

**ASSESSMENT OF PERSONAL HYGIENE AND HAND WASHING PRACTICES AMONG PUBLIC SENIOR SECONDARY SCHOOL STUDENTS IN ILORIN WEST LOCAL GOVERNMENT AREA, KWARA STATE**

**BY**

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**Abstract**

Personal hygiene and hand washing practices are crucial for preventing infectious diseases among adolescents. This cross-sectional descriptive study assessed personal hygiene knowledge and hand washing practices among 300 senior secondary school students in Ilorin West Local Government Area, Kwara State, Nigeria. A structured questionnaire captured students' knowledge, attitudes, and practices, while an observation checklist evaluated the hygiene facilities available in the schools. The results revealed that 93.3% of students washed their hands after using the restroom, 83.3% before meals, and only 45.6% after handling money. The observation checklist showed that 95% of students wore clean uniforms, 94% had clean teeth, and 65% had neatly cut hair. Significant associations were found between students' hygiene practices and factors such as sex, age, and parental occupation ( $p < 0.05$ ). The study highlights the need for improved hygiene education and facilities to promote better hand washing and personal hygiene practices among students. These findings have important implications for school health policies and public health interventions aimed at reducing the spread of infectious diseases in schools.

**Keywords:** Personal hygiene, Hand washing, Senior secondary students, Ilorin West, Public health

**Introduction**

Hygiene refers to a set of practices that help maintain health and prevent the spread of diseases. It includes hand hygiene, personal cleanliness, and other practices that promote health and well-being (WHO, 2020). Personal hygiene, particularly hand washing, is one of the most cost-effective measures for preventing infections such as diarrhea, respiratory infections, and skin diseases. In school settings, where students are in close contact with each other, the importance of proper hygiene is even more critical (Kumwenda, 2019). Despite these recognized benefits, many schools, especially in low- and middle-income countries, including Nigeria, struggle to provide the facilities and education necessary to promote good hygiene. According to UNICEF (2021), millions of children globally do not have access to basic hand washing facilities in their schools, which increases their vulnerability to infections. Poor hygiene practices have been linked to increased absenteeism, diminished academic performance, and higher rates of preventable diseases in children and adolescents (Berhanu et al., 2022).

In Nigeria, hygiene-related challenges are particularly evident in school environments, where many students lack access to soap, clean water, and proper sanitation facilities (Okello et al., 2019). According to studies, while students may be aware of the importance of hand washing, the practice is often not consistent, particularly after using the restroom or handling money (Curtis & Cairncross, 2003). The lack of adequate facilities and insufficient reinforcement of hygiene practices by school authorities exacerbates the situation, contributing to poor health outcomes (Opara et al., 2021). Schools are a critical environment for promoting proper hygiene practices. Children spend a significant portion of their day at school, and the presence of proper hygiene facilities can play a substantial role in shaping lifelong habits. The role of hand hygiene, in particular, cannot be overemphasized. Studies have shown that regular hand washing can reduce the incidence of diarrhea by 28-47% and respiratory infections by 20-50% (Curtis et al., 2011). These reductions have a significant impact not only on the health of students but also on the overall academic performance and school attendance rates (Ejemot-Nwadiora et al., 2015). However, in Nigeria, many schools lack the

necessary infrastructure, such as running water and soap, to support regular hand washing. This has resulted in inconsistent hygiene practices among students (Berhanu et al., 2022).

Several barriers prevent the adoption of proper hygiene practices in schools, particularly in regions such as Kwara State, Nigeria. One of the key challenges is the lack of infrastructure. A study by Okello et al. (2019) found that many schools do not have functional hand washing stations, and even fewer have soap available for students. Another significant barrier is the lack of hygiene education. Many students are not taught the proper way to wash their hands or the critical times when hand washing is necessary (Berhanu et al., 2022). Cultural practices and beliefs also play a role in shaping hygiene behaviors. In some communities, traditional beliefs may discourage the use of soap or promote alternative practices that are less effective at removing germs (Osei-Tutu & Antwi, 2020).

Despite the growing body of research on hygiene practices in schools, there is a gap in the literature regarding senior secondary school students in Nigeria. Most studies focus on primary school children, leaving a significant knowledge gap about the hygiene behaviors of older students. Adolescents, particularly those in secondary schools, are at a critical stage of development where personal hygiene habits can have a lasting impact on their health and well-being (Osei-Tutu & Antwi, 2020). This study aims to assess the knowledge and practice of personal hygiene, particularly hand washing, among senior secondary school students in Ilorin West Local Government Area, Kwara State. Understanding these practices can inform interventions aimed at improving hygiene behaviors and health outcomes among Nigerian adolescents.

### **Research Objective**

This study assesses the personal hygiene and hand washing practices among senior secondary school students in Ilorin west Local Government Area. The specific objectives are:

1. To assess the knowledge of personal hygiene and hand washing practice among students of senior secondary school
2. To determine the practice of personal hygiene among senior secondary students
3. To determine the practice of hand washing among senior secondary school students
4. To identify factors affecting the practice of hygiene and hand washing among students of senior secondary school

### **Research Questions**

1. What is the level of general knowledge regarding personal hygiene and hand washing practices among senior secondary school students in Ilorin West Local Government Area?
2. How do senior secondary school students engage in the practice of personal hygiene in their daily routines?
3. What is the extent of hand washing practices among senior secondary school students in Ilorin West Local Government Area?
4. What factors contribute to or hinder the practice of personal hygiene and hand washing among students in senior secondary schools?

### **Research Hypothesis**

Alternative Hypothesis (H1): There is a significant relationship between the level of knowledge of personal hygiene and hand washing practices among senior secondary school students in Ilorin West Local Government Area.

Null Hypothesis (H0): The practice of personal hygiene among senior secondary school students does not vary significantly based on demographic factors such as gender, age, and socio-economic status.

## Methodology

### Study Design

A cross-sectional descriptive study was conducted to assess the personal hygiene and hand washing practices of senior secondary school students in Ilorin West Local Government Area, Kwara State. This design was selected because it allows for the collection of data at one point in time, providing a snapshot of the knowledge and practices within the target population.

### Study Area

The research was carried out in Ilorin West Local Government Area, Kwara State, Nigeria. The area comprises a mix of urban and rural settings and is home to several public secondary schools, making it an ideal environment for studying hygiene practices among adolescents.

### Study Population

The study population consisted of senior secondary school students (SS1 to SS3) attending public secondary schools in Ilorin West Local Government Area. The inclusion criteria required students to be enrolled in SS1 to SS3 and willing to provide informed consent. Students with physical or cognitive disabilities that could interfere with their participation were excluded from the study.

### Sample Size Determination

The minimum sample size for this study was calculated using Fischer's formula for descriptive studies as given below:

$$n = Z^2pq/d^2$$

Where; n = the minimum sample size

Z = the standard normal deviate at 1.96 which corresponds to a 95% Confidence Interval

P= prevalence rate of 80% (prevalence of personal hygiene knowledge among college students)

q= the complimentary probability of P which is  $(1 - p) = (1-0.80) = 0.2$

d= error margin which is 5% (0.05)

By substituting we have,

$$n = 1.96^2 \times 0.80 \times (1-0.80) / 0.05^2$$

$$n = 1.96^2 \times 0.80 \times 0.20 / 0.05^2$$

$$n = 3.8416 \times 0.16 / 0.0025$$

$$n = 245.86 \approx 246.$$

The minimum sample size is 246 to round it up to the nearest whole number

To adjust the sample for an anticipated non-response rate of 20% the following formula was used:  $n_{\text{adjusted}} = n / (1 - \text{non-response rate})$

Where n=initial sample size

The non-response rate is expressed as a decimal (for 20%= 0.20)

$$n_{\text{adjusted}} = 246 / (1 - 0.20) = 246 / 0.80$$

$$n_{\text{adjusted}} = 307.5 \approx 308$$

To account for 20% non-response rate, adjusted sample size of 308 was used. Sampling Technique

### Sampling Technique

This study employed a non-probability multistage sampling technique to select participants.

## **Sampling Procedure**

The three-stage sampling procedure was as follows:

### **Stage 1: School Selection**

Five public secondary schools were purposively selected from Ilorin West Local Government Area, representing diverse geographic locations.

### **Stage 2: Class Selection**

Three classes (SS1, SS2, and SS3) were selected from each chosen school, ensuring representation of senior secondary school students.

### **Stage 3: Student Selection**

Students were randomly selected from the chosen classes using simple random sampling, ensuring unbiased participant selection within each class. This multistage approach ensured representation across all senior secondary school levels (SS1, SS2, and SS3), enhancing the study's generalizability.

## **Data Collection Methods and Instruments**

Data was collected using two main instruments:

### **Structured Questionnaire:**

A self-administered questionnaire was designed to assess students' knowledge, attitudes, and practices concerning personal hygiene and hand washing. The questionnaire was divided into sections that covered demographics, hygiene knowledge, and actual hygiene behaviors.

### **Observation Checklist:**

An observation checklist was used to evaluate the availability and condition of hygiene facilities (e.g., soap, water, hand washing stations) in the schools. This checklist also included direct observations of students' personal hygiene, including cleanliness of uniforms, nails, and hair.

## **Validity and Reliability of Instruments**

The questionnaire and observation checklist were validated through expert review. Public health experts assessed the instruments to ensure that they adequately captured the key variables related to hygiene and hand washing practices. A pilot study was conducted with 30 students from a school outside the study area to test the reliability of the instruments. Cronbach's alpha was calculated, yielding a reliability coefficient of 0.82, indicating a high level of internal consistency.

## **Data Collection Procedure**

Data collection occurred over six weeks. Students completed the self-administered questionnaires in their classrooms under the supervision of the research team, ensuring minimal disruptions to their routine. Observations were conducted simultaneously to assess hygiene facilities and personal cleanliness.

### Data Analysis

Data from the questionnaires were coded and entered into SPSS version 25 for analysis. Descriptive statistics, such as frequencies and percentages, were used to summarize students' hygiene knowledge and practices. Inferential statistics, including chi-square tests, were used to examine relationships between demographic variables (e.g., age, gender) and hygiene practices. A p-value of < 0.05 was considered statistically significant.

### Ethical Considerations

Ethical approval for the study was obtained from the Department of Public Health at Al-Hikmah University. Written consent was obtained from school authorities, and informed consent was provided by the students before participation. The study upheld participants' confidentiality, and students were informed of their right to withdraw from the study at any time without penalty.

### Limitations of the Study

This study's primary limitation was its reliance on self-reported data, which may have introduced bias, as students may have over-reported positive hygiene practices. Additionally, the study was confined to public secondary schools in one local government area, limiting the generalizability of the results to other regions or private schools.

### Results

The study revealed that the majority of students (93.3%) reported washing their hands after using the restroom, while only 45.6% consistently washed their hands after handling money. In terms of personal hygiene, 95% of students were observed to have clean uniforms, and 94% had clean teeth. However, only 65% had neatly cut hair (Figure 1). There were significant associations between sex, age, and hand washing practices, with older students demonstrating better hygiene habits (Ejemot et al., 2008).

**Table 1**

*Socio-demographic characteristics of the respondents*

Socio demographic characteristics	Frequency	Percentage
Schools		
GDSS Adewole	60	20.0
GDSS Gbagba	60	20.0
GDSS Airport	60	20.0
Ilorin Grammar School	60	20.0
Baboko community secondary school	60	20.0
Total	300	100.0
Sex		
Male	163	54.3
Female	137	45.7
Total	300	100.0
Age		
9-12years	28	9.3
13-15years	140	46.7
16-19years	132	44.0
Total	300	100.0

Class		
SS1	97	32.3
SS2	67	22.3
SS3	136	45.3
Total	300	100.0
Religion		
Islam	105	35.0
Christianity	195	65.0
Total	300	100.0
Ethnicity		
Yoruba	242	80.7
Igbo	13	4.3
Hausa	16	5.3
Others	29	9.7
Total	300	100.0
Mother's occupation		
Civil servant	108	36.0
Unemployed	27	9.0
Artisan	50	16.7
Trader	67	22.3
Banker	48	16.0
Total	300	100.0
Father's occupation		
Civil servant	181	60.3
Unemployed	8	2.7
Artisan	35	11.7
Trader	22	7.3
Banker	32	10.7
Others	22	7.3
Total	300	100.0
Mother's highest level of qualification		
Primary		
Secondary	63	21.0
NCE	61	20.3
HND	50	16.7
BSC	39	13.0
Total	87	29.0
	300	100.0
Father's highest level of qualification		
Primary		
Secondary	21	7.0
NCE	63	21.0
BSC	64	21.3
Total	152	50.7
	300	100.0

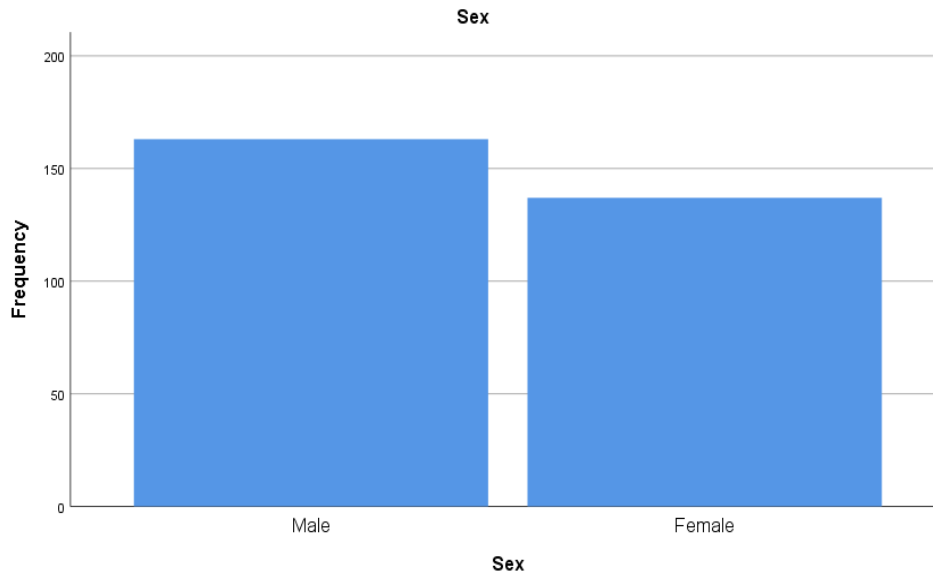


Figure 1: Respondents' responses by Gender

Table 2

*Knowledge of Respondents on Personal Hygiene Related to the Care of the Mouth and Skin*

Knowledge related variable	True n (%)	False (%)
Brushing of the teeth can prevent diseases that can affect the teeth.	280 (93.3%)	20 (6.7%)
Brushing one's teeth cannot prevent mouth odour	270 (90%)	30 (10%)
Use of tooth powder is ideal in cleaning the mouth	240 (80%)	60 (20%)
Teeth brushing can prevent hole in the teeth	290 (96.7%)	10 (3.3%)
While brushing the teeth, the tongue should also be cleaned.	300 (100%)	0(0%)
Bathing with sponge helps remove tough stain	200 (66.7%)	100 (33.3%)

Respondents demonstrate a high level of awareness about the importance of personal hygiene, the percentage of brushing of the teeth can prevent diseases that can affect the teeth is 93.3%, indicating a high awareness of brushing teeth to prevent diseases. 90% agree, showing a good understanding of brushing teeth to prevent mouth odor, 80% agree, indicating some awareness of the potential harm of sweet consumption on teeth, 96.7% agree, showing strong agreement on the effectiveness of tooth powder for cleaning teeth, 100% agree, indicating universal agreement on the importance of brushing teeth to prevent holes. Tongue cleaning while brushing: 66.7% agree, showing a moderate level of awareness about the importance of cleaning the tongue while brushing teeth. There is a strong agreement on the effectiveness of brushing teeth and using tooth powder. Some respondents (20%) are unaware of the potential harm of sweet consumption on teeth. A significant proportion (33.3%), do not recognize the importance of cleaning the tongue while brushing teeth.

**Table 3**

*Respondents Knowledge on Personal Hygiene in Relation to the Care of Hair, Ear, Nose and Mouth*

Variable	Never no (%)	Sometimes no (%)	Always
Use of personal hair clipper when cutting hair in the barbing salon	50(16.7)	30(10)	220(73.3)
Sharing of towels with other family members.	200(66.7)	50(16.7)	50(16.7)
Sharing of clothes with other family members.	250(83.3)	20(6.7)	30(10)
Washing of your towels	10(3.3)	30(10)	260(86.7)
Washing your underwear	20(6.7)	50(16.7)	230(76.7)
Washing your socks	10(3.3)	20(6.7)	270(90)
Keeping your nails long	250(83.3)	30(10)	20(6.7)
Use of sharp objects in cleaning the ear	280(93.3)	10(3.3)	10(3.3)
Use of match stick in cleaning the ear	290(93.3)	5(1.7)	5(1.7)
Use of fingers to clean the nose	270(90)	20(6.7)	10(3.3)
Covering the nose with hands when sneezing	200(66.7)	50(16.7)	50(16.7)
Covering the nose with handkerchief when sneezing	100(33.3)	50(16.7)	150(50)
Use of tooth brush and toothpaste in cleaning the mouth	20(6.7)	30(3.3)	250(83.3)
Use of chewing stick in cleaning the mouth	150(50)	50(16.7)	100(33.3)
Bathing with soap and water	30(10)	50(16.7)	220
Bathing with only water	150(50)	50(16.7)	100(33.3)

The findings from table 4.4 reveal varying levels of adherence to good hygiene habits. Use of personal hair clippers in barbing salons demonstrates a high compliance rate (73.3%), indicating a positive trend towards maintaining personal hygiene. However, sharing of towels (66.7% never share) and clothes (83.3% never share) highlights a significant proportion of respondents engaging in potentially harmful practices, risking the spread of infections. In contrast, washing of towels exhibits a high frequency of regular washing (86.7%), suggesting a strong emphasis on cleanliness.

**Hand Washing Practices**

The practice of hand washing before eating was reported by 70.3% of students. However, only 40.5% of students used soap consistently when washing their hands. Observation data revealed that most students washed their hands with water only, without soap. Hand washing after using the toilet was practiced by 56.8% of students.

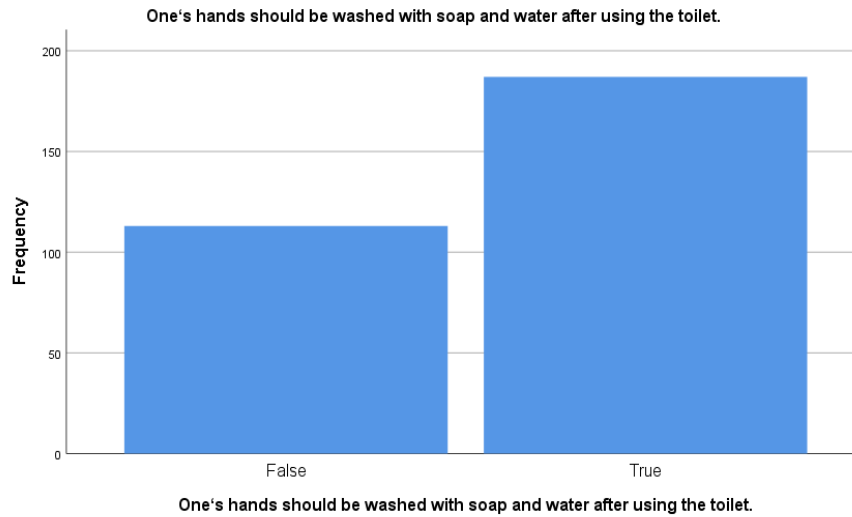


Figure 2: Frequency of Hand Washing Before and After Activities

### ANOVA Analysis of Factors Influencing Hand Washing Practices

The ANOVA analysis was conducted to determine if there were significant differences in hand washing practices between various groups based on factors such as gender, age, class, parental occupation, parental education, religion, and ethnicity. The results are presented in Table 4

T-Tests/ANOVA: To determine if there are significant differences in hand washing practices between different groups (e.g., based on gender or socio-economic status).

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Sex	Between Groups	21.588	11	1.963	10.695	.000
	Within Groups	52.848	288	.184		
	Total	74.437	299			
Age at last birthday (in years)	Between Groups	22.253	11	2.023	5.729	.000
	Within Groups	101.694	288	.353		
	Total	123.947	299			
Class	Between Groups	45.942	11	4.177	6.610	.000
	Within Groups	181.988	288	.632		
	Total	227.930	299			
Mother's Occupation	Between Groups	199.387	11	18.126	10.498	.000
	Within Groups	497.280	288	1.727		
	Total	696.667	299			
Father's occupation	Between Groups	247.402	11	22.491	9.608	.000
	Within Groups	674.185	288	2.341		
	Total	921.587	299			
Mother's highest level of education	Between Groups	235.489	11	21.408	13.338	.000
	Within Groups	462.257	288	1.605		

	Total	697.747	299			
Father's highest level of education	Between Groups	165.732	11	15.067	9.489	.000
	Within Groups	457.265	288	1.588		
	Total	622.997	299			
What is your religion?	Between Groups	17.925	11	1.630	9.325	.000
	Within Groups	50.325	288	.175		
	Total	68.250	299			
Ethnic group	Between Groups	82.513	11	7.501	10.944	.000
	Within Groups	197.407	288	.685		
	Total	279.920	299			

The results of the ANOVA analysis provide valuable insights into the factors influencing hand washing practices among senior secondary school students in Ilorin West Local Government Area. Gender was found to be a significant factor ( $p < 0.001$ ), with male students less likely to engage in regular hand washing compared to their female counterparts. This difference could be attributed to societal expectations and gender roles that often encourage females to be more meticulous about personal hygiene. Similar findings have been reported in previous studies, where gender was a key determinant of hygiene behavior.

Age also played a significant role in hand washing practices ( $p < 0.001$ ), with older students demonstrating better hygiene practices than younger students. This could be due to increased awareness and maturity, leading to better hygiene habits as students grow older. The analysis further showed that parental education and occupation were significant predictors of hygiene behavior ( $p < 0.001$ ). Students whose parents had higher levels of education and more professional occupations were more likely to exhibit proper hand washing practices. This supports the theory that parents' educational attainment and socio-economic status influence children's health behaviors, as they provide the necessary resources and knowledge about the importance of hygiene.

Interestingly, religion and ethnicity were also found to significantly affect hygiene practices ( $p < 0.001$ ). These findings suggest that cultural and religious beliefs may shape attitudes toward cleanliness and personal hygiene. For example, certain religious practices may emphasize cleanliness and purification, which could influence students' hand washing behaviors.

#### **Observation Checklist Findings:**

**Uniform and Hair:** 95% of students had clean uniforms, but 40% had rumpled ones. 65% had neatly cut hair, and 85% of female students had plaited hair.

**Footwear:** Students wore a mix of shoes (43%), sandals (39%), and stockings (18%).

**Nails and Teeth:** 85% had short nails, and 95% had clean nails. 94% had clean teeth, reflecting good oral hygiene.

#### **Discussion**

The findings of this study underscore the significance of hand washing practices and personal hygiene among senior secondary school students. Despite a high level of knowledge about the importance of hand washing, a significant gap exists between knowledge and practice. Only 70.3% of students washed their hands before eating, and a mere 40.5% used soap consistently. Furthermore, 56.8% of students washed their hands after using the toilet. This discrepancy suggests that knowledge alone is insufficient to drive behavior change, a phenomenon previously observed (Curtis et al., 2011).

The study also revealed notable differences in hand washing practices based on demographic factors. Female students demonstrated better hand washing practices than their male counterparts, while older students exhibited better hygiene habits than younger ones. This aligns with previous research showing similar trends (Ejemot et al., 2008). The observation checklist revealed encouraging practices regarding personal hygiene among senior secondary school students. Uniform cleanliness was satisfactory, with 95% of students having clean uniforms, although 40% appeared rumpled. Hair hygiene was also notable, with 65% having neatly cut hair and 85% of female students having plaited hair. Footwear varied, consisting of shoes (43%), sandals (39%), and stockings (18%). Nail hygiene was commendable, with 85% having short nails and 95% having clean nails. Furthermore, oral hygiene was excellent, with 94% of students having clean teeth. These findings suggest that students generally maintain good personal hygiene practices, although some areas, such as uniform neatness, require improvement.

The ANOVA analysis identified significant factors influencing hand washing practices, including gender, age, parental education, occupation, religion, and ethnicity. These findings support previous studies emphasizing the importance of socio-demographic factors in shaping hygiene behaviors (Curtis & Cairncross, 2003). Overall, this study highlights the importance of addressing the gaps between knowledge and practice to improve hand washing practices and personal hygiene among senior secondary school students.

### **Conclusion**

The study revealed a significant gap between knowledge and practice regarding hand washing among senior secondary school students. Despite high knowledge, only 70.3% washed their hands before eating, 56.8% after using the toilet, and 40.5% used soap consistently. Demographic factors such as gender, age, parental education, occupation, religion, and ethnicity significantly influenced hand washing practices. The observation checklist showed satisfactory personal hygiene practices, including uniform cleanliness (95%), hair hygiene (65% neatly cut hair and 85% plaited hair among females), nail hygiene (85% short nails and 95% clean nails), and excellent oral hygiene (94% clean teeth).

These findings suggest that while students demonstrate good personal hygiene habits, hand washing practices require improvement. The influence of socio-demographic factors on hand washing highlights the need for targeted interventions. In conclusion, this study emphasizes the importance of addressing the gaps between knowledge and practice to improve hand washing practices and maintain good personal hygiene among senior secondary school students.

### **Recommendations**

The study suggests the following recommendations to improve personal hygiene and hand washing practices among senior secondary school students.

- 1. Enhance Hygiene Education:** Implement comprehensive hygiene education programs in schools, promoting proper hand washing and personal grooming practices. (WHO, 2020; CDC, 2021)
- 2. Improve Access to Handwashing Facilities:** Ensure all schools have adequate handwashing facilities with reliable soap and water supply, crucial for improving hand hygiene practices. (UNICEF, 2019)
- 3. Engage Parents and Communities:** Conduct workshops and community outreach programs to involve parents in promoting hygiene practices at home, associated with better hygiene behaviors among children.
- 4. Monitor and Evaluate Hygiene Practices:** Establish regular monitoring and evaluation mechanisms to assess hygiene intervention effectiveness and adapt programs to meet emerging challenges. (Bahl et al., 2019)

**5. Culturally Sensitive Campaigns:** Develop hygiene promotion campaigns tailored to the community's values and cultural context, enhancing acceptance and effectiveness of health interventions. (Mackey & Liang, 2013)

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