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Comparative Study on the Implementation of Water, Sanitation and Hygiene Programme in Public and Private Secondary Schools in Remo Division, Ogun State

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ABSTRACT

Water, sanitation, and hygiene (WASH) are critical determinants of health and well-being. Access to clean water, proper sanitation, and good hygiene practices are fundamental human needs and prerequisites for a healthy environment. This study assessed the implementation of WASH programs in public and private secondary schools in the Remo division of Ogun State, Nigeria. A comparative cross-sectional research design was employed, with data collected from 162 heads of schools across Sagamu and Ikenne Local Government Areas using a multistage sampling technique. Data analysis was conducted using SPSS version 20.0. The findings revealed that the mean age of heads of public schools was 54.31 (± 2.94), while that of private schools was 34.22 (± 9.05). The findings of the study indicate that 81.4% of public secondary school heads demonstrate awareness of WASH, while 75.9% of private secondary school heads also show an understanding of WASH. The findings of the study indicate that 77.8% of public secondary schools have implemented a WASH program, compared to 50.0% of private secondary schools. These results highlight a stronger commitment among public secondary schools in adopting and utilizing WASH programs within the study area. Both public and private school respondents demonstrated good knowledge of WASH practices, with public school respondents showing slightly higher knowledge levels. However, the level of WASH program implementation was significantly higher in private schools, which also had more WASH facilities compared to public schools. Factors influencing WASH implementation included age group, educational qualifications (bachelor's degree), subvention, presence of WASH committees/clubs, hygiene education, availability of handwashing facilities, religion, water sources and treatment methods, as well as the number and distribution of toilets and urinals. The study recommends that federal and state ministries of education, along with management boards, establish policies and guidelines mandating effective WASH programs and the provision of adequate facilities as criteria for secondary school accreditation. These measures will enhance WASH implementation and promote healthier school environments.

Keywords: School Heads, Water, Sanitation, Hygiene, Public & Private Secondary Schools

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INTRODUCTION

WASH, an acronym for Water, Sanitation, and Hygiene, represents community development programs initiated by UNICEF to address water, sanitation, and hygiene-related challenges that contribute to the prevalence of community-related diseases such as diarrhea, typhoid fever, cholera, river blindness, and guinea worm, among others (World Health Organization & UNICEF, 2004). Ensuring access to safe and potable water, sanitation, and hygiene services beyond the household level, particularly within school

environments, is essential for safeguarding the health and education of children. Schools serve as critical settings where WASH interventions can significantly enhance educational outcomes while reducing the risk of disease transmission among students (World Health Organization & UNICEF, 2004). Recognizing the pivotal role of WASH in schools, it has been both explicitly and implicitly integrated into the post-2015 Sustainable Development Goals (SDGs).

Access to safe water, basic sanitation, and proper hygiene is essential for achieving good health, well-being, and economic development, as highlighted by Mosler (2012) and Howard, Bartram, & Water (2003). Bartram & Cairncross (2010) emphasized that sanitation infrastructure, including toilets, showers, and handwashing facilities, is critical for personal hygiene and health, while poor sanitation and water quality contribute significantly to child mortality.

The World Health Organization (WHO) and UNICEF (2004) noted that the lack of handwashing facilities and functional toilets in schools exacerbates the spread of diseases, underscoring the importance of clean school environments for children's health. In response to these challenges, Nigeria introduced the Water, Sanitation, and Hygiene Education (WASH) program following a 2018 National Retreat on Revitalization of WASH in Abuja, with a goal of achieving universal access to safely managed sanitation and hygiene facilities by 2030 (Falaju, 2018). Persson et al. (2004) reported that improved access to water, sanitation, and hygiene could reduce global disease burden and mortality rates by 9.1% and 6.3%, respectively, driving WHO and UNICEF's efforts under the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs).

Despite global initiatives, over 2.6 billion people lack basic sanitation (Shittu, Akpan, Mafiana, Ogunshola & Sodipe, 2014), with 2.2 million children dying annually from hygiene-related diseases like diarrhea, predominantly in developing countries (WHO/UNICEF, 2004). In Nigeria, over 70 million people lacked access to safe drinking water and 110 million lacked improved sanitation as of 2013 (Olayemi, 2018), with access to piped water declining from 32% in 1990 to 7% in 2015, and improved sanitation decreasing from 38% to 29% during the same period (Falaju, 2018). Globally, around 1.1 billion people lack access to improved drinking water sources, with contamination during transport posing additional health risks (WHO, 2004).

Diarrhea remains a leading cause of mortality worldwide despite advancements in research and clinical guidelines, accounting for over 50% of child deaths in Nigeria (USDA, 2008). While studies have demonstrated the positive health impacts of WASH interventions on children at home and school, there is currently no research assessing the implementation of WASH programs in public and private secondary schools in the study area.

Research questions

1. Do heads of public and private secondary schools in Sagamu and Ikenne Local Government Areas in Ogun State have adequate knowledge on water, sanitation and hygiene (WASH) programme?
2. To what extent do public and private secondary schools in Sagamu and Ikenne Local Government Areas in Ogun State implement WASH programme?

Aim

To assess the implementation of water, sanitation and hygiene programme in public and private secondary schools in Remo division, Ogun state

Specific objectives

1. To assess the knowledge of heads of public and private secondary schools' in Remo division of Ogun State on water, sanitation and hygiene (WASH) programme.
2. To determine the level of implementation of WASH programme in public and private secondary schools in the study area.

Literature review

Water, sanitation, and hygiene education initiatives in schools significantly influence children's health, learning outcomes, the teaching environment, and girls' education, as highlighted by UNICEF/IRC (2005). According to UNICEF (2004), over half of the world's schools lack access to clean toilets, safe drinking water, and proper hygiene facilities, with rural schools often having inadequate or non-existent water and sanitation infrastructure. WHO (1997) emphasized that schools with poor water, sanitation, and hygiene conditions are high-risk environments for disease transmission due to intense person-to-person contact. Although Kane & Staiger (2008) noted that the direct effects of educational interventions on sanitation and hygiene may diminish over time, they also acknowledged the potential for long-term benefits for students. WHO (2009) reported that diseases stemming from inadequate water, sanitation, and hygiene impose a significant burden on developing countries, with 88% of diarrheal diseases attributed to unsafe water and poor sanitation.

Ana (2008) described the sanitary conditions in many schools in developing countries as deplorable, with insufficient or absent water supplies contributing to unsanitary toilets or latrines. WHO (2009) further underscored the importance of water, sanitation, and hygiene in schools, noting their impact on children's learning abilities, physical health, cognitive development, and school performance, particularly for those aged 5 to 14. Lidonde (2004) highlighted the critical role of these facilities in improving girls' school retention rates, as inadequate resources often hinder their education. Given that educating all children, especially girls, is a key investment in a country's future, the provision of safe water and sanitation facilities is essential for fostering a healthy learning environment and driving socio-economic development.

Despite the developmental priority of hygiene, sanitation, and water supply, policy ambitions regarding drinking water and sanitation education remain insufficient in many developing countries, including Nigeria.

This research aims to provide an overview of the current state of water and sanitary facilities in schools and assess the status of hygiene education.

Sources and availability of water

Water supply in Nigeria predominantly relies on groundwater sources due to the inadequacies of urban water supply schemes. A study by Christiana and Amobuchukwu (2015) on schools in Ibadan revealed that only one school was connected to the Oyo State Water Corporation, which was plagued by irregular water supply. In the study, 9.09% of schools sourced water from boreholes, 13.64% from pumped wells, and a majority (70.46%) relied on ordinary dug-up wells, with groundwater sources collectively accounting for 94% of water supply. These sources were typically located within the school compounds but not connected to the buildings. Additionally, one school depended on a nearby stream, and another utilized water from a spring. While students in four schools with boreholes drank water from these sources, 91% of schools relied on sachet water, locally referred to as "pure water," for drinking, with 86% purchasing it and 14% bringing it from home. Most available water was primarily used for sanitation purposes. Regarding water availability, 61.7% of respondents reported consistent access, while 38.3% experienced shortages due to reasons such as wells drying up during the dry season or pump breakdowns. Even in schools with year-round water availability, quantities were often insufficient, leading to challenges such as dirty environments and unhygienic toilets. Furthermore, a UNICEF and IRC (2005) study indicated that 64% of surveyed schools lacked an on-site water supply, forcing students to walk 2-3 kilometers twice daily for water. The study also revealed that only 32% of drinking water sources at schools were deemed safe.

Availability and access to sanitation facilities within the schools

Christiana and Amobuchukwu's (2015) study highlights the critical role of adequate sanitation facilities in schools, emphasizing their importance for child development and effective learning. Their findings, supported by UNICEF & IRC (2005), revealed that 67% of Nigerian primary schools rely on pit latrines, 3% use water closets (WC), and 30% lack toilets entirely. Pit latrines, which represent 76% of available toilets, are linked to diarrheal diseases in developing countries (UNICEF, 2004), underscoring the need for WCs or, at a minimum, clean and covered pit latrines. The study found that 62% of pit latrines in public schools were uncovered, 26% were covered, and only 12% were VIP latrines, with construction costs limiting their adoption. The absence of adequate toilets often forces students to use open spaces, contributing to an unhealthy school environment and discouraging attendance, particularly among girls (Lidonde, 2004). None of the

studied schools met recommended standards, such as one toilet per 25 girls or one per 100 boys (WFP, UNESCO & WHO, 1999), with an average ratio of 157 students per toilet and some schools exceeding 500:1. Poor sanitation disproportionately impacts female students, as shown in Uganda, where female-only washrooms improved attendance and reduced dropout rates (UNICEF, 2013). Toilet location also emerged as a significant factor; while 69.8% of schools had toilets within 0-20 meters of classrooms, the poor condition of 72% of facilities increased exposure to disease vectors. Cleaning practices were inadequate in many schools, with only 40% cleaning daily and most relying on "late comers" for this task, which may stigmatize sanitation maintenance. WHO (2009) guidelines recommend daily cleaning with disinfectants and separating male and female facilities to enhance usability and hygiene. The findings underscore the urgent need for improved sanitation infrastructure and practices in schools to create a healthier and more conducive learning environment.

Availability of cleaning materials Self-cleaning materials.

Christiana and Amobuchukwu (2015) highlighted the materials used for self-cleaning in schools, noting that 15% of the schools relied on toilet tissue, 44% used a combination of toilet tissue and water, 7% used toilet tissue and paper, 27% used only water, and 7% utilized a combination of water and paper. The choice of materials reflects cultural preferences and financial constraints, with water being culturally favored for its cleaning efficacy, though its use necessitates soap for proper hand hygiene. Despite the hygienic advantages of toilet tissue, schools cited reasons such as cost, wastage, and a preference for water as barriers to its use. Alarmingly, self-cleaning materials were unavailable in 65% of the 44 schools studied, raising concerns about increased risks of infectious diseases like cholera and diarrhea (Oluwande et al., 2008).

Furthermore, 77% of the schools lacked designated hand-washing facilities, and only 5 of the schools provided soap for hand-washing, leaving 88% without proper provisions. This deficiency undermines the critical health benefits of hand-washing with soap, which can prevent 47% of diarrheal infections and 30% of acute respiratory infections (UNICEF/IRC, 2005). Additionally, the study revealed that hygiene education was included in the curriculum of only 21 out of the 44 schools surveyed, often integrated into home economics or social studies. This indicates that nearly 47.7% of the schools do not adequately equip students with essential hygiene knowledge, despite schools being pivotal in fostering lifelong hygiene practices (UNICEF, 1998; WHO, 2009). Hygiene education, combined with proper sanitation infrastructure and resources like soap and water, is vital for promoting health and empowering students as agents of change within their communities (UNICEF/IRC, 2005).

Importance of water supply, sanitation and health

Focusing on children today is essential for shaping healthier and stronger future generations. Schools, as ideal environments for education and health promotion, play a pivotal role in fostering positive behavioral changes among children. By providing access to safe water, proper sanitation facilities, and hygiene education, schools can significantly improve children's health, reduce dropout rates—particularly among girls—and instill lifelong habits of cleanliness and environmental care. For many children, schools offer their first experience with essential amenities such as working toilets, running water, well-ventilated classrooms, and clean surroundings, which can profoundly influence their perception of a better living environment. With over six lakh primary and upper primary schools in India, a teaching workforce exceeding 30 lakh, and more than 100 million students (1991-1992), this vast network offers an unparalleled opportunity to impact families and communities through education. Teachers, who are highly respected both within schools and in the broader community, serve as influential role models for students, promoting hygienic practices and advocating for sanitation awareness among parents and community members. Schools can further act as demonstration centers for adopting water and sanitation initiatives, thereby extending their influence beyond the classroom to foster community development.

A WASH-Friendly School is a school that:

- It is clean and safe
- It has adequate, well maintained toilets or latrines for girls and boys and for teachers, with water, paper, or other material for anal cleansing
- It has a place to wash hands with soap/ash and running water after using the toilets
- It has enough treated, safely stored drinking water for the school community

A WASH-Friendly School is a school where...

- The teachers give lessons on good hygiene practices in the classroom
- Students participate actively in making and keeping their school WASH-friendly
- Teachers, students, parents, and the whole community work together to promote good hygiene by ensuring that there are facilities and conditions for practicing improved hygiene in school and at home
- More girls will remain in school because they have separate, private, and clean sanitation facilities and don't have to leave school when menstruation begins

The Concept and Scope of Water, Sanitation and Hygiene (WASH) in schools programme in Nigeria

According to Shordt and Snel (2016), WASH in Schools programs are fundamentally composed of water,

sanitation, hygiene practices, hygiene education, and outreach efforts into homes and communities. UNICEF (2012) emphasizes that ensuring safe water supply, improved sanitation facilities, and hygiene education in schools is a vital strategy for reducing diarrhoeal illnesses and fostering lifelong healthy behaviors. This approach, termed Water, Sanitation, and Hygiene Education (WASH) in Schools, plays a crucial role in upholding children's rights to health, education, and participation. It has been widely acknowledged for its contributions to achieving the Millennium Development Goals (MDGs), particularly those related to universal primary education, reducing child mortality, enhancing water and sanitation access, and promoting gender equality. Furthermore, UNICEF (2012) highlights that WASH in Schools seeks to improve the health and academic performance of school-aged children and their families by mitigating water and sanitation-related diseases. The organization also underscores that every child-friendly school should incorporate appropriate WASH initiatives to maintain a clean environment, eliminate unpleasant odors, and prevent the spread of harmful bacteria, viruses, and parasites. As noted by UNICEF (2012), an efficiently and effectively implemented WASH in Schools programme will lead to students who:

- ✓ Are healthier;
- ✓ Perform better in school;
- ✓ Positively influence hygiene practices in their homes, among family members and in the wider community;
- ✓ Learn to observe, communicate, cooperate, listen and carry out decisions about hygienic conditions and practices for themselves, their friends and younger siblings whose hygiene they
- ✓ May care for (skills they may apply in other aspects of life);
- ✓ Change their current hygiene behavior and continue better hygiene practices in the future;
- ✓ Learn about menstrual hygiene and physical and emotional changes during puberty (learning to avoid menstrual odour, discomfort and urinary or vaginal infections will encourage girls to come to school during menstruation);
- ✓ Practice gender-neutral division of hygiene-related tasks such as cleaning toilets, fetching and boiling water and taking care of the sick.

Checklist for minimum standards for school

Sanitation and Hygiene Facilities

- Separate latrines for boys and girls
- "Child-friendly" facilities
- Latrines for male and female teachers
- 1 latrine per 25 girls and 1 for female staff
- 1 latrine + 1 urinal per 50 boys and 1 for male staff
- Hand washing stations next to latrines

Latrines should have

- Walls and roof
- Ventilation
- Doors that lock from the inside, not the outside
- Washable slabs
- Anal cleansing material (paper, leaves, water)
- Wastebasket for used wiping material
- A place to wash hands after use
- Cleaning items such as broom, scrub brush, etc.

Hand washing stations should have (at least)

- Basin
- Source of running water for rinsing (tap, jug)
- Soap, ash, clean sand, or mud
- Soak pit to avoid standing water

See: *Water, Sanitation and Hygiene Standards for Schools in Low-cost Settings (WHO, UNICEF 2009)*.

According to Deivam Muniyandi (2016) in the Swachh Bharat Mission (Grameen) article focused on the wash environment in schools, a study conducted by the Department of Drinking Water Supply (DDWS) highlights critical data regarding the availability and functionality of school toilets. The study reports that there are 839,549 boys' toilets and 888,934 girls' toilets available in schools. However, 76,996 boys' toilets and 87,984 girls' toilets are non-functional. Furthermore, the data indicates a shortfall, with 152,231 toilets unavailable for boys and 101,443 toilets unavailable for girls. These findings underscore significant gaps in sanitation infrastructure that require urgent attention to ensure a hygienic and supportive learning environment for students (Deivam Muniyandi, 2016).

Findings of an assessment conducted in 540 schools in nine states in India on Mid-Day Meal (MDM) Programme reveal that:

- Only (51%) of the schools have a designated hand washing space and in 44 per cent of the schools observed, the hand washing space was being used.
- Only close to one in ten (12%) of schools had soap/detergent available at the hand washing space.
- Nearly half (49%) of the students washed their hands using only water. Only two out of five (42%) students use soap/detergent. (Source: Hygiene Practices in Schools during mid-day meals, UNICEF-India Study 2009).
- Survey conducted in 392 schools in seven states in India reveal that nearly one third (32%) of the children wash hands with soap before eating. (Source: PAHELI Survey by Pratham under United Joint Programme on Convergence (UNJPC), 2012).

Also from the study, it was revealed that, 1442 schools without Girl's Toilet(s), 4278 without boy's toilet(s), 958 schools without dysfunctional girl's toilets and 1159 schools with dysfunctional Boy's toilet(s).

Deivam Muniyandi (2016) Suggested that:

- Give training to teachers regarding WASH program
 - Appoint one specially trained teacher (WASH) at each school
 - Health checkup should arrange periodically
 - Health and Hygiene education should be included in School and B.Ed. Curriculum
 - Daily one message or famous quotes regarding WaSH should be read in morning assembly
 - Conduct competition regarding water, sanitation and hygiene events like quiz, painting, debates, games, songs, slogan writing.
 - Invite experts and arrange some demonstration
 - Invite experts and give special lecture regarding health and sanitation
- Govt. can identify swachh schools and provide award in order to achieve the goals of swachh bharat.

Progress Rates of UNICEF'S Assisted WASH interventions in Ogun State, Nigeria

Mogaji, Adeaga, Yusuff, Johnson, and Ekpo (2016), in their "Preliminary Evaluation of UNICEF's Assisted Water, Sanitation and Hygiene (WASH) Programme Using Interview Guides and Spot Checks in Ogun State, Nigeria," highlight the Millennium Development Goal (MDG) target for 2015, which stipulated that Nigeria's water and sanitation coverage rates should reach 75% and 63%, respectively, to halve the population lacking sustainable access to safe drinking water and basic sanitation facilities, as outlined by WSMP (2009). In Ogun State, a baseline survey conducted in 2006 by RUWATSAN assessed rural water and sanitation resources, revealing coverage rates of 43% for water and 32% for sanitation. Additionally, the Nigeria Core Welfare Indicators Questionnaire Surveys (CWIQS; 2006) reported combined urban and rural coverage rates of 65.1% for water and 57.6% for sanitation. Despite the implementation of UNICEF's assisted WASH interventions, progress has been slow. Water coverage in rural areas has stagnated at 43% since 2006, with most activities focusing on rehabilitating non-functional water sources. Sanitation coverage rose modestly to 36% in 2012 due to the provision of public latrines in schools, health posts, and marketplaces but has since plateaued. Progress rates of these interventions are detailed in (Tables 1-2), as reported by the authors.

Mogaji et al. (2016) highlighted that while the MDG 2015 target set achievable coverage rates for water and sanitation, the progress in Ogun State remains insufficient to meet these national goals. Reports from RUWATSAN, the implementing agency for UNICEF-assisted programs in the state, reveal that no new water points have been constructed since 2006, with UNICEF's efforts limited to rehabilitating existing water sources. Consequently, water coverage rates have stagnated. Although sanitation coverage improved slightly from 32% to 36% in 2012 due

Table 1: Progress rate of UNICEF's assisted WASH interventions in Ogun State, Nigeria.

	Coverage rate for rural and urban areas	Baseline rates of 2006	coverage rural areas in	Rural coverage rates in 2010	Rural coverage rates in 2011	Rural coverage rates in 2012	MDG 2015 target for Nigeria
Water coverage	65.1%	43%		43%	43%	43%	75%
Sanitation coverage	57.6%	32%		32%	32%	36%	63%

Table 2: Progress of UNICEF's Assisted Sanitation Coverage Rates in Rural LGA of Ogun State.

	Baseline coverage rates of rural areas in 2006	Rural coverage rates in 2010	Rural coverage rates in 2011	Rural coverage rates in 2012
House hold latrines	15%	15%	15%	15%
Public latrines (schools, health, post, markets)	17%	17%	21%	21%

to additional sanitary resources provided to schools, markets, and health centers, both water and sanitation coverage remain below the MDG 2015 targets. The state relies heavily on dispersed dug wells, constructed either by individuals or the government, but there is a lack of data on their locations, conditions, and suitability for domestic use. Adams, Bartram, Chartier, and Sims (2009) emphasized that beyond coverage rates, the adequacy and improvement of water and sanitation facilities are critical but challenging, especially in resource-constrained settings like Nigeria. Spot assessments of intervention schools revealed that while UNICEF's WASH programs provided improved facilities such as sanplat latrines and hand pump boreholes in three government-owned primary schools in a model LGA, sustainability systems were lacking. One school had abandoned its latrine due to poor management. Furthermore, Adams et al. (2009) noted that the number of toilets was insufficient relative to student populations, with only one school meeting WHO recommendations of 50 male students and 25 female students per toilet. Freeman et al. (2012) also reported significant concerns regarding the absence of soap and water basins for handwashing after defecation, further highlighting the inadequacies in WASH interventions.

METHODOLOGY

Study area

The study was carried out in Remo division, Ogun State. The State comprises twenty Local Governments areas and they are divided into four divisions/zones – Egba, Remo, Ijebu and Yewa. The state is also divided into Three Senatorial districts: Ogun West, Ogun Central and Ogun East. The 2006 census recorded a total population of 3,751,140 residents in Ogun state. Sagamu and Ikenne Local Government Areas are located within Ogun East Senatorial District, in the Remo division of Ogun State.

Study population

The population for this study comprised of all the school

heads of registered public and private in Sagamu and Ikenne Local Government Areas in Ogun State.

Sampling Technique

A multistage sampling technique was used to select respondents from the study population. Remo comprises of 4 Local Government Areas: Sagamu, Remo North, Ikenne and Odogbolu Local Government Areas.

Stage 1: Simple Random sampling was used to select Two Local Governments from Four Local Governments in Remo division. The Two Local Governments selected were Sagamu and Ikenne Local Government Areas.

Stage 2: From each Local Government, schools were clustered into Public and Private schools. From the cluster in Public secondary schools, all the registered public schools in Sagamu (36 schools) and Ikenne (18 schools) Local Government Areas were used from ministry of education, Ogun State. From the cluster in Private secondary schools, all the registered Private schools in Ikenne Local Government (18 schools) were used and by simple random, 90 schools were selected from 115 Private school in Sagamu Local Government.

Inclusion criteria

All school heads in only registered private and public secondary schools in the study population from the State Ministry of Education who consented to participate in the study

Exclusion criteria

All school heads in only registered private and public secondary schools in the study population from the State Ministry of Education who did not consent to participate in the study.

Data collection

Consents were taken from the heads of the Schools and a

total of 162 questionnaires were administered to the heads of schools (Principals). Data collection in this study was carried out using descriptive cross-sectional quantitative semi-structured questionnaire which was validated by pre-testing in Abeokuta Grammar School, in Abeokuta South local government in Ogun State. The questionnaires were divided into five sections. Section A: Socio-demographic data of respondent, Section B: General background about WASH, Section C: Water supply, Section D: School Toilets/Latrines & Section E: Hand washing Hygiene. The questionnaires were self-administered to heads of schools (Principals). An observational study was also done by the Researcher, a standardized and validated checklist was used. This was done by onsite observation that is by moving around the schools to see the facilities on ground. The standards for WASH in schools (UNICEF, 2011) were used as the guiding principles to evaluate the adequacy of the various WASH components. The Observational/checklist was also divided into four sections. Section A: Background, Section B: Type of toilet available, Section C: Hand washing Hygiene & Section D: General remark/comment.

Findings from the data collected through questionnaire and onsite observation were then combined together and presented as a single assessment. Five Research assistants (community health extension workers) were used in the process of data collection, they were trained for Three days using didactic and practical lectures. The Study conducted from August 2018 to January, 2019.

Data analysis

Statistical Analyses was carried out using Statistical Package for the Social Science (SPSS) version 20.0. The descriptive statistics such as frequency, percentages and graphs were carried out for categorical variables accordingly.

Ethical consideration

Ethical approval was obtained from Health Research and Ethics Committee of Department of Planning, Research and Statistics, Ministry of Health, Oke-Mosan, Abeokuta. Administrative permission was taken from Ogun State Ministry of Education and the Zonal Education Officers of each local government. Each heads of schools were informed that the information collected would be kept confidential and used exclusively for this study. Prior to administration of the questionnaire, consent was received from each participant via the use of a consent form.

RESULTS AND DISCUSSION

Figure 1 above is a descriptive statistics of respondents showing that 33(61.1%), and 21(38.9%) are the male and female distribution of respondents in public schools and 46(42.6%) and 62(57.4%) are the male and female

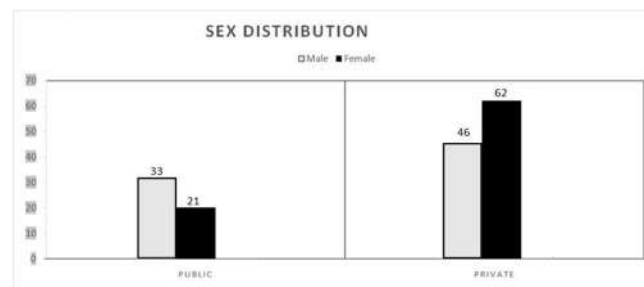


Figure 1: Distribution of respondents by sex

respondents in private school. The study was conducted among 162 heads of schools (principals) from public and private secondary schools in Remo division of Ogun state. Among the study heads of school, 33.3% of the respondents were from public schools and 66.7% from private schools. In terms of sex 51.2% of the respondents were male while 48.8% of the respondents were female.

Table 3 above is a descriptive statistics of respondents showing the mean age \pm 2SD was 54.31 \pm 2.94 for the public school and 34.22 \pm 9.05 years for the private schools, it also shows age distribution as 21(38.9%) for 41-50, then 33(61.1%) for above 50 distribution of age for public schools respondents while 2(1.9%), 22(20.4%), 32(29.6%) and 52(48.1%) for age distribution of 30 and below, 31-40, 41-50 and above 50 respectively for the age distribution of private school respondents. More so, it showed that majority of the respondents are Bachelor certificate holder for both public and private schools followed few with additional qualification in Masters, and few in lesser qualification. Finally, it reveals that 30(55.6%) and 73(67.6%) are Christian respondent for both public and private school respondents while 24(44.4%) and 32(29.6%) practice Islam as a religion and 3(2.8%) practice traditional religion only in respondents from private schools.

Research question one for objective one

To Assess the Knowledge of School Heads in Public and Private Secondary Schools in Sagamu and Ikenne Local Government Areas of Ogun East in Water, Sanitation and Hygiene (WASH) Programme. For public schools, 43(79.6%) have heard of Wash programme before, of which 43(79.6%) agrees that water as a component of wash, 42(77.8%) agreed that hygiene as a component of wash and sanitation also a component of wash with 42(77.8%). Also from the analysis of public schools' respondents, it was shown that 44(81.4%) agreed to the definition of WASH programme as being Water, Sanitation and Hygiene practice. They got their information about WASH programme from different sources as 30(55.6%) from Media, 19(35.2%) from school programmes and 54(100.0%) from Government. Furthermore, it was revealed that 42(77.8%) have WASH programme in their schools, 30(55.6%) receive subvention for the implementation of WASH from various means like the PTA (7(12.9%)) and old student association 30(55.6%).

Table 3: Socio-demographic characteristics of respondents

Variables	Public		Private	
	Schools		Schools	
	Freq	(%)	Freq	(%)
Mean ± SD	54.31 ±2.94		34.22 ±9.05	
Age				
≤30 yrs	0	0	2	1.9
31 - 40 yrs	0	0	22	20.4
41 - 50 yrs	21	38.9	32	29.6
> 50	33	61.1	52	48.1
Education level				
NCE	0	0	25	23.1
HND	2	3.7	18	16.7
BSc/BA.ED	33	61.1	51	47.2
MSc/MA.ED	14	25.9	13	12.0
Other:PGDE	5	9.3	0	0.9
Religion				
Christianity	30	55.6	73	67.6
Islam	24	44.4	32	29.6
Traditional	0	0	3	2.8

Table 4: Knowledge of heads of public and private secondary schools on water, sanitation and hygiene (WASH) Programme.

Variables	Schools Type			
	Public		Private	
	Freq. (Yes)	(%)	Freq. (Yes)	(%)
Ever heard about WASH	43	79.6	78	72.2
Water as a component of WASH	43	79.6	49	45.4
Hygiene as a component of WASH	42	77.8	75	69.4
Sanitation as a component WASH	42	77.8	74	68.5
WASH programme is				
Water Sanitation and Hygiene Practice (correct)	44	81.4	82	75.9
Water and Safety Hour (incorrect)	4	7.4	10	9.3
Weight and Height (incorrect)	3	5.6	11	10.2
Don't Know (incorrect)	3	5.6	5	4.6
Source of Information				
Media	30	55.6	54	50.0
School	19	35.2	65	60.2
Government	54	100.0	11	10.2
Your school have a WASH programme	42	77.8	54	50.0
Schools that receive any subvention for the implementation	30	55.6	43	39.8
NGO as source of subvention	0	0.0	16	14.8
Government Media as source of subvention	42	77.8	1	0.9
PTA as source of subvention	7	12.9	44	40.7
Other sources of subvention like the Old Students Association	30	55.6	5	4.6

For the private schools, it was shown that 78(72.2%) has heard of WASH programme before, of which 49(45.4%) agreed that Water as a component of wash, 75(69.4%) agreed that hygiene as a component of WASH and 74(68.5%) as Sanitation also a component of WASH. Also from the analysis of private schools respondents, it was shown that 82(75.9%) agreed to the definition of WASH programme as being Water, Sanitation and Hygiene practice, 10(9.3%) as water and safety hour, 11(10.2%) as weight and height and 5(4.6%) do not know. They all got to know about WASH programme from different sources as 54(50%) from Media, 65(60.2% from school programmes and 11(10.2% from Government. Furthermore, it was revealed that 54(50.00%) have WASH programme in their schools, 43(39.8%) receive subvention for the implementation of wash from various means like the

NGO's 16(14.8%), Government 1(0.9%), PTA 44(40.7%) and the old student association 5(4.6%). From the above, it revealed that the respondents from public schools have more knowledge on WASH programme than the respondents from the private schools. From (Tables 4-6), there were 5 knowledge questions. A score of "1" (one) was given for correct response and "0" (zero) score was given for wrong or do not know response. Knowledge score was arbitrarily classified as good (3/5 and above) and poor knowledge (lower than 3/5). It that 38(70.4%) respondents from public schools had good knowledge and 16(29.6) had poor knowledge, whereas 62(57.4%) respondents from private schools had good knowledge and 46(42.6%) had poor knowledge. Comparatively, respondents from public schools have more knowledge than respondents from private schools.

Table 5: Distribution of the respondents' knowledge on water, sanitation and hygiene knowledge

Variables	Public (%) n=54		Private (%) n = 108		X ²	P-value
	FREQUENCY		FREQUENCY			
	YES	NO	YES	NO		
Ever heard about WASH	43(79.6)	11(20.4)	78 (72.2)	30(27.8) 72(66.7)	1.045	0.3067
Water as a component of WASH	43(79.6)	11(20.4)	49 (45.37)	59(54.63)	1.045	0.0000
Hygiene as a component of WASH	42(77.2)	12(22.3)	75(69.4)	33(30.6)	1.246	0.2643
Sanitation as a component WASH	42(77.2)	12(22.3)	74(68.5)	34(31.5)	1.518	0.2179
WASH programme is Water Sanitation and Hygiene	44(81.4)	10(18.6)	72(66.7)	36(33.3)	3.886	0.0487
Good and poor Knowledge	38(70.4)	16(29.6)	62(57.4)	46(42.6)	2.561	0.1096

Table 6: Distribution of knowledge on WASH Programme

Category	Public school			Private school		
	Male	Female	Freq (%)	Male	Female	Freq (%)
Good knowledge	22	16	38(70.4)	36	26	62(57.4)
Poor knowledge	11	5	16(29.6)	26	20	46(42.6)
Total	33	21	54(100.0)	62	46	108(100.0)

Table 7: Association between Socio-demographic Characteristics and Knowledge of Respondents.

Variables	Knowledge of respondents									
	Public					Private				
	Good knowl. (%)	Poor knowl. (%)	Total	χ ²	P value	Good knowl. (%)	Poor knowl. (%)	Total	χ ²	P value
Age										
≤ 30 yrs.	0(0.0)	0(0.0)	0(0.0)			19(30.6)	18(39.1)	37(100.0)		
31 - 40 yrs	0(0.0)	0(0.0)	0(0.0)			12(19.4)	10(21.7)	22(100.0)		
41-50 yrs	23(60.5)	6(37.5)	29(100.0)	6.253	0.038*	22(35.5)	4(8.7)	26(100.0)	7.969	0.019*
>50 yrs	15(39.5)	10(62.5)	25(100.0)			9(14.5)	10(21.7)	19(100.0)		
Sex										
Male	22(57.9)	11(68.8)	33(100.0)	.363	0.378	36(58.1)	26(56.5)	62(100.0)	.059	0.480
Female	16(42.1)	5(31.3)	21(100.0)			26(41.9)	20(43.5)	46(100.0)		
Education level										
NCE	0(0.0)	0(0.0)	0(0.0)			17(27.4)	8(17.4)	25(100.0)		
HND	2(5.3)	0(0.0)	2(100.0)			10(16.1)	8(17.4)	18(100.0)		
BSc/BA.ED	29(76.3)	4(2.5)	33(100.0)	13.817	0.037*	42(67.7)	9(19.6)	51(100.0)	12.831	0.012*
MSc/MA.ED	4(10.5)	10(62.5)	14(100.0)			5(0.8)	8(17.4)	13(100.0)		
PGDE	3(7.9)	2(1.3)	5(100.0)			0(0.0)	0(0.0)	0(0.0)		
Religion										
Christianity	18(47.4)	12(75)	30(100.0)	4.314	0.047*	31(50.0)	42(91.3)	73(100.0)	.290	0.865
Islam	20(52.6)	4(25)	24(100.0)			28(45.2)	4(8.7)	32(100)		
Traditional	0(0.0)	0(0.0)				3(4.8)	0(0.00)	3(100.0)		

Table 7 above shows that at χ^2 of 6.253, 13.817 and 4.314 for age group, educational qualification and religion is significant at p (0.038, 0.037 & 0.047 < 0.05) for level of knowledge with age group, educational qualification and religion for the public schools' respondents while χ^2 of 7.969 and 12.831 is significant at p (0.019 & 0.012* < 0.05) for level of knowledge with age group and educational qualification for private school respondents. This depicts that the age bracket, educational qualification and religion of respondents in public schools have a significant influence on the knowledge and practice of WASH programme while age bracket and educational qualification of respondents in private schools have a

significant influence on the knowledge and practice of WASH.

Conclusion

The study findings indicate that while both public and private schools demonstrate a reasonable level of awareness regarding the WASH program, public school respondents exhibit a higher degree of knowledge compared to their private school counterparts. Several factors influence the implementation of the WASH program in schools, including age group, educational qualifications (such as a bachelor's degree), subvention,

the presence of WASH Committees or Clubs, hygiene education initiatives, availability of handwashing facilities, religious considerations, water sources, treatment methods, and the number and distribution of toilets and urinals. Interestingly, private schools were found to possess more WASH facilities than public schools. However, the overall state of the WASH program in both public and private schools is deemed unsatisfactory due to inadequate access to potable water, insufficient toilets and urinals, and a lack of essential sanitation materials such as cleaning supplies, soap, and water in toilet areas. These deficiencies are likely attributable to factors such as the absence of a clear policy framework, insufficient budget allocations from the government, and a lack of awareness and understanding among school management systems. Consequently, it is concluded that the WASH program is not being effectively implemented in the surveyed schools and more broadly across Ogun State.

Recommendations

- a) Schools should introduce orientation programmes at the beginning of every term to remind the teachers/students' on the need to properly manage the available facilities. In addition, adequate number of well-designed and gender segregated toilet facilities should be provided for students and must be well maintained.
- b) The Federal and States ministry of education and the management board should set policies and guidelines on accreditation of secondary schools to include effective WASH program and provision of adequate facilities.
- c) Health clubs should be encouraged in schools in order to ensure adequate campaign on the importance of WASH in schools. Information, Education and Communication (IEC) materials must be pasted at conspicuous and strategic places in the school premises.

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