Evaluation of Water, Sanitation and Hygiene (Wash) Programme Implementation In Secondary Schools in Cross River State, Nigeria

[1]Agnes E. A. Offiong, [2]Obogo, Simon Idoko, [3]Eyamba Blessing Idem, [4]Udoh Mercy Ndifreke and [5]Unoh Enoh Etim
Department of Environmental Education, Faculty of Arts and Social Science Education, University of Calabar
agnesoffiong@yahoo.com
08035915139
[2]broidy4u@gmail.com ORCID: http/orcid/org/0009-0006-9096-3776
[4]Mercyemma4luv@yahoo.com ORCID: https://orcid.org/0009-0007-4077-3015
[5]enoetimunoh@gmail.com ORCID: http/orcid.org/0009-0002-5303-280x
Received April, 2024, Accepted June, 2024, Published June, 2024

Abstract

This study evaluated the Water, Sanitation and Hygiene (WASH) programme implementation (students'/teachers' sanitation practices) in secondary schools in Cross River State, Nigeria. The study was guided by four research questions. The study adopted an evaluation research design. The study's population comprised of all the 4,430 teachers and 16,662 SSS2 students across all 274 public secondary schools in Cross River State for the 2021/2022 academic session. The study's sample was 698 respondents (558 students and 140 teachers) drawn using the simple random sampling technique. The instrument used for data collection was the Sanitation Practices Questionnaire (SPQ). The reliability coefficient was .78 using Cronbach Alpha. The collected data were analysed using mean scores. The findings of the study revealed that students rarely engage in sanitation practices while for the teachers, the finding revealed that their level of engagement in sanitation practices is very high. Based on the findings and conclusions, it was recommended among others that Government, through the ministries of education, environment and health, should organize regular workshops and seminars for teachers and students on sanitation practices.

Keywords: *WASH program, WASH Implementation, Hand washing, access to WASH facilities*

Introduction

The Water, Sanitation and Hygiene (WASH) programme is a subcomponent of the child survival programme of the United Nations Children's Fund (UNICEF) created in the early 1990s after the International Drinking Water Supply and Sanitation Decade (1981-1990). It was created to serve as a country-level program with a focus on reducing the risk for diseases by creating environments that support good sanitation practices. The creation was primarily because access to water, sanitation and hygiene services are fundamental human needs as well as human rights, as it is vital for the dignity and health of all people. Access to water is strongly linked to effective sanitation practices which in turn are strongly associated with good health, which is a strategic

human development indicator (Folayan, Obiyan & Olaleye, 2020). This was a reason for the global actions to improve access to safe water, sanitation and hygiene.

In 2010, an initiative tagged the Nigeria's 2014-2017 Country WASH Programme was designed to ensure increased access to, and use of water sources, sanitation facilities and practices, particularly among vulnerable communities (FGN, 2020). The four components of the 2014-2017 WASH Programme were as follows: Sanitation, Hygiene and Water in Nigeria Project II (SHAWN II); Water Supply Sanitation Sector Reform Programme II (WSSSRP II) (which was a follow-up on WSSSRP I, working in six focal states: Anambra, Cross River, Jigawa, Kano, Osun and Yobe.); Water Supply Sanitation Sector Reform Programme III (WSSSRP III), and; Niger Delta Support Programme (NDSP). With the European Union (EU) as a cooperating partner, the SHAWN II, WSSSRP II/III, and NDSP were designed to be implemented in the following states - Adamawa, Akwa Ibom, Anambra, Bayelsa, Cross River, Delta, Edo, Ekiti, Jigawa, Kano, Osun, Plateau and Rivers.

The operating context for the FGN/UNICEF Nigeria WASH Programme (2014-2017) included the development of the 2016-2030 Partnership for Expanded Water Supply, Sanitation and Hygiene (PEWASH) Strategy and the National Roadmap for Eliminating Open Defecation (FGN, 2016; 2020). WSSSRP II was delivered between 2012 and 2018 and extended to 2019. It was designed as a follow up from the previous WSSSRP I. The following activities and strategies were included within the Programmes for schools - water point rehabilitation and construction; construction of ventilated improved gender sensitive pit latrines (VIPs), and; training of teachers in establishment and operations of sanitation clubs (FGN, 2020).

The key projects that formed the UNICEF-Nigeria's WASH Programme with the Government of Nigeria (WSSSRPII, WSSSRPIII, SHAWN II and NDSP) focused on: delivering and supporting safe access to WASH services across schools in the aforementioned states; supporting community engagement in WASH for sustainability, and; developing strong and effective systems for delivering and supporting a WASH sector-enabling environment (FGN, 2020). A succeeding WASH Programme for 2018–2022 was to support the government in implementing the PEWASH, and to ultimately end Open Defecation (OD) in the country by 2025 and provide access to basic sanitation to all rural inhabitants by 2030 (FGN, 2016). The 2018-2022 programme was specifically designed to decrease the population's proportion practicing OD from 25% (baseline) to 12% (target) by 2022, and; increase the number of schools with functional gender sensitive WASH facilities from 28% (baseline) to 35% (target).

The focus of the WASH program started with households only, which constituted negligence to schools, before further assessment led to the extension of consideration of schools.

As noted by Ohwo (2019), the WHO/UNICEF WASH Joint Monitoring Programme (JMP) was more concerned with households' access to WASH, thus less concerned with institutional (schools') access. With increasing emphasis on education as a basic right for children ever since the 21st century, the risk of acquiring infectious diseases due to inadequate WASH services in schools became high. Hence since 2010, the JMP has prioritized global monitoring of WASH in schools and healthcare facilities. According to Oluyinka and Adebayo (2019), school-age children constitute about 23% of the population of the average Nigerian community. In Nigeria, the school environment has direct contact with more than 80% of the nation's population aged 5-17 years for about 7 hours a day, and for a period of up to 13 critical years of their social, psychological, physical, and intellectual development (Ohwo, 2019). For every child, school-age is a critical formative period of rapid growth and development. Even as they are totally dependent and not considered productive as it concerns national income generation, the health status of the school-age and indices are used to determine a nation's state of development.

Prior to the introduction and implementation of WASH, poor toilet hygiene and its usage were indicators of risk of transmitting infections and diseases which could cause short term illness and absence from schools. In some other cases, it served as a contributory factor to health and psychological conditions that persisted beyond school and manifested in seriously malignant forms in later life (Trinies, Garn, Chang & Foreman, 2016). Poor sanitation attitude and practices caused school-age girls in developing countries to skip classes, mostly when they were menstruating. The inertia to use dirty, smelly or inappropriate facilities gave rise to major short/long-term health implications. In order to avoid risks associated with communal toilets, pupils who sought privacy in bushes unfortunately encountered snakes in the bushes or other dangers. A possible response was limiting the intake of water during the day to inhibit the need to use a toilet by suppressing any physical urge, thus leading to psychological problems. Safe and adequate sanitation facilities and services in schools are pre-requisites for the right to basic education for school-age children (Chabo & Akpan-Idiok, 2019).

School, for most individuals, is most often the first contact they make with the environment away from home. Thus, children tend to spend significant and critical number of years learning, growing and developing in such environments (Egbinola & Amanambu, 2015). It has been observed that the level of participation in educational programmes depends on the health status of children. A healthy and mentally alert child is more likely to attend to school activities as required by the curriculum (Ogbe, 2020). Safe toilets and sanitation facilities cater for some of the most critical students/teachers' needs in schools. Inadequate access to facilities coupled with poor practices towards urinary or bowel activities do have very wide implications

for individuals' physical, emotional and psychological health (Ofili, Esu & Ejemot-Nwadiaro, 2020). It mostly affects learners and teachers severely, especially for those with disabilities or additional needs, and children with bladder conditions (Inah, Ntekim, Nji, Egbonyi & Mboto, 2020).

Schools are known to be the principal place of education for students who have a central role to play in the community. In the event of school sanitation education being given prominence, an effective implementation of plans on physical infrastructure, sanitation education and monitoring/evaluation of schools in such regard can possibly result in a change in school children's behaviour that will afterward impact on the community (Olatunji & Thanny, 2020). In order to enjoy the benefits of adequate WASH services in schools, there is need to acquire more reliable and valid data on the actual status of WASH in schools. This is in order to comprehend the extent of issues militating against adequate WASH services in schools and also develop workable intervention strategies to tackle the barriers (Ohwo, 2019). The school approach of enhancing WASH practices could be a veritable route through which the awareness of appropriate and acceptable sanitation practices can be entrenched (Olukanni, Ducoste & George, 2014). It has also been established that appropriate and adequate WASH services in schools can enhance health, boost educational accomplishments, improve gender fairness across rural and urban schools, and bring about a constructive influence on communities (Alafin, Adesegun, Izang & Alausa, 2019).

WASH programme in schools within Cross River State has been in implementation since 2012 till date as a result of the WSSSRP II and III programmes (2012-2019), the Nigeria's Country WASH Programme (2014-2017), and the PEWASH programme (2016-2030). In line with the primary objective of the global WASH programme, the objectives of the three programmes in schools include to ensure construction of ventilated improved gender sensitive pit latrines (VIPs); training of pupils in group hand washing, and; training of teachers in establishment and operations of sanitation clubs. Within secondary schools in the state, observations about the WASH programme appear to show some inconsistencies associated with the programme's implementation vis-à-vis the achievement of its core objectives. Also, the practices of students and teachers in line with the objectives of the programme have need of being evaluated (Inah *et al*., 2020).

Students and teachers' sanitation practices refer to the behavioural patterns displayed by learners and teachers in line with sanitation. Poor sanitation practices are connected with poor knowledge and attitude, as well as non-availability and non-accessibility of safe drinking water and sanitation resources and facilities in schools (Iyam 2019; Ofili *et al*., 2020). The need to

ascertain the manner of students'/teachers' sanitation practices in secondary schools called for this empirical study. Therefore, the researcher evaluated the implementation of the WASH programme with specific focus on students'/teachers' sanitation practices from 2016-2021 in Secondary Schools in Cross River State.

Sanitation refers to having access to facilities for the safe disposal of human waste (faeces and urine), as well as having the ability to maintain hygienic conditions, through services such as garbage collection, industrial/hazardous waste management, and wastewater treatment and disposal (WHO & UNICEF, 2012). Proper sanitation in schools not only reduces the burden of disease but also provides secondary benefits like increasing rate of school attendance, as well as contributing in the empowerment of women (Yoade, 2019). It also contributes towards a healthy school environment where school children are protected from diseases/infections and exclusion. Accessibility of students to basic sanitation services at school is a fundamental prerequisite for safe sanitation practices. In addition, it plays a strategic role in ensuring that schools do not become hotspots for breeding disease vectors which may thus endanger the health of surrounding communities (Wada, Oloruntoba, Adejumo & Aluko, 2020).

The absence of basic sanitation services in schools has been reported to result into reduced school participation, absenteeism, decreased enrolment, toilet avoidance and low academic achievement of students (Montgomery, Ryus, Dolan, Dopson & Scott, 2012). Toilets and sanitation facilities cater for some of the most fundamental human functions. Inadequate access to such facilities and poor knowledge of urinary/bowel activities has wide consequences for students' physical, emotional and psychological health. Inadequate provision of toilet/sanitation facilities is a major cause of diseases worldwide (Eshun, Acquah & Acquaye, 2014). Disease conditions such as cholera, diarrhoeas, dysentery, genito-urinary tract infections, hookworm, typhoid fever, viral hepatitis, etc can occur as a result of any of absence or inadequate toilet facilities in schools (Burton, 2013). Lack of/inadequate toilet facilities may make students respond by limiting their intake of water during the day to suppress the need to use toilet or inhibit any physical urge that would lead to toilet usage, thus contributing to psychological problems in eliminating waste effectively (Burton, 2013). Being that female students require toilet/sanitation facilities more, lack/inadequate facilities may impede their capability to reap the benefits of educational attainment (Morrissey, Hutchison & Winsler, 2013).

According to WHO/UNICEF (2014), improved sanitation refers to a system which facilitates appropriate disposal of human and animal waste with the aim of improving and protecting both public and environmental health. In other words, improved sanitation generally

implies physically closer sanitation facilities, less waiting time, and safer disposal of human metabolic waste. An improved sanitation facility is one where human metabolic waste is hygienically separated from human contact; is utilised only by members of a single household, and; with toilets flushing to any of sewer systems or septic tanks, or any of ventilated improved pit (VIP) latrines, pit latrines that have a slab covering, and composting toilets (WHO/UNICEF, 2016). Below is a table of improved and unimproved sanitation facilities as compiled by the Joint Monitoring Programme (JMP) for school WASH programmes.

Table 1: *Improved and unimproved sanitation facility categories, by the JMP*

Improved sanitation facility	**Unimproved sanitation facility**
• Flush or pour-flush piped to; i. Sewer system, or ii. Septic tank iii. Pit latrine • Latrines such as; i. Ventilated improved pit (VIP) latrine ii. Pit latrine with slab covering • Composting toilet	• Flush or pour-flush to elsewhere (that is, not to piped sewer system, septic tank or pit latrine) • Pit latrine without slab/open pit • Bucket • Hanging toilet or hanging latrine • Shared facilities of any type • No facilities, bush or field

SOURCE: ***WHO/UNICEF (2014)***

Ndububa and Ndububa (2018) probed knowledge of water-related diseases, sanitation/hygiene among Nigerian primary school children and revealed that 78% reported that they washed their hands always before eating, 17% indicated that they washed sometimes before eating while 5% reported that they never washed their hands before eating. The result also showed that 73% reported that they always used soap to wash their hands, 10% indicated that they sometimes used soap to wash their hands while 17% reported that they never used soap to wash their hands. Abubakar, Awosan, Ibrahim and Ibitoye (2019) verified practice of school health programme among primary and secondary schools in Nigeria and found out that 92% of the respondents were categorised as displaying poor practice levels of the school health sanitation services while 8% were found to display a good practice level of the sanitation services. Dogara, Ahmad, Balogun, Dawaki, Mustapha, Abdurrahman, Bala, Zakari and Livingstone (2020) assessed schistosomiasis and its associated risk factors among Nigerian primary school pupils in Nigeria and revealed that 17.3% agreed that they do not engage in open defecation while 82.7% stated that they do so very often.

Ezeaka, Ezeoke and Nwodu (2020) evaluated knowledge and practice of hand washing messages among Nigerian secondary school students and revealed that the extent of engagement in sanitation practices by the students was very poor. Ighere and Ohwodue (2020) assessed sanitation practices among Nigerian public primary school pupils and observed that compliance

with appropriate toilet sanitation practices was 42.75%. Odeigah, Rotifa, Shittu and Mutalub (2020) determined prevalence/risk factors of superficial fungal infections among secondary primary school pupils in Nigeria and reported that 53.9% were found to be engage in sanitation practices while 46.1% were observed to engage in unhealthy sanitation practices. Yaro, Kogi, Luka and Kabir (2020) investigated soil-transmitted helminths in Nigerian primary schools and found out that 85.48% of the pupils indicated that they did not wash their hands after using the toilet while the rest did. The finding also revealed that 48.03% of the pupils disposed their faecal waste by open defecation. Nwankwo, Onyebueke, Irikannu, Nzeukwu, Onwuzulike and Okafor (2021) examined soil-transmitted helminths' infections and associated risk factors among Nigerian primary school pupils and observed that 55.63% of them agreed to washing their hands after toilet use while 44.37% indicated that they did not wash their hands after toilet use. Pukuma, Thadawus and Augustine (2022) enquired soil-transmitted helminths among Nigerian primary school pupils and found out that 24.17% engaged in open defecation, 26.94% disposed theirs in water closet while 48.89% disposed theirs in open pit toilets.

Statement of the Problem

The WASH programme introduced in schools from 2012 was designed to undertake rehabilitation/construction of water points, construction of modernised gender sensitive pit latrines, and training of students in hand washing behaviours/engagement in environmental sanitation clubs. The basic objectives of the programme in schools, for all the students, have been outlined to include ensuring – (i) equitable access to appropriate and adequate sanitation services; (ii) an end to open defecation, and; (iii) students' acquisition of appropriate WASH practices. Out of curiosity, pre-research visits to some secondary schools in Cross River State reveals otherwise, showing a lack of effective implementation of the components of the program. In most schools, poor WASH knowledge has seemingly resulted in poor sanitation practices among students and some teachers. The poor WASH knowledge seemingly leads to wrong perceptions, resulting in large dependence on open defecation practices being perceived as normal and commonly practiced. These mostly affect learners and teachers severely, especially for those with disabilities or additional needs, and children with bladder conditions. Inadequate access to such resources/facilities, coupled with poor sanitation practices are known to have very wide implications for individuals' physical, emotional and psychological health. This seeming appalling and distressing condition in schools calls for an evaluative reflection for possible urgent intervention. It is therefore imperative that the consciousness of the students/teachers' concerning appropriate sanitation practices be investigated. Consequently, the researcher answered the question, to what extent do students and teachers engage in sanitation practices in secondary schools in Cross River State, Nigeria?

Purpose of the Study

The purpose of this study was to evaluate the implementation of the WASH programme in secondary schools with specific focus on students'/teachers' sanitation practices in Cross River State.

Research questions

1. What sanitation practices do secondary school students engage in?
2. What sanitation practices do secondary school teachers engage in?

Research design and methods

An evaluation research design was utilized for the study. The study was conducted in Cross River State. All secondary school teachers (4,430) and SS2 students (16,662) in the area served as the population. Simple random sampling technique was adopted for the study. It was applied to select 2 sample schools each from each of the state's 18 local government areas and also, to select students and teachers from the selected schools. Before then, the Krejcie and Morgan (1970) sample size determination method was adopted to determine the study's sample from the teachers' and students' total population. The sample size determination method has a table which depicts the desired sample size for any given population. The total population of teachers and students is 21,092 and from the table, the sample size for the population is approximately 377. However, to account for attrition bias, (this refers to systematic differences between groups in withdrawals from a study, and withdrawals from the study lead to incomplete outcome data) the desired sample size was increased by (85%) giving a sample size of 698 for more accuracy. The percentage increase was arbitrarily chosen. Afterwards, the sample was proportioned amongst the schools for each of students and teachers based on the ratio of their various populations to the total population for the study. The breakdown of the sample was 558 students and 140 teachers (approximately on a ratio of 4 students to 1 teacher). A questionnaire tagged "Sanitation Practices Questionnaire" (SPQ) was used for collecting data. The reliability estimate method used was Cronbach Alpha and the result was .78. Mean scores were used for data analysis. Each of students' and teachers' sanitation practices in schools was evaluated and analyzed using judgmental mean and standard deviation (SD) scores. The key for the judgmental mean scores is as follows - N = Never, R = Rarely, O = Often, and A = Always.

Results and discussion

Research Question One: What sanitation practices do secondary school students engage in?

Table 2: Mean and SD scores of the sanitation practices secondary school students engage in

S/N	Item Statement	Mean ($\bar{x}$)	SD	Remarks
1	Litter the environment with waste	2.72	.602	O
2	Urinate at spots not designated for urination	2.43	.868	R
3	Excrete in an appropriate defecation facility	2.79	.616	O
	Cluster mean	2.64	.402	O

The result in Table 2 shows the Mean and SD scores of sanitation practices that secondary school students engage in. The results shows that their Mean scores for items 1 and 3 are 2.72 and 2.79 respectively, implying that students often carry out these sanitation practices.

However, their mean response for item 2 was 2.43. This implies that they rarely urinate at spots designated for urination. Furthermore, the SD values for all the items ranged from 0.602 to 0.868 for all the items. The close nature of the SD values indicates that the responses of the respondents are similar. Moreover, the overall Mean response of the respondents is 2.64 with SD value of .402. The result implies that students often times litter the environment with waste; urinate at spots not designated for urination and excrete in an inappropriate defecation facility.

Research Question Two: What sanitation practices do secondary school teachers engage in?

Table 3: Mean and SD scores of the sanitation practices secondary school teachers engage in

S/N	Item Statement	Mean ($\bar{x}$)	SD	Remarks
1	Litter the environment with waste	1.87	.920	N
2	Urinate at spots not designated for urination	1.05	.790	N
3	Excrete in an appropriate defecation facility	3.21	.687	O
	Cluster mean	2.04	.529	R

The result in Table 3 shows the Mean and SD scores on sanitation practices secondary school teachers engage in. The result shows that their Mean scores for items 1 and 2 are 1.87 and 1.05 respectively implying that teachers rarely litter the environment with waste and urinate at spots not designated for urination. However, their mean response for item 3 was 3.21. The results mean that they often excrete in an appropriate defecation facility. Furthermore, the SD values for all the items ranged from 0.687 to 0.920 for all the items. The close nature of the SD values indicates that the responses of the respondents are similar. Moreover, the overall Mean response of the respondents is 2.04 with SD value of .529. The result implies that teachers rarely litter the environment with waste; urinate at spots not designated for urination and excrete in an inappropriate defecation facility.

Discussion

The findings of the study showed that students often times litter the environment with waste; urinate at spots not designated for urination and excrete in an appropriate defecation facility. This means that though the students most often do not carry out sanitation practices. The findings validate previous findings by Afolabi, Oninla and Fehintola (2018) who investigated *tinea capitis* – a tropical-based disease of hygienic concern among Nigerian primary school pupils and 13.8% of the students were categorised as having displayed a good level of hygiene practice while 48.6% were categorised as having displayed a poor level of hygiene practice. The study also upholds previous findings by Ezeaka, Ezeoke and Nwodu (2020) who evaluated knowledge and practice of hand washing messages among Nigerian secondary school students and revealed that the extent of engagement in hand washing by the students was very poor. This therefore mean that the above findings are true and in order.

The findings of the study showed that the teachers rarely litter the environment with waste; urinate at spots not designated for urination and excrete in an inappropriate defecation facility. This means that the level of sanitation practice is very high. Consequently, teachers very often engage in various hygiene practices. The implication of the findings is that teachers carry-out various hygiene practices to a very high level. The findings confirm previous findings from studies of Suleiman, Hanafi and Tanslikhan (2018) who conducted a study on principals' perception of health services in Nigerian secondary schools and revealed that the principals had a high level of knowledge as it concerns school health services. Therefore, the findings of the study that teachers carry-out good sanitation and hygiene practices is in order.

Conclusion

Based on findings of this study, it was concluded that students rarely engage in many sanitation and hygiene practices while teachers very often engage in various sanitation and hygiene practices. This has implication on the students, environmental campaigners, ministry of health and the society. If the students rarely engage in sanitation and hygiene practices, they may be affected by disease conditions or be become dirty and unattractive to others. This may affect their health or outlook. Besides, lack of sanitation and hygiene practices will lead to dirty environment due to improper waste disposals and untidy environment. This may serve as breeding ground for many disease vectors and pathogens such as mosquitoes. As such the prevalence of disease resulting from the spread of these vectors and pathogens will be high and thereby leading to diseases. This will place a huge burden on the budgetary allocations from the ministry of health to tackle the diseases.

It also implies that the environmental campaigners have not been able to carry-out effective campaigns on sanitation and hygiene in schools. Therefore, much effort should be put in place by them to carry-out awareness campaigns in secondary schools on the negative impact of poor sanitation and hygiene practices. By so doing, students' extent of engagement in practices of sanitation and hygiene may improve. Besides, parents, guardians and the society must ensure that their wards are neat, the environment is clean and that children maintain good hygiene and sanitation practices. By so doing, the society may be safe from disease and infections and individuals as well as ministry of health, environment and education will be able to save some money that should have been allocated to treatment and control of diseases.

Recommendations

From the findings of this study, it was recommended that;

1. Government and school administrators should provide adequate sanitation facilities and resources for use by students and teachers in secondary schools.

2. School cleaners, students and teachers should ensure regular clean-up of school environment.
3. Students should ensure proper disposal of waste and sewage.
4. Government, through the ministries of education, environment and health, should organize regular workshops and seminars for teachers and students on safe sanitation practices.

References

Abubakar, A. U., Awosan, K. J., Ibrahim, M. T., & Ibitoye, K. P. (2019). Knowledge and practice of school health program in primary and secondary schools in Sokoto metropolis, Nigeria. *International Archives of Medicine and Medical Sciences, 1*(2), 23-28

Alafin, B., Adesegun, O. A., Izang, J. A., & Alausa, K. O. (2019). An appraisal of the School Health Programme in primary schools in a rural community in Nigeria. *Ethiopian Journal of Health Development, 33*(3), 153-159

Burton, S. (2013). *Toilet unblocked: A literature review of school toilets*. Glasgow: Office of Scotland's Commissioner for Children and Young People

Chabo, J. A., & Akpan-Idiok, P. A. (2019). Utilization of School Health Programme (SHP) Facilities and Factors Affecting Implementation in Secondary Schools in Calabar Municipality, Cross River State, Nigeria. *Greener Journal of Medical Sciences, 9*(1), 01-11

Dogara, M. M., Ahmad, S., Balogun, B. J., Dawaki, S. S., Mustapha, M. B., Abdurrahman, A. U., Bala, L., Zakari, A., & Livingstone, D. U. (2020). Schistosomiasis and associated risk factors among school-aged children in Northern Nigeria. *International Journal of Translational Medical Research and Public Health, 4*(2), 103-111

Egbinola, C. N., & Amanambu, A. C. (2015). Water supply, sanitation and hygiene education in secondary schools in Ibadan, Nigeria. *Bulletin of Geography - Socio-Economic Series*, 29, 31–46

Eshun, E. S., Acquah, S., & Acquaye, V. N. A. (2014). School sanitation and hygiene education: A focus on rural community basic schools in Ghana. *Journal of Education and Practice, 5*(13), 148-156

Ezeaka, N. B., Ezeoke, C. B., & Nwodu, E. G. (2020). Evaluating knowledge and practice of hand washing messages among secondary school students in Anambra State. *Nnamdi Azikiwe University Journal of Communication and Media Studies, 1*(1), 1-17

Federal Government of Nigeria (FGN). (2016). *Partnership for Expanded Water Supply, Sanitation & Hygiene (PEWASH) Programme Strategy 2016-2030*. Abuja: Federal Ministry of Water Resources. http://www.washpmp.com>

Federal Government of Nigeria (FGN). (2020). *Evaluation of the UNICEF supported Federal Government of Nigeria Water, Sanitation and Hygiene Programme (2014-2017) - Final Report*. Sheffield, UK: International Organization Development (IOD) PARC Ltd. Retrieved on from https:// www.unicef.org>file

Folayan, M. O., Obiyan, M. O., & Olaleye, A. O. (2020). Association between water, sanitation, general hygiene and oral hygiene practices of street-involved young people in Southwest Nigeria. *BMC Oral Health, 20*(32), (e-journal). https://doi.org/10.1186/s12903-020-1022-z

Ighere, E. J., & Ohwodue, R. (2020). Modeling some Nigeria socio-economic problems using stepwise regression. *Innovative Journal of Science, 2*(2), 119-129

Inah, S. A., Ntekim, V. E., Nji, E. L., Egbonyi, D. E., & Mboto, F. E. (2020). Assessment of water supply and sanitation facilities in public primary schools in Calabar South Local Government Area, Cross River State, Nigeria. *New York Science Journal, 13*(7), 43-51

Iyam, M. A. (2019). School-based hand washing practice and students' health in secondary schools in Obudu Local Government Area of Cross River State, Nigeria. *International Journal for Innovative Research in Multidisciplinary Field, 5*(3), 150-154

Montgomery, P., Ryus, C. R., Dolan, C. S., Dopson, S., & Scott, L. M. (2012). Sanitary pad interventions for girls' education in Ghana: A pilot study. *PLOS ONE, 7*(10), (e-journal). Available at e48274.doi:10.1371/journal.pone.0048274

Morrissey, T. W., Hutchison, L., & Winsler, A. (2013). Family income, school attendance, and academic achievement in elementary school. *Developmental Psychology, 50*(3), 1-13

Ndububa, O. I., & Ndububa, E. E. (2018). Knowledge of water related diseases, sanitation and hygiene among children as change agents in communities. *International Journal of Applied Environmental Sciences, 13*(1), 83-103

Nwankwo, A., Onyebueke, A. C., Irikannu, K. C., Nzeukwu, C. I., Onwuzulike, I. V., & Okafor, N. M. (2021). Soil-transmitted helminths infection and associated risk factors among primary school pupils in Omogho and Awa Communities, Anambra State, Nigeria. *International Journal of Tropical Disease & Health, 42*(8), 56-64

Odeigah, L., Rotifa, S., Shittu, R., & Mutalub, Y. (2020). Prevalence and risk factors of superficial fungal infections among primary school pupils in Ilorin, North Central Nigeria. *Annals of African Medical Research, 3*(100), 23-27

Ofili, D. C., Esu, E. B., & Ejemot-Nwadiaro, R. I. (2020). Oral hygiene practices and utilization of oral healthcare services among in-school adolescents in Calabar, Cross River State, Nigeria. *Pan African Medical Journal, 36*(300), (e-journal). Retrieved on 03/06/2021 from 10.11604/pamj.2020.36.300.25102

Ogbe, O. J. (2020). Appraisal of the implementation of the National School Health Policy in secondary schools in Nigeria. *Academic Journal of Interdisciplinary Studies, 9*(2), 149-156

Ohwo, O. (2019). Status of water, sanitation and hygiene facilities in public secondary schools in Yenagoa, Nigeria. *World Journal of Social Sciences and Humanities, 5*(3), 176-183

Olatunji, R. W., & Thanny, N. T. (2020). Availability and adequacy of WASH facilities in secondary schools in Lagos State, Nigeria. *E3S Web of Conferences, 211*(01023), (e-journal). https://doi.org/10.1051/e3sconf/202021101023

Olukanni, D. O., Ducoste, J. J., & George, T. O. (2014). *Creating Water, Sanitation and Hygiene (WASH) program awareness in schools: A tool towards the success of community WASH Program*. Proceedings of EDULEARN14 Conference held from 7th-9th July 2014 at Barcelona, Spain. http://m.covenantuniversity.edu.ng>

Oluyinka, D., & Adebayo, A. M. (2019). School Health Program in Nigeria: A review of its implementation for policy improvement. *American Journal of Educational Research, 7*(7), 499-508

Pukuma, M. S., Thadawus, D., & Augustine, L. M. (2022). Soil transmitted helminths among school aged children in Hong Local Government Area of Adamawa State, Nigeria. *Animal Research International, 19*(1), 4318-4323

Trinies, V., Garn, Y. V., Chang, H. H., & Foreman, M. C. (2016). The Impact of a school-based water, sanitation, and Hygiene program on absenteeism, diarrhoea and respiratory infection: A matched-control tried in Mali. *American Journal Tropical Medicine Hub, 94*(6), 1418-1425

Wada, O. Z., Oloruntoba, E. O., Adejumo, M., & Aluko, O. O. (2020). Classification of sanitation services and students' sanitation practices among schools in Lagos, Nigeria. *Environment and Natural Resources Research, 10*(3), 55-68

World Health Organization & United Nations' Children's Fund (WHO & UNICEF) (2012). *Progress on drinking water and sanitation: Update*. New York: WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation.

World Health Organization/United Nations' Children's Fund (WHO/UNICEF). (2014). *Progress on drinking water and sanitation: 2014 update*. Geneva, Switzerland: WHO

World Health Organization/United Nations' Children's Fund (WHO/UNICEF). (2016). *Core questions and indicators for monitoring WASH in Schools in the Sustainable Development Goals*. ISBN TBC (version November 2016). Retrieved from https://www.who.int/water_sanitation_health/publications/monitoring-wash-in-health-care-facilities-aug-2018.pdf

Yaro, C. A., Kogi, E., Luka, S. A., & Kabir, J. (2020). School-based cross-sectional survey on soil-transmitted helminths in rural schools of Kogi East, Nigeria. *Dr. Sulaiman Al Habib Medical Journal, 2*(1), 10-19

Yoade, A. O. (2019). Environmental sanitation practices in Sub-Sahara African urban centres: The experience from Ondo, Nigeria. *International Journal of Research Studies in Science, Engineering and Technology, 6*(11), 21-31