OVERVIEW OF POST-COVID-19 WATER, SANITATION AND HYGIENE (WASH) STATUS: A STUDY OF ANAMBRA STATE SCHOOLS

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Abstract

Despite water being the most abundant of all natural resources, Water Sanitation and Hygiene (WASH) facilities have been a basic necessity and human right. Many schools both tertiary and secondary institutions still lack the adequacy of these utilities. Several academic institutions practice poor sanitation and hygiene. The most commonly associated problem of scarcity of water in an academic environment is not limited to maintaining personal and environmental hygiene but also an increase in dehydration in students which reduces their cognitive abilities. This study performed a survey which involved the use of questionnaire involving 120 students. It included both public and private schools and the data consisted of basic sanitation (water for drinking, flushing), menstrual hygiene and waste management. The WASH results show that 29.9% practice Single sex lavatories, while 31.3% of children have no access to a toilet/latrine anytime, however, 18.2% of the toilets are unhygienic to use with 42.1% have little or no water for flushing after use, Further, 52.2% has no access to water, soap or both and as a result of no proper facility or privacy for menstrual management 53.8% among female either go home before school over or show absenteeism from school and 46.9% has no access to drinking water. Consequently, these increases girls' vulnerability to school dropout, increase to diseases spread among students and impact to their cognitive reasoning. This study reveals that WASH is still a substantial challenge in schools. Therefore, ensuring the promotion of good sanitation, and availability of safe water drinking will ensure a healthy life among school children and to the society at large. This study reveals the need for the government to invest in WASH in schools and also ensure good WASH standards in private schools are established before the approval or functioning of any school.

Keywords: COVID-19, Hygiene, Menstrual Hygiene and Management, Public Health, Sanitation, Schools, Water

Introduction

Improved WASH is an effective strategy for preparedness towards a pandemic. During the COVID-19 health organisations such as the United Nations International Children's Emergency Fund (UNICEF) and World Health Organisation (WHO) emphasised the need for good WASH and waste management practices as a barrier to human–to–human transmission of COVID-19 virus in schools and health sectors (World bank, 2020). Schools are mostly a medium channel of potential transportation and transmission of diseases to homes and other increased risks of potential disease spread. Access to facilities such as toilets, safe drinking water and resources has been a basic necessity and human right and despite water as the most abundant of all natural

resources, many schools both tertiary and secondary institutions especially in developing countries still lack the adequacy of these utilities.

Globally, 844 million people lack access to drinking water, and 2.3 billion do not have access to latrines or other basic sanitation facilities (UNICEF, 2018). The burden of disease and mortality rates globally could significantly reduce at about 9.1% and 6.3%, respectively, if access to sanitation, water, and hygiene facilities is facilitated (Üstün *et al*., 2008). World Health Organisation (WHO) among the sustainable development goals (SDGs) advocates for universal access to Water Sanitation and Hygiene in Schools (WASH) (Cronk *et al.,* 2015: WHO, 2014).

Studies have reported various impacts on health, absenteeism (Freeman *et al.,* 2012; Blanton et al., 2010; Alexander *et al.,* 2013; O'Reilly *et al.,* 2008) decrease in cognitive thinking among school children (Benton & Burgess 2009; Bartlett 2003; Bar-David *et al*., 2005) as a result of inadequate WASH existence in schools. Jasper *et al.,* (2012) study recorded adverse health outcomes among children such as gastrointestinal infection, reduction in neuro-cognitive and psychological illnesses as a result of poor sanitation. Freeman *et al.* (2012) reported reduced educational outcomes in children by contributing to absenteeism due to lack of WASH in school. In Nigeria, several academic institutions practice poor sanitation and hygiene. The most commonly associated problem is scarcity of water (safe drinking water and water for sanitation) in an academic environment and this is not limited to maintaining personal and environmental hygiene but has increased dehydration in students which reduces their cognitive abilities as many school students tend to feel thirsty but endures and postpones it till after school hours when they return to their respective homes.

This study aims to assess the post-COVID-19 WASH status and availability for urban secondary school children in Anambra State.

Literature Review

Coronavirus disease (COVID-19)

Coronavirus disease (COVID-19) is an infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 virus). It is a virus that belongs to the coronavirus family of viruses that causes respiratory infections. A new type of virus from this family was discovered on 31 December (Alves *et al.,* 2020) with the first recorded cases in Wuhan City, Hubei Province, in China. With its initial report to the WHO on December 31, 2019, on January 30, 2020, the WHO declared the COVID-19 outbreak a global health emergency (Gallegos, 2020; Ramzey and McNeil (2020) and on March 11, 2020, the WHO declared COVID-19 a global pandemic, its first such designation since declaring H1N1 influenza a pandemic in 2009 (New York Times, 2020).

This disease-causing organism gives rise to clinical conditions that range from asymptomatic infection to severe respiratory conditions with varying symptoms from a simple cold to severe pneumonia, and common symptoms of a runny nose, coughing, sore throat, fever and difficulty in breathing. It can be transmitted from a sick person to another individual through close contact such as droplets of saliva, handshaking, sneezing, coughing, sputum or contaminated surfaces or objects. WHO recommendations for prevention of COVID-19 comprise frequent handwashing with soap (or sanitization with 70% gel alcohol); keeping a minimum distance of two meters from anyone who is coughing or sneezing; not sharing personal items (drinking glasses, cutlery and plates); keeping environments clean and ventilated; avoidance of unnecessary movement of people on the

streets; and use of masks, which can be homemade (Alvero et al., 2020).

WASH for basic and menstrual sanitation

The importance of the provision of WASH facilities in schools cannot be overemphasised. WASH can significantly impact the students' overall performance**.** Due to lack of provision of WASH in school, when dehydrated, most students tend to lose focus towards learning, knowing that drinking water is inaccessible to them. Thus, the prolongation of dehydration among students can impact their performance and attitude towards learning in school and also among female students when a lack of menstrual management facility is provided.

Literature from research about schools in developed and developing countries associated lack of water and sanitation provisions with school attendance and health (Mathegana et al., 2001; Roger & Haines 2000), absenteeism, reduced school participation and performance of students (Birdthistle et al., 2011; Sommer 2010; Montgomery et al., 2012). It is necessary to understand that the provision of adequate and safe WASH is not only a fundamental human right and a sustainable goal but also a step to enhance and provide a conducive academic environment for supportive learning, especially among female students as they are disproportionately affected. This is because of their need to utilisation of these facilities for safe menstrual hygiene management but lack of WASH impedes their ability to reap the benefit of educational attainment (Morrissey et al., 2014; Gakidou et al.,2010).

Academic studies further have demonstrated that the existence of WASH activities in schools can help improve students' knowledge, health and practices by reducing the number of days missed in school, especially during menstrual cycle period (Freeman et al., 2012; Lopez-Quintero et al., 2009; Bowen et al., 2007).

Wash and public health

To protect public health during the outbreak of infectious diseases including COVID-19, provision of WASH services is important (Desye, 2020). Transmission of diseases from diseases-causing pathogens can be controlled if proper WASH services are enacted. Most institutions WASH facilities such as schools, hospitals and other public sectors are highly unsatisfactory. Thus, installing proper funning WASH facilities can lead to a decline in the spread of diseases (such as diarrhoea and Cholera) especially among students. According to UNICEF and WHO (2004), diseases related to unsafe water, poor sanitation and lack of hygiene are among the most common causes of preventable death and illness among developing countries each year (Un Millennium Project, 2015). This inadequacy is becoming a silent humanitarian crisis which kills about 3900 children every day thwarting the progress of millennium development goals (MGDs)especially in Africa and Asia (Bartam, 2005).

In 2020, during the outbreak of COVID-19, most developing countries especially Africa were of much concern due to inadequate provision of water and good sanitation in many countries, their poor practising hygiene and the nonexistence of WASH in some schools and communities. Many developing countries have recognised the vitality of WASH as an action to control disease spread. Brazil has asserted the implementation of a functioning WASH as a tool to impact on public health of its population and a means of minimising the spread of worm diseases and the incidence of diseases such as schistosomiasis and malaria (Alves et al., 2020). Bauza et al. (2021) emphasised its importance among villagers in India. Fewtrell et al. (2005) carried out a systematic review combining

various studies focusing on the role of safe water supply, personal hygiene on diarrhoea and waste disposal outcomes in developing countries. They concluded that safe water consumption and safe human waste disposal are the key to enhancing human and public health.

Methodology

This study was conducted after the COVID-19 lockdown among schools in Anambra capital city Awka. The data for this WASH was collected from 4th October 2022 to 15th November 2022. This study included both public and private secondary schools for its assessment, and ten schools were sampled for the survey where the questionnaires and interviews were carried out, out of the 10 schools, 9 schools were coeducational school and a female-only school. According to Sarkingobir (2017), the sample size of a descriptive study does not necessarily need to be large. A total of 120 sample questionnaires were shared among these schools and a random sampling method of data collection were employed however, a greater number of questionnaires were shared among female students, this was done to ensure more information about menstrual hygiene of the schools are collected. The study population consisted of only senior secondary school students, excluding the staff and junior secondary students of the schools. This was done to ensure an accurate information about the WASH status of the schools were collected as the researchers believed that the senior secondary school students will give more accurate and honest information about the state of the WASH in the school without any biased mind.

Due to the sample size, we ensured all questionnaires were collected and accurately filled. The questionnaire contained the demographic characteristics of the respondents but also ensured ethics during the survey. It prepared and distributed a questionnaire based on water, sanitation and hygiene in secondary schools. We employed the use of questionnaires, interviews and visual analysis and ensure that students are well orientated about the survey for accurate filling of the questionnaire and that the decisions of colleagues and staff were not influenced by the other during the filling of the questions. This method was employed to gather accurate individual responses.

The empirical data gathered for this interview includes general environmental sanitation within the school premises, facilities (toilets, wash-hand basins) and water facilities. Data obtained were analysed using excel and descriptive statistics were carried and data presented in frequency, percentages and graph.

Results and Discussion

In our analysis, it is evident that schools still practice poor sanitation. Despite the impact of COVID-19, it appears no lessons have been learnt on the significance of WASH. Table 1. Presents basic WASH status in schools. Our data depicts that about 16.6% of students report their school use latrine toilets without slabs and 9.6%, 7%, and 66% report that their toilet facility type includes latrine with slab, flush/pour toilet, and water closet respectively. About 31.3% of students showed that difficulty in the accessibility of the toilet is been experienced by the students when needed. 58.5% affirmed toilet to cleaning of their toilet only once a week. This signifies poor sanitary practices considering the utilization of the WASH facilities by students are frequent. Whilst hydration for students is necessary, 46.9% reported non-availability of drinking water sources. Again, with improved access to drinking water in schools proven to promote children's ability to learn by improving concentration and attention and evidence shows that dehydration can negatively impact the cognitive abilities of school children (Trinies *et al.,* 2016).

There is a clarion call towards WASH monitoring in schools as more research emphasises that provision of unclean water and poor sanitation is the cause of most diarrhoea among school children. There is also strong evidence showing the correlation between diarrheal death and the risk of unsafe water supply, inadequate sanitation, and insufficient hygiene practices, contributing to 88% of diarrhoea-related deaths (Black et al., 2003; Centers for Diseases Control, 2015; UNICEF and WHO diarrhoea, 2017). Diarrhoea has been recorded to kill more than AIDS among school children (Hazel, 2011) and frequent episodes of WASH-related ill-health in children, contribute to absenteeism in school, and malnutrition (UNICEF, 2018).

Table 1: Basic sanitation

Data Information	n=120	Percentage
Male	27	22.5
Female	93	77.5
Basic sanitation		
Types of toilet/latrines		
Water closet	79	66
Latrine with slab	12	9.6
Latrine without slab	20	16.6
Flush/pour flush toilet	9	7
Are the toilet or latrine separate for boys and girls?		
Yes	84	70
No	36	29.9
How usable and accessible is the toilet?		
Yes	60	50.4
Somewhat usable	22	18.2
No	38	33
Is there water for flush after use?		
Yes	69	57.7
Yes, but not adequate	33	27.5
No	18	14.6
Are there hand wash facilities with soap and water?		
Yes	56	47.7
No	63	52.2
How many times per week are the students' toilet cleaned?		
At least once per week	70	58.5
2-4 days/week	41	32.3
Once per week/less than once per week	5	4
Not cleaned	4	5
Are there visible excreta in the toilet or school premises?		
Yes	53	44.5
No	67	55.5
What is the main source of drinking water provided by your school?		
Pipe water supply	43	36
Unprotected well	0	0
Protected well	0	0
Tank	20	16.7
No water sources	56	46.9

According to WHO, 11% more girls attend schools when sanitation is available (Jasper et al., 2012). In Nigeria, only 30% of schools have access to basic sanitation services and 8% of schools have girls' toilet compartments with provisions for menstrual hygiene management. From our data, 53.8% of students' report absenteeism from school or not staying till school dismissal due to the poor condition and structure of their toilet and 25.6% do not use the school toilet (Figure 1). About 70.4% affirmed lack of

menstrual waste provision in school, and 17.6% attest to the viability of the used sanitary around the school environment and toilets (Table 2). This may be due to lack of provision of sanitary bins for menstrual management.

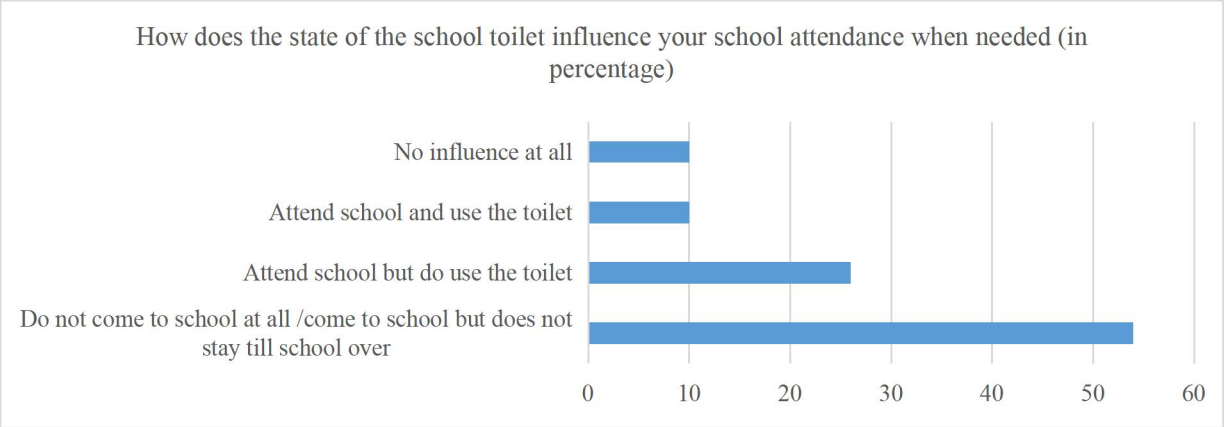


Figure 1: School toilet influence on school attendance when needed

Table 2: Toilet facility, menstrual management and hygiene

Data Information	n=120	Percentage
Are there visible pads in the toilet or school premises?		
Yes	21	17.6
No	99	82.3
Is there disposable mechanism for menstrual waste?		
Yes	35	29.3
No	85	70.4

Wastes generated in schools are paper and food, and proper management of the generated waste is essential to ensure the well-being of the students within the premises. From our result (Table 3), some schools still practice poor waste management. About 38.7% attest to incineration of waste by the school and 8.2% affirmed dumping of waste around the school premises. Notwithstanding, poor waste management does not only affect the environment such as climate breakdown, but also deteriorates health, especially to the population near the incineration site.

Table 3: Waste management

Data Information	n=120	Percentage
How is solid waste (garbage) from the school disposed?		
Collected by municipal solid system	64	53.1
Burn on school premises openly	46	38.7
Dumped on school premises		

According to available literature, incineration of waste can emit particulate matter, heavy metals, oxides of Nitrogen and Sulphur (Thompson and Anthony, 2005). Its impact has been associated with increased hospital admission with asthma (Pönkä and Virtanen, 1996), higher incidence of asthma (Brauer *et al.,* 2002), increased respiratory symptoms (Vichit-Vadakan *et al.,* 2001), reduced immunity (Seaton *et al.,* 1995; Boezon *et al.,* 1999), loss of time from school children through respiratory diseases

(Gilliland *et al.,* 2001; Peters *et al.,* 1997), higher incidence of ear, nose and throat infections (Brauer *et al.,* 2002) and decline in respiratory function (Gauderman *et al.,* 2002).

The result of the study did not separate the result analysis of the public or private but was merged. This was done to determine the general WASH situation in Awka schools in general. WASH surveys conducted in Lagos schools, Nigeria, also show poor WASH in schools are similar (Wada & Oloruntoba, 2021; Wada et al., 2020) and similar situations are also reported in sub-Saharan countries like Ghana, Mali, Togo, and Senegal (Steele, 2018). This study revealed poor WASH services are still being practiced in schools even after the COVID-19 event. The WASH results show that 29.9% practice single-sex lavatories, while 31.3% of children have no access to toilet/latrine anytime, however, 18.2% of the toilets are unhygienic to use with 42.1% have little or no water for flushing after use. Further, 52.2% have no access to water, soap or both, 53.8% of females either go home before school is over or show absenteeism from school and 46.9% have no access to drinking water. One of the basic hygiene requirements in school is a pollution-free environment, the results show that 38.7% manage their waste by incineration which constitutes a form of air pollution and is detrimental to the health of the school children.

Conclusion

Poor standards of WASH in institutions endanger many health, more especially in developing nations. After the COVID-19 lockdown, it became a mandatory facility in schools and a criterion for school resumption in Nigeria as basic hygienic intervention such as handwashing with soap and water is the most effective and simple means of barrier for transmission of infectious diseases (Mushi and Shao, 2020; Monicon *et al.,* 2019). Unfortunately, most schools implemented non-functional and inadequate WASH services which is evident from our data collected. There is a need to improve the WASH situations in schools. Many schoolchildren spend most of their lives during school hours thus there is a need for implementation and improvement of the standard WASH provided by school to these children.

The easiest and most common spread of diseases is through poor sanitation therefore if WASH is neglected, these school children can contract diseases such as water-borne, toilet infections and spread it through to their homes and thus to the society at large. This study recommends that government should invest in WASH in schools and also ensure good WASH standards in private schools are established before the approval of any school.

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