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PERCEPTION OF STUDENTS ON HAND WASHING PRACTICES IN SELECTED SENIOR HIGH SCHOOLS IN MAMPONG MUNICIPALITY, GHANA

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Abstract:
The study sought to investigate the perception of students on hand washing in order to prevent diseases in Senior High Schools in the Mampong Municipal Assembly. The study employed the use of descriptive research design to find out the attitudes of students on hand washing practices. The instrument for the data collection was a questionnaire which has been administered to the students. The results indicated that, there were insufficient resources for hand washing such as soap, towel, sanitizers, hand antiseptics, portable/tap water, detergent, warm water and alcohol-base rub. Also, there was lack of hand washing practices among students such as after/before visiting toilet, eating, touching raw material, touching rubbish and playing games. Again, there was lack of education and advise on hand washing. It was therefore recommended that school management and government agencies in charge of health and education should increase the education on hand washing in senior high boarding schools.

Keywords: perception, hand washing, practices, students

1. Introduction

The challenge of hand washing is to transform the concept from abstract idea into practical behaviour performed in homes, schools, and communities worldwide. Hand washing with soap before eating and after using the toilet into an ingrained habit could save more lives than any single vaccine or medical intervention, cutting deaths from diarrhea by almost half (Lorna *et al*., 2005). Also, it could reduce deaths from acute respiratory infections by one-quarter (WELL Fact, 2008). Hand washing with soap

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would make a significant contribution to meeting the Millennium Development Goal of reducing deaths among children by two-thirds by 2015. In addition, hand washing with soap can limit the transmission of respiratory disease. Hand washing with soap is also a formidable ally in efforts to combat a host of other illnesses, such as helminthes (worms), eye infections like trachoma and skin infections like impetigo.

Throughout the day microorganisms accumulate on the hands from a variety of sources, such as direct contact with people, contaminated surfaces, and foods, even animal and animal waste. If hands are not washed frequently enough, infection with these microorganisms of one with these germs by touching eyes, nose, or mouth can result. Inadequate hand hygiene also contributes to food-related illness such as cholera typhoid amongst others.

Many people have the misconception that their immediate environment must be germs free; this is only possible in true germ free chamber in a lab or in hospital settings. Because we live in a natural world that is full of microorganisms, living things that cannot be seen with our bare eyes while some of the microorganisms can cause illness or disease, others can be very essential to our environment and wellbeing, there is the need to practice hand washing. The study of hand washing practices among boarding schools at Ashanti Mampong Municipal is part of a larger strategy being implemented in different countries to decrease the prevalence of diarrhea and others in the framework of the Global Public-Partnership for hand washing with soap.

1.1 Research Questions

1) What are the hand washing practices among the students?
2) What are students' perceptions of hand washing?

2. Literature Review

2.1 Substances Used for Hand Washing

Warm water that is comfortable for washing hands is not hot enough to kill bacteria. Bacteria grow much faster at body temperature (37^{o}C). However warm, soapy water is more effective than cold, soapy water at removing the natural oils on your hands which hold soils and bacteria. Contrary to popular belief however, scientific studies have shown that using warm water has no effect on reducing the microbial load on hands (Laestadius & Dimberg 2005). It has been established that bacteria from contaminated solid soap (without antibacterial additives) are not transferred from person to person during common use (Heinze & Yackovich, 1988). These studies demonstrate that solid soap is inherently anti-bacterial and will not likely support the growth of bacteria. The American Infection Control Guideline recommends that if solid soap is used, it should be provided in small bars that can be changed frequently, with soap racks to promote drainage (Larson, 1995).

After hands are washed and rinsed, they must be thoroughly dried. Blow dryers should not be used because they accumulate microorganisms from toilet aerosols, and can cause contamination of hands as they are dried by the drier (Knights & McHardy,

1993). It is also apparent that many individuals do not dry their hands thoroughly when using a blow drier; hence, moisture, which is conducive to microbial growth, remains on hands, or people dry their hands on their clothing.

Hands may become dry and irritated with frequent hand washing, and therefore there is a tendency for personnel to want to use hand lotions. However, the use of hand lotions in food production and food service units is discouraged, as it is in health care units, because of possible contamination of these products (Becks, *et al*. 1995). If the use of hand lotions is allowed, only small packets or small bottles of lotion should be allowed on the premises so that they are replaced frequently. The use of hand lotion products should be monitored.

Conventionally, the use of soap and warm running water and the washing of all surfaces thoroughly, including under fingernails is seen as necessary. One should rub wet, soapy hands together outside the stream of running water for at least 20 seconds, before rinsing thoroughly and then drying with a clean towel, disposable or otherwise (Mayo, 2012).

In a study conducted at Tufts university 2007, it has been shown that the use of a towel is a necessary part of effective contaminant removal, since the washing action separates the contaminants from the skin but does not completely flush them from the skin-removing the excess water (with the towel). Also, towels remove the suspended contaminants. After drying, a dry paper towel should be used to turn off the water (and open the exit door if one is in a restroom). Moisturizing lotion is often recommended to keep the hands from drying out, should one's hands require washing more than a few times per day

A hand sanitizer or hand antiseptic is a non-water-based hand hygiene agent (CDC, 2009) hence; a lot of the antiseptic should be rub thoroughly on both hands. The front and back of both hands, between the fingers for approximately 30 seconds until the liquid, foam or gel is dry.

Alcohol rubs and combination hand sanitizers are effective at killing germs on the hands. Many clinical studies have shown that alcohol rubs containing two germ killers are significantly better germ killers than alcohol rubs containing alcohol alone (Hibbard, 2005). However, alcohol rub sanitizers are not appropriate for use when the hands are visibly dirty, soiled. Visible soiling of any sort on the hands must be washed with soap and water because alcohol-based hand rubs are less effective in the presence of organic material. Hand washing with hand sanitizer (hand antiseptic) is effective in cleaning Staph *aureus* and the bacteria that are causing these staph infections, but alcohol-based hand sanitizers and soap and water are not effective in killing spore forming organisms because alcohol or soap will not destroy bacterial spores.

2.2 Perceptions of Students on Hand Washing

A study conducted in the Mereb-Leke District of Ethiopia had revealed that students have positive behaviour on hygienic practices and were particular about the washing of their hands (Assefa & Kumie, 2014). Hand washing was found among students that laziness was their main barrier of frequent hand washing. Also, non-availability of

nearby water supply. The study further noted that the participants mentioned that they had the feeling that their hands are not dirty enough to be infected. The majority of the participants agreed that hand washing is clinically significant in reducing the spread of infectious diseases (Al-Naggar & Al-Jashamy, 2013).

2.3 Hand Washing Practices among the Students

In an experimental study to find out students hand washing and their food hygiene in Korea had shown a progression towards proper hand washing ($P < 0.01$) among the students (Kim, Pai, Kang, Kim, Kim, Moon & Ha, 2012). A study conducted in 12 public secondary schools in the Lagos and Ogun stated had revealed that only 3 (25%) had drinking water points (boreholes) and 40% of the schools do not have separate latrines for boys and girls. The study further reported that only 1(10%) of the schools had hand washing points but without soap and there is no plan in the schools for advancing WASH program (Olukanni, 2013). The study concluded that measures put in place to make WASH programme in the various secondary schools in South-Western part of Nigeria was not adequate.

Hand washing in Tunga Islamic Community and Zamarama Line Basic Schools in the Ablekuma South Metro in Accra were seen not to be the best. The study noted that students in such schools used water that has been used to wash their hands and others use the same contaminated water to wash their hands (Arthur, 2014). This finding suggests therefore that hand washing in the studied schools was not in a positive direction.

In 2008, a study was conducted by the University of Westminster Trade Group to compare the levels of hygiene offered by paper towels, warm air hand dryers and the more modern jet-air hand dryers. The result revealed that after washing and drying hands with the warm air dryer, the total number of bacteria found had average increase on the finger pads from 19.4% to 25.4%. The study further found that drying with the jet air dryer resulted in an increase in bacterial the on average of 42% on the finger pad and on the palms by 15%. However, in the same study, after washing and drying hands with a paper towel, the total number of bacteria had reduced on the finger pads by up to 76% and on the palms by up to 77% (Kretzer & Larson, 1998).

3. Research Methodology

3.1 Introduction

This section discussed the procedure and approaches in data collection. It describes the research design, population of study, sampling method, instruments and data collection procedure, validity and reliability of instruments selected for application to the study of hand washing practices in Ghanaian Senior High Boarding School.

3.2 Research Design

The design used for this study was that of an experiment which relied on questionnaire and demonstration to generate data for the analysis. The study employed the use of

descriptive design to find out the attitudes of students on hand washing practices at the school and also to find the extent of hand washing practices in Ghanaian Senior High Boarding Schools.

3.3 Sample and Sampling Procedure

The researcher selected students from all the three schools which were Saint Monica's Senior High School, St. Joseph's Senior High School and Amaniampong Senior High School all in the Mampong Municipal Assembly in the Ashanti Region of Ghana. The total sample size for the study was three hundred (300). Since there are many strata to deal with, the stratified random sampling method was used for the study. Stratified sampling method was used where the population was divided into three homogenous groups or strata based on current class of study with each class representing a stratum (thus Senior High School 1-4). In each level, simple random sampling was used to sample 100 students from each school.

3.4 Instrumentation and Data Collection Procedure

The instrument for the study was questionnaire used to collect data on hand washing practices and perception on hand washing among students. The instrument was a close-ended item. The questionnaires were administered to the students directly after the necessary permission was sought from the school authority. The questionnaire administration took three days since the participating schools were far apart.

3.5 Data Analysis

The data collected was analyzed with the use of frequency distribution tables and charts. Each question was analyzed and generalizations made after each analysis. Responses with highest percentages were considered to be the general opinion with regards to that research question.

4. Result and Discussions

4.1 Hand Washing Practices among the Students

In addressing this problem, the results on some hand washing practices among students are presented in Tables 1, 2 and 3.

Table 1 shows the ways of washing hands. It indicated that 80% of the students washed their hands using soap and water, 4% also washed with hand antiseptics, 6% used sanitizers, and 4% use none of the methods. This indicated that most of the students used soap and water for washing their hands.

Table 1: Ways of washing hands

Method	**Frequency**	**Percent**
Using soap and water	40	80.0
Hand antiseptics	2	4.0
Sanitizers	3	6.0
None of the above	5	10.0
Total	**50**	**100.0**

Table 2: Hand washing practices

Description	**Yes**		**No**	
	No.	**%**	**No.**	**%**
Using warm water in hand washing	6	12.0	44	88.0
Using alcohol-based hand rub for hand washing	3	6.0	47	94.0
Using soap and warm water	31	62.0	19	38.0

Table 2 shows what students use and do during hand washing. It indicated that 88% of the students did not use warm water for washing their hands while 12% used warm water for washing their hands. Six per cent (6%) used alcohol-base rub for hand washing while 94% did not. Sixty-two per cent (62%) dry or wipe their hands after washing their hands while 38% do not.

Table 3: Advise and education on hand washing practices

Description	**Yes**		**No**	
	No	**%**	**No.**	**%**
Do parents advise/educate you on hand washing?	28	56.0	22	44.0
Do teachers advise/educate you on hand washing?	33	66.0	17	34.0

Table 3 shows the advise and education on hand washing practices. It indicated that 56% of the students agreed that their parents advised and educated them on hand washing practices while 44% disagreed. Sixty-six percent agreed that their teachers advised and educated them on hand washing practices while 44% did not. This depicted that parents and teachers are educating and advising students to inculcate hand washing practices.

The result has shown that students generally practice hand washing in a proper way. The result is consistent with the earlier student result in the case of Kim, et al (2012) that students do proper hand washing before and after eating food. The result in this study also contradicts other findings that students do not do proper hand washing. Even if they hand their hands, it was done using contaminated water or wash their hands without soap (Arthur, 2014; Olukanni, 2013). The influence in students practising proper hand washing could be attributed to the fact that they have been taught how to do the hand washing. Another contributing factor that could have account for the proper hand washing may be attributed to the fact the clean water and soap were made available. It is the general norm in boarding schools in Ghana for students to send

washing soap to school. So far as the school authorities provide water and with little education, the student might have understood the importance of hand washing.

4.2 Perception of Students about Hand Washing

In addressing this research question, the results have been presented in Tables 4 -5 and Figures 1-4 for discussions.

Table 4: Frequency of washing hand after visiting the restroom

Period	Frequency	Percent
Always	11	22.9
Sometimes	33	68.8
Others	3	6.2
Total	**48**	**100.0**

Table 4 shows the frequency of washing hand after visiting the restroom. It indicated that 22.9% of the students said they always washed their hands after visiting the restroom, 68.8% also said they sometimes washed their hands, and 6.2% said they had other periods for washing their hands. This shows that most of the students did not always wash their hands after visiting the restroom.

Table 5: School authority's provision of hand washing materials at vantage points

Position	Frequency	Percent
Not effective	156	62.4
Very effective	94	37.6
Total	**250**	**100.0**

Table 5 shows the effectiveness of school authority's provision of hand washing materials at vantage points of the school. It indicated that 37.6% of the students perceived that the school authority's provision of hand washing materials at vantage point of the school are not effective, while 62.4% perceived that the school authority's provision of hand washing materials at vantage point of the school are very effective. This depicted that majority of students perceived school authority's provision of hand washing materials are effective, which shows a real change as compared with the results in table 4.

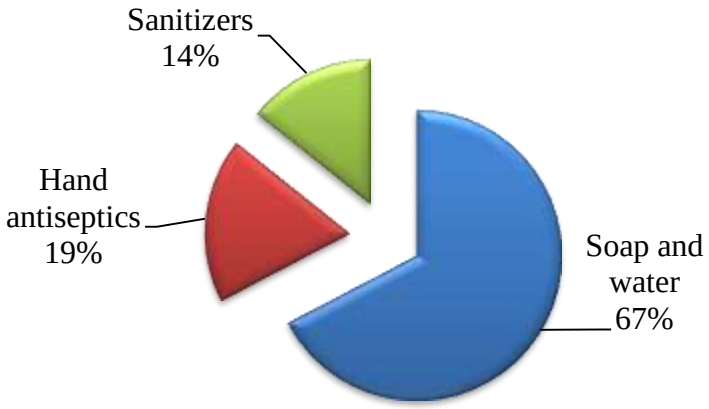

Figure 1: The best ways of washing hands

Figure 1 shows the best ways of washing hands. It indicated that 67% of the students perceived the best way of washing their hands was using soap and water, 19% also perceived the best way of washing their hands was using hand antiseptics, 14% perceived the best way of washing their hands was using sanitizers. Majority of students perceived the best way of washing hands was to use soap and water.

4.3 Materials Used for Drying Hands after Washing

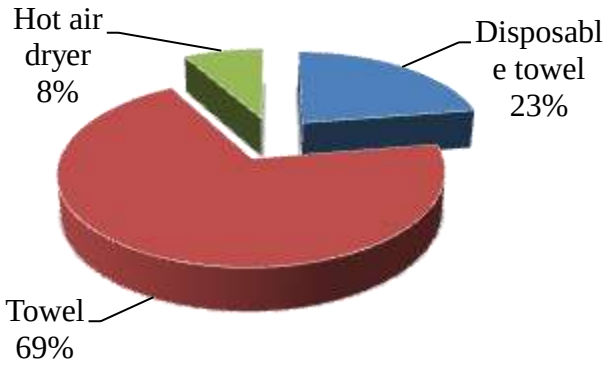

Figure 2: Materials used for drying hands after washing

Figure 2 shows the materials used for drying hands after washing. It indicated that 23% of the students used disposable towel for drying their hands, 69% also used towels and 8% used hot air dryer for drying their hands. This suggested that most of the students dry their hands by using towel.

4.4 Frequency of Washing your Hands Everyday

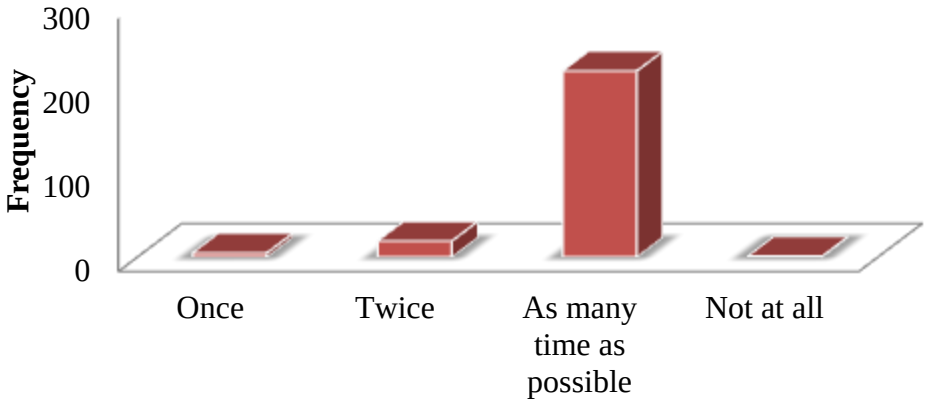

Figure 3: Frequency of students washing their hands everyday

Figure 3 shows how many times students washed their hands every day. It indicated that 2% of the students washed their hands once every day, 7.7% washed twice every day, 89.8% of the students washed their hands as many times as possible every day, and 0.4% did not washed their hands at all. These results depicted a significant shift as compared with the result in table 3; more students were washing their hands as many times as possible every day.

4.5 Type of Water Use to Wash Hands during School Hours

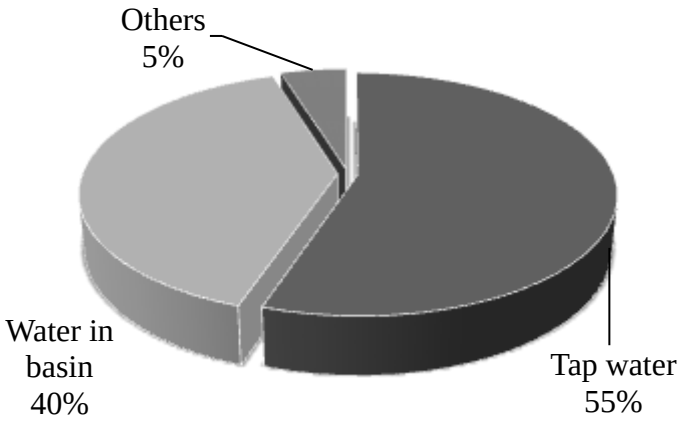

Figure 4: Type of water use to wash hand during school hours

Figure 4 shows the type of water used to wash hand during school hours. It indicated that 55% of the students used tap water for washing their hands, 40% also used water in basin, and 5% used other types of water for washing their hands. This shows that most students used tap water for washing their hand during school hours, which corresponds with the result in Figure 4.

Per the result it can be concluded that the students have positive or good perception about hand washing practices. The finding in this study thus confirmed

earlier study that students have positive behavior about hand washing (Assefa & Kumie, 2014). The students accepting the fact that hand washing was important to them and have to take the necessary step to wash their hand was encouraging. Washing of hands is behavior that has to be practices on daily basis. At school, students turn to play a lot and if care is not taken, their food and hand could be infected and this it may translate into disease.

5. Conclusions

Students in the boarding schools have good hand washing practices and positive perception about hand washing. The general overview of the study result has shown that the education the students are having on hand washing is having an impact. While in school and at home, the students continue to receive education on the need to wash their hands and this is very encouraging. The students in no time will transmit the importance of hand washing to their peers and other young ones at home.

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