Hungry				0.032		0.790
No	544	40.3	82.2		61.3	
Yes	804	59.7	77.4		62.0	
Suicidal Ideation				0.695		0.136
No	1132	84.0	79.6		60.9	
Yes	216	16.0	78.4		66.4	
Suicidal Plan				0.683		<0.001
No	1063	78.9	79.6		58.8	
Yes	285	21.1	78.5		72.8	
Suicidal Attempt				0.782		<0.001
No	1080	80.1	79.2		59.1	
Yes	268	19.9	80.0		72.7	
Tobacco Use				0.046		0.268
No	1279	94.9	79.9		61.4	
Yes	69	5.2	69.7		68.2	
Alcohol Use				<0.001		0.229
No	1184	87.8	81.1		62.3	
Yes	164	12.2	66.7		57.4	
Ever Engaged in a Fight				0.001		0.581
No	968	71.8	81.6		61.3	
Yes	380	28.2	73.7		62.9	
Truancy				<0.001		0.002
No	921	68.3	82.7		64.5	
Yes	427	31.7	71.9		55.5	

Table 2. *Cont.*

Variables	Weighted N	Weighted %	Good Oral Hygiene	*p*-Value	Good Hand Hygiene	*p*-Value
Ever Experienced Bullying				0.001		0.005
No	776	57.6	82.4		58.6	
Yes	572	42.4	75.1		66.1	
Attacked Colleagues				0.008		0.178
No	853	63.3	81.6		60.4	
Yes	495	36.7	75.5		64.1	
Sustained an Injury				0.011		0.396
No	633	47.0	82.3		60.6	
Yes	715	53.0	76.7		62.8	
Have Close Friends				0.156		0.866
No	178	13.2	83.4		61.1	
Yes	1170	86.8	78.8		61.8	
Feeling Lonely				0.211		0.573
No	1098	81.4	80.0		62.1	
Yes	250	18.6	76.5		60.2	
Peer Support				0.428		0.985
No	243	18.1	77.5		61.7	
Yes	1105	82.0	79.8		61.7	
Parents Checking Homework (Parental Supervision)				<0.001		<0.001
No	785	58.2	73.3		52.6	
Yes	563	41.8	87.9		74.5	
Parents or Guardians Understand Problems (Parental Connectedness)				0.001		0.003
No	744	55.2	76.0		58.2	
Yes	604	44.8	83.5		66.0	
Parents or Guardians Know What Adolescent Does in Their Free Time (Parental Bonding)				<0.001		<0.001
No	811	60.2	75.3		56.3	
Yes	537	39.8	85.6		70.0	
Parents Going Through Things Without Adolescents' Approval (Parental Intrusion at Home)				0.187		0.002
No	1132	84.0	78.8		60.0	
Yes	216	16.0	82.8		71.3	

Source: GSHS 2012.

3.3. Predictors of Hand Hygiene among In-School Adolescents

Table 3 represents the binary logistic regression models on the predictors of hand hygiene among in-school adolescents in Ghana. We found that truant adolescents were 31% less likely to practice good hand hygiene than those who were not (AOR = 0.69, 95% CI = 0.51–0.92). Adolescents who were bullied were also 30% less likely to practice good hand hygiene compared to those who were not bullied (AOR = 0.70, 95% CI = 0.52–0.94). On the contrary, adolescents whose parents supervised their homework had a higher likelihood of practising good hand hygiene than those who did not get parental supervision (AOR = 2.30, 95% CI = 1.64–2.31).

Table 3. Logistic Regression Analysis on the Predictors of Hand Hygiene among In-school Adolescents in Ghana.

Variable	Model I COR (95% CI)	Model II AOR (95% CI)
Ever Went Hungry		
No	Ref	Ref
Yes	* 0.74 (0.57–0.98)	0.96 (0.72–1.28)
Truancy		
No	Ref	Ref
Yes	* 0.53 (0.41–0.70)	* 0.69 (0.51–0.92)
Ever Experienced Bullying		
No	Ref	Ref
Yes	* 0.64 (0.49–0.84)	* 0.70 (0.52–0.94)
Parents Checking Homework (Parental Supervision)		
No	Ref	Ref
Yes	*** 2.63 (1.96–3.56)	*** 2.30 (1.64–2.31)
Parents or Guardians Know What Adolescent Does in Their Free Time (Parental Bonding)		
No	Ref	Ref
Yes	** 1.94 (1.46–2.60)	1.34 (0.98–1.89)
Parents or Guardians Understand Problems (Parental Connectedness)		
No	Ref	Ref
Yes	** 1.60 (1.22–2.10)	1.06 (0.78–1.43)
Experiencing an Attack		
No	Ref	Ref
Yes	** 0.70 (0.53–0.91)	0.87 (0.64–1.16)
Sustaining an Injury		
No	Ref	Ref
Yes	** 0.71 (0.54–0.93)	0.90 (0.66–1.21)
Tobacco Use		
No	Ref	Ref
Yes	* 0.58 (0.33–0.99)	0.84 (0.48–1.46)
Engaging in a Fight		
No	Ref	Ref
Yes	** 0.63 (0.48–0.84)	0.79 (0.58–1.07)
N	1348	1348
R2		0.058

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Source: GSHS 2012.

3.4. Predictors of Oral Hygiene among In-School Adolescents

Table 4 represents binary logistic regression models on the predictors of oral hygiene among in-school adolescents in Ghana. In Model 1, we observed that adolescents aged 18 years and over were 1.33 times more likely to practice good oral hygiene than younger adolescents (COR=1.33, 95% CI = 1.07–1.66). This observed rate increased to 1.67 times in the multivariable model (Model II) (AOR=1.67=, 95% CI = 1.32–2.12). Truant adolescents were less likely to practice good oral hygiene compared to those who were not (AOR = 0.72, 95% CI = 0.56–0.92). In-school adolescents whose parents supervised their homework

(AOR = 2.34, 95% CI = 1.80–3.04) and those who experienced parental bonding (AOR = 1.35, 95% CI = 1.04–1.75) were, however, more likely to practise good oral hygiene.

Table 4. Logistic Regression Analysis on the Predictors of Oral Hygiene among Adolescents in Ghana.

Variable	Model I COR (95% CI)	Model II AOR (95% CI)
Age		
12–17 years	Ref	Ref
18 years	*** 1.33 (1.07–1.66)	1.67 *** (1.32–2.12)
Truancy		
No	Ref	Ref
Yes	** 0.69 (0.54–0.87)	0.72 * (0.56–0.92)
Ever Experienced Bullying		
No	Ref	Ref
Yes	** 1.38 (1.10–1.72)	1.26 (0.987–1.61)
Suicidal Plan		
No	Ref	Ref
Yes	1.87 (1.40–2.50)	1.56 * (1.08–2.25)
Suicidal Attempt		
No	Ref	Ref
Yes	1.84 (1.37–2.48)	1.42 (0.96–2.09)
Parents Checking Homework (Parental supervision)		
No	Ref	Ref
Yes	*** 2.63 (2.08–3.33)	2.34 *** (1.80–3.04)
Parents or Guardians Know What Adolescent Does in Their Free Time (Parental Bonding)		
No	Ref	Ref
Yes	*** 1.82 (1.44–2.29)	1.35 * (1.04–1.75)
Parents Going Through Things Without Adolescents' Approval (Parental Intrusion at Home)		
No	Ref	Ref
Yes	1.66 (1.20–2.29)	1.18 (0.84–1.66)
N		1348

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Source: GSHS 2012. Ref = Reference; COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio; CI = Confidence Interval.

4. Discussion

Using data from the 2012 Global School-Based Health Survey, we examined hygiene behaviours and their related factors among in-school adolescents in Ghana. The prevalences of good oral and hand hygiene behaviours were 62.6% and 79.9%, respectively [30]. Handwashing with soap, before eating, and after using the restroom were all done by 30.8%, 67.4%, and 63.6% of people, respectively. The prevalence of good oral and hand hygiene among in-school adolescents in Ghana that we observed in this study was higher than that recorded in other literature [6,21].This higher prevalence of good oral and hand hygiene among adolescents could be explained by the good personal and sanitation education practice instilled among in-school adolescents in basic schools in all regions in Ghana by the government and its partners as part of Ministry of Education's Education Strategic Plan (ESP) 2010–2020, including the Water, Sanitation, and Hygiene (WASH) Policy which has the objective of expanding and improving school health, sanitation, and safety systems [31–33]. WASH in schools ensures access to clean drinking water, enhances

sanitation, and encourages long-term wellbeing [34]. The less than 65% prevalence of hand hygiene we observed, however, implies that the country is far from achieving Sustainable Development Goal (SDG) 6.2, which encourages all developing countries across the globe to achieve access to adequate and equitable sanitation and hygiene for all by 2030 [35]. There is, therefore, the need to accelerate the implementation of WASH and other interventions that have proven successful.

Being truant and bullied in school were predictors of poor hygiene practices. Truancy, for instance, reduced the probability of practising good oral and hand hygiene among in-school adolescents. Our finding regarding truancy confirms a previous study by Peltzer and Pengpid [6] in which the authors noted that school attendance constitutes a protective factor which influences adolescents' good hygiene behaviour. Being bullied in school also reduced the chances of adolescents practising good oral hygiene in our study. The need for school authorities and other education stakeholders to institute measures to address bullying and truancy in schools is, therefore, essential.

Parental supervision served as an important predictor which promoted good hygiene behaviour among the in-school adolescents. Thus, in-school adolescents whose parents supervised their homework had higher odds of practising good hand and oral hygiene than those whose parents did not supervise their homework. The finding regarding parental supervision corroborates the postulations of Peltzer and Pengpid [6] that parental support reduces the risk of poor hygiene behaviour among adolescents. This finding highlights the role of parental support in promoting good lifestyles among adolescents in Ghana. Apart from supporting children in doing their homework, parents in Ghana are also instrumental in teaching their children other good hygiene habits such as brushing and flossing teeth, having regular baths or showers, proper washing of hands, and covering their mouth when they cough.

Other results revealed that older adolescents were more likely to practice good oral hygiene than younger ones. This could be because they have a better knowledge of the probable negative outcomes of not practising good oral hygiene and, therefore, have become more conscious of their overall hygiene behaviours [35]. Our findings are congruent with other studies which have argued that older adolescents more often practice good oral hygiene than younger ones [36,37]. Current findings, thus, point to the need for interventions such as WASH and educational programmes on hygiene behaviour to be implemented more extensively in basic schools where mainly younger adolescents are on the academic ladder.

Limitations

Despite the important findings of this study, it is important to point the potential limitations. The study was conducted only in schools. The results are, therefore, not generalisable to the general adolescent population. Furthermore, based on the cross-sectional nature of the data, it was difficult to establish causality among the study variables. There is also the possibility of social desirability biases by over-reporting the prevalence of hygiene behaviour practices [38,39]. Additionally, there is the possibility of under-reporting some of the variables we controlled for such as suicidal plan, suicidal attempt, ever going hungry, alcohol use, and being bullied. The dataset is also relatively old. However, that is the current version of the Global School-Based Student Health Survey for Ghana.

5. Conclusions

Good hygiene habits remain a key strategy for minimizing the spread of communicable diseases. The current study's finding on hand hygiene use reflects the country's inability to provide universal access to water, sanitation, and hygiene. To meet SDG 6.2, which calls for all people to have adequate access to and equitable sanitation and hygiene by 2030, new initiatives aimed at promoting hygiene behaviours among adolescents, as well as the extension of existing interventions like the WASH initiative in schools, are needed. Such interventions could focus more on addressing the hygiene needs of younger adolescents,

those who are truant, and adolescents who suffer from bullying in school. Interventions targeting increased parental support in improving hygiene behaviours are also essential in promoting better hygiene practices among in-school adolescents.

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Data Availability Statement: The dataset is available at free at http://www.who.int/ncds/surveillance/gshs/datasets/en/ (accessed on 27 January 2021).

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Abbreviations

COR	Crude Odds Ratio
AOR	Adjusted Odds Ratio
CI	Confidence Interval
WHO	World Health Organisation
CDC	Centers for Disease Control
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
GSHS	Ghana Global School-Based Health Survey
VIF	Variance Inflation Factor
GES	Ghana Education Service
WASH	Water, Sanitation, and Hygiene

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