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Assessing the Status and Effects of Water, Sanitation and Hygiene (Wash) in Senior High Schools in the Assin South District

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Abstract:

The study was conducted to examine the status of WASH in senior high schools in the Assin South District. The specific objectives for the study were to: describe the status of WASH facililties in the senior high schools in the Assin South District, and analyse the effects of poor WASH facilities in senior high school in the Assin South District. Mixed methods research approach with explanatory sequential research design was employed for the study. The sample size for the study was 2I6 which was made up of teachers, wash coordinators and students drawn from senior high schools in the Assin South District. The simple random and purposive sample techniques were employed for the study, and data were collected using observation and interview guides, and questionnaire. Data collected were analysed using both quantitative and qualitative methods. The outcome of the study was that WASH facilities, in the study schools were inadequate, and the few available were not well maintained. In addition, the attitude of students towards the use and maintenance of the facilities was poor. Thus status of WASH facilities was poor, thereby affecting the health, school attendance and the academic performance of students. Based on the outcome of the study, it was recommended that, there is the urgent need for school administration to adequately provide and maintain WASH facilities, including toilets, water urinal and waste disposal. The school administration can effectively do this by bringing this to the attention of the P.T.A during their meetings and educating the parents on the need for the provision of proper and efficient WASH facilities in the schools. A committee for the promotion of WASH facilities should then be formed by the P.T.A.s to ensure the proper use of WASH facilities by the students. There should also be regular education at all school functions to sensitise the students on the need for their proper use to promote the health of the students. They should also be educated on the consequences of the poor use of the facilities and what they are expected to do to avoid such consequences.

Keywords:

Ghana, Hygiene, Sanitation, Senior High Schools, Water

1. Introduction

In the establishment of a school and any school environment, children have the right to basic facilities such as school toilets, safe drinking water, clean surroundings and basic information on hygiene. In this regard, the United Nations International Children's Emergency Fund (UNICEF) is of the view that schools play an important role in bringing about behavioural change, and promoting better health in various communities [1]. Therefore, it can be argued that improved hygiene practices are essential if transmission routes of water and sanitation-related diseases are to be avoided. According to UNICEF, an ideal learning environment should have adequate Water, Sanitation and Hygiene (WASH) facilities with functional and reliable water system sufficient for all the school's needs, more especially for hand washing and for drinking. Consequently, the learning environment should also have a sufficient number of toilet facilities for students and teachers that are private, safe and clean as well as gender segregated [2].

According to UNICEF, children who have adequate WASH conditions at school are more able to integrate hygiene education into their daily lives, and can be effective messengers and agents for change in their families and the wider community [3]. Whereas, communities in which school children are exposed to diseases risk being infected because of inadequate WASH facilities at school. Freeman asserted that, families ultimately bear the burden of their children's illness due to bad conditions at school. WASH programme is, therefore, widely recognised for its significant role in achieving the Millennium Development Goals (MDGs), particularly, those related to universal access to primary education, reducing child mortality, improving water and sanitation, and promoting gender equality [4]. Poor school WASH facilities are among the factors contribute to low school attendance of school children especially adolescent girls in schools. WASH in Schools is a first step towards ensuring a healthy physical learning environment. Schools with quality WASH programmes can lessen the spread of disease. Damage to children's mental and physical development is also reduced when the spread of disease is stopped. Children enduring strong infestations with whipworm miss twice as many school days as their infestation-free peers [5]. De-worming services, supported by hygiene education, help children avoid re-infestation, and water and sanitation facilities prevent children from re-exposure. Soap makes a difference.

According to UNICEF, washing hands with soap could reduce acute respiratory infections – including pneumonia, which kills more children than AIDS, malaria and measles combined by 25 per cent. Poor knowledge and practice of, and attitudes to personal hygiene, such as hand washing, has negative consequences for a child's long term overall development [6]. WASH facilities such as hand washing with soap and water is, therefore, a prerequisite to a child's survival [6]. Thus the global sensitisation to the outbreak of the Pandemic Influenza H1N1 in 2009 and Corona Virus (COVID-19) included hand washing with clean water and soap as a mode of prevention.

A hand washing facility, even with soap, on a communal basis, where the same water is used by more than one person, does not constitute an adequate hand washing facility [7]. Ali recommend that critical times for hand washing include after using the toilet, after cleaning a child, and before handling food. For children in particular, critical moments include after playing outside, or with toys and pets [8].

Although hand washing with soap is among the most effective and inexpensive ways to prevent diarrhoeal diseases and pneumonia, which together are responsible for the majority of child deaths globally, each year, it is seldom practised and not always easy to promote, despite its life saving potential. According to a UNICEF report, involving children themselves as active participants in promoting hand washing with soap in schools creates in the children, a sense of ownership that makes new behaviours more likely to be adhered to (UNICEF, 2008) [6]. Therefore, key hygiene habits such as good hand washing practice that are likely to be taken further into adulthood can be adopted by encouraging millions of school children to engage in these good repetitive, non-reflective behaviours.

These habits can also contribute to the achievement of two of the Millennium Development Goals (2 and 4), which support education and health. In Ghana, the National Community on Water and Sanitation Programme has, among its mandate, encouraged more school children, aged 6-15 years, to who wash their hands with soap, especially after using the toilet [9]. In addition, the School Health and Education Programme (SHEP) in Ghana are to provide comprehensive health education and services, as well as to ensure availability and use of water and sanitation facilities in schools to facilitate the practice of hand washing. It must be mentioned, that adequate and well-functioning school sanitation and hand washing facilities play a major role in ensuring good hand washing practices [10].

WASH facilities including water for washing, toilets and hygiene facilities are important component of school infrastructure. However, school infrastructure development project in Ghana often fail to include these facilities. As a result, many schools in the country lack adequate WASH facilities such as water and soap for hand-washing, toilets and urinals. Avaliable literature suggests that the lack of adequate WASH facilities in schools can have serious adverse effects on school attendance, and effective teaching and learning.

Observations made by the researcher in the schools in the Assin South District in the Central Region of Ghana suggest that many schools lack WASH facilities, and those that have them are often unable to maintain these facilities at an acceptable standard. The poor WASH situation in these schools could affect the progress of the schools especially in areas such as school attendance, teaching and learning. This is because the health implications of these unsanitary conditions lead to the contraction of diseases such as diarrhoea, dysentery, ENT infections and malaria among school children, with adverse effects on school attendance and learning. What we do not know however, is the actual status of WASH in schools in the Assin South District, and how the situation affects the schools. On the basis of the problem discussed above, this study, therefore, sought to examine the availability, adequacy, usage and impact of WASH facilities in senior high schools in the Assin South District in the Central Region of Ghana.

The study was based on the following research questions: What is the status of WASH facilities in senior high schools in the Assin South District? And what are the effects of poor WASH facilities on senior high schools in the Assin South District? The study was carried out in the Assin South District, and focused on the senior high school students and teachers. With regard to subject matter, the study assessed the status of the WASH facilities in the senior high schools. The study also included other stakeholders of schools such as parents and community leaders.

2. Literature and Theoretical Review

2.1. The Health Belief Theory (HBT) and its Application

Strecher, Champion and Rosenstock described the Health Belief Theory (HBT) as a theory that explains why people do or do not engage in preventive health measures, such as getting tested for a disease, eating healthy food and exercising, or keeping their environment clean [11]. It is one of the models which adopted theories from other disciplines and one of such is the behavioural science to study health problems. Redding et al, argued that the Health Belief Theory (HBT) is one of the most widely recognised and used in health behaviour applications [12]. Slovic also intimates that Health Belief Theory (HBT) explains why people would or would not use available preventive services [13]. The presupposition is that people who fear diseases are influenced by the fear in type of health activities they do. This is seen in the degree of fear (perceived threat) and the expected fear reduction actions so far as that supposed reduction seemed to outweigh practical and psychological barriers to taking action (net benefits) [13]. The researcher thinks that the fear of diseases is not enough for people to engage in activities that will prevent them, but the awareness that certain preventive activities can help reduce the threat is important. Hence, should the students be equipped with knowledge about activities that can prevent sanitation-related diseases, they will engage in those activities that prevent diseases. Strecher et al, cited in Redding et al, explain four expectations that exemplify the HBT [11], [12]. These expectations correspond to the perceived threat of the illnesses and expected outcome as presented below: (1) Perceived Susceptibility which refers to how much individuals believe that they are vulnerable to or, at risk for some illnesses. In relation to this study, if students believe that the poor status of WASH in schools poses a risk and that they are at risk to such health hazards then their attitude will change conditioned by availability and accessibility of WASH facilities in the school. They will thereby adopt good sanitation and hygiene practices based on the knowledge that they are vulnerable. (2) Perceived Severity refers to how serious the individual believes the consequences of being ill are. The study bears on the presupposition that if the students know that the risk associated with poor WASH practices can be fatal, they will change their attitude and engage in practices that improve WASH in the schools. (3) Perceived Effectiveness refers to the expected benefits one enjoys for engaging in the protective behaviour. Fitting this into the study, if students realise that engaging in good WASH practices will actually reduce the risk of contracting WASH- related diseases they are more likely to engage in proper WASH practices. To this end, the students will be healthy and learn without any health-related hindrance. (4) Perceived Cost refers to the barriers or losses that interfere with health behaviour change. Referring to the barriers and losses that can impede the practice of good WASH, allusion is made to the perceived time waste, financial burden and inadequate information on the expected gain associated with improved WASH practices. For instance, when students in schools think that practising proper hand-washing and hygiene is relatively time consuming, drawing on their finances or that the practice would not yield any tangible benefits, they are not likely to be motivated to change their attitude and practices, despite their awareness of good sanitation and hygiene. According to Mosse, it is assumed that the preventive action will be taken only if the expected benefits outweigh the expected costs. The role of demographic and social variables (called mediating factors) can indirectly affect behaviour by influencing an individual's perceptions of susceptibility, severity, benefits and costs

[14]. This can apply to the schools where students fit into the four aforementioned expectations.

A systematic review of studies regarding people's behaviour and environmental sanitation used the Health Belief Model among adults into the late 1980s and found it lacking in consistent predictive power for much behaviour, sometimes, due to its limits of scope to predisposing factors [15]. Mullen, Hersey, and Iverson also found the model to account for a smaller proportion of the variance in diet, exercise and other behaviours than did the theory of reasoned action, theory of planned behaviour, and the precede-proceed model, in terms of predictive power when it was compared in one study[16]. Redding et al, supported by Croyle, however argue that, the Health Belief Model continued to be the most appropriate and frequently used model in published descriptions of programmes and studies in health education and health behaviour in the early 1990s [12,17].

According to Redding et al, the expectancy concepts are gradually changing in the area of health-related behaviour. The translation is first geared towards the desire to avoid illness or to get well. Next is the belief that a specific health action available to a person would ameliorate illness, and that is the expectation [12]. The expectancy was further delineated in terms of the individual's opinion that an illness is serious and of the likelihood of being able to reduce that threat through personal behavioural action [18]. It should however, be noted that this set of beliefs is not equivalent to actual rewards and barriers referred to as reinforcing factors [19]. According to Glanz, Rimer and Lewis, the Health Belief Theory (HBT), highlights 'perceived' or 'expected' benefits and costs to predisposing factors [19]. The person receives a 'cue to action' or a precipitating force that makes the person feels the need to take action [17]. Efforts to model several health-related actions have multiplied and increasingly had become complex. On account of these circumstances, the person believes that benefits accruing from the recommended behaviour outweigh the costs and inconvenience. When students in school are given a recommended behaviour, it is assumed that they will derive benefits from it. Such recommended behaviour includes good WASH practices such as washing hands after visiting the toilet, avoidance of indiscriminate littering, covering waste bins and disposing waste properly and regularly.

The Health Belief Theory (HBT) is relevant to the study because it helped to explain certain WASH related behaviours of students and guided the search on why they engage in poor WASH practices conditions and dispose of their waste indiscriminately. It also helped the researchers to relate knowledge to behaviour changes that play crucial role in making informed choices, and this can motivate and stimulate students' readiness to act in a concrete and an observable manner (practice), thus bringing about the desirable change.

2.2. Definition, Status and Effects of WASH in Schools

WASH in schools is a service that aims to improve the health and learning performance of school-aged children, and by extension, that of their families by reducing the incidence of water and sanitation-related diseases. Every child- friendly as well as school requires appropriate WASH initiatives that keep the school environment clean and free of smells and inhibit the transmission of harmful bacteria, viruses and parasites [20]. WASH in schools also focuses on the development of life skills and the mobilisation and involvement of parents, communities, governments

and institutions, to work together to improve hygiene, water and sanitation conditions. While there are many approaches based on differing cultural insights and environmental and social realities, any WASH in schools intervention should include the following: Sustainable, safe water supply points, hand-washing stands and sanitation facilities; Fully integrated life skills education, focusing on key hygiene behaviours for school children and using participatory teaching techniques; and Outreach to families and the wider community [20].

Access to water, sanitation and hygiene (WASH) in schools (WinS) is integral to the well-being of children and their right to quality education. The impact of WinS is multi-faceted as it makes a crosscutting contribution to the achievement of the Millennium Development Goals (MDGs) through impacting universal primary education, gender equality and environmental sustainability. As a result, there has been increased interest in WinS as exemplified by the joint Call to Action and UNICEF's global target to ensure that all schools have adequate child-friendly water and sanitation facilities and hygiene education programmes by 2015 [21,20,1]. This however, did not materialise.

Ensuring the existence of basic facilities is the usual starting point for a health-centred approach to toilets and handwashing. However, as has been illustrated by Lundblad et al, there can be more complex and subtle barriers that undermine what might be viewed as satisfactory facilities [22,23].

Hand washing facilities in rural schools have not been considered important. Yet from a preventive health perspective, hand washing is absolutely crucial. Without hand washing, all investments in fancy latrine construction is a complete waste of time and resources as faecal contamination from hand to mouth, food, and friends among others etc., is virtually guaranteed [25]. According to Hucks, who did a study in Tanzania on the mapping of schools in 16 districts (2697 schools), carried out jointly with SNV, WATER AID and UNICEF, shows that the provision of water, sanitation and hygiene in pre, primary and secondary schools in Tanzania is lamentable [24]. The study found hundreds of children sharing one decrepit latrine, irregular water supply and no hand washing facilities. Majority of the schools in the districts had no functional hand-washing facilities with water and soap. Some of the schools too had no access to pipe or another protected water supply though this is not regular or sufficient quantity. In 60 countries in the developing world, more than half of primary schools have no adequate water facilities and nearly two thirds lack adequate sanitation, according to a new report by UNICEF [21].

The Ghana Education Service (GES), under its School Health Education Programme (SHEP), has launched a call to action in the provision of water, sanitation and hygiene (WASH) facilities in basic and second cycle schools across Ghana, dubbed WinS. A detailed 2009 study supported by UNICEF and other partners that covered all schools in 16 districts in Ghana showed that over 80 per cent of schools lacked functioning hand-washing facilities, and virtually none had any soap available. Only four per cent of schools had made any provision for sanitation or hand-washing provision for children with disabilities [3].

Globally, it is estimated that 49 percent of schools lack access to adequate water source, and 55 percent lack adequate sanitation facilities, comparable to coverage in the Eastern and Southern Africa Region (ESAR) [20]. Though progress has been made regarding increased interest in and commitment to WinS by governments and civil agencies, the dearth of available data in the region indicates a dearth of

knowledge about the impact of efforts on WinS coverage. In as much as there may be few in the system, most of the available ones too are not fully patronized by students. For instance, in Zambia, reasons given by students for not using the toilet included that they were dirty, full, about to collapse or congested. When latrines are engaged, majority said they wait until it is free, while others use the bush, go behind the latrine, behind a tree, or wait until they are at home [26]. In Ethiopia, many of students said that they felt uncomfortable using the latrine reporting foul smell, lack of privacy, crowding, dirtiness, darkness and flies [27]. In Zimbabwe, toilet use at school was not considered a common practice. Some children defaecate just outside or behind the toilet. Reasons for non-use included no water, full pit, in use, dirty, fear of falling in, and fear of darkness [28].

In Kenya, a survey of 666 school children found that only 22 percent could demonstrate proper hand washing at programme baseline. This figure increased to 53 percent at the first follow-up and was 47 percent at second follow-up [29]. Another study of 100 schools found that only 5 percent had soap available, with 2 percent of students observed to wash their hands with soap. In Malawi, in the Mangochi District, no schools had hand washing facilities at the 1998 baseline. In 2007, at post-intervention follow-up, 33 percent of hands washing facilities were functional, but no school was providing soap [28]. In Uganda, in a study of 332 schools, 41 percent had hand washing facilities and only 8 percent had soap [31]. In a survey of two districts, 33 percent of students reported washing their hands with soap after using the toilet at school. However, hand washing facilities were observed at only 22 percent and pupils reported irregular supply of water/soap [32]. In Zimbabwe, only 57 percent of student focus group participants felt that hand washing after defecating at school was common. Students who did wash their hands said they were likely to use soap after defecation, but much less likely after urination or before eating, especially when they were very hungry [28]. In Madagascar, of 61 intervention schools, 36 percent had hand washing facilities with soap available near the toilets [33]. In Ethiopia, at a rural primary school, 36 percent and 14 percent of students said they washed their hands with soap before eating and after defecation, respectively [34]. In Zambia, a study of 20 schools, only 18 percent of students reported that soap was consistently available and many students admitted not washing their hands after using the latrines [2]. In another study, based on student pocket voting in 50 schools, 22 percent and 30 percent wash their hands with soap after using the toilet at control and programme me schools, respectively [35]. Of 140 schools in seven districts, 58% percent had hand washing facilities [26].

Due to poor maintenance, latrines are often unclean. The Ministry of Education-UNICEF assessment of 97 schools in Kabul indicates that 34 percent of school toilets rarely smelled bad, but 43 percent smelled so bad that users left the facility as quickly as possible. During discussions in classes with boys and girls in 16 schools visited by the case study team, students said that the smell stayed on their clothes after using the latrines and expressed a strong preference for separate urinals, particularly in Jalalabad. It is not known whether similar preferences exist in other parts of Afghanistan, but the demand needs attention. Only one student respondent said the school toilets had water for hand washing and hand soap. Although 26 percent said the school toilets were clean, the majority of respondents were afraid to use them, sometimes avoided using them, or said they ‘hated the school toilets.’ The critical primary school WASH issues include lack of WASH infrastructure, particularly in standards); low prioritisation of WASH in Schools; poor enforcement and inadequate

maintenance (Government efforts have focused on construction of toilet facilities with less focus on changing practices); overcrowded schools; and huge regional discrepancies. Functional sanitation facilities are mostly pit latrines in rural schools and VIP latrines in urban schools. Current provision and the quality of WASH in primary schools remain uncoordinated and of variable quality. Most school latrines are constructed through the efforts of school committees and the local community, with limited external support, although NGOs, in particular, are active in the sector [20].

UNICEF remains the most visible partner in the overall programming and implementation of WASH in Schools over the years, particularly in rural areas. UNICEF projects are targeted to benefit the most vulnerable communities, including remote and insecure northern regions where child survival indicators are of higher concern. For each school, the package comprises gender sensitive sanitation facilities, access to safe and adequate water supply, hand washing facilities, showers for girls, and a hygiene promotion component with emphasis on hand washing with soap. The programme has also incorporated facilities for children with disabilities [20].

With all these intentions, however, according to an evaluation report by Sustainable Sanitation and Water Management in 2004, in many countries, students suffer from non-existent or insufficient water supply, sanitation and hand washing facilities; toilets that are not adapted to the needs of children, in particular girls; broken, dirty and unsafe facilities; non-existent or irrelevant health and hygiene education for children and dirty classrooms and school compounds [36]. Besides health impacts and the spread of diseases and intestinal parasites, none of these conditions make learning pleasurable or easy. In the long term, educational achievement is one of the most important determinants of health, life expectancy, economic productivity, and the wellbeing of future generations. Safe water to drink, water and soap to wash hands, and clean and private toilets make healthy, child-friendly schools, and healthy schools make healthy children [37].

Effects of poor WASH facilities in schools are enormous. Diseases related to inadequate water, sanitation and hygiene are a huge burden in developing countries. It is estimated that 88 percent of diarrhoeal diseases are caused by unsafe water supply, and inadequate sanitation and hygiene [38]. Many schools serve communities that have a high prevalence of diseases related to inadequate water supply, sanitation and hygiene (particularly lack of handwashing), and where child malnutrition and other underlying health problems are common. If everyone in the world had access to a regulated piped water supply and sewage connection in their houses, 1863 million days of school attendance would be gained due to less diarrhoeal illnesses [38]. Schools, particularly those in rural areas, often completely lack drinking-water and sanitation facilities, or have facilities that are inadequate in both quality and quantity. Schools with poor water, sanitation and hygiene conditions, and intense levels of person-to-person contact are high-risk environments for children and staff, and exacerbate children's particular susceptibility to environmental health hazards [38].

According to Black et al, worldwide, approximately 1.3 million children under 5 years of age die each year due to diarrhoea as a result of unsafe water, poor sanitation, and insufficient hygiene [39]. This preventable illness is the leading cause of mortality in this age group in Africa [38]. Hand washing with soap can reduce drastically the risk of diarrhoea by 42-48 percent and has been shown to effectively reduce pathogens of faecal origin on hands. Where hygiene is poor or nonexistent, the health

risks to both children and adults are well documented. Girls in developing countries are reported to be missing classes, particularly when they are menstruating, in order to ensure privacy in a communal toilet [38].

Poor handwashing can be directly linked to an increased spread of disease and illness that affects school attendance [40]. As cited in Strecher et al, the Health Believe Theory under perceived severity refers to how serious the individual believes the consequences of being ill are [11]. The study bears on the presupposition that if the students know that the risk associated with poor sanitation can be fatal, they will change their attitudes and engage in practices that include sanitation in the school.

A study by Prots, for example, showed that children with worm infestations have higher absenteeism than non-infested children [41]. Basically, this means that children with worm infections spend less time and are disadvantaged in the learning process. Effective school sanitation and hygiene education should help reduce these infections. The number of children excluded from primary education ranges somewhere between 105 and 120 million worldwide, due to poor WASH facilities. Unsafe water, inadequate sanitation and lack of hygiene not only affect the health, safety and quality of life of children, but they also claim the lives of an estimated 1.5 million children under the age of five each year from diarrhoea [21]. According to UNICEF, a companion to friendly school manual poor sanitation, water scarcity, inferior water quality and inappropriate hygiene behaviour are disastrous for infants and young children, and are a major cause of mortality for children under five years. Those conditions are also detrimental to the health of school-aged children, who spend long hours in schools [21].

Lack of sanitation facilities can cause distress. School children, in particular, face problems of distance, lack of privacy and personal safety. Poor sanitation is also a serious threat to the cleanliness of the environment and the water resources used for the supply of drinking water. But, beyond being just all issues of convenience, children have a right to basic facilities such as school toilets, safe drinking water, clean environment and basic information on hygiene. In addition, if sanitary conditions are created, children will be more enthusiastic to come to school; they will enjoy their school experiences and will learn better and can bring concepts and practices on sanitation and hygiene back to their families. Schools can play an important role in bringing about behavioural change and promoting better health as children are potential agents of change in their homes through their knowledge and use of sanitation and hygiene practices learned at school [41].

3. Methodology

Mixed methods approach was employed for this study. According to Venkatesh, Brown and Bala, mixed methods research has become increasingly accepted by researchers. MMR, defined as a method of both quantitative and qualitative designs in the same research study, evolved in response to the observed limitations of both quantitative and qualitative designs [42]. The design chosen for this study was explanatory sequential. These were done, by first, gathering quantitative data and then gather the qualitative data to enhance on the quantitative findings. It is thought that the combination of quantitative and qualitative methods presents a more enhanced insight into the research problem(s) and question(s) than using one of the methods independently [43,44].

The study was conducted in the Assin South District, in the Central Region of Ghana. The target population was made up of all senior high schools in the District. There are four senior high schools in the district, three with boarding facilities and one is a day school. Those with the boarding facilities are Assin Manso Senior High School, Adankwaman Senior high school and Nyankomasi Ahenkro Senior High School, with Assin Nsuta Agric Senior High School being a day school. The study population covered the house masters and mistresses, students, teachers, grounds prefect and WASH coordinators in the various senior high schools in the District of the selected schools. It consisted of both males and females. The population for the study was 4,050, comprising 350 teachers, 4 heads and 3,696 students.

The sample size for the study was 216 made up of 200 students from the four senior high schools in the District, that is, 50 students from each school, four grounds prefects, one from each school, 8 house masters /mistresses, that is, two from each school, and 4 WASH coordinators, one each from a school (see Table 1).

Table 1. *Description of the Sample.*

Schools	House Masters/Mistresses	Wash Cordintors	Grounds Prefects	Students	Total
Assin Manso S.H.S	2	1	1	50	54
Assin Nsuta Agric S.H.S	2	1	1	50	54
Adankwaman S.H.S	2	1	1	50	54
Nyankomasi Ahenkro S.H.S	2	1	1	50	54
Total	**8**	**4**	**4**	**200**	**216**

Source: Field Data (2018)

For the research to be accurate, meaningful and as representative as possible, the simple random and purposive sampling techniques were employed to select the sample. The simple random sampling technique was employed to select student respondents from the students in the various schools so that every student of each school had an equal chance of being selected to take part in the study. The purposive sampling technique was used for selecting the house masters/mistresses, WASH coordinators, teachers and grounds prefects. This strategy was used because it helped the researcher to select people who could provide useful information for the study.

The study employed both qualitative and quantitative data collection instruments. These were semi-structured questionnaires, in-depth interview guide and observation checklist. Data relating to the status of WASH in the schools were collected from the participants using semi-structured questionnaires which contained both closed and open-ended questions. The closed ended questions helped to capture specific responses while the open-ended questions allowed the participants to express themselves where there was the need. Moreover, the questionnaire was written in the English language as the target group was proficient in the language. As such, a set of questionnaires were administered to the students in the 4 senior high schools. Observations were also employed on the selected schools' premises to verify some of the responses that were given. Key elements that the researcher observed were the toilet and hand washing facilities, artistic work for water, sanitation and hygiene on the walls and the availability of clean water for use in the selected schools. A camera was used to capture the facilities available in the schools. In-depth interviews were conducted with the head teachers, teachers and the District WASH coordinators so as

to capture information which was not captured by the questionnaires. The data for the study were gathered and collected from secondary or documented sources and primary data from the field. Secondary data were gathered from sources such as newspapers journals, theses, the District Assembly as well as other publications that were sourced from libraries, institutions and the internet. Primary or field data were collected through the administration of questionnaires to students in the various schools, interview guides for discussions that were held with key informants and observation checklist in the four selected schools.

Data analysis was done using both quantitative and qualitative methods. The data obtained from the questionnaires were recorded in SPSS to analyse quantitatively. However, descriptive data were analysed qualitatively by comparing and categorising respondents' opinions. It is from here that emerging themes from the data were obtained and grouped and then interpreted. Nonetheless, all the data were linked to field observations during the time of data collection. Digital data such as photographs were used to bring out some aspects of the schools' surrounding.

4. Findings and Discussions

4.1. Demographic Data of Respondents

4.1.1. Sample Distribution for Schools

Table 2 below indicates that 4 schools participated in the study. Fifty-four (54) respondents representing 25 percent were selected from each school.

Table 2. *Sample distribution of schools.*

Schools	Frequency	Percent
Adankwaman S.H.S	54	25.0
Assin Manso S.H.S	54	25.0
Assin Nsuta S.H.S	54	25.0
Nyankomasi Ahenkro SHS	54	25.0
Total	**216**	**100.0**

Source: Field Data (2018)

4.1.2. Sample Distribution in Schools

In Table 3 below, 216 respondents participated in the study. In all, 200 (92%) were students, eight (8) were WASH coordinators and eight (8) were also house masters and mistresses from the schools.

Table 3. *Sample distribution for selected schools.*

	Frequency	Percentage
Students	200	92.0
Wash Coordinators	8	4.0
House master & mistress	8	4.0
Total	**216**	**100.0**

Source: Field Data (2018)

4.1.3. Sex Distribution of Respondents

Table 4 below shows the sex distribution of respondents sampled for the study. Out of the 216 respondents selected for this survey, 116, representing 54.0 percent were females and 100, representing 46.0 percent, were males.

Table 4. *Sex distribution of the respondents.*

Sex	Frequency	Percentage
Male	100	46.0
Female	116	54.0
Total	**216**	**100.0**

Source: Field Data (2018)

4.1.4. Class of Student Respondents

Table 5 below presents the classes of the student respondents selected for the study. The table reveals that, out of a total number of 200 students who participated in the study, 40(20%) were in S.H.S 1, 80(40%) were in S.H.S 2 and 80(40%) were also in S.H.S 3.

Table 5. *Class of student respondents.*

Gender	Frequency	Percent
SHS 1	40	20.0
SHS 2	80	40.0
SHS 3	80	40.0
Total	**200**	**100**

Source: Field data (2018)

4.1.5. Non-student Respondents

Table 6 below present non-student respondents selected for the study. The table shows that out of the total number of sixteen (16) non-student respondents who participated in the study, four (4) were house masters and mistresses and four were WASH coordinators.

Table 6. *Non-student Respondents.*

Non-students	Frequency	Percent
House masters and mistresses	8	50.0
WASH coordinators	8	50.0
Total	**16**	**100**

Source: Field Data (2018)

4.2. The Status of WASH in Senior High Schools

The first objective of this study was to assess the status of WASH in senior high schools in the Assin South District. To address this objective, series of field observations were made on the premises of the four selected schools, namely Adankwaman S.H.S, Assin Manso S.H.S, Assin Nsuta S.H.S and Nyankomasi Ahenkro S.H.S., to ascertain the availability and conditions of WASH facilities (toilets, urinals, hand washing and potable water). In addition, interviews were conducted with the house masters and mistresses, grounds prefects and WASH cordinators in each school and questionaires were administered to them to gather further data.

4.2.1. Status of Toilets Facilities in the Schools

Observations by the researcher in the selected schools showed that toilet facilities were inadequate and unkempt. Also, some of the schools had no separate toilet facilities for students and teachers. There were also no cleaning materials; it was up to

the users to find their own cleaning materials such as toilet roll to use when in need, and this was a big challenge to them. The WASH coordinator, house masters and mistresses and the grounds prefect supported this observation by indicating that, students were expected to come along with their own cleaning materials. They mentioned that it was quite difficult to provide such materials to the usually big student population.

In an interview with the house masters and mistresses, WASH coordinators and grounds prefects in the selected schools, three out of the four schools, had both KVIP and W/C with separate toilets for male and female students, and a separate one for teachers. All the schools that had WC for students were not in use due to scarcity of water. However, the teachers' WC facilities were being used because their number was less as compared to the students and so they needed less water, and this was supplied from bore holes. The students complained that the KVIP stinks due to the indiscriminate disposal of anal cleansing materials as shown in Figure 1a. One (1) school had only KVIP with no separate toilets for male and female students and teachers as well. Both teachers and students used the same toilet facility which was not convenient. In all the four schools, the toilet facilities for both teachers and students were in a very poor state as can be seen in Figure 1. The student respondents were asked if they were comfortable using the facility in Figure 1.

Figure 1. *The status of toilet facility in one of the selected schools.*

Source: Field data (2018)

One respondent said: *I have vowed not to use the toilet facility till I finish school because of the location which is just at the centre of the school. Whenever you are going there everyone will be looking at you. When such a student was asked how he responds to natures call, it was discovered that he does that in the bush.*

Figure 2. *Location of toilets facilities in one of the selected schools.*

Source: Field Data (2018)

The school had one toilet facility which was used by both students and teachers. Also the location of the toilet, right at the centre of the school, discouraged patronage, as users were embarrassed to be seen going there. Three out of the four selected schools had no hand washing facility and one had a toilet facility. All the four schools had no proper waste disposal facilities. In all, their WASH facilities were inadequate and needed to be increased and well maintained. The house masters and mistresses,

grounds prefects and WASH coordinators blamed the poor toilet facilities on the students who they said came from poor backgrounds, and were not used to safe sanitation and hygienic practices.

The study discovered that some of the walls of the toilet facilities were stained with faecal markings revealing poor sanitation and hygiene practices by students especially the boys. These practices were said to have led to the spread of maggots in and around the toilet facilities. In an answer to a question about whether the toilet facilities were well utilized, 105(52%) strongly agreed that they were not utilized properly and 46(23.0%) also agreed that students do not utilize the toilet properly. This means that 75 percent were of the view that the toilet facilities in their schools were not utilized well. This is seen in Table 7.

Table 7. *Students do not utilize the toilet properly.*

Responses	Frequency	Percentage
Strongly Agree	105	52.5
Agree	46	23.0
Uncertain	14	7.0
Disagree	21	10.5
Strongly Disagree	14	7.0
Total	**200**	**100.0**

Source: Field Data (2018)

4.2.2. Status of Urinals in the Schools

Observations by the researcher revealed that the urinals were inadequate for the students. This is because they queued for their turn especially in the morning and those students who could not wait for their turn used the bush. In all the four schools, there were no separate urinals for students and teachers but there were separate urinals for males and females. Two out of the four schools had cement floor type of urinals and two also had tiles laid on the floor. Information given by the house masters and mistresses, grounds prefects and WASH coordinators revealed that majority of the students used the bush as urinals. This was because the stench from the urinal was unbearable. As one house mistress said;

"I have never taken the pain to use the urinal because the urine pools on the floor and it stinks so bad…"

Figure 3. *The status of urinal facilities in one of the schools.*

Source: Field Data (2018)

4.2.3. Status of Hand Washing Facilities in the Schools

With regard to hand washing facilities, it was observed that, out of the four schools, one had a type of bucket known as "Veronica" bucket which was used to store water to be used for hand washing as can be observed in Figure 4. A few of the students

interviewed in that school indicated that although the hand washing facility was in place, there was usually no water in the containers with which they could wash their hands. This means that the lack of water and soap for use by the students defeated the purpose for which the facilities were provided. Information from the house masters and mistresses, grounds prefects and WASH coordinators revealed that though the school administration ensured that they provide the washing facilities with soap, water and towels, some students steal the soap, hence the general student population were unable to wash their hands with soap after using the toilet.

When asked if students washed their hands after using the toilet, almost all the respondents answered in the negative. A teacher said; "From the toilet straight to the classroom and then straight to the dining hall. Do they care about hand washing? They just wipe their hands on their dresses like the class one pupils.*"*

In support of the response above, another teacher had this to say: "So who will be responsible for the provision of soaps, veronica buckets and towels? Is it the parents, school or the government?"

Figure 4. *Hand washing facility in one of the selected schools.*

Source: Field Data (2018)

Table 8. *There is no hand washing facilities in the school.*

Responses	Frequency	Percentage
Strongly Agree	122	61.0
Agree	60	30.0
Uncertain	7	3.5
Disagree	1	.5
Strongly Disagree	10	5.0
Total	**200**	**100.0**

Source: Field Data (2018)

When the students were asked if there a no hand washing facility in their school, 122 (61%) respondents indicated (strongly agreed) that there was no hand washing facility in their school while, 60 (30%) respondents said their school had the facility agreed to it. This is shown in the Table 8 below.

Most students do not wash their hands after leaving the toilets and urinals. About eighty percent (80%) of the key informants blamed the school authorities for the lack of hand washing facilities, toilet manners and poor knowledge that lead to such poor usage of the hand washing facilities.

4.2.4. Status of Waste Disposal in the School

Data gathered on the status of waste disposal in the schools indicated that solid waste gathered in the various schools was either burnt or buried. Some of the scenes observed by the researcher are shown in Figure 5.

Figure 5. *Waste disposal practices in one of the selected schools.*

The respondents also revealed that their solid waste disposal practices were not good as can be seen in Table 9. That is, 119 (59.5%) respondents strongly agreed to the view that their school had poor waste disposal practices, while 37 (18.5%) respondents also agreed.

Source: Field data (2018)

Table 9. *School has poor waste disposal practices.*

Responses	Frequency	Percentage
Strongly Agree	119	59.5
Agree	37	18.5
Uncertain	12	6.0
Disagree	14	7.0
Strongly Disagree	18	9.0
Total	**200**	**100.0**

Source: Field Data (2018)

4.2.5. The Nature of the School Canteen

In Table 10, it is observed that, 80 (40%) of respondents strongly agreed that their school confesses were unhygienic canteen, while 81(40.5%) of respondents agreed. The study found out that all the canteens in the four schools studied were said to be unhygienic. There were no places of convenience for the food vendors; hence, they usually eased themselves in the nearby bush. This made it easy for flies and other vectors to hover around them and could transfer germs to the food sold to the students. Most of the time, the food was not hot, posing a threat to the health of the students.

Table 10. *My school canteen is not hygienic.*

Responses	Frequency	Percent
Strongly Agree	80	40.0
Agree	81	40.5
Uncertain	13	6.5
Disagree	6	3.0
Strongly Disagree	20	10.0
Total	**200**	**100.0**

Source: Field Data (2018)

4.2.6. Status of Water Supply in Senior High Schools in the Assin South District

Observations by the researcher revealed that out of the four schools, three schools had two bore-holes. Each school had one mechanical and one mechanized as their main source of water. The one remaining school had neither mechanical nor mechanized bore-hole. The main source of water for the school without a bore-hole was a stream across the road. The students therefore depended on sachet water as their main source of drinking water and used the stream water for other purposes such as cleaning. Whenever there was power outage, students had difficulty in getting water from the mechanized bore-hole since electricity is needed to pump the water. When this happens, it put pressure on the mechanised bore-hole. The study revealed that, students also had difficulty in getting water from the mechanical bore-hole during the dry season. This is one of the quotations from the respondents, "You can pump the bore-hole for a long time, for example 30 minutes before getting a bucket of water." This was confirmed in the Table 11.

Figure 6. *A bore-hole in one of the selected schools.*

Source: Field Data (2018)

In Table 11, it is observed that out of the two hundred respondents, 137 (68) agreed that their school had irregular water supply while (25.5%) disagreed, meaning their school had a regular water supply.

Table 11. *My school has irregular water supply.*

Responses	Frequency	Percentage
Strongly Agree	91	45.5
Agree	46	23.0
Uncertain	12	6.0
Disagree	24	12.0
Strongly Disagree	27	13.5
Total	**200**	**100**

Source: Field Data (2018)

In conclusion, three schools had separate toilet facilities for students and teachers. The remaining one school had a toilet facility which was shared by both students and teachers. Also, three schools had both mechanical and mechanised boreholes, while one school used a stream as their main source of water. None of the selected schools had hand washing facility. One school had a Veronica bucket which was not functional at the time of the field work due to lack of water. Waste disposal methods in the four selected schools was quiet satisfactory. They either burnt or buried their waste. In all, their WASH facilities were inadequate and needed to be increased and well maintained.

4.3. Effects of Poor WASH Facilities in Senior High Schools in the Assin South District.

The second objective of this study was to examine the effects of poor WASH facilities in the senior high schools in the Assin South District. To address this

objective, data was gathered through observation, interviews and questionnaires administered to respondents in the study schools to discover the effects of poor WASH facilities. The study discovered that poor WASH facilities made the students prefer to ease themselves in the bush rather than using the available toilets. This can be confirmed in Figure 1 as one respondent said, "I have vowed not to use the toilet facility till I finish school because of its nature and location which is just the centre of the school. Whenever one is going there everyone will be looking at the one". When this student was asked how he responds to natures call, he answered he does that in the bush. It was also discovered that many students frequently fell sick which could be caused by the lack of hand washing facilities to be used after visiting the toilet facility. About 40% of students in the study schools used only water to wash their hands after using the toilet while the rest did not wash their hands at all. The grounds prefect from one of the schools mentioned that poor WASH facilities may lead to contracting intestinial worms and diarrhoea. This was what he said: "If the school WASH facility is not kept clean, students can contract various kinds of disesase such as worms infestation." The outcome is in supports of UNICEF is assertion that, the learning environment should also have a sufficient number of toilet facilities for students and teachers that are private, safe and clean as well as gender segregated [2].

This means the students knew they are vulnerable to diseases if they have poor WASH facilities. This is captured in the Health Believe Theory as Perceived Susceptibility. In addition, no hand washing facilities were found in the dining hall, which meant that students often ate foods such as kenkey with unwashed hands. This situation can lead to frequent illnesses, consequently affecting their academic performance.

Students' participants were asked to indicate their level of agreement with the statement "the nature of the school environment has an impact on students." Out of the 200 respondents, 79 (39.5%) respondents strongly agreed with the above statement, while 61 (30.5%) respondents agreed. This is shown in Table 12 below.

Table 12. *Nature of school environment has impact on students.*

Responses	Frequency	Percentage
Strongly Agree	79	39.5
Agree	61	30.5
Uncertain	17	8.5
Disagree	22	11.0
Strongly Disagree	21	10.5
Total	**200**	**100.0**

Source: Field Data (2018)

Student respondents were asked whether sick students are disadvantaged in learning and out of the 200 respondents, 97 (48.5%) respondents strongly agreed that sick students are disadvantaged in learning, and sixty-nine respondents also agreed that sick students are disadvantaged in learning. This is seen Table 13 below.

From the analysis of data gathered to answer the second objective, it can be said that students know that poor WASH facilities can lead to the spread of diseases such as cholera, affecting students' health and negatively impacting academic performance. This, according to UNICEF, an ideal learning environment should have adequate Water, Sanitation and Hygiene (WASH) facilities with functional and reliable water system sufficient for all the school's needs [2]. More especially for hand washing and for drinking.

Table 13. *Sick Students are disadvantaged in learning.*

Responses	Frequency	Percentage
Strongly Agree	97	48.5
Agree	69	34.5
Uncertain	11	5.5
Disagree	15	7.5
Strongly Disagree	8	4.0
Total	**200**	**100**

Source: Field Data (2018)

5. Conclusions and Recommendations

WASH facilities in the senior high schools in the Assin South District were inadequate and the few available ones were not well maintained. These include unhygienic and non-functional WASH facilities. In addition, there were inadequate hands washing materials such as soap, running water and towels in the schools.

Toilet facilities were poorly used in the selected schools as some of the female students even disposed of their menstruation pads into them. Toilet facilities were not kept clean; used tissues were dumped just at the entrance, making the whole environment stink. Moreover, the attitude of students towards the use and maintenance of the facilities was poor.

Despite the general unpleasant conditions of the latrines and urinals, most students continued to utilise the said facilities simply because they had no option. Not even the presence of maggots in and around the toilet facilities in some of the study schools would stop the students from using them. There were cases of illnesses related to poor hygiene and sanitation which were common practices in the schools. The poor WASH facilities contributed to student poor heath and their academic performance. It was also discovered that many students normally fell sick due to lack of hand washing facilities to be used after visiting the toilet. School children fell ill frequently, and this affected their attendance and their ability to concentrate on their studies.

Based on the outcome of the study, it was recommended that, there is the urgent need for school administration to adequately provide and maintain WASH facilities including toilets, water urinal and waste disposal. The school administration can effectively do this by bringing this to the attention of the P.T.As during their PTA s meetings and educate the parents on the need for proper and efficient WASH facilities in the school. A committee for the promotion of WASH facilities should then be formed by the P.T.A.

To ensure the proper use of WASH facilities by the students, there should be regular education at school functions to sensitise them on the need for these and their proper use to promote their health. They should also be educated on the consequences of the poor use of the facilities and what they are expected to do to avoid misusing them. This can be done by the teachers conducting practical hand washing programmes to teach the students how to wash hands properly. A resource person can be invited to the school to teach the students on proper hand washing. Again posters on the consequences of poor utilization of WASH facilities can be placed at vantage points in the school. Teachers can also learn from resource persons and teach students on proper hand washing.

Also, rules and regulations concerning the use and maintenance of WASH facilities should be made by school administration and copies given to the students to guide them as they use the facilities. To ensure that students comply with the rules and regulations, those who break them must be dealt with to serve as a deterrent to others.

Conflicts of Interest

The authors declare that, there is no conflict of interest regarding the publication of this article.

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