

## ORIGINAL RESEARCH ARTICLE

# AVAILABILITY AND STUDENTS AWARENESS OF SCHOOL HEALTH SERVICES IN BOARDING SECONDARY SCHOOLS IN BAYELSA STATE: A COMPARATIVE ASSESSMENT

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## ABSTRACT

### Introduction:

School Health Services (SHS) provides primary health care to boarding school students, as illnesses or injuries are inevitable. Students need to be aware of these services and their availability.

### Objectives:

This study compares the availability and students' awareness of components of SHS across federal, state and private boarding secondary schools in Bayelsa State.

### Methods:

This was a comparative cross-sectional survey between federal, state, and private boarding secondary schools. Quantitative data on components of SHS was collected via a checklist while awareness of components of SHS was collected from a sample of 371 students using a structured, self-administered questionnaire. Data was analyzed with SPSS version 25.0. Median scores of the provision of SHS were compared across the three school categories using Kruskal Wallis test. Chi-square was used to determine difference in proportion in students' awareness of SHS components between public and private school students  $p < 0.05$

### Results:

The Federal (tcalc 0.16), state (tcalc 1.38) and private school (tcalc 0.94) categories respectively rated significantly below what is stipulated in the National guidelines (tcalc less than tcrit). All school categories were similar in their provision of SHS (Hcalc=2.00 at  $p=0.368$ ).

Students' awareness of the availability of first aid boxes ( $X^2:12.654$ ,  $p=0.005$ ) was more in private schools than the federal and state-owned schools; awareness of the availability of referral facilities was best in the federal-owned schools than the state-owned and private schools ( $X^2:13.339$ ,  $p=0.004$ ).

### Conclusions & Recommendations:

All school categories studied were rated significantly below what the National guideline stipulated. Provision of the components of SHS is similar among the three school categories. However, their students' awareness of the availability of these services is not commensurate. There is need for students' orientation about available services as this may optimize uptake of services.

**Keywords:** School health services, SHS components, Boarding schools, Bayelsa state.

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## INTRODUCTION

Educational institutions create a unique environment that helps foster healthy lifestyles, acquire knowledge, life skills, and a positive outlook on life (1,2). School health services are crucial to ensure that students' health and well-being are at their best, allowing them to fully benefit from their educational experience. Illnesses and injuries can occur at any time, including during school hours.

The Universal Health Coverage and health for all targets of the United Nations recognize equity in healthcare delivery (1). Equity may not be guaranteed considering variations in school category and may pose a barrier to School Health Services (SHS) (2). Estimates of childhood and adolescent mortality and morbidity around the world indicate that adolescents have substantial needs in terms of health promotion, prevention, and medical services (3). These needs can be fully addressed even within the school premises if the WHO-advocated school health program and its health services components are in place and functional (4).

Nigeria's National Policy on Education categorizes school health services (SHS) as a major component of the School Health Program (SHP) and defines it as services

rendered within or around the school, aimed at ensuring that every child remains healthy to benefit maximally from his/her education. Components of SHS includes: medical and human resources for health, health appraisal, school health records, Sickbay/school clinic and First Aid, referral services, health education and services by school health personnel, and counselling services for the school community(5). These ought to be available, adequate and accessible despite the school categories. Provision of SHS ensure every student can stays healthy, as to benefit maximally from their education.

Dania and Adebayo's review of the implementation of school health policy in Nigeria revealed that the SHP, of which school health service is a crucial component, has mainly stayed at the policy level with little implementation (4). In recent publications, researchers observed that to ensure a healthy school community and facilitate effective learning, health services should not only be made available in schools but also used effectively (6,7).

School health service delivery in public schools may differ from that delivered by private schools. In many sub-Saharan African countries, access to amenities in public schools compared to private schools

are typically far lower. Therefore, differences in school infrastructure may worsen already existing disparities in educational outcomes, with children from lower-income backgrounds and those who are marginalized bearing the brunt (8,9)

Researchers in a few Nigerian states have also looked into whether this occurs in public or private schools in a similar way or differently. A 2019 study conducted among a subset of schools in the Cross River State's Calabar Municipality found that more private schools than public schools offer SHS; 10% of public schools and 50% of private schools had school clinics, while 30% of private schools had school nurses or doctors, there was none in the public schools (10). In a similar cross-sectional study conducted in Edo state, South-South Nigeria, authors found that private schools provided better SHS however, neither private nor public primary schools offered medical health counselling (11). Availability of Personnel and facilities in addition to the guarantee of an accessible, affordable and adolescent-friendly service delivery station has been shown to improve the utilization of health services by both students and staff of schools (12,13).

There is currently a few studies on school health services in Bayelsa state, according to anecdotal evidence (14–16). The school ownership determines to a large extent the funding, staffing and management of the schools which may affect the availability of

components of the SHS. Student's awareness of available services also, may differ based on school ownership. More importantly, there is a dearth of published studies comparing the provision of SHS across the ownership types of boarding schools in Bayelsa state. The results of this study may reflect the current status of SHS in boarding schools in Bayelsa state and probably serve as a baseline for future research and interventions related to SHS. Comparing the various school categories, could aid policymakers, funders and stakeholders in identifying gaps in the SHS and determine where policies, programs, and resources should be directed.

The study aimed to assess and compare the provision and level of availability of the components of the SHS in accordance with stipulated National guidelines among the school categories of boarding secondary schools in Bayelsa state as well as compare their students' awareness of the availability of these services.

## METHODS

The study is a comparative cross-sectional study carried out in boarding secondary schools in Bayelsa state. Bayelsa is one of the six states comprising the south-south geopolitical zone of Nigeria, out of the 36 total states in the country (17). There are three senatorial districts in Bayelsa and these public (Federal and State) and private schools are spread across the senatorial

districts of the state. Records from the State Ministry of Education found that as of September 2022, there are about 11 state-boarding schools, 3 federal- boarding schools and 5 private boarding schools in Bayelsa state. The study participants were the students, and the head nurses of the school health facilities.

Availability of school health services was assessed by a checklist adapted from The School Health Services Evaluation Scale used by Andersen & Creswell and the Federal Ministry of Education's Policy document on School Health Program(5). Awareness among students of SHS components was assessed using a questionnaire designed from the literature review of previous studies(18–22). Face validation of the instrument was done by two Public Health Experts of the Federal Medical Centre Yenagoa. The reliability coefficient using Cronbach Alpha was 0.77. Pre-testing was done on 10% of the calculated sample size in a population of students in a boarding school in Yenagoa Local Government. Appropriate adjustments and modifications were made immediately after the pre-test.

Sample size was determined using the Cochran formula for comparative study, using estimates from a previous study (11). A minimum sample size of 360 students was calculated. .

Multistage Sampling technique was employed in selecting the schools for this

study. The boarding secondary schools were stratified into three according to their senatorial districts. Simple random sampling by balloting was used to select boarding schools from each senatorial district. Six schools were selected for this study (two federal, two state, two private boarding secondary schools).

The sampling frame for the population of students was obtained in selected schools after which we did proportionate to size allocation for each school. Systematic random sampling was used to choose student respondents after the sizes of the chosen schools were distributed proportionately.

### **Data Analysis:**

Data was analyzed with Statistical Package for the Social Sciences (SPSS), Version 25.0.

The existence of SHS was assessed by availability of a school clinic with the minimum of two beds and having school health personnel. The provision of the range of school health services was studied by assessing the following components: Health Appraisal, Counseling, Referral Services and Community relations (PTA involvement), School clinic, School Health Records and School Health Personnel.

Results from the checklists for the various school health services components were transformed into binary variables, scored, arranged in tables and reported as

numerical number. Scores from the various components were aggregated per school studied, the mean scores were obtained for federal, state, and private categories of schools. The mean score of the components of the national policy guideline was also determined. Student t-test was used to test for differences in mean between each of the three groups and the national policy average. Null hypothesis was rejected at  $t_{calc} < t_{crit}$ .

Being that the components of SHS was not normally distributed, the median score of each of the three school categories was also determined. Kruskal Wallis test was used to test for difference in median among the three comparison groups at p-value  $< 0.05$  and a 95% confidence level.

Mean and standard deviation were used to describe the sampled population from the questionnaire and summary statistics were employed to determine the prevalence and frequencies/proportions for different socio-demographic variables. Chi-square was used to test for difference in proportion for awareness of SHS among students of the three comparison groups.

## RESULTS

### **The availability of SHS in line with national policy guidelines.**

A total of six boarding schools were selected for this study comprising two public state schools, two public federal schools, two private schools.

All schools have school clinics with at least two beds and registered nurses with the nurse-to-student ratio of at least 1: 750 students. Apart from the Federal School in Bayelsa East senatorial district, which had two part time doctors and an optometrist, no other school had other health personnel. All schools carry out pre-entry screening apart from the public state schools. Counselling services were offered in all schools apart from one of the private schools and one of the state public schools.

All schools had daily clinic attendance registers and confidentiality of student information in all available records was guaranteed. They all had referral services apart from the state public schools. The state public and private schools did not have pre-entry screening records, individual health files and immunization records of the students.

**Table 1: Showing components of SHS in the selected boarding secondary schools**

Type of school	PuSBS	PuSBS	PuFBS	PuFBS	PrMBS	PrIBS
<b>Health screening and appraisal</b> (Max score:4)	0	2	4	2	2	2
<b>Counselling</b>	0	2	2	2	0	2

(Max score:2)

<b>Referral services</b>	1	1	2	1	2	2
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(Max score :2)

<b>School clinic</b>	6	8	12	11	9	7
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(Max score:12)

<b>School Health Records</b>	2	3	6	6	5	2
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(Max score:6)

<b>School Health Personnel</b>	4	2	4	4	4	3
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(Max score:4)

<b>Total Score 30</b>	<b>13</b>	<b>18</b>	<b>30</b>	<b>26</b>	<b>22</b>	<b>18</b>
	<b>(43.3%)</b>	<b>(60.0%)</b>	<b>(100%)</b>	<b>(86.7%)</b>	<b>(73.3%)</b>	<b>(60.0%)</b>

**Key:** *PuSBS: Public State Boarding School; PuFBS: Public Federal Boarding School; PrMBS: Private Mission Boarding School; PrIBS: Private Individually owned Boarding School; 0- No score; 1-Yes score.*

Only one public federal school had 100% compliance with required SHS components and one of the public state schools had the least compliance of 43.30% (table 1).

**Table 2: Showing the difference in means of SHS between national average and various school categories**

Categories	N	mean	St.d	df	t <sub>calc</sub>	t <sub>crit</sub>	Decision
National policy average	6	5	3.74			1.96	
Public federal schools	6	4.67	3.39	10	0.16		reject the null hypothesis because t <sub>calc</sub> <t <sub>crit</sub>
Private schools	6	3.33	2.27	10	0.94		reject the null hypothesis because t <sub>calc</sub> <t <sub>crit</sub>
Public state schools	6	2.58	2.13	10	1.38		reject the null hypothesis because t <sub>calc</sub> <t <sub>crit</sub>

*Key: N-sample size, St.d -standard deviation, df- degree of freedom, t<sub>calc</sub> -calculated t score, t<sub>crit</sub>- critical t score*

An Independent t-test showed a statistically significant difference between the mean score of the National policy average and each of the mean scores of the three school categories. However, compared to the mean score of all the study samples, the public

federal schools is significantly higher (table 2). Hence all schools performed below the national policy average but the public federal school fared higher than the Bayelsa state average score.

## Comparing the difference in the components of SHS among comparison groups

**Table 3: Showing Kruskal- Wallis analysis for difference in median of the components of SHS**

Categories	N	Median	St.d	df	H <sub>calc</sub>	Decision
Public state owned	2	2.50	2.13	2	2.00	<b>p = 0.37</b>  <b>Fail to reject the null hypothesis</b>
Public federal owned	2	4.00	3.39			
Private owned	2	3.33	2.27			

*Key: N-sample size, St.d -standard deviation, df- degree of freedom, H<sub>calc</sub> -calculated H score*

A Kruskal-Wallis H test showed no statistically significant difference in median score across the three school categories,  $H=2.00$ ,  $p=0.37$ (table 3). Hence all three categories fared similarly.

### Socio-demographic characteristics of respondents

A total of 371 students participated in this study: 217 females (58.50%) and 154 males (41.50%). with a male-to-female ratio of 1:1.4. Mean age of respondents was  $14.6 \pm 1.72$  years. Among the participants, 102(27.50 %) attended Federal Boarding Schools, 91(24.50 %) attended State Boarding Schools, and 178(48.00%) attended a private boarding school. A

majority of the participants (85.40%) were senior secondary school students while (14.60%) were junior secondary school students. Most of the participants (98.40%) were Christians. A bit over half (55.30%) were Ijaw by tribe.

### Comparing students' awareness of components of SHS in public and private boarding secondary schools

More students of the Public (Federal and state) boarding secondary schools were aware of the availability of school clinics, school health personnel, school health records and referral facilities than those in the private schools.

**Table 4: Comparing the differences in proportion in awareness of the components of SHS between public (federal & state) and private school students**

Component	Public Boarding Secondary Schools		Private Boarding Secondary Schools		X <sup>2</sup>	p-value
	Yes	No	Yes	No		
School clinic	178(51.3%)	15(62.5%)	169(48.7%)	9(37.5%)	0.025	
School health personnel	187(51.7%)	6(66.6%)	175(48.3%)	3(33.3%)	4.33	0.23
School health records	177(52.2%)	15(48.4%)	162(47.8%)	16(51.6%)	6.82	0.08
First aid box	171(49.8%)	22(78.6%)	172(50.1%)	6(21.4%)	12.65	<b>0.00*</b>
School health counselor	150(60.7%)	43(34.7%)	97(39.3%)	81(65.3%)	75.59	<b>&lt;0.01*</b>
Referral services	161(50.5%)	32(61.6%)	158(49.5%)	20(38.4%)	13.34	<b>0.00*</b>

Key: X<sup>2</sup>: chi-square; p ≤ 0.05 significance, \*- statistical significance

There was no statistical difference between the Public (federal and state) schools to the private school students in their awareness of the availability of school clinics, school health records and school health personnel in their schools. (X<sup>2</sup>=0.03; X<sup>2</sup>=4.33, p=0.23; X<sup>2</sup>=6.82, p=0.08) However, this difference in proportion in awareness was only statistically significant for referral facilities (X<sup>2</sup>=13.34, p=0.00) (table 4).

More students of private boarding secondary schools were aware of the existence of first aid boxes in their schools than students in Public (federal and state) boarding secondary schools. This difference in proportion in awareness was statistically significant (X<sup>2</sup>:12.654, p=0.005) (table 4)

## DISCUSSION

The availability of SHS in boarding schools and the awareness of the students of the available services should improve the uptake of these services and invariably the overall development of the child. This study shows that generally School health services available in each of the school categories fall short of what is expected of them according to the national guidelines, the health service components fall short of the requirement in the Nation's policy on school health programs possibly, due to poor regulation and monitoring. Comparing across the various school categories, the provision of SHS is similar indicating that though services seem not commensurate with what is expected, they are not different



one from another across the various schools studied. .

As stipulated in the National School Health implementation guidelines, health appraisal including pre-entry screening, height and weight measurements, and regular inspection should be conducted for all students to assess their health status before the start of school(5). This practice was adhered to by both federal and private schools, but none of the public state schools studied conducted pre-entry screening. The findings from the study in south-south Nigeria are comparable to a statistically significant result reported in southwest Nigeria. The study showed that only 13 (7.2%) public schools and 31 (17.2%) private schools conducted staff and student medical examinations (20). This similar finding, seven years later in south-south Nigeria, suggests that not much progress has been made in implementing policy guidelines, indicating an unstandardized format in student enrollment in public schools. Counseling services were provided in all schools except for one private school and the state public schools, which does not meet the national guidelines.

The study found that both of the Federal Schools examined demonstrated impressive compliance with the 2006 Federal Ministry of Education School Health guidelines regarding school clinic facilities (7). It is understandable that federal schools, which are established in

areas with ample land, can comply with structural requirements such as providing adequate space for a school clinic. These schools are funded and supervised by the federal government, enabling them to adhere to national guidelines.

The presence of school health personnel is crucial for the effective implementation of School Health Services (SHS). In all the schools that were examined, there were registered school nurses. This is a significant improvement compared to a study conducted in 2019 where no public schools had nurses, in contrast to 30% of the private schools that were examined. Similar findings were reported in a study in 2015, where no public schools had school nursing personnel. The difference may be attributable to differences in time showing that over time, there is some progress in ensuring that school clinics are functional and manned by qualified personnel. It is important to recognize that providing both public and private schools with requisite human resources for health is a function of political will and stakeholder priorities, it is, therefore, heartwarming to report that 100% of boarding schools studied had good compliance with the renowned United States recommendation of Nurse to student ratio of at least one nurse to at most 750 students as reported by Winnard et al(23).

All schools studied had school clinics showing the similarity in operations between private, Federal and State schools.

This finding is at variance with findings from a study conducted in Ogun state in 2016 which observed that the practice of various components of school health services was better in private schools(24).

In comparing students' awareness of the availability of school clinics, school health personnel, first aid boxes, available referral facilities, and school health records among different types of schools, it was found that private school students demonstrated the highest level of awareness. They were followed by students of federal boarding schools, and then by students of state boarding schools. These findings are in keeping with findings by Chabot et al and Olatunya et al where private school students were more aware of the availability of school clinics, school health personnel and school health records than their counterparts from the federal and state schools. The differences in the proportion of awareness between federal, State and private school students as noted in this study were statistically significant for school clinics, first aid box and availability of a referral facility.

Students at federal boarding schools were the most aware of the presence of school counsellors in their institutions, closely followed by those at state boarding schools. . This finding could be a result of the availability of these services. Truly, the availability of health services enhances

awareness as also posited by a similar study(25).

Indeed, no school community should exist without an accessible primary care facility where minor ailments and injuries can be managed. All the studied schools had school clinics, which existence is essential because a boarding school has to be like a home away from home for the students.

### **Limitations of the study**

In this study, some components of school health services were not studied. These include prevention and control of communicable diseases and special care for children with special needs. Bayelsa State Ministry of Education has designated private and public schools where those services are provided. There may be a need to conduct a standalone study to investigate the components of such services in those schools.

## **CONCLUSIONS &**

### **RECOMMENDATIONS**

The provision of the various components of school health services was alike across the various school categories studied in Bayelsa State. However, each sampled school rated below the expected. The federal schools were more compliant with the Federal Ministry of Education guidelines than other schools.

The relevant Government Ministries at both National and Subnational levels should ensure collaborative monitoring and

evaluation of schools' health services to ensure compliance with guidelines, thus, the Ministries of Education and Health should take the lead in these efforts. School Authorities should ensure health appraisal at the entry points and the provision of necessary infrastructure for the effective delivery of school health services. School counsellors should be employed and orientation about available health services given to the students to enhance the uptake of these services.

## **PUBLIC HEALTH IMPLICATIONS OF STUDY**

- The study emphasizes the need for School Health Services to be optimal as it promotes health and wellness, prevent specific diseases, and injuries among students, enabling them benefit maximally from the learning opportunity in the schools.
- It has also brought to the fore the necessity of collaboration between the Federal Ministry of Education and the Federal Ministry of Health in implementing, monitoring and evaluating compliance with the School Health Services guidelines.
- There is need for equity in access to health services across school categories to achieve Universal health care.

## **AUTHOR DECLARATION**

**Conflict of interest:** The authors declare that they have no competing interest

**Ethics approval and consent to participate:** Ethical clearance was obtained from the ethics committee of the University of Port Harcourt and written permission was obtained from the Bayelsa State Ministry of Education. Assent for respondents <18 years old was obtained by ticking a consent box on a hardcopy questionnaire after due consent school guardian of the eligible study population following an explanation of the study aim on the questionnaire.

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**Author Contributions:** All authors participated in the design of the study, the corresponding author coordinated data collection and performed statistical analysis and drafted the first version of the manuscript, all authors read and approved the final manuscript

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