ASSESSMENT OF PERSONAL HYGIENE AND HAND WASHING PRACTICES AMONG SENIOR SECONDARY 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. 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 secondar**y** 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 st udents 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,

$$n= 1.96^2\times0.80\times (1-0.80)/0.05^2$$
$$n=1.96^2\times0.80\times0.20/0.05^2$$
$$n=3.8416\times0.16/0.0025$$
$$n=245.86 \approx 246$$

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}adjusted=n/1-non-response rate

Where n=initial sample size

The non-response rate is expresses as a decimal (for 20%= 0.20)
^{n}adjusted=246/1-0.20= 246/0.80
^{n}adjusted=307.5 ≈ 308n

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

Sampling Technique

Stratified random sampling was used to select students from the five public secondary schools. Stratification ensured that each school and class (SS1 to SS3) was proportionately represented in the sample. This technique enhanced the representativeness and generalizability of the study results.

Data Collection Methods and Instruments

Data was collected using two main instruments:

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.

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 Management and 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 4.1). 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

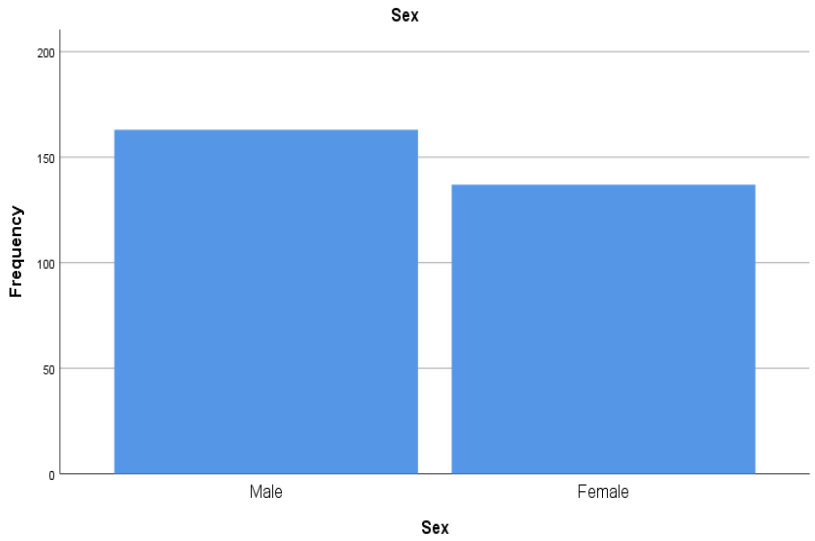

Figure 1: respondents' response by Gender

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)	25083.3)
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.

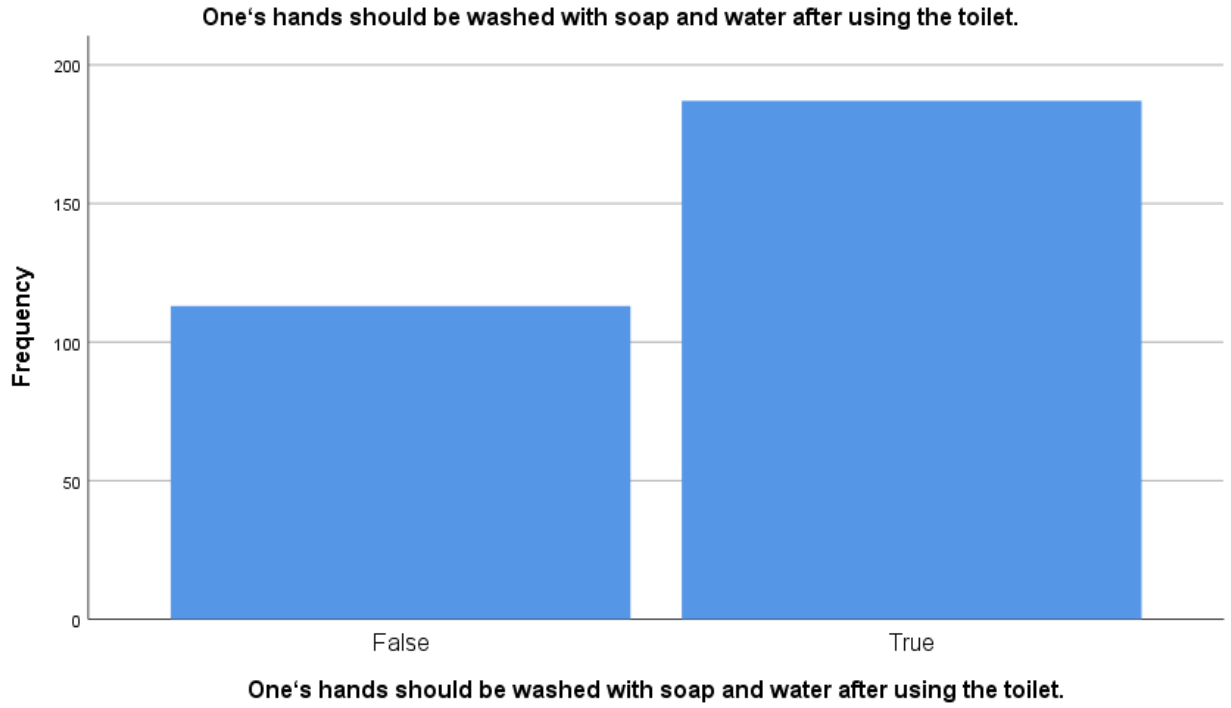

Figure 2: Frequency of Hand Washing Before and After Activities

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

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 provide valuable insights into the personal hygiene and hand washing practices among senior secondary school students in Ilorin West Local Government Area. While the study revealed a relatively high level of knowledge regarding personal hygiene, the observed practices indicate significant gaps that could lead to increased health risks.

Knowledge vs. Practice

The study found that 65.4% of students had good knowledge of personal hygiene. However, the self-reported practices regarding hand washing were not as favorable. Although 70.3% of students reported washing their hands before eating, only 40.5% consistently used soap. This discrepancy between knowledge and practice highlights a common issue in health behavior studies where individuals understand the importance of hygiene but fail to implement it effectively in their daily routines. Similar findings have been documented in other studies, suggesting that knowledge alone is insufficient to ensure behavioral change. Factors such as availability of facilities, peer influence, and personal habits significantly impact actual practices.

Observation Checklist Findings

The observation checklist revealed important details about students' hygiene practices. While 95% of students maintained clean uniforms, 40% had rumpled uniforms, indicating that while cleanliness is prioritized, the practice of ironing may need to be addressed. Additionally, hair grooming practices were varied; only 65% had neatly cut hair, and 58% reported combing their hair properly. The significant percentage of students (approximately 15%) with long nails raises concerns about neglect in personal grooming, which could contribute to health issues, as long nails can harbor dirt and pathogens. The diversity in footwear, with 43% wearing shoes and 39% wearing sandals, reflects personal choice, cultural influences, and possibly economic factors. The variation in nail and teeth conditions was generally positive, with 94% of students having clean teeth and 95% maintaining clean nails, indicating strengths in oral hygiene.

Statistical Significance of Factors Influencing Hygiene Practices

The ANOVA analysis confirmed that demographic factors such as gender, age, class, parental occupation, and education significantly influenced hand washing practices, with all variables showing statistical significance ($p < 0.05$). The result indicates that male students exhibited poorer hygiene practices compared to females, aligning with findings from previous research indicating that gender differences affect hygiene behavior. Furthermore, parental

education and occupation positively correlate with students' hygiene practices, emphasizing the role of socio-economic status and parental influence in shaping children's health behaviors.

Implications for Public Health

The findings suggest that despite a good level of knowledge about hygiene, practical application remains inadequate. This gap necessitates the implementation of targeted interventions to promote proper hand washing techniques and personal grooming among students. Schools can play a pivotal role by integrating hygiene education into the curriculum, providing training on effective hand washing techniques, and ensuring that facilities for proper hand hygiene are available and accessible.

Conclusion

The study shows a commendable level of knowledge regarding personal hygiene among students, improvements are needed in actual practices, particularly concerning the consistent use of soap when washing hands and overall grooming habits. Addressing these issues through comprehensive public health initiatives can help foster healthier behaviors among adolescents and reduce the risk of hygiene-related illnesses.

Recommendations

Enhance Hygiene Education in Schools: Implement comprehensive hygiene education programs in schools to promote proper hand washing and personal grooming practices. Studies have shown that effective hygiene education can significantly improve students' knowledge and practices regarding personal hygiene (WHO, 2020; CDC, 2021).

Improve Access to Handwashing Facilities: Ensure that all schools have adequate handwashing facilities with a reliable supply of soap and water. Research indicates that access to clean water and sanitation facilities is crucial for improving hand hygiene practices among students (UNICEF, 2019).

Engage Parents and Communities: Conduct workshops and community outreach programs to engage parents in promoting hygiene practices at home. Involvement of parents has been associated with better hygiene behaviors among children (Pettigrew et al., 2018).

Monitor and Evaluate Hygiene Practices: Establish regular monitoring and evaluation mechanisms to assess the effectiveness of hygiene interventions in schools. Continuous assessment helps in adapting programs to meet the needs of students and address emerging challenges (Bahl et al., 2019).

Culturally Sensitive Campaigns: Develop hygiene promotion campaigns that are culturally sensitive and resonate with the community's values. Tailoring health messages to fit cultural contexts has been shown to enhance the acceptance and effectiveness of health interventions (Mackey & Liang, 2013).

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