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Healthful School Environment Component of the School Health Programme: Roles of the Street-Level Bureaucrats in its Implementation

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Abstract:-

Background: A conducive school environment is important to health and learning. This necessitated the inclusion of Healthful School Environment (HSE) component into the Nigerian National School Health Policy (NSHPo) of 2006, as part of the School Health Programme (SHP). This work focuses on HSE implementation compliance by the school street-level bureaucrats (school owners, teachers and the entire school community) to the provision of the NSHPo.

Methods: This was a descriptive cross-sectional study which utilized a multi-stage sampling technique to select 42 primary schools in Ondo State as the study sample. An observational checklist was used to assess the HSE component of the SHP for compliance with the NSHPo provision. Implementation performance was determined by exploring the availability, suitability, appropriateness for use of specific items of the HSE component.

Results: Out of the maximum obtainable score of 60, the schools had a mean score of 38.29± 10.132 (private schools scored 40.0± 10.602 while public schools scored 35.5± 8.940). A statistical significant relationship was found between school type and size of the ground (p= 0.006), school type and type of toilet facility (p= 0.020), and school type and cleanliness of the toilet facilities (p= 0.006).

Conclusion: These research findings underscore the fact that the school street-level bureaucrats must and should be involved in every stage of the development of any school-based policy. The HSE implementation performance in the study area was generally above average. Some very important items like water and sanitation, which directly affects the health and safety of the entire school community, is either poorly implemented or completely missing. It is, therefore, recommended that the government should provide the schools with copies of the NSHPo, and provide them with the needed orientation regarding the provisions of the document.

Keywords:- *School Health Programme, Street-Level Bureaucrats, Healthful School Environment.*

I. INTRODUCTION

The need for a proper management of the physical environment to minimize environmental degradation and maximize the benefits of a healthy environment has been acknowledged and agreed upon (1). The contributions of a conducive environment to health and learning cannot be overemphasized, and this necessitated the inclusion of the Healthful School Environment (HSE) component into the Nigerian National School Health Policy (NSHPo) of 2006, as an important and integral part of the overall School Health Programme (SHP) (2).

According to the Federal Ministry of Education (FME), HSE is one of the School Health Programme's interrelated components for which its primary objectives includes; provision of safe and conducive living and learning conditions that maximize the benefits from educational programmes; promotion of healthy practices among learners and staffs to prevent water and sanitation-related illnesses and diseases; facilitate positive changes in hygiene behaviour of learners and the community at large; provision of safe recreational facilities in the school; organization of school health days; establishment of interpersonal relationships within the school community, and lastly to encourage compliance with approved environmental health and sanitation standards for schools.

The concept “Healthful School Environment” denotes all the consciously organized, planned and executed efforts to ensure safety and healthy living conditions for all members of the school community. A healthy school environment (physical, biological and socio-cultural) serves

as a significant determinant of health and dramatically influences the individual's intellectual growth and development (2).

The purpose of a Healthful School Environment is to create a healthy and safe learning environment in the school and provide adequate safe water supply and sanitation facilities for use in the schools. The school environment encompasses the school building and its contents, the physical structures, infrastructure, furniture and the use and presence of chemicals and biological agents. The site on which a school is located and the surrounding environment, including air, water and materials with which children may come into contact, and nearby land use, roadways and other hazards (3). WHO estimates that between 25% and 33% of the global burden of disease can be attributed to environmental risk factors. Diarrhoeal conditions, the second most common global illness affecting young children and a significant cause of death in lower-income countries, is closely linked with poor sanitation, poor hygiene and lack of access to safe and sufficient supplies of water and food (4). Each year, nearly two million children die of diarrhoeal diseases caused by unsafe water supplies, sanitation and hygiene. Interventions such as simple hand-washing have been shown to reduce sickness from diarrhoeal diseases by up to 47% and save up to one million lives (4). Malaria, the most deadly of mosquito-transmitted diseases, kills over one million people each year; most of these deaths occur among African children (5). In endemic areas, 60% of all school children may suffer from malaria (6). Standing water and poor waste management in schools increase vectors breeding and spread near the school environment (3). Hence, schools situated adjacent to pools of water and wetlands are more susceptible to mosquito-borne diseases. In high-income countries, road traffic accidents are the most common cause of death among children aged 5-14 and account for approximately 10% of deaths in this age group.

In low and middle-income countries, road traffic accidents are the fifth leading cause of deaths in the same age group, after diarrhoeal diseases, lower respiratory infections, measles and drowning (7). Therefore, schools located near busy roads or water bodies, landfills, construction sites have increased risks of these accidents. Falls and injuries within school grounds can occur due to a poorly maintained school environment or poor construction management. Human excreta are the most significant source of disease-producing organisms, including parasites, bacteria and viruses. Success in eliminating faecal material from the school environment is dependent on informed and responsible students, supervision of young pupils, a fence or structure to stop animals from defecating in areas where children play, toilets conveniently located- reliable, clean, odour-free, private and well maintained (8). Separate facilities for girls can reduce dropout rates during or before menses (8). Baseline information on School Health Programme reported in most parts of Nigeria is poor (2,9).

Street-level bureaucrats are "Public service workers who interact directly with the citizens in the course of their jobs, and who have substantial discretion in the execution of their work" (10). Michael Lipsky and Tony Evans define discretion as to the "extent of freedom a worker can exercise in a specific context and the factors that give rise to this freedom in that context" (10,11). In his work "Street-level bureaucrats: Dilemmas of the individual in the public service", Michael Lipsky argued that front-line workers in policy agencies are pivotal players; they are *de facto* policymakers that informally construct or reconstruct their organization's policies. Lipsky termed these front-line workers "street-level bureaucrats"(12). Examples of street-level bureaucrats are Environmental health officers, Police officers, Teachers, Nurses, Social workers etc. (13). Street-level bureaucrats influence policy outcomes, mainly through implementation practices (12).

Arguments have been made back and forth on the street-level bureaucrats' roles in policy implementations and the possible consequences of these people (street-level bureaucrats) employing their discretion in executing their duties with or without regards for the already established policy. In the mainstream public sector, where activities involve demand and supply of goods and services, street-level bureaucrats' discretionary acts may involve little or no harm to public health and safety. However, the situation is not the same in the medical and health sectors. A slight deviation by the front-line workers from the already verified and established protocol may be detrimental to the individual and public health and safety.

The rationale behind the discretionary acts of street-level bureaucrats leading to informal policy construction or reconstruction can be due to either one of these two issues; shortage of working resources, (which makes the front-line worker to be forced to improvise to get the job done irrespective of what the protocol reads or what the policy is), and the model of policy development. Irrespective of the adopted policy development model, the public policy process is the same, and they include problem identification, policy formulation, policy adoption, policy implementation, and policy evaluation (14).

The public policy process is cyclical as the last stage of policy evaluation can lead back to another first stage of problem identification. Then, the entire process starts all over again. In Nigeria, as in most African countries, the top-down approach to policy development is the most commonly employed model. Here, the day-to-day front-line workers are seldom involved in the preceding stages of policy development. They are eventually handed an already developed policy for implementation, with little or no orientation as to the new policy's functioning and with little or no resources for the policy's performance. Therefore, these street-level bureaucrats informally construct or reconstruct the procedure, thereby changing the overall objective of the process.

This study is part of more extensive research on the "Appraisal of the School Health Programme in Primary Schools in Ondo State". The focus of the current research is on the Healthful School Environment component of the overall School Health Programme, as presented in the

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National School Health Policy of 2006, which the Federal Ministry of Education developed with UNICEF's support. This work focuses on HSE implementation compliance by the school stakeholders to the provision of the School Health Programme Policy of 2006 (15).

The school stakeholders who are responsible for the effective implementation of all school-based policies include the Teachers, the School-Based Management Committee, the Policy Monitoring and Evaluation Committee, the Parents Teachers Association (PTA), the Local Education Authority, the school owners (Proprietors/proprietresses), the school heads (Head master/mistress). These stakeholders have separate but overlapping duties in ensuring effective implementation of the school health and other policies that promote effective learning and safety and wellbeing of the school children and the entire school communities.

II. METHODS

Study design

The research was a descriptive cross-sectional study.

Study population

This study was conducted in Akure, Ondo State, Southwestern Nigeria, between August and December of 2019. The study involved 42 primary schools in the study area. Sixteen of the schools are State government owned (public schools), while 26 belonged to private owners.

Data collection

An observational checklist which was adapted and designed from the Implementation Guidelines on National School Health Programme (15), was used to assess the compliance of the schools to the implementation of the HSE component of the School Health Programme (as described by the FME in the NSHPo and its implementation guidelines) (2,15). Bias was minimized by not informing the schools before visitation.

Data Analysis

Items were assigned graded scores if such item was meant to ascertain both presence (1 point) and level of appropriateness (2 points) of the options. From the observational checklist, item ticked under (A) indicated availability and suitability, items marked under (B) indicated availability but not suitable, items marked (C) indicated unavailability or grossly unsuitable. The maximum obtainable score for all the items on the observational checklist on the HSE component was 60. The observational checklist with scores less than or equal to 39% of the maximum obtainable score (MOS) was categorized “Poor”. Schools with scores that fell within 40-59% of the MOS were classified as “Fair” and schools while scores above or equal to 60% of the maximum obtainable score were classified as “Good” (16). The observational checklist data were checked for error, cleaned up, and entered into the SPSS version 20 computer package for data analysis. The results were presented in frequency tables. The difference between the public schools' scores and the private schools was tested using the independent t-test at a significance level of $p<0.05$. Chi-square (X^2) test was also used to test for association between school type and their HSE implementation performance at a 5% level of significance.

Ethical Consideration

The researchers obtained ethical approval from the Ondo State Health Research Ethics Committee (OSHREC/01/07/19/137). Permission was also obtained from the Ondo State Ministry of Education, the Ondo State Universal Basic Education Board. This was followed up with advocacy visits to the Zonal Education Office (ZEO) in Akure South and the Akure North Area Education Office (AEO). The intention and aims of the research were communicated, and support assured.

III. RESULTS

A total number of 42 schools were visited; 16 of those schools were public schools, while 26 were privately owned. From the 60 maximum obtainable scores on HSE elements as captured by the observational checklist, the 16 public schools had a mean score of 35.5± 8.940 while the remaining 26 private schools had a mean score of 40.0± 10.602. The schools generally had a mean score of 38.29± 10.132. Inferential statistical analysis revealed that the mean difference in scores obtained by the public schools and the private schools was not statistically significant (t= -1.415, *P*= 0.165) (Table 1).

Table 1: A comparison of the mean HSE scores in public and private primary schools in Akure, Ondo State, Southwestern, Nigeria

	Number	Mean score	SD	*p*-value	t-test
HSE total score (60)				0.165	-1.415
Public schools	16	35.5	8.940		
Private schools	26	40.0	10.602		
Total	42	38.29	10.132		

Site and Building

The ground size was appropriate in all the public schools and in 53.8% of the private schools. The finding on the relationship between ground size and school ownership was statistically significant (X^2= 10.388, *P*= 0.006) (Table 2). Seven percent of the total schools were sited on slightly inappropriately sized ground (40%-59% of 1 hectare to 500 learners). The remaining nine schools which was 21.4% of the total were sited on grossly inappropriately sized ground (<40% of 1 hectare to 500 learners). The recreation playground was appropriate in more public schools than private schools, the finding was, however, not statistically significant (X^2= 4.826, *p*= 0.090) (Table 2). Overall, 64.3%

of the schools had appropriate, clean, safe and properly located playgrounds within the school.

Indoor game room was not available in all the public schools and in 84.7% of the private schools. All together, the facility was absent in 90% of all the schools. The relationship between school type and indoor game room availability was also not statistically significant (X^2= 2.721, *p*= 0.257) (Table 2). There was evidence of learners engaging in recreational activities in 97.6% of the schools (93.7% public schools and all the private schools).

Most of the schools were located away from all possible sources of noise pollution. This was observed in 81.3% of the public schools and in 69.2% of the private schools. This finding was, however, not statistically significant (X^2= 0.740, *p*= 0.390) (Table 2). Perimeter fence with gate was found in 68.7% of the public schools and in 88.5% of the private schools. The finding was also, not statistically significant (X^2= 2.496, *p*= 0.114) (Table 2). It was observed that 85.7% of the schools (81.3% public and 81.5% private) were sited on a properly draining terrain. This finding was, however, not statistically significant (X^2= 0.421, *p*= 0.517) (Table 2).

Observation also revealed that in 90.5% of the schools (93.7% public and 88.5% private), there were a maximum of 40 learners in a class. The remaining schools, however, had 40 or more learners in a class. It was also observed that all the public schools and 80.7% of the private schools had adequate light and ventilation entering the classes. This finding was not statistically significant (X^2= 3.493, *p*= 0.062) (Table 2).

Table 2: Items of the Healthful school environment

Variables	Public schools n= 16(%)	Private schools n= 26(%)	Total N= 42(%)	Test statistic (X^2)	P-value
Size of the ground (one hectare to maximum of 500 learners)					
Appropriate	16(100.0)	14(53.8)	30(71.4)	10.338	0.006*
Slightly inappropriate	0(0.0)	3(11.5)	3(7.1)		
Grossly inappropriate	0(0.0)	9(34.7)	9(21.4)		
Recreation playground					
Appropriate- clean, safe, proper location	12(75.0)	15(57.7)	27(64.3)	4.826	0.090
Slightly inappropriate	1(6.3)	9(34.6)	10(23.8)		
Grossly inappropriate	3(18.7)	2(7.7)	5(11.9)		
Recreation indoor game room					
Available and appropriate	0(0.0)	3(11.5)	3(7.1)	2.721	0.257
Available but inappropriate	0(0.0)	1(3.8)	1(2.4)		
Unavailable	16(100.0)	22(84.7)	38(90.5)		
Recreational activities					
Yes	15(93.7)	26(100.0)	41(97.6)	1.665	0.197
No	1(6.3)	0(0.0)	1(2.4)		
Location away from sources of noise pollution					
Yes	13(81.3)	18(69.2)	31(73.8)	0.740	0.390
No	3(18.7)	8(30.8)	11(26.2)		
perimeter fencing					
Yes	11(68.7)	23(88.5)	34(80.95)	2.496	0.114
No	5(31.3)	3(11.5)	8(19.05)		
well-drained terrain					
Yes	13(81.3)	23(88.5)	36(85.7)	0.421	0.517
No	3(18.7)	3(11.5)	6(14.3)		
Maximum of 40 learners per class					
Yes	15(93.7)	23(88.5)	38(90.5)	0.321	0.571
No	1(6.3)	3(11.5)	4(9.5)		
Well lit and ventilated					
Yes	16(100.0)	21(80.7)	37(88.1)	3.493	0.062
No	0(0.0)	5(19.3)	5(11.9)		

* Significant finding

The classes were arranged to maintain a minimum distance of two meters between the teacher and the learners in 75% of the public schools and in 65.4% of the private schools (Table 3). Generally, 69.05% of all the schools had their classes arranged in this manner though the finding was not statistically significant (X^2= 0.428, p= 0.513) (Table 3). Over ninety-three percent of the public schools and 69.2% of the private schools had the school buildings arranged to ensure a minimum of two-and-half meters distance between the buildings. Chi-square analysis revealed that this finding

was not statistically significant (p= 0.060). Counseling room was found in only 12.5% of the public schools and in 23.1% of the private schools. Less than 20% of the schools had a dedicated counseling room. Chi-square analysis revealed that the finding was not statistically significant (p= 0.397). Appropriate desks and chairs were observed in 93.7% of the public schools and in 80.7% of the private schools. The relationship between school type and appropriateness of desk and chairs was found not to be statistically significant (X^2= 0.126, p= 0.722) (Table 3).

Water supply and sanitation

It was also observed that 47.6% of the schools (50% public, 46.2% private) had borehole water as their source of water supply, 33.3% of the schools (37.5% public, 30.8% private) made use of well water, 4.8% of the schools (none in public schools and 7.7% of the private schools) made use of rainwater, and 14.3% of the schools (12.5% public, 15.3% private) had no water supply to their premises. The finding was not statistically significant (X^2= 1.454, p= 0.693) (Table 3).

Observation revealed that 62.5% of the public schools and 76.9% of the private schools had a water point to a maximum of 250 learners. Over 71% of the schools had a water point for a maximum of 250 learners, the remaining schools had a point for more than 250 required numbers of learners, this also included the six schools with no water source.

Yearly, water sampling analysis was conducted in only one private school of all the visited schools, 41 schools were found not be conducting yearly water sampling analysis. The water source to the school premises was observed for proximity to a septic tank or soakage pit. It was observed that 69.4% of the schools (75% public and 73.1% private) had their water sources sited at 30 meters distance or more away from the soakage pit/ septic tank. The remaining schools sited their water source close to a soakage pit/septic tank.

Appropriate sanitary dustbins were observed in 31.3% of the public schools and in 57.7% of the private school. Less than half of the schools had appropriate sanitary dustbin, this finding was not statistically significant (X^2 = 2.776, p= 0.096) (Table 3). It was shown on observation that 81% of the schools (93.7% public and 73.1% private) dumped their refuse openly around the premises. The remaining schools (6.3% public and 26.9% private) kept their refuse in a dustbin before collection by the waste management authority. This finding also was not statistically significant (X^2 = 2.745, p= 0.098) (Table 3).

Table 3: Items of the Healthful school environment

Variables	Public schools n= 16 (%)	Private schools n= 26 (%)	Total N= 42 (%)	Test statistic (X^2)	P-value
Adequate spacing between teacher and learners					
Yes	12(75.0)	17(65.4)	29(69.05)	0.428	0.513
No	4(25.0)	9(34.6)	13(30.95)		
Adequate space between buildings					
Yes	15(93.7)	18(69.2)	33(78.6)	3.537	0.060
No	1(6.3)	8(30.8)	9(21.4)		
Counseling room					
Yes	2(12.5)	6(23.1)	8(19.0)	0.719	0.397
No	14(87.5)	20(76.9)	34(81.0)		
Appropriate desks and chairs					
Yes	15(93.7)	25(80.7)	40(95.2)	0.126	0.722
No	1(6.3)	1(19.3)	2(4.8)		
Water supply- potable					
Borehole	8(50.0)	12(46.2)	20(47.6)	1.454	0.693
Well water	6(37.5)	8(30.8)	14(33.3)		
Rainwater	0(0.0)	2(7.7)	2(4.8)		
No water source	2(12.5)	4(15.3)	6(14.3)		
A water source point to 250 people					
Yes	10(62.5)	20(76.9)	30(71.4)	1.010	0.315
No	6(37.5)	6(23.1)	12(28.6)		
Yearly sampling analysis					
Yes	0(0.0)	1(19.3)	1(2.4)	0.630	0.427
No	16(100.0)	25(80.7)	41(97.6)		
Water supply- located at least 30m away from soakage pit/toilet					
Yes	12(75.0)	19(73.1)	25(69.4)	0.019	0.891
No	4(25.0)	7(26.9)	11(30.6)		
Appropriate dust bin					
Yes	5(31.3)	15(57.7)	20(47.6)	2.776	0.096
No	11(68.7)	11(42.3)	22(52.4)		

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Refuse disposal method					
Periodic waste collection	1(6.3)	7(26.9)	8(19.0)	2.745	0.098
Open dumping/burning	15(93.7)	19(73.1)	34(81.0)		

Table 4 highlights the items of the healthful school environment. It was observed that 34.7% of the schools (20% public and 42% private) had separate toilet facilities for their male and female learners. Separate toilet facilities were provided for staffs and learners' use in 66.6% of the public schools and in 88.5% of the private schools. This finding was found not to be statistically significant on bivariate analysis (X^2= 4.495, p= 0.106) (Table 4). Observation revealed that 66.7% of the schools (68.7% public and 65.4% private) made use of the Ventilated Improved Pit (VIP) latrine; 7.1% of the schools (18.7% public and 0% private) made use of pit latrine, 6.3% of the public school practiced open defecation. This was a statistically significant finding (p= 0.020) (Table 4).

It was observed that a minimum of 30 learners making use of a single toilet facility was observed in only 6.7% of the public schools and in only 23.1% of the private schools. Toilet facilities in more than half of the public schools and in most of the private schools were cleaned and disinfected. The relationship between school type and toilet cleanliness was found to be statistically significant on bivariate analysis (X^2= 7.649, p= 0.006) (Table 4).

The drainage facilities in half of the public schools and almost all the private schools were adequate and functional. The finding was statistically significant (X^2= 7.580, p= 0.006) (Table 4). The drainage facilities in 37.5% of the public schools and in over 80% of the private schools were cleaned and disinfected. Generally, 66.7% of all the schools had cleaned and disinfected drainages. The finding was statistically significant (X^2= 9.894, p= 0.002) (Table 4). Sanitary dustbins were strategically located within the premises of 18.8% of the public schools and in 53.8% of the private schools, more than half of the visited schools did not strategically position sanitary dustbins around their premises. This finding on analysis was found to be statistically significant (X^2= 5.064, p= 0.024) (Table 4).

Straying domestic animals were found in only 7.1% of the schools. They were found in one private school and in two public schools. It was observed that roads leading to 73.8% of the schools (81.3% public and 69.2% private) had either speed breakers or zebra crossing signs or both. This however, was not also a statistically significant finding (X^2= 0.740, p= 0.390) (Table 4).

Table 4: Items of the Healthful school environment

Variables	Public schools n= 16(%)	Private schools n= 26(%)	Total N= 42(%)	Test statistic (X^2)	P-value
Strategic location of sanitary dustbin around the premises					
Yes	3(18.8)	14(53.8)	17(40.5)	5.064	0.024*
No	13(81.2)	12(46.2)	25(59.5		
Gender sensitive toilet					
Yes	3(20.0)	11(42.3)	14(34.1)	1.292	0.256
No	12(80.0)	15(57.7)	27(65.9)		
Toilet/bathroom - Separate for teachers and learners					
Yes	10(66.6)	23(88.5)	33(80.5)	4.495	0.106
No	5(33.4)	3(11.5)	8(19.5)		
Toilet/bathroom - Type					
Water closet	1(6.3)	9(34.6)	10(23.8)	9.864	0.020*
VIP latrine	11(68.7)	17(65.4)	28(66.7)		
Pit latrine	3(18.7)	0(0.0)	3(7.1)		
Open defecation	1(6.3)	0(0.0)	1(2.4)		
One toilet facility to a minimum 30 learners					
Yes	1(6.7)	6 (23.1)	7 (17.0)	0.719	0.397
No	14 (93.3)	20 (76.9)	34 (83.0)		
Toilet/bathroom - Clean and disinfected					
Yes	8 (53.3)	24 (92.3)	32 (78.0)	7.649	0.006*
No	7 (46.7)	2 (7.7)	9 (22.0)		
Wastewater management - Adequate and functional drainage					
Yes	8(50.0)	23(88.5)	31(73.8)	7.580	0.006*
No	8(50.0)	3(11.5)	11(26.2)		
Clean, disinfected and covered drainage					
Yes	6(37.5)	22(84.6)	28(66.7)	9.894	0.002*
No	10(62.5)	4(15.4)	14(33.3)		
Absence of straying domestic animal					
Yes	15(93.8)	24(92.3)	39(92.9)	0.031	0.860
No	1(6.2)	2(7.7)	3(7.1)		

Speed breakers on the road leading to school					
Yes	13(81.3)	18(69.2)	31(73.8)	0.740	0.390
No	3(18.7)	8(30.8)	11(26.2)		

* Significant finding

IV. DISCUSSION

This study assessed the Environmental Health situation of primary schools in Ondo State, Southwestern Nigeria, from the policy development and implementation perspective. The important role of the street-level bureaucrats (school owners, teachers and the school community) in the implementation of the School Health policy has been established. It is, therefore, important that the compliance to the provisions of the NSHPo, in the implementation of the HSE component of the SHP be assessed.

HSE component of the SHP deals with the health and safety of the learners and the other members of the school community. It is an essential factor in achieving the overall goals of the School Health Programme (15). It is should be noted that HSE contributes to improved school attendance, as observed by Shahzada in research conducted in Pakistan (17). Unhygienic condition in schools has also been linked with helminthiasis and other childhood infectious diseases, as reported by Ekpo et al, (18). Ileoye further ascertained that a conducive learning environment has a positive correlation with improved school attendance and students' satisfaction (19).

This study found out that primary schools in Ondo State, public and private alike, generally implemented the HSE component of the SHP above average. This finding is, however, in contrast with the reports from other parts of Nigeria (16,18,20). This above-average implementation practice may be connected with the effective Environmental health practice in Ondo State, as the Environmental Health Officers usually frequent schools in the State to educate the school community and to enforce environmental health standards for schools.

On the specific items of the HSE component, the schools in the study area performed very well in implementing some, some were poorly implemented, while others were not implemented at all. In this study, 71.4% of the schools were sited on appropriately sized land (one hectare of land to a maximum of 500 learners) as recommended by the NSHPo. Also, almost all the schools in the study area were located away from sources of noise pollution. This implies that learners will be able to concentrate better, as noise is known to impair concentration. Most of the schools were fenced round with gates, as recommended by the NSHPo (15). This value is higher than what was reported in Ogun State, Imo State and Rivers State (21–23). This difference may be as a result of the measures that were put in place by the Ondo State government to ensure that any intending education entrepreneur meets certain standards before approval is given for the establishment of schools.

The NSHPo also recommended a maximum of 40 learners per class per teacher. In 90.5% of the schools, this benchmark was not exceeded. This percentage is higher than the value that was reported in Rivers State, Imo State and Oyo State (22,24,25). It is noteworthy that, the research being reported was conducted among primary schools; this may explain the difference in the findings. More than 40 learners per teacher per class was also reported in some sub-Saharan African countries, including Mozambique, Mali and Chad (26). A high pupil-teacher ratio will negatively affect the emotional climate of the class. For instance, the teachers will be overwhelmed with work and may not be able to pay adequate attention to the pupils. It negatively impacts pupil-teacher relationship, thereby affecting the academic performance of the pupils. Diseases are easily transmitted among pupils in populated confined areas, such as the classrooms. By extension, social vice such as bullying would thrive in a situation where the teacher does not have adequate and effective control over the class.

Majority of the schools (88.1%) had adequate light and ventilation entering the classrooms. When this value was compared with values from other reports from within the country and around the world, it was discovered that this value is similar to that reported from Ogun State (21). Others, however, reported inadequate and uncontrollable ventilation (22,24).

Majority of the learners in our research area (95.2%) sat on appropriate chairs and desks, and none of the children sat on the floor. This situation is different from the report from Rivers State where about 45% of children in the visited schools sat on the floor to learn (24). Similarly, 27% of the pupils sat on the floor in a research that was reported from Ogun State (21). Sitting comfort has been identified as one of the factors that affect learning (27). The children from these areas, who sat on the floor to learn, may not gain much from schooling.

Potable water supply to the school premises for hygiene and sanitation is one of the important requirements of a Healthful School Environment, the absence of which hygienic practices like hand washing, cleaning, drinking and even bathing will be impossible. The consequences of non-availability of potable water range from exposure to infectious diseases like typhoid and cholera to non-communicable diseases such as scabies and lice infestation. Less than half of the schools that we visited had borehole as their source of water, about 33% made use of shallow well, and 4.8% had facilities for rainwater collection and storage, while the remaining 14.3% had no water source within their premises. Out of all the schools, only one school was able to provide evidence of yearly water sampling analysis, as recommended by the NSHPo. This finding of water availability within the school premises is slightly higher than the 60% water availability which was reported from

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Ogun State (21). The reports from Rivers State and Imo State are in sharp contrast to our finding (22,24). Over 30% of the schools from our study had their water sources located within 30m of a septic tank or soakage pit. With no evidence of water treatment and periodic water sampling, the children in such schools using such water are at risk of contracting water-borne diseases.

The NSHPo also recommended that toilet facilities in the schools should be gender-sensitive. Our findings revealed that only 34.1% of the schools provided separate toilets for the male and female learners. This value is smaller than that reported in Ogun State (21) and Plateau State (28). The Plateau State study was, however, conducted among secondary schools. This may explain why more schools were found with gender-sensitive toilet. Reports from Kenya (29) and Ethiopia (30) have shown that gender-differentiated toilets can lead to increased school attendance more by the female students especially if the toilets are clean, safe and secure.

The NSHPo recommended a ratio of one toilet to a maximum of 30 pupils (15), in this study, only 17% of the schools met this requirement. As poor as this research finding is, other studies are even worse (18,21,22,24). An insufficient toilet-pupil ratio leads to overuse of the available toilet, improper cleaning, filthy condition, bad odour, pest infestation around the facility, with the risk of disease transmission. Some of the students may even remain at home to make use of home toilets.

Less than half of the schools had appropriate waste bin for temporary waste storage before transportation to the final disposal sites. Sanitary dustbins were observed in strategic locations within the premises of 40.5% of the schools as recommended by the NSHPo (15), and only 19% of the schools had their wastes periodically collected by the waste management authority for final disposal. The remaining schools made use of open burning as a means of final waste disposal. This situation is similar to the report from Ikene, Ogun State (18), and the report from Rivers State (23). This finding is also similar to that which was reported from Edo State (31). Open dumping provides good breeding sites for flies, rodents and reptiles. Huge piles of waste are unsightly and will constitute an environmental nuisance. They also serve as breeding grounds for mosquitoes when they contain broken bottles, plastic, cans etc. Children could also get injured when they play around the piles of rubbish, hence this method of waste disposal must be discouraged. Open-dumping, apart from the public health implications also reduces the aesthetic value of the school premises. The associated odour nuisance will impede effective learning as the pupils will be distracted and disturbed by the offensive odour emanating from the piles of refuse within the premises.

V. CONCLUSION

This research finding underscores the fact that the front-line workers/street-level bureaucrats (the school owners and the entire school community) should and must, be involved in every stage of the development of any school-based policy just like the NSHPo. The HSE implementation performance in the study area is generally above average, while some very important ones that directly affect the health and safety of the school children and the school community are either poorly implemented or completely missing. The above-average performance is likely to be associated with the effectiveness and efficiency of Environmental Health Services in the state, as all the school personnel claimed that they had never seen the NSHPo even though the majority had heard about it.

It is, therefore, recommended that the government through the State Ministry of Education and the State Universal Basic Education Board should as a matter of urgency; mandate all schools, private and the public, to get a copy of the NSHPo of 2006 to help them to set up aspects of their SHP, especially the HSE components. The government should also provide funds to the schools so that proper and effective SHP can be set up in schools for the benefits of the school children and the entire school community. The School Health Programme unit of the State Primary Health Care Development Board should be encouraged to wake up to its responsibility of ensuring an effective and efficient SHP in the State. The Street-level bureaucrats should be encouraged and allowed to act as policy entrepreneurs and influence the shaping, not only the implementation, of policies. Finally, the government should set up a committee of professionals in health, environment and education to develop a state-level school health policy, fashioned and adjusted to reflect the peculiarities of the State.

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COMPETING INTERESTS

No competing interest exists.

AUTHORS' CONTRIBUTIONS

BAO and OTA conceived and designed the study; acquired, analyzed and interpreted the data, and drafted the manuscript. AKC participated in interpretation of the data, drafting and revising the manuscript. All authors read and approved the final manuscript.

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