

Evaluation of School-Based Health Services and their Influence on Students' Health Outcomes in Universities in Imo State**Ugo, Philomena N.N (PhD)****Department of Life Science Education, Imo State University, Owerri****PMB 2000, Owerri, Imo State Nigeria****ORCID: <https://orcid.org/0009-0003-4414-0697>****Abstract**

This study examined the evaluation of school-based health services and their influence on students' health outcomes in universities in Imo State. A correlational research design was adopted. Three objectives, three research questions, and three null hypotheses guided the study. The population comprised undergraduate students in selected universities, from which a sample of 250 respondents was drawn using a multi-stage sampling technique. Data were collected using a structured questionnaire titled *School-Based Health Services and Students' Health Outcomes Questionnaire (SBHSSHOQ)*. The instrument was validated by experts, and its reliability was established using Cronbach's alpha, yielding a coefficient of 0.867. Data were analyzed using mean and standard deviation to answer the research questions, while Pearson product-moment correlation and multiple regression analysis were used to test the hypotheses at the 0.05 level of significance. The findings revealed a significant positive relationship between accessibility of school-based health services and students' health outcomes ($r = 0.62, p < 0.05$). A strong and significant relationship was also found between utilization of school-based health services and students' health outcomes ($r = 0.68, p < 0.05$). Furthermore, accessibility and utilization jointly had a significant influence on students' health outcomes, accounting for 54% of the variance ($R^2 = 0.54$), with utilization emerging as the stronger predictor. The study concluded that school-based health services play a significant role in improving students' health outcomes and recommended improved accessibility, increased awareness, and enhanced service quality.

Keywords: school-based health services, accessibility, utilization, health outcomes, university students, Imo State

1. Introduction

It is well known that health is a major determinant of academic performance, productivity and the quality of life of the students (Qi, Qin, Wang, Tse, Qiao & Xu, 2020). Students in the university setting face numerous physical, psychological, and social issues which may have a major impact on their health conditions. These are academic pressure, lifestyle changes, peer pressure, drug and alcohol use and exposure to communicable and non-communicable illnesses. Consequently, accessibility and efficacy of school-based health services (SBHS) in higher education institutions are critical in protecting the well-being of students and their ability to realise academic success (Arenson, Hudson, Lee & Lai 2019). School-based health services are

designed systems in learning institutions that offer various healthcare services, such as preventive, promotive, curative, and rehabilitative healthcare services to enhance the health of learners.

School-based health services are based on the overall philosophy of school health services which focuses on the combination of health services, health education and a healthy school environment (Kolbe, 2019). The Centers for Disease Control and Prevention in 2020 propose that well-developed school health services can help to decrease health-related barriers to learning, healthy behaviors, and enhance both immediate and future health outcomes in students (Sprague & Walker, 2021). The medical consultations, mental health counseling, reproductive and sexual health services, immunization, health screening and referral services are normally included in the category of these services in the university setting (Habel, Coor, Beltran, Becasen, Pearson, & Dittus, 2018). They provide a first-line of contact to students that need healthcare and are preventive toward resolving developing health concerns before they get serious.

The health outcomes of university students are complex and include physical health outcomes (incidence of illness, prevalence of diseases), mental health outcomes (stress, anxiety, and depression levels), and behavioral outcomes (health seeking patterns, substance use, and sexual behaviors). It has been found out that availability of high-quality healthcare facilities in the learning institutions is positively linked to improved health conditions and academic behavior (Butler, 2019). Additionally, students with access to school based health services will be more inclined to engage in preventive health practices, seek medical care early and have healthier lifestyles than those who do not.

Imo State has universities with a booming student population with a wide range of socio-economic and cultural backgrounds. This heterogeneity presents different health requirements and susceptibilities, such as communicable illnesses, sexual and reproductive wellness issues, mental wellbeing and lifestyle diseases such as poor nutrition and physical inactivity. Although university health centers exist, issues of adequacy, accessibility, affordability and quality of services have been noted to be of concern. Researches in the tertiary institutions of Nigeria have revealed that students tend to avoid using the available health services because of their unawareness, long queues, poor quality of care services, and negative perceptions of health care staff (Tejuoso, Alawode & Baruwa, 2018).

The assessment of school-based health services is thus crucial in the interpretation of the effectiveness of these services in addressing the needs of the students and their role in enhancing health outcomes. The assessment is a systemic evaluation of the most important indicators of a qualified healthcare staff, sufficiency of infrastructure and medical equipment, the breadth and quality of services, production, the effectiveness of service delivery, and the satisfaction of

students. It also involves looking at how the use of these services relates to the quantifiable health outcome in terms of decreased morbidity, improved mental health and health-seeking behavior. The development of health systems in educational institutions can play a big role in the development of health nationally as it helps to curb the health problem at its early stages and encourage preventive health care (Nores & Fernandez, 2018).

In addition, university years are an important phase in lifelong health behavior development. It is in this stage that habits are developed that carry into adulthood; dietary habits, physical habits and health seeking habits (Wood & Neal, 2016). Hence, school-based health services are effective in both the short-term and the long-term because they not only help to respond to short-term health issues but also influence the long-term health outcomes. A combination of health education and service delivery also increases the awareness of students and makes them able to make informed choices regarding health.

This study is thus aimed at assessing how effective school based health services in the universities of Imo State are and how they impact on the health outcomes of students. The study aims to make evidence-based recommendations to enhance the quality and accessibility of the healthcare in the university environment by pinpointing strengths, weak points, and gaps in the current health service delivery systems. In the end, the improvement of the health services in schools will lead to healthier students, better academic results, and overall improvement of the health and educational outcomes in the Imo State and other regions.

1.1 Objective of the Study

The objectives of the study are to:

1. Examine the relationship between accessibility of school-based health services and students' health outcomes in universities in Imo State;
2. Assess the relationship between utilization of school-based health services and students' health outcomes in universities in Imo State; and
3. Determine the influence of school-based health services (accessibility and utilization) on students' health outcomes in universities in Imo State.

1.2 Research Questions

These research questions guided the study:

1. What is the relationship between accessibility of school-based health services and students' health outcomes in universities in Imo State?
2. What is the relationship between utilization of school-based health services and students' health outcomes in universities in Imo State?
3. To what extent do school-based health services (accessibility and utilization) influence students' health outcomes in universities in Imo State?

1.3 Research Hypotheses

At 5% level of significance, these null hypotheses were tested

H₀₁: There is no significant relationship between accessibility of school-based health services and students' health outcomes in universities in Imo State.

H₀₂: There is no significant relationship between utilization of school-based health services and students' health outcomes in universities in Imo State.

H₀₃: School-based health services (accessibility and utilization) have no significant influence on students' health outcomes in universities in Imo State.

2. Related Work/Literature Review

In a study by McNall, Lichty, and Mavis (2010), the authors investigated the effects of school-based health centers (SBHCs) on the health-related needs of middle and high school students. The researchers were particularly interested in examining the direct and indirect impacts of SBHCs on health and health-related behavior of students. An approach was taken of a prospective cohort research design, and health outcomes were assessed after two years, based on student self-reports, after every two years. The sample was comprised of cohorts of middle and high school students randomly selected based on matched schools with and without SBHCs with 744 students taking part in both years of the research. The data were modeled with the two-level hierarchical linear modeling to provide the estimates of the impact of the presence of SBHCs on the school level and the use of SBHCs on the individual student level. The results indicated that students who used SBHCs were more satisfied with their health, exercised more, and used healthier diets than those who did not use the SBHCs by the second year. The researchers concluded that students utilizing school based health centers had better health results and more health promoting behaviors compared to students who did not. These results indicate that SBHCs have the potential to achieve their goal of promoting the health of students.

A study conducted by Nyingifa, Gbuchie, Oboli, and Mkpae (2024) evaluated the quality of school health services in secondary schools within Gbarain/Ekpetiama Clan, Bayelsa State, Nigeria. The study adopted a descriptive cross-sectional research design and involved a sample of 380 students and teachers selected through a multistage sampling technique from various communities, schools, and classes. Data were collected using questionnaires and interviews administered to students, teachers, and school principals. Ethical approval was obtained from the Ethics and Research Committee of the College of Health Sciences, Niger Delta University, while informed consent was secured from relevant stakeholders. Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 22.0, with results presented in frequency tables and proportions. Statistical significance was determined at $p < 0.05$. The study assessed key indicators such as the availability of essential health services, presence of first aid facilities,

existence of sick bays, and frequency of health inspections and screenings. The findings revealed that 77.1% of the schools lacked formal school health services, while only 16.8% had essential drugs available in their first aid boxes. Furthermore, 95.3% of the schools did not have functional sick bays, 94.2% lacked first aid boxes, and 95.8% had no emergency transport services. In addition, 88.7% of the schools did not conduct routine health screenings. The study also found disparities between public and private schools, with private schools demonstrating slightly better provision of health services. Overall, the results indicated that the quality and availability of school health services in the study area were grossly inadequate, particularly in public schools. The study concluded that these deficiencies pose serious risks to students' health and academic performance. It recommended the provision of adequate health facilities, assignment of medical personnel to schools, implementation of pre-admission medical screening, and regular health education programs. This study is relevant to the present research as it highlights the importance of availability and quality of school-based health services as determinants of students' health outcomes.

A study conducted by Adeyemi, Olatunya, Fayemi, Anidobe, Adeyemi, and Adebami (2022) assessed school-based health instruction among primary schools in Ido/Osi Local Government Area of Ekiti State, Southwest Nigeria. The study employed a cross-sectional descriptive design and involved 67 public and private primary schools. Data were collected using a standardized checklist alongside direct observation, and analysis was conducted using SPSS version 25. The findings showed that the teacher-pupil ratio was 1:16 in public schools and 1:10 in private schools. A significantly higher proportion of teachers in public schools (93.8%) possessed education-related qualifications compared to their counterparts in private schools (28.9%) ($p < 0.0001$). All public schools complied with the recommended allocation of three periods per week for health education, whereas compliance among private schools varied. Approximately half of the private school teachers and 60.4% of public school teachers had received in-service training in general health and health promotion. Only 11.9% of the schools implemented direct teaching of health instruction by subject teachers, while 49.3% utilized supplementary teaching aids. Although the scope of health education was consistent across the schools, only 46.3% met the recommended minimum standard for school health instruction. The study concluded that the implementation of school health instruction in the study area was generally inadequate. It recommended the need to strengthen and scale up school health instruction, ensure continuous monitoring, provide in-service training for teachers, supply adequate teaching aids, and enhance regulatory oversight by relevant authorities.

3. Materials and Methods

3.1 Research Design

This study adopted a correlational research design. This design was considered appropriate because the study examined the relationships between variables specifically, accessibility and utilization of school-based health services and students' health outcomes without manipulating any of the variables. The design also enabled the use of inferential statistics such as correlation and regression analysis to test the stated hypotheses.

3.2 Area of the Study

The study was conducted in Imo State, Nigeria. Imo State hosts several universities, both public and private, with diverse student populations. These institutions provided school-based health services aimed at meeting students' healthcare needs. The choice of Imo State was based on its concentration of higher institutions and the relevance of student health issues within the academic environment.

3.3 Population of the Study

The population of the study comprised all undergraduate students in selected universities in Imo State. This population was considered appropriate because undergraduate students are the primary users of school-based health services and are directly affected by the quality and accessibility of these services.

3.4 Sample and Sampling Techniques

A sample of students was selected using a multi-stage sampling technique:

Stage One: Universities were selected using purposive sampling (e.g., one federal, one state, and one private university to ensure representation).

Stage Two: Faculties and departments were selected using simple random sampling.

Stage Three: Students were selected using stratified random sampling based on level of study (e.g., 100–400 level).

The sample size was determined using a statistical formula such as the Taro Yamane formula to ensure representativeness and reliability.

3.5 Instrument for Data Collection

Data were collected using a structured questionnaire titled: “School-Based Health Services and Students' Health Outcomes Questionnaire (SBHSSHOQ)”. The questionnaire was divided into four sections:

Section A: Demographic information (e.g., age, gender, level of study)

Section B: Accessibility of health services

Section C: Utilization of health services

Section D: Students' health outcomes (physical, mental, and behavioral indicators)

The instrument was designed using a four-point Likert scale: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, Strongly Disagree (SD) = 1

3.6 Validity of the Instrument

The instrument was subjected to face and content validity. Experts in health education and measurement and evaluation reviewed the questionnaire to ensure that the items adequately covered the variables under study and were clear, relevant, and appropriate.

3.7 Reliability of the Instrument

The reliability of the instrument was determined using the Cronbach Alpha method. A pilot study was conducted using a small sample of students outside the main study area. The reliability coefficient obtained is 0.867, indicating that the instrument was reliable.

3.8 Method of Data Collection

The researcher, with the help of trained research assistants, administered the questionnaires directly to the respondents in their respective universities. The respondents were given adequate time to complete the questionnaire, and all completed copies were collected immediately to ensure a high return rate.

3.9 Method of Data Analysis

Data collected were analyzed using both descriptive and inferential statistics:

Descriptive Statistics: Mean and standard deviation were used to answer the research questions.

Inferential Statistics: Pearson Product Moment Correlation (PPMC) was used to test Hypotheses One and Two, whereas Multiple Regression Analysis was used to test Hypothesis Three. All hypotheses were tested at 5% level of significance.

3.10 Decision Rule

For research questions: A mean score of 2.50 and above was interpreted as "Agree," while a mean score below 2.50 was interpreted as "Disagree."

For hypotheses: If the p-value was less than or equal to 0.05, the null hypothesis was rejected. If the p-value was greater than 0.05, the null hypothesis was not rejected.

4. Results

This section introduced the data analysis of the data gathered about the respondents on the assessment of school-based health services and their impact on the health outcome of the students in the universities of Imo State. Descriptive statistics (mean and standard deviation) and correlation coefficient were applied to answer the research questions and Pearson Product Moment Correlation (PPMC) and multiple regression analysis to test the hypotheses.

4.1 Results

Research Question One

What is the relationship between accessibility of school-based health services and students' health outcomes in universities in Imo State?

Table 1: Descriptive Analysis on Accessibility and Health Outcomes (n = 250)

Variable	<i>n</i>	\bar{x}	SD	Decision
Accessibility of Services	250	2.93	0.72	Agree
Health Outcomes		2.98	0.62	Agree

Key: *n* = Number of Participants, \bar{x} Mean, SD = Standard Deviation

Table 1 shows the result obtained in respect of research question one. The mean values above 2.50 indicated that respondents agreed that school-based health services were accessible and that such accessibility was associated with improved health outcomes.

Testing of Hypothesis One

There is no significant relationship between accessibility of school-based health services and students' health outcomes in universities in Imo State.

Table 2: Pearson Correlation Summary between Accessibility and Health Outcomes (n = 250)

Variable	<i>n</i>	<i>r</i>	p-value	Decision
Accessibility vs. Health Outcomes	250	0.62	0.000	Reject H ₀

The result in Table 2 shows the Pearson correlation summary results between accessibility and health outcomes. It was a moderate positive relationship ($r = 0.62$). The null hypothesis was rejected since $p < 0.05$. Hence, the factor of accessibility had a significant effect on health outcomes.

Research Question Two

What is the relationship between utilization of school-based health services and students’ health outcomes in universities in Imo State?

Table 3: Descriptive Analysis on Utilization and Health Outcomes (n = 250)

Variable	<i>n</i>	\bar{x}	SD	Decision
Utilization of Services	250	2.77	0.65	Agree
Health Outcomes		2.90	0.57	Agree

Table 3 shows the result obtained in respect of research question two. The findings showed that school-based health services were moderately used by the students and that the use of these services was linked to better health outcomes.

Testing of Hypothesis Two

There is no significant relationship between utilization of school-based health services and students’ health outcomes in universities in Imo State.

Table 4: Pearson Correlation Summary between Utilization and Health Outcomes (n = 250)

Variable	<i>n</i>	<i>r</i>	p-value	Decision
Utilization vs. Health Outcomes	250	0.68	0.000	Reject H ₀

The result in Table 4 shows the Pearson correlation summary results between utilization and health outcomes. It was a strong positive relationship ($r = 0.68$). The null hypothesis was rejected since $p < 0.05$. Hence, the factor of utilization had a significant effect on health outcomes.

Research Question Three

To what extent do school-based health services (accessibility and utilization) influence students’ health outcomes in universities in Imo State?

Table 5: Multiple Regression Analysis Summary for Research Question Three (n = 250)

Model	<i>n</i>	<i>r</i>	r^2	Std. Error
Accessibility & Utilization vs. Health Outcome	250	0.73	0.54	0.41

The multiple regression analysis summary (Table 5) showed a strong relationship ($r = 0.73$) between school-based health services and students’ health outcomes. The coefficient of

determination ($r^2 = 0.54$) indicated that 54% of the variation in students' health outcomes was explained by accessibility and utilization.

Testing of Hypothesis Three

School-based health services (accessibility and utilization) have no significant influence on students' health outcomes in universities in Imo State.

Table 6: Multiple Regression Analysis Summary for Hypothesis Three (n = 250)

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	45.62	2	22.81	67.89	0.000
Residual	38.54	247	0.16		
Total	84.16	249			

Regression Coefficients				
Variable	β	t-value	p-value	
Accessibility	0.35	5.21	0.000	
Utilization	0.48	6.84	0.000	

The outcome of the ANOVA (Table 6) indicated that the regression model was statistically significant ($F = 67.89$, $p < 0.05$), which proved that the model was a good fit. The regression coefficients showed that both accessibility ($\beta_1 = 0.35$) and utilization ($\beta_2 = 0.48$) had significant effects on health outcomes among students. Prediction was stronger with utilization. The null hypothesis was rejected as both predictors were significant ($p < 0.05$) and model significant. Health services within schools had a great impact on the health outcomes of the students.

4.2 Summary of Findings

The findings of the study revealed that:

1. There was a significant positive relationship between accessibility of school-based health services and students' health outcomes in universities in Imo State.
2. There was a strong and significant relationship between utilization of school-based health services and students' health outcomes.
3. School-based health services (accessibility and utilization) had a significant combined influence on students' health outcomes, with utilization emerging as the stronger predictor.

5. Discussion, Conclusion and Recommendation

This section gives the discussion of findings, conclusion, recommendations, implications of the study and suggestions to further studies. The argument relies on the findings of the data analysis of the research on the assessment of school-based health services and their effects on health outcomes of students in Imo State universities.

5.1 Discussion

The results of the study revealed that accessibility of school-based health services had a significant positive relationship with students' health outcomes. This implies that students are more likely to experience improved health outcomes when health services are readily accessible in terms of proximity, affordability, and availability of qualified personnel. This finding is consistent with the report of the World Health Organization (2021), which emphasized that access to quality healthcare services is a fundamental determinant of improved health status and reduction in disease burden, particularly among young people. Increased accessibility facilitates early health-seeking behavior, reduces delays in treatment, and promotes preventive healthcare practices among students.

The study also revealed that there was a significant and positive relationship between the utilization of school-based health services and students' health outcomes. This implies that students who frequently utilize available health services are more likely to experience improved physical and mental health. This finding aligns with the position of Garcia, Lipskiy, Tyson, Watkins, Esser & Kinley (2020), which emphasized that the effective use of school health services is crucial for early detection of health problems, timely treatment, and continuous health monitoring among students. The result further supports the notion that mere availability of health services is insufficient; rather, actual utilization is essential for achieving positive health outcomes. Regular use of health services enhances early diagnosis, improves treatment outcomes, and promotes sustained health among students.

The findings further revealed that the combined effect of accessibility and utilization of school-based health services had a significant influence on students' health outcomes, with utilization emerging as the stronger predictor. This indicates that while access to health services is important, the extent to which students actually utilize these services has a greater impact on their health. This finding is consistent with the position of the World Health Organization (2021), which emphasized that improved health outcomes are not only dependent on the availability of health services but also on their effective utilization by individuals. The report further noted that factors such as awareness, trust in healthcare providers, and perceived quality of care significantly influence the use of health services. Therefore, it is essential not only to provide health services but also to promote their utilization among students.

5.2 Conclusion

Based on the findings of the study, it was concluded that school-based health services play a significant role in determining students' health outcomes in universities in Imo State. Accessibility and utilization were found to be key factors influencing students' physical, mental, and behavioral health. The study further concluded that although accessibility is important, utilization of health services is more critical in improving students' health outcomes. Therefore, efforts should not only focus on making services available but also on ensuring that students actively use them.

5.3 Recommendations

Based on the findings of the study, the following recommendations were made:

1. **Improvement of Accessibility:** University authorities should improve the accessibility of school-based health services by ensuring adequate staffing, extended service hours, and strategic location of health centers within campuses.
2. **Promotion of Utilization:** Awareness campaigns, health education programs, and orientation sessions should be organized to encourage students to utilize available health services.
3. **Enhancement of Service Quality:** The quality of healthcare services should be improved through regular training of health personnel, provision of modern equipment, and ensuring a student-friendly environment.
4. **Policy Implementation:** University management and relevant stakeholders should develop and implement policies that support effective delivery and utilization of school-based health services.

5.4 Implications of the Study

The findings of this study have several implications:

1. **Educational Implication:** Healthy students are more likely to perform better academically.
2. **Health Implication:** Improved health services can reduce the prevalence of preventable diseases among students.
3. **Policy Implication:** Policymakers can use the findings to strengthen health systems within universities.

5.5 Limitations of the Study

The study was limited to selected universities in Imo State, which may limit the generalization of the findings. Additionally, the study relied on self-reported data, which may be subject to bias.

5.6 Suggestions for Further Studies

Future researchers should:

1. Extend the study to other states or regions for broader generalization.
2. Investigate other factors influencing students' health outcomes such as socioeconomic status and lifestyle behaviors.
3. Use longitudinal research designs to examine changes over time.

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