



A Comparative Study of Hand Hygiene Knowledge between Public and Private Secondary School Students in Eleme Local Government Area of Rivers State

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ABSTRACT

Background: The washing of hands frequently and properly around the world with soap and water is essential to preventing diseases. The study aimed to assess and compare hand hygiene knowledge between public and private secondary school students in Eleme Local Government Area of Rivers State.

Materials and Methods: This was a comparative design study carried out between public and private secondary school students in Eleme Local Government Area of Rivers State on hand hygiene knowledge. Secondary school students that have given consent to participate in the study and are enrolled in a public and private owned schools were included in the study. A two stage sampling method was used to recruit 1510 students into this study. A semi-structured interviewer-administered questionnaire was used. The questionnaire was validated through scrutiny and corrections. Data were collected from each school and was entered into the Statistical Package for Social Science (SPSS) version 23 software as numeric codes and analysed. Ethical clearance for this study was gotten from the Ethics Committee of University of Port Harcourt while verbal consent was obtained from each participant. Data were analysed using frequencies, percentages, chi-square and binary logistic regression.

Results: Total of 1500 questionnaires was filled properly. The outcome of the study showed that the overall knowledge of hand hygiene was 678(90.4%) for Public Schools and 721(96.1%) for Private School ($p=0.000$). The result also showed that type of school (Public and Private) contributed about 3.6 times ($OR=3.650;95\%CI=2.269-5.802$) to the level of hand hygiene knowledge among secondary school students.

Conclusion: Based on the findings of the study, it was concluded that public and private secondary school students had good knowledge of hand hygiene. Hence, there is need to provide adequate hygiene materials in schools for sustainability.

Keywords: Hand Hygiene, Knowledge, Public, Private, Secondary, Eleme, Rivers State

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I. INTRODUCTION

Hand hygiene also known as hand cleanliness or hand washing is a worldwide methods for irresistible infectious prevention. For a long time, it has been perceived to be a helpful, viable, and furthermore practical method for preventing diseases that are spread from one person to the other (Burton, Cobb, Donachie, Judah, Curtis and Schmidt, 2011). Hand hygiene is an overall term alluding to any activity of hand decontamination. It involves the utilization of water or fluids, or with the utilization of soap, to eliminate soil, earth, and additionally microorganisms (Tao, Cheng, Lu, Hu and Chen, 2013). A causal connection between hand cleanliness and diseases that are transmitted has likewise been set up before. Across the world, more than three million children, more youthful than 5 years, predominantly gathered in non-civilized nations including Nigeria, die from diseases that are preventable, usually caused by poor hand hygiene (World Health Organization, 2014).

Because of its significance, one area of extraordinary concern is the control of illnesses in a school populace where students reside in extremely nearness with one another particularly, throughout the break time frame. Quite possibly the main vehicles of transmission of diseases in such environment is the hand, thus, expanding the need for hand cleanliness (Galiani, Gertler, and Orsola-Vidal, 2012), Students hands promptly become contaminated from such countless exercises like, utilizing the latrine, dealing with food that are raw, playing, shaking hands, cleaning, subsequent to cleaning the nose or sniffing into the hands and etc.

Among younger children, the transmission of preventable diseases is answerable for more than 164 million days lost from school each year around the world (WHO, 2010), roughly 2.4 million deaths can be avoided yearly by great cleanliness practice, appropriate home cleanliness, and drinking water. A meta-examination by Rabbi and Dey (2013) on 30 hand hygiene researches considers that regular adherence to keeping the hand always clean diminished the rate of upper respiratory outcomes and disturbances by 21% and gastrointestinal ailments by 31%. Another confirmation showed that hand washing with cleansers could decrease the danger of diarrheal illnesses by 42%–47%, and hand washing advancement could save a large number of lives (Burton, et al, 2011; (Miko et al., 2012). However, different investigations in rural regions revealed 14% of people washing both hands with soap after defecating, while <1% utilized soap and water for cleaning their hands prior to eating. A few examinations attended to hand hygiene among various populace; however, hand hygiene investigations among individual students are often not seen (Rabbi and Dey, 2013).

To address high occurrence of diarrheal and other transmittable infections because of poor individual hygiene particularly among younger students, it is imperative to have proper knowledge and practices with respect to the issue. An investigation in Sub-Sahara and rural Nigeria showed that younger students' information towards hand cleanliness is poor particularly among secondary school students (Asekun and Omobuwa, 2014). Some central points responsible for appropriate hand hygiene are age, sex, availability of washing materials and financial status or family upbringing. However, investigations have shown that proper hand hygiene can actually reduce the spread of diseases and save so many lives (Rabbi & Dey, 2013; Burton, *et al.*, 2011). In spite of these, most optional schools especially public owned schools have no facilities that can improve the practice of appropriate hand cleanliness among school students particularly even with the dangerous Covid-19 Virus which has claimed a lot of lives since its inception.

In the school setting, students live near one another and do pretty much all in like manner that will require them contacting each other with their hands without the knowledge of their hands being contaminated. In most village schools, they go to the toilet in the bush without washing or cleaning their hands, they sneeze and use their hands to clean their nose and still use that same hand in playing and eating. Be that as it may, previous investigations report significant degree of communicable diseases among students because of poor hand hygiene (Rabbi and Dey, 2015). Moreover, in most government funded schools, there are no hand washing materials like tap, soaps, and towels compared to private based schools notwithstanding the new awareness made by WASH program.

The secondary school settings being where students reside autonomously from their guardians and parents required extraordinary concern. Albeit many investigations have been done on knowledge of hand hygiene by numerous researchers in the clinics, there are lacking examinations on hand hygiene knowledge among post primary school students in Eleme and other schools in the south-south region of Nigeria which has prompted the increment in upper respiratory lot diseases, gastrointestinal sicknesses, deaths and exiting schools. Therefore, this study intends to assess and compare hand hygiene knowledge between public and private secondary schools to make applicable suggestions and ensure consistent compliance for disease prevention and control.

II. AIM OF THE STUDY

The Aim was to assess and compare hand hygiene knowledge between public and private secondary school students in Eleme Local Government Area of Rivers State.

III. RESEARCH MATERIALS AND METHODS

Study settings

The design of the study was a comparative research design.

Area of the Study

The study was conducted in Eleme Local Government Area in Rivers state, Nigeria.

Population for the Study

The population of the study consisted of secondary school students (public and private) in Eleme Local Government Area of Rivers State.

Inclusion criteria

Secondary school students that have given consent to participate in the study

All secondary school students who are enrolled in a Government and private owned schools

Exclusion criteria

Secondary school students who are out of school due to ill health or other issues

Sample size determination and Sampling Technique

A sample size of 1510 was obtained using the formula for a comparative design showing difference in prevalence. A multi-stage sampling technique was employed for the study.

A written informed consent was obtained from the principals of the various schools to be studied while oral consent was obtained from the participating students before the commencement of the stud.

Instrument for Data Collection

The instrument used for data collection in this study was a semi-structured interview-administered questionnaire titled “Questionnaire on Hand Hygiene” that elucidates information on knowledge of hand hygiene, it comprised of 11 items with alternate responses.

Methods of Data Collection

The questionnaire titled hand hygiene (HY) was self-administered by the researcher with the help of three trained research assistants. The respondents were required to tick the option that represents their opinion in each of the items in the questionnaire. The data collection took a period of three months. Instruments were collected at the spot after filling for analysis.

Methods of Data Analysis

Data collected were coded using statistical package for social sciences (SPSS) and analysed using the descriptive statistics of frequency percentages (%) and chi-square.

Ethical consideration

Permission was sought and obtained from the Research and Ethics committee of the University of Port Harcourt

IV. RESULTS

4.1.2 Socio-demographic Characteristics of Respondents

Variables	Public School (n=750)		Private School (n=750)		χ^2 (p-value)
	Freq (n)	%	Freq (n)	%	
Age (in years)					
< 10	71	9.5	98	13.1	10.883
11-15	409	54.5	435	58.0	0.004*
16-20	270	36.0	217	28.9	
Gender					
Male	320	42.7	396	52.8	15.434
Female	430	57.3	354	47.2	0.000*
Class					
JSS 1	88	11.7	244	32.5	177.114
JSS 2	69	9.2	143	19.1	0.000*
JSS 3	98	13.1	48	6.4	
SSS 1	142	18.9	84	11.2	
SSS 2	154	20.5	146	19.5	
SSS 3	199	26.5	85	11.3	
Religion					
Christians	750	100.0	697	92.9	
Islam	0	0.0	53	7.1	0.000**
Traditional	0	0.0	0	0.0	

*Statistical significant (p<0.05); χ^2 =Chi-Square; α =Fishers Exact p

Table 1 shows the socio-demographic characteristics of respondents. The results showed that 71(9.5%) of Public School students are aged <10 years while that of Private School students is 98(13.1%). 409(54.5%) of Public School students are aged 11-15 years while that of Private School students is 435(58.0%). 270(36.0%) of Public School students are aged 16-20 years while that of Private School students is 217(28.9%). 320(42.7) of Public School students are male and 430(57.3%) females while that of Private School students is 396(52.8%) males 354(47.2%) females. For class, 88(11.7%) Public secondary students are in JSSI, 69(9.2%) JSS2, 98(13.1%) JSS3, 142(18.9%) SSS1, 154(20.5%) SSS2 and 199(26.5%) in SSS3 while 244(32.5%) private school students are in JSS1, 143(19.1%) JSS2, 48(6.4%) JSS3, 84(11.2%) SSS1, 146(19.5%) SSS2 and 85(11.3) SSS3. For religion, 750(100%) of Public School students are Christians while that of Private School students is 697(92.9%) with 53(7.1%) Islam.

Table 2: Overall Knowledge of Hand Hygiene among Respondents

Variables	Public School (n=750)		Private School (n=750)		χ^2 (p-value)
	Freq (n)	%	Freq (n)	%	
Overall Knowledge of Hand Hygiene					
Good Knowledge (7-13)	678	90.4	721	96.1	19.629
Poor Knowledge (≤ 6)	72	9.6	29	3.9	0.000*

*Statistically significant ($p < 0.05$); $\chi^2 = \text{Chi-Square}$

Overall Knowledge of Hand Hygiene

In measuring the overall knowledge of hand hygiene, thirteen (13) different questions were asked on varying knowledge of hand hygiene and scored, based on a yes and no methodology. They were all positive questions and those that answered yes to knowledge of hand hygiene were scored 1 and those that answered otherwise, 0 with few option questions that best describe the knowledge of hand hygiene which were also scored. The scores were summed for all participants. Participants with good knowledge of hand hygiene were scored 7-13, and those with poor knowledge of hand hygiene were scored ≤ 6 as shown in table 2. The overall knowledge of hand hygiene was 678(90.4%) for Public Schools and 721(96.1%) for Private School, and a statistically significantly difference was observed at $p=0.000$.

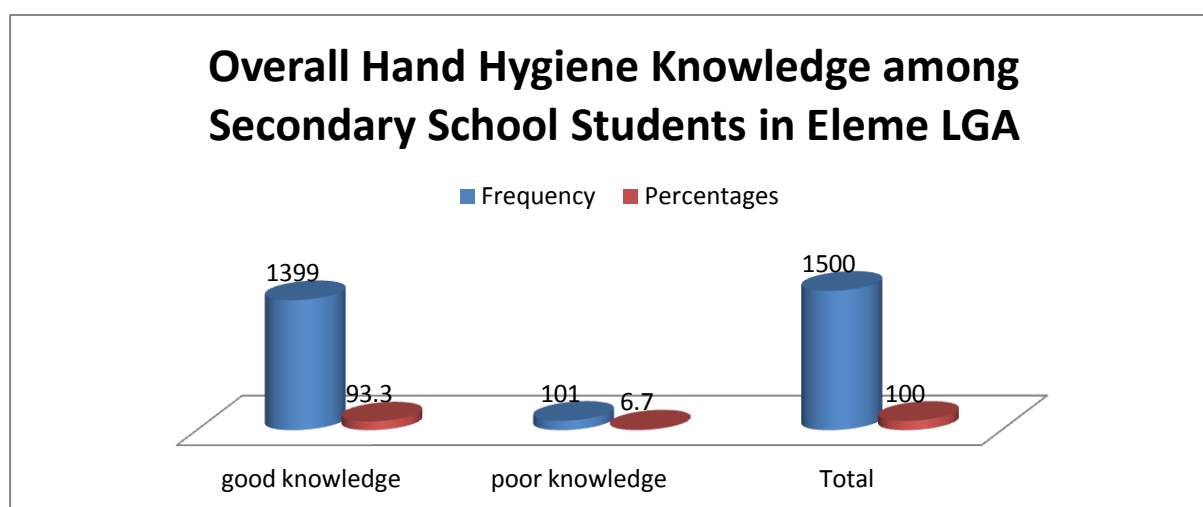


Figure 1 shows the overall hand hygiene knowledge among secondary school students in Eleme LGA. The results showed that 1399(93.3%) had good knowledge of hand hygiene while 101(6.7%) had poor knowledge of hand hygiene.

Table 3: Binary Logistic Regression showing association between age, gender, type of school and the level of hand hygiene knowledge among secondary school students in Eleme Local Government Area of Rivers State

Variables	Hand Hygiene Knowledge			df	χ^2 (pvalue)	Odds Ratio (OR) (95% CI)
	Good Freq(n) %	Poor Freq(n)%	Total Freq(n) %			
Age						
< 10 years	149(88.2)	20(11.8)	169(100.0)	2	16.126	0.42 (0.30-0.59)
11-15 years	780(92.4)	64(7.6)	844(100.0)		(0.000) *	
16-20 years	470(96.5)	17(3.5)	487(100.0)			
Total	1399(93.3)	101(6.7)	1500(100.0)			
Gender						
Male	630(88.0)	86(12.0)	716(100.0)	1	60.764	0.11 (0.06-0.19)
Female	769(98.1)	15(1.9)	784(100.0)		(0.000) *	
Total	1399(93.3)	101(6.7)	1500(100.0)			
Type of school						
Public	678(90.4)	72(9.6)	750(100.0)	1	19.629	3.65 (2.29-5.80)
Private	721(96.1)	29(3.9)	750(100.0)		(0.000) *	
Total	1399(93.3)	101(6.7)	1500(100.0)			

*Statistically significant ($p < 0.05$)

Binary logistic regression was performed to assess the association between age, gender, type of school and the level of hand hygiene knowledge among secondary school students. The table revealed that there was a significant association between knowledge of hand hygiene and factors such as age (OR=0.42;95%CI=0.30-0.59), gender (OR=0.11;95%CI=0.06-0.19) and school (OR=3.650;95%CI=2.269-5.802). However, among these variables, the result also showed that the type of school contributed about 3.6 times to the level of hand hygiene knowledge than the other variables.

V. DISCUSSION

Knowledge gained in a particular area of life helps people to act wisely especially in the area of personal hygiene. The finding of the study revealed that the overall knowledge of hand hygiene was good for both schools though it was higher among private schools. This shows that both public and private secondary school students have good knowledge of hand hygiene. The finding of this study corroborates with the study of Manal and Amelabd (2020) who found out that the knowledge of hand hygiene between both types of schools were good, though their study was an intervention study that included pre-test, intervention and post-test to enhance hand hygiene during the Covid-19 outbreak. The finding of the study is in line with the studies of Rajkumar and Khaja (2020) and Barret and Cheung (2020) who discovered that students had good knowledge of hand hygiene though their studies were carried out among post-secondary school students that both attended public and private schools.

The finding of the study also corresponds with the studies of Ferous et al (2020), Mbouthieu-Teumte et al (2019), Assefa and Kumie (2014) and Tamilarasi et al (2016) whose studies found out that there was good knowledge that existed between both public and private secondary school students. This shows that the levels of hand hygiene knowledge between these schools are the same. The finding of the study also corroborates with the studies of Buda et al (2018), Vivas et al (2010) and Manandhar et al (2017) whose studies discovered good knowledge between public and private secondary schools. However, their studies revealed that hand hygiene knowledge was higher among private schools compared to public schools.

The similarities reported between the level of knowledge of hand hygiene between public and private secondary school students in the present and previous studies might be due to the recent awareness of hand hygiene as a means to the prevention of communicable diseases especially the prevention of Covid-19 that has led to several deaths. However, the finding of the present study deviates from that of Nuwagaba et al (2020) whose study discovered that poor knowledge of hand hygiene existed between both public and private secondary school students. The finding of the present study also deviates from the study of Islam et al (2015) whose study reported poor knowledge of hand hygiene especially among public secondary school students. The reason for this may be attributed to poor awareness of hand hygiene either by the Government, schools and relevant agencies. Another factor may be due to family and cultural upbringing and poor implementation of hand hygiene. Hence, the need for awareness campaign especially in the face of covid-19 pandemic.

The finding of the study revealed that there was a significant association between knowledge of hand hygiene and factors such as age, gender, and type of school (public and private). However, among these variables, the result also showed that type of school contributed about 3.6 times to the level of hand hygiene knowledge than the other variables. This implies that knowledge of hand hygiene among secondary school students can be influenced by age, gender and type of schools students attend. The finding of the study is in keeping with that of Ferdous et al (2020) whose study reported that age and gender is significantly associated with the knowledge of hand hygiene among secondary school students.

The finding of the study also corroborates with the finding of Dhiraj et al (2015). The study reported that gender is associated with knowledge of hand hygiene among secondary school students but however, revealed that males had better knowledge of hand hygiene among secondary school students compared to the females. A report that contradicts the study of Rajbhandari et al (2018) whose report found out that female had better knowledge of hand hygiene among secondary school students. However, this may deviate from societal value that thinks females should have better knowledge of hand hygiene among secondary school students.

The finding of the study also corresponds with that of Assefa and Kumie (2014), Ergin (2011), Buda et al (2018) and Steiner-Asiedu et al (2011) whose studies discovered that age and gender were significantly associated with knowledge of hand hygiene among secondary school students. This may also be the reason why those who are elderly have better understanding of important issues. The finding of the study also corresponds with that of Bulled et al (2017), Temitayo (2016) and Manandhar et al (2017) whose studies discovered that type of school was significantly associated with knowledge of hand hygiene among secondary school students.

This result is in keeping with the finding of the present study as it discovered that private secondary school students had better knowledge of hand hygiene. This implies that the type of schools attended by students can actually influence knowledge of hand hygiene among students. The finding of the study also corroborates with that of Mbouthieu-Teumta et al (2015) and Manal and Amelabd (2020) whose studies found out that type of school was significantly associated with knowledge of hand hygiene among secondary school students. The

similarities reported between these studies and the present study could be attributed to the fact that demographic variables influences the way people think,

VI. CONCLUSION

Based on the findings of the study, it was concluded that public and private secondary school students had good knowledge of hand hygiene. Hence, there is need to provide adequate hygiene materials in secondary schools. The findings also showed that socio-demographic characteristics such as age, gender and type of school influences hand hygiene knowledge between public and private secondary school students in Eleme Local Government Area of Rivers State.

VII. RECOMMENDATIONS

Based on the findings in this study, and to improve the intervention for hand hygiene, the following are recommended;

To the Government

The Government, should through its relevant agencies mount more intensive enlightenment campaigns through public talk, seminars, conferences and workshop to create more awareness on the need for adequate knowledge of hand hygiene and make improved hand hygiene adherence a national priority and consider provision of a funded, coordinated implementation programme while ensuring monitoring and long-term sustainability. This will in turn reduce the burden of diseases.

To Organizations/Institutions

Organizations and institutions such as school management, religious bodies (churches and mosques), banks etc should make improved hand hygiene education an institutional priority and provide appropriate leadership, administrative support, financial resources and support for hand hygiene and other infection prevention and control activities. This will in turn improve on the level of adherence among students and the general public.

To Communities

Communities through its leaderships should organise educative programmes that will help develop appropriate behaviour towards hand hygiene among her members

To Households

Households should provide policies that will ensure their family members adhere to hand washing at an early age to improve knowledge and ensure that hand washing facilities and materials are provided at their homes

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