DOI: https://doi.org/10.67203/jerd.2026.b678quzf

ASSESSMENT AND DETERMINANTS OF SCHOOL-BASED HEALTH CARE PRACTICES IN SECONDARY SCHOOLS LOCATED WITHIN AHMADU BELLO UNIVERSITY, ZARIA, KADUNA STATE, NIGERIA

[1]C. I. AYABIOGBE, [1]Shehu HARANDE, [*1]Abdulkabir Toriola YUSUF and [2]Umar YUSUF

[1]Department of Health Education, Federal University of Education Zaria, Kaduna State, Nigeria
[2]Department of Primary Education, Federal University of Education Zaria, Kaduna State, Nigeria.
[*]Corresponding Author: y.toriola@yahoo.com; +2348163471528

Abstract

School health services (SHS) are essential for promoting students' well-being, yet their implementation in Nigerian schools remains uneven. This study assessed SHS practices in secondary schools within Ahmadu Bello University, Zaria, with emphasis on school type, student attitudes, and organizational structures, in order to determine whether being in a university community translates to improved practice. A cross-sectional research design was employed, using a multistage sampling method to select 346 consenting students across three secondary schools located within Ahmadu Bello University, Zaria. A semi-structured questionnaire was administered to collect information on respondents' socio-demographic characteristics. Attitudes toward SHS were assessed using a 5-point scale, with scores ≤ 34 classified as negative and scores > 34 classified as positive. The mean attitude score was 34.82 ± 7.91. The practice of school-based health care was categorized as poor (≤18), moderate (>18–36), and good (>27), with a mean practice score of 18.37 ± 3.51. Quantitative data were analyzed using descriptive statistics for socio-demographic characteristics and inferential statistics, including Chi-square and logistic regression tests, at a significance level of $p = 0.005$, while qualitative data were analyzed thematically. The mean age of the respondents was 13.25 ± 1.652 years, ranging from 10 to 19 years. Findings revealed that only 49.1% of respondents demonstrated good SHS practice, while 57.8% exhibited negative attitudes. Hypothesis testing showed significant associations between school type and SHS practice ($\chi^2 = 93.360$, $p<0.001$), and between students' attitudes and SHS practice ($\chi^2=35.27$, $p<0.001$). Private schools were more likely to engage health educators (94.4%) and conduct periodic screenings (73.3%), whereas missionary schools employed more professional staff, including nurses (79.8%) and doctors (5.3%). Logistic regression further confirmed that school type strongly predicted practice, with students in private schools over eight times more likely to report good SHS practice (OR = 8.324, 95% CI: 4.423–15.666). However, attitude, gender, and age were not significant predictors in the model ($p > 0.05$). Key informant interviews also revealed consensus among discussants that students generally displayed negative attitudes and poor practices toward SHS. The study concludes that SHS in these schools remain suboptimal, with clear disparities between preventive services and professional medical care. It recommends strengthening personnel training, enhancing government support, and fostering school community partnerships to improve SHS delivery.

Keywords: Attitude, School Health Services, Secondary School, Logistic Regression, Zaria

Introduction

School-based health care is widely recognized as a strategic platform for improving adolescent health and learning outcomes, particularly in low- and middle-income countries. In 2021, the World Health Organization (WHO) issued global guidelines calling on countries to implement comprehensive School Health Services (SHS) that address multiple priority areas communicable and non-communicable diseases, Water Sanitation and Hygiene (WASH), mental health, sexual and reproductive health (including HIV), injury and violence prevention, oral, vision and hearing care, nutrition and physical activity and support for learners with disabilities through a defined menu of evidence-informed interventions delivered in or linked to schools (WHO, 2021; Maina et al., 2024; Yusuf et al., 2024). These guidelines respond to persistent gaps in quality, reach, and financing of SHS and emphasize intersectional coordination between education and health systems (Akorede et al., 2021). Globally, evidence shows that fewer than 50% of schools in many low- and middle-income countries have access to comprehensive school health services, and coverage of essential interventions such as routine health screening remains below 40% in several settings (WHO, 2021).

For Nigeria, strengthening school-based health care is both a health and education imperative. Recent syntheses of evidence indicate that the availability, quality, and performance of SHS remain uneven across states, with substantial variations in health screening, referral systems, health education, emergency care, and follow-up services (Akorede et al., 2020; Salisu et al., 2025; Paediatric Association of Nigeria [PAN], 2024). Empirical studies suggest that less than 30 to 40% of secondary schools in Nigeria conduct routine medical screening, while only about 20 to 35% have functional sick bays or standard health facilities, reflecting low service coverage and inconsistent implementation**.** Such limitations blunt the potential of schools to deliver high-value interventions such as deworming, immunization catch-up, vision screening and correction, oral health promotion and mental-health support (Adebayo et al., 2022; Yusuf et al., 2023). The review literature underscores the need to assess the determinants of SHS practice governance, financing, human resources, infrastructure, supply chains, and school ownership/management to close persistent implementation gaps.

At the same time, adolescents (10–19 years) in Nigeria continue to face a substantial burden of preventable health risks and service gaps, intensified by the COVID-19 era (Idris et al., 2022). These include vaccine-preventable diseases, malnutrition, mental-health concerns and sexual and reproductive health (SRH) vulnerabilities. United Nations Children's Fund reports highlight progress in outreach to young people but emphasize the need to expand integrated, adolescent-friendly services that meet learners where they are including in secondary schools (UNICEF, 2023; UNICEF Data, 2024; Faleke et al., 2022). Recent data indicate that approximately 1 in 5 adolescents in Nigeria experience mental health challenges, while uptake of adolescent-friendly health services remains below 50% in many regions, demonstrating a gap between need and service utilization.

Kaduna State has articulated ambitions to improve access and accountability in health and education through its State Development Plan (2021–2025) and the Open Government Partnership Action Plan (2024–2025). Yet, practical information on how secondary schools operationalize school health services (SHS) and what factors most strongly determine the scope and quality of school-based health care remains limited. This gap is especially evident in educational hubs like Ahmadu Bello University (ABU), Zaria, where multiple secondary schools (public, private, and mission-owned) coexist within and around the university setting. Prior evaluations in Kaduna have noted gaps in routine health appraisal, communicable-disease control, and personnel/equipment availability, with potential differences between boarding and day schools, suggesting that local determinants materially shape SHS practice (Kashim Ibrahim Library, 2023; Open Government Partnership, 2024). Available state-level evidence suggests that fewer than half of schools meet minimum standards for staffing and equipment, with notable disparities between private and public institutions.

Recent evidence further reinforces these concerns. For instance, the Paediatric Association of Nigeria (2024) reported persistent deficiencies in school health infrastructure, staffing, and policy implementation across Nigeria, particularly in northern regions. Similarly, Agu et al. (2024) emphasized that gaps in adolescent-focused health service delivery, including inadequate resources and limited responsiveness to students' needs, continue to hinder the effectiveness of school-based health programs. Additionally, Arije et al. (2024) highlighted that disparities in accessibility and quality of youth-friendly services significantly influence utilization patterns among adolescents, underscoring the need to strengthen school-level implementation of SHS. Studies further indicate that only about 50–60% of adolescents express satisfaction with available school health services, reflecting moderate acceptance but significant room for improvement.

Emerging Nigerian studies also point to pressing adolescent health priorities relevant to school platforms in the North-West and beyond such as depression and other mental-health needs, SRH risks and the value of education and health sector collaboration (Akorede et al., 2023; Okeke & Adeyemi, 2022; Musa et al., 2023; Igbokoyi & Faleke, 2018). These findings reinforce the rationale for school-anchored services with clear referral pathways to primary health care, and for monitoring systems capable of tracking coverage and quality. Prevalence estimates from regional studies show that mental health concerns among in-school adolescents range from 15% to 25%, while risky health behaviors (which include poor nutrition and physical inactivity) affect over 40% of students in some settings.

Addressing this evidence gap is essential for Kaduna State and institutional stakeholders to align with WHO's comprehensive SHS standards, prioritize high-impact interventions, and contribute to the Sustainable Development Goals (SDGs) on health (SDG 3), gender equality (SDG 5) and reduced inequalities (SDG 10)

(WHO, 2021). SHS data is used to track, assess and enhance children's survival. This is particularly true in emerging nations such as Nigeria, where the school-aged child represents a critical population for intervention. Despite this, children and young people continue to bear a tremendous burden of illness and injury, including unintentional injuries and risky behaviors such as poor nutrition, inactivity and substance abuse (WHO, 2021). The study therefore aimed to assess the school-based health care practices in secondary schools located within Ahmadu Bello University, Zaria, to determine whether these schools demonstrate improved practices due to their location within a university community.

Objectives

The objective of the study was to assess the school-based health care practices in secondary schools located within Ahmadu Bello University, Zaria, and Kaduna State Nigeria. The specific objectives of the study were:

1. to identify the school-based health care services carried out in secondary schools located within Ahmadu Bello University, Zaria
2. to assess the attitudes of students in secondary schools located within Ahmadu Bello University, Zaria towards school-based health care services

Research Questions

The following research questions served to guide the study:

1. What are the school-based health care services carried out in secondary schools located within Ahmadu Bello University, Zaria?
2. What are the attitudes of students towards school-based health care services carried out in secondary schools located within Ahmadu Bello University, Zaria?

Hypothesis

The following null hypotheses were tested:

H_{01}: There was no significant association between the type of school and the practice of school-based health care services in secondary schools located within Ahmadu Bello University, Zaria

H_{02}: There was no significant association between respondents' socio-demographic characteristics and attitude towards school health services in secondary schools located within Ahmadu Bello University, Zaria Kaduna State Nigeria

H_{O3}: There was no significant Association between Practice of School Health Services (SHS) and Attitude towards School Health Service

Methodology

The study adopted a cross-sectional descriptive design with a quantitative approach, which was considered appropriate for assessing attitudes and practices at a single point in time (Akorede et al., 2023; Yusuf et al, 2025). It was conducted in Zaria and Sabon-Gari Local Government Areas (LGAs) of Kaduna State, covering secondary schools located within Ahmadu Bello University, Zaria. The target population comprised school health officers responsible for the delivery of school health services and students in JSS2 to SSS2 classes, who were selected because of their ability to provide reliable information on their experiences with school health services. The minimum sample size was calculated using the Leslie-Kish (1965) formula, applying a 25.8% prevalence rate obtained from a study by Kuponiyi, Olorunfemi, and Opeyemi (2016) on the availability of sick bays in schools in western Nigeria. This prevalence was adopted as the closest comparable reference, providing a basis for ensuring adequate statistical power in the present study.

$$n = \frac{Z^2pq}{d^2} \quad \text{(Leslie Kish formula)}$$

Where: n= sample size , Z = standardized normal deviation which is a constant of 1.96 at 95% confidence interval , P = 25.8% , q = 1-P, d = margin of sample error tolerated in Percentage (5% being the maximum accepted value) , P= 25.8% = 0.258, q = 1-P = 1- 0.258 = 0.742

$$n = \frac{1.96^2 \times 0.258 \times 0.742}{(0.05)^2}$$

The minimum sample size was 294, adjusted upward by 10% for non-response to 323, and further increased to 346 respondents for robustness. A multistage sampling technique was employed, involving purposive selection of three schools within Ahmadu Bello University, Zaria (including private schools on campus), proportionate allocation of students across schools and classes, and final selection through random balloting. A mixed-method design was adopted, using questionnaires and key informant interviews with head teachers and school health officers. The instrument was validated for construct, face, and content validity, with a reliability coefficient of 0.89. Quantitative data were analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations) and inferential statistics (Chi-square and logistic regression at $p < 0.05$). Attitudes toward school health services were assessed on a 5-point scale scores of (≤ 34 = negative; > 34 = positive) and practice was categorized as poor (≤ 18) Moderate >18-36 and good (>27) , Qualitative data from interviews were transcribed verbatim and thematically analyzed using ATLAS.ti.

Results and Discussions

Table 1: Socio-demographic Characteristics of the Respondents (N = 346)

Variables	Frequency (N)	Percentage (%)
School Name		
Demonstration School, Kongo Zaria	116	33.5
Demonstration School, Samaru Zaria	116	33.5
Faith Academy, Kongo Zaria	114	33.0
Age (years) (Mean ± SD = 13.25 ± 1.65)		
10–14	320	92.5
15–19	26	7.5
Gender		
Male	165	47.7
Female	181	52.3
Class		
JSS Two	98	28.3
JSS Three	83	24.0
SSS One	88	25.4
SSS Two	77	22.3
Ethnic Group		
Hausa	220	63.6
Yoruba	60	17.3
Igbo	20	5.8
Others	46	13.3
Religion		
Islam	210	60.7
Christianity	136	39.3

Table 1 presents the socio-demographic characteristics of the 346 respondents. Distribution by school revealed a nearly equal proportion of students from Demonstration School, Kongo Zaria (116; 33.5%) and Demonstration School, Samaru Zaria (116; 33.5%); however, slightly fewer were drawn from Faith Academy, Kongo Zaria (114; 33.0%). The respondents' ages ranged from 10 to 19 years, with a mean age of 13.25 ± 1.65 years. Moreover, a vast majority (320; 92.5%) were within the 10–14 years age bracket, whereas only a small fraction (26; 7.5%)

were in the 15–19 years group.With respect to gender distribution, a slightly higher proportion were females (181; 52.3%) compared to males (165; 47.7%). In terms of class, the largest fraction of respondents were in JSS Two (98; 28.3%); in addition, 88 (25.4%) were in SSS One and 83 (24.0%) in JSS Three, while a comparatively smaller proportion (77; 22.3%) were in SSS Two.

Regarding ethnicity, the majority of respondents were Hausa (220; 63.6%); nevertheless, a notable fraction were Yoruba (60; 17.3%). Furthermore, a smaller proportion were Igbo (20; 5.8%), whereas others (46; 13.3%) included minority ethnic groups such as Igbira, Nupe, Kataf, Igala, Idoma, and Fulani. Religious affiliation revealed that a majority (210; 60.7%) of the students practiced Islam, while a substantial minority (136; 39.3%) identified as Christians.

Table 2: Practice of School-Based Health Care Services (N = 346)

Variables	Frequency (N)	Percentage (%)
Health Personnel		
Health Assistant/Trained First-Aider	280	80.9
Health Educator	276	79.8
School Guidance Counselor	317	91.6
Nutritionist	111	32.1
Nurse	91	26.3
Doctor	6	1.7
School collected suggestions about school health services	52	15.0
Treatment of Emergency Cases		
First aid treatment is usually given	338	97.7
Treatment given is recorded in the student file	279	80.6
Parents are notified	325	93.9
Child is referred to the nearest health center	133	38.4
Child is transported home afterward	215	62.1
Health Prefect in School	303	87.6
Periodic Medical Screening	191	55.2
Treatment Facilities		
Sick Bay	96	27.7
First Aid Kit	328	94.8
Ambulance/School Bus	98	28.3
Essential Drugs and Materials	278	80.3
Telephone Services	103	29.8
Counseling Services Offered	339	98.0
Counseling Topics		
Substance Abuse	232	67.1
Mental Health	226	65.3
Career Education	314	90.8
Leadership Development	284	82.1
Academic Development	323	93.4
Pre-Entrance Medical Screening	21	6.1
File for Health Record Keeping	275	79.5
Link to Health Care Practices Outside the School	133	38.4
Health Organizations Linked To		
Sickbay Samaru	112	32.4
Sickbay Kongo	2	0.6
ABUTH	9	2.6

Variables	Frequency (N)	Percentage (%)
Barau Dikko, Tudunwada	5	1.4
Don't Know	5	1.4
SS Ill Students Referred to Sickbay Kongo	129	37.3
Staff of the University Come to Educate Students About Their Health	309	89.3

Table 2 above showed that the mean score for the practice of school-based health care was 18.47 ± 3.52. The most common health personnel present in the schools were the school guidance counselor (91.6%) and the health assistant/trained first-aider (80.9%). Only 15.0% of respondents reported that their school had collected suggestions about school health services in the past 12 months.

Emergency treatment practices were widely reported, as 97.7% of respondents stated that first aid treatment is usually given, and 93.9% reported that parents are notified in case of emergencies. A majority (80.6%) mentioned that treatment records are kept in student files, while 38.4% reported that children are referred to the nearest health center. Additionally, 62.1% indicated that children are transported home after receiving treatment. Among those who stated that children are referred to health centers (38.4%), the most common destination was Sickbay Samaru (32.4%). Most respondents (87.6%) confirmed the presence of a health prefect in their school, and 55.2% indicated that the school conducts periodic medical screenings.

Regarding treatment facilities, only 27.7% of respondents reported the availability of a sick bay, while 94.8% confirmed that their school has a first aid kit. The majority (98.0%) stated that counseling services were offered, with a focus on academic development (93.4%), followed by career education (90.8%) and leadership development (82.1%).However, only 6.1% reported that their school conducted pre-entrance medical screenings, whereas 79.5% stated that their school keeps health records for students. Less than half (38.4%) mentioned that their school has links with external health care providers, with Sickbay Samaru being the most frequently mentioned (32.4%).

Lastly, 89.3% of respondents confirmed that university staff visit schools to educate students about health-related issues, which highlights the role of external stakeholders in health education within schools.See figure 1.

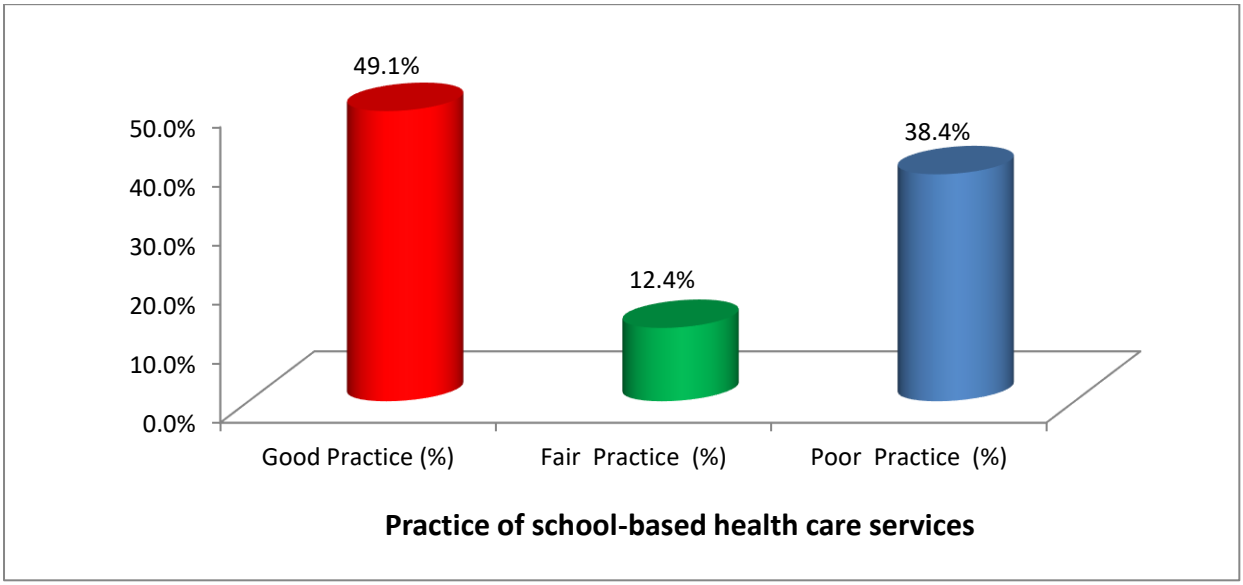


Figure 1: Practice of School-based health care

Table 3: Frequency and Percentage Distribution of Students' Attitudes Toward School-Based Health Care Services (N = 346)

S/N	Question	Yes (f)	Yes (%)	No (f)	No (%)
1	Do you believe that school-based health care services are important for students in secondary schools located within Ahmadu Bello University, Zaria?	294	85.0	52	15.0
2	Do you feel comfortable visiting the school health facility when you are ill in your school within Ahmadu Bello University, Zaria?	270	78.0	76	22.0
3	Do you trust the health personnel providing services in your school within Ahmadu Bello University, Zaria?	277	80.1	69	19.9
4	Do you think that the school-based health care services meet your health needs in your school within Ahmadu Bello University, Zaria?	242	69.9	104	30.1
5	Do you feel that the school health facility is easily accessible to students in your school within Ahmadu Bello University, Zaria?	301	87.0	45	13.0
6	Do you believe that seeking care at the school health facility saves time compared to going to external health facilities in schools within Ahmadu Bello University, Zaria?	260	75.1	86	24.9
7	Do you feel that your privacy is respected when using school-based health care services in your school within Ahmadu Bello University, Zaria?	249	72.0	97	28.0
8	Do you think that the school-based health care services are adequately equipped in your school within Ahmadu Bello University, Zaria?	215	62.1	131	37.9
9	Do you prefer using school-based health care services instead of external health facilities in your school within Ahmadu Bello University, Zaria?	236	68.2	110	31.8
10	Do you think that students in your school within Ahmadu Bello University, Zaria generally have a positive attitude towards school-based health care services?	283	81.8	63	18.2

The results from Table 3 based on 346 respondents indicate that students in secondary schools within Ahmadu Bello University, Zaria generally have a positive attitude toward school-based health care services. Most students recognize the importance of these services (85.0%), find them accessible (87.0%), and trust the health personnel (80.1%). A high proportion also feel comfortable using the services (78.0%) and consider them convenient in saving time (75.1%), while a majority believe that their privacy is respected (72.0%).

However, relatively fewer students feel that the services adequately meet their health needs (69.9%) or are well equipped (62.1%), indicating some gaps in service quality and resources. Although many students prefer school-based services (68.2%), a notable proportion still opt for external health facilities. Overall, the findings confirm a generally favorable perception, with areas needing improvement in equipment and service delivery.

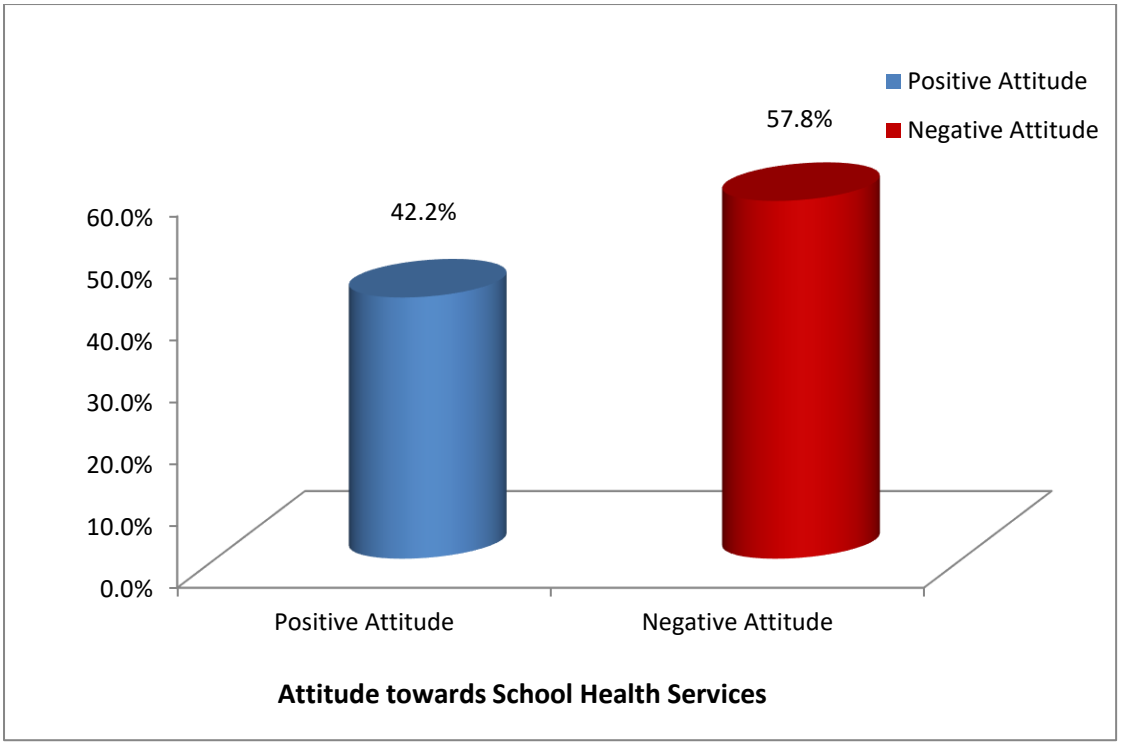


Figure 2: Attitude towards School Health Services

Qualitative Result

The results from the key informant interviews revealed that, overall, private schools (Demonstration School, Samaru, and Kongo) demonstrated better practices than the missionary school (Faith Academy, Kongo), despite all being located within a university institution setting. The private schools were found to have stronger provisions in terms of health personnel, treatment facilities, and referral systems, while the missionary school relied more heavily on limited resources and basic first aid measures.

As obtained from the interviews conducted, school-based health care practices across the schools were found to revolve mainly around first aid treatment, counseling services, disease prevention and control, and health instruction/education. Respondents emphasized the centrality of first aid: *"We do first aid for students"* (PrISI-N); *"We have the First Aid box"* (PrBA); *"The first aid… it is equipped according to the capacity of the principal… well at least to some certain level"* (PuAGS); *"Presently we have only First Aid box in this school, there's no sick bay"* (PuAC).

In terms of personnel, only one school reported having two nurses to attend to students' health needs, while others relied on health educators, counselors, physical and health education teachers, or trained first-aiders. Illustrative responses include: *"We have nurses, two nurses"*; *"We have two counselors"*; *"Our PHE teachers… They're the ones helping us manage any minor health issue that we have"*; *"I am the only health educator, the only health educator around here"*; *"No, it's only the biology teachers that usually help"*; *"Yes, we have a school counsellor."*

Regarding links with external health personnel, only one school mentioned having a visiting doctor, while the majority reported that students are referred to nearby health centers when cases go beyond the school's capacity.

On health appraisals and screenings, most schools did not conduct periodic medical examinations for students and staff, except when organized by external bodies. None of the schools carried out pre-entrance medical screenings. However, one participant noted that students are given health information forms after admission to capture details such as genotype and blood group: *"No, we don't run any screening program, except for BP check, weight and height."*

Hypothesis Testing

Hypothesis 1: The null hypothesis states that there is no significant association between the type of school and the practice of school-based health care services.

Table 4: Association Between type of School and School-Based Health Care Practices

School-based Health Care Practice	Type of School Private N=232 (%)	Missionary N=114 (%)	X^2	Df	P-value
Health Personnel					
Health assistant/ Trained first-aider	203 (87.5%)	77 (67.5%)	19.721	1	0.000*
Health educator	219 (94.4%)	57 (50.0%)	93.360	1	0.000*
School guidance counselor	218 (94.0%)	99 (86.8%)	5.051	1	0.025*
Nutritionist	80 (34.5%)	31 (27.2%)	1.864	1	1.172
Nurse	0	91 (79.8%)	251.281	1	0.000*
Doctor	0	6 (5.3%)	12.426	1	0.000*
School collected suggestions about school health services					
Yes	35 (15.1%)	17 (14.9%)	15.750	2	0.000*
No	169 (72.8%)	97 (85.1%)			
Treatment of emergency cases					
First aid treatment is usually given					
Yes	227 (97.8%)	111 (97.4%)	0.077	1	0.782
No	5 (2.2%)	3 (2.6%)			
Treatment given is recorded in student file					
Yes	195 (84.1%)	84 (73.7%)	5.262	1	0.022*
No	37 (15.9%)	30 (26.3%)			
Parents are notified					
Yes	226 (97.4%)	99 (86.8%)	14.985	1	0.000*
No	6 (2.6%)	15 (13.2%)			
Child is referred to the nearest health Centre					
Yes	37 (15.9%)	96 (84.2%)	150.522	1	0.000*
No	195 (84.1%)	18 (15.3%)			
Child is transported home afterwards					
Yes	148 (63.8%)	67 (58.8%)	1.406	2	0.495
No	83 (35.8%)	47 (41.2%)			
Health prefect in school					
Yes	194 (83.6%)	109 (95.6%)	10.103	1	0.001*
No	38 (16.4%)	5 (4.4%)			
Periodic medical screening					
Yes	170 (73.3%)	21 (18.4%)	101.430	2	0.000*
No	57 (24.6%)	93 (81.6%)			
Treatment Facilities					
Sick bay					
Yes	2 (0.9%)	94 (82.5%)	253.849	1	0.000*
No	230 (99.1%)	20 (17.5%)			
First aid kits					
Yes	216 (93.1%)	112 (98.2%)	4.098	1	0.043*
No	16 (6.9%)	2 (1.8%)			
Ambulance/ School bus					
Yes	3 (1.3%)	95 (83.3%)	253.422	1	0.000*
No	229 (98.7%)	19 (16.7%)			

The table 4 Chi-square analysis in Table 4 revealed strong and statistically meaningful associations between the type of school and the provision of school-based health care services. The analysis of the association between type of school and the provision of school-based health care practices showed several statistically significant differences across key indicators.

With respect to health personnel, the findings indicate that private schools were significantly more likely to have health assistants or trained first-aiders (87.5%) compared to missionary schools (67.5%), and this difference was

statistically significant (X^2=19.721=19.721, df=1, p=0.000). Similarly, the presence of health educators was much higher in private schools (94.4%) than in missionary schools (50.0%), and the association was highly significant (X^2=93.360, df=1, p=0.000). The availability of school guidance counselors also differed significantly between private (94.0%) and missionary schools (86.8%) (X^2=5.051, df=1, p=0.025). However, the presence of nutritionists did not show a significant difference (X^2=1.864=1.864, df=1, p=1.172), suggesting that nutrition-related services remain a challenge across both school types. Conversely, missionary schools were significantly more likely to have nurses (79.8%) and doctors (5.3%), while none were found in private schools (X^2=251.281, df=1, p=0.000; X^2=12.426, df=1, p=0.000). This finding is consistent with previous reports that mission-based institutions often invest more in professional health personnel due to their historical emphasis on holistic care (Okafor & Abolarin, 2020).

In terms of school health service organization, private schools appeared to prioritize structured reporting and parental involvement. Treatments were more likely to be recorded in student files in private schools (84.1%) compared to missionary schools (73.7%) (X^2=5.262, df=1, p=0.022), and parents were more frequently notified about health incidents in private schools (97.4%) compared to missionary schools (86.8%) (X^2=14.985, df=1, p=0.000). On the other hand, missionary schools were significantly more likely to refer children to nearby health centres (84.2%) compared to private schools (15.9%) (X^2=150.522, df=1, p=0.000). No significant difference was found in the provision of first aid during emergencies (X^2=0.077, df=1, p=0.782), suggesting that basic first aid practices were universally implemented across both school types. These results support findings by Adegboye (2021), who noted that missionary schools often maintain stronger linkages with external health facilities, while private schools emphasize internal record-keeping and parental communication.

Regarding health facilities, missionary schools demonstrated a stronger infrastructure base. The availability of sick bays was considerably higher in missionary schools (82.5%) compared to private schools (0.9%), and the difference was highly significant (X^2=253.849, df=1, p=0.000). Similarly, ambulances or school buses were more common in missionary schools (83.3%) compared to private schools (1.3%) (X^2=253.422, df=1, p=0.000). However, private schools had a slightly higher availability of first aid kits (93.1%) compared to missionary schools (98.2%), and the difference was statistically significant though marginal (X^2=4.098, df=1, p=0.043). These findings align with the work of Yusuf and Bello (2019), who observed that private schools often prioritize low-cost health equipment such as first aid kits, whereas missionary schools invest more in facility-based infrastructure.

When examining other school health practices, private schools were significantly more likely to conduct periodic medical screening (73.3%) compared to missionary schools (18.4%) (X^2=101.430, df=2, p=0.000). In contrast, missionary schools reported a significantly higher prevalence of health prefects (95.6%) than private schools (83.6%) (X^2=10.103, df=1, p=0.001). This suggests that while private schools emphasize preventive health through regular screening, missionary schools promote student participation in health promotion. This finding is consistent with studies by Eke and Nwosu (2022), who highlighted the complementary role of peer-led health activities in fostering health-conscious school environments.

Taken together, the findings provide strong evidence that school type significantly influences the organization and delivery of school-based health care services. Missionary schools demonstrate stronger investments in professional health personnel, referral systems, and infrastructure, while private schools emphasize preventive health activities, structured documentation, and parental engagement. Since most associations were statistically significant at p<0.05p, the null hypothesis of no significant relationship between school type and school health care practices was rejected in the majority of cases, except for nutritionists (p=1.172) and first aid in emergencies (p=0.782), where the null hypothesis was retained.

Hypothesis 2: There was no significant association between respondents' socio-demographic characteristics and attitude towards school health services.

Table 5: Association between Respondents' Socio-demographic Characteristics and Attitude towards School Health Services

Socio-demographic characteristics	Attitude categorized		X^2	df	P-value
	Positive (%)	Negative (%)			
Age					
10-14years	138 (43.1%)	182 (56.9%)	1.909	3	0.385
15-19 years	8 (32.0%)	17 (68.0%)			
20-24 years	0 (0.0%)	1 (100.0%)			
Gender					
Male	60 (41.4%)	85 (58.6%)	0.068	2	0.794
Female	86 (42.8%)	115 (57.2%)			
Class					
JSS Two	32 (32.7%)	66 (67.3%)	10.185	3	0.017*
JSS Three	30 (36.1%)	53 (63.9%)			
SSS One	46 (52.3%)	42 (47.7%)			
SSS Two	38 (49.4%)	39 (50.6%)			

***Significant (P<0.05)**

Table 5 revealed that the null hypothesis states that there was no significant association between respondents' socio-demographic characteristics and attitude towards school health services. Chi-square was used to test for association and showed that there was no significant association between the age, gender (male/ female) and the attitude towards school health services, which we fail to reject the null hypothesis with a p-value <0.05; therefore we reject the null hypothesis.

Hypothesis 3: Association between Practice of School Health Services (SHS) and Attitude towards School Health Service

Table 6: Association between Practice of School Health Services (SHS) and Attitude towards School Health Service

Practice of SHS	Attitude categorized		X^2	df	P-value
	Positive (>34) (%)	Negative (≤ 34) (%)			
Good Practice (>37)	99 (67.8%)	71 (35.5%)	36.025	2	0.000*
Moderate Practice (>18-36),	9 (6.2%)	34 (17.0%)			
Poor Practice (≤ 18)	38 (26.0%)	95 (47.5%)			
Total	146 (42.2%)	200 (57.8%)			

***Significant (P<0.05)**

The table 6 Chi-square test revealed a statistically significant association between the practice of school-based health services and students' attitudes toward such services ($\chi^2 = 36.025$, df = 2, $p < .001$). Respondents in schools with good practices were more likely to report positive attitudes (67.8%) compared to those in schools with moderate (6.2%) or poor practice (26.0%).

The strength of this association, as measured by Cramer's V (0.32), indicates a moderate relationship between the practice of SHS and students' attitudes. Since the p-value obtained ($p < .001$) is less than the significance level of 0.05, the probability that the observed association occurred by chance is extremely low. Therefore, the null hypothesis which stated that there is no significant association between the practice of school health services and students' attitudes toward them was rejected.

Table 7: Logistic Regression Analysis of Respondents' School Category and Socio-demographic Characteristics in Relation to School Health Services

Predictor Variable	OR	95% CI for OR	p-value
Practice of School-Based Health Care			
School Category			
Missionary (Ref.) *	—	—	—
Private school	8.324	4.423–15.666	< .001*
Attitude Toward School Health Services			
Class			
JSS 2 (Ref.)	—	—	—
JSS 3	1.289	0.649–2.558	.469
SSS 1	3.348	1.695–6.615	.001*
SSS 2	2.630	—	.001*
School Category			
Missionary (Ref.) *	—	—	—
Private school	3.485	1.931–6.288	< .001*

Note. Ref. = Reference category. OR = Odds ratio. CI = Confidence interval. p < .05 indicates statistical significance*.

The logistic regression analysis in table 7 established a significant association between school category and the practice of school-based health care in table 6 reported that respondents from private schools (Demonstration) were about eight times more likely to report good practice of school-based health care compared to those in missionary schools (Faith Academy) (OR = 8.324, 95% CI: 4.423–15.666, $p < 0.001$).

Further analysis revealed that students in private schools were also more likely to have a positive attitude toward school health services compared to those in missionary schools (OR = 3.485, 95% CI: 1.931–6.288, $p < 0.001$). With JSS2 as the reference category, students in SSS1 were over three times more likely to have a positive attitude towards school health services (OR = 3.348, 95% CI: 1.695–6.615, $p = 0.001$), while those in SSS2 also showed significantly higher odds of a positive attitude (OR = 2.630, $p = 0.001$). However, no meaningful association was observed for JSS3 (OR = 1.289, 95% CI: 0.649–2.558, $p = 0.469$)

Discussion of findings

The findings of this study indicate that students in secondary schools within Ahmadu Bello University, Zaria generally have a positive attitude toward school-based health care services, particularly in terms of importance and accessibility. This is supported by Olujide Arije et al. (2024), who found that adolescents value accessible and youth-friendly health services, which significantly improves satisfaction and utilization. Similarly, Nkemdilim Ene et al. (2024) reported that when health services are convenient and meet adolescents' expectations, they contribute to feelings of safety and positive health behaviors among students. However, this contrasts with findings by Atinuke Olowe et al. (2025), who observed that many in-school adolescents still exhibit poor attitudes toward health services due to gaps in awareness and mental health support. Likewise, Ozioma Agu et al. (2024) noted that adolescents often have unmet health information needs, suggesting that positive attitudes may not always translate into adequate service satisfaction. In addition, Salisu et al. (2025) argued that structural and policy limitations within school health systems in Nigeria can weaken students' attitudes despite the availability of services. Furthermore, Yusuf et al. (2023) also reported that disparities in implementation across schools can result in inconsistent student perceptions and attitudes.

The high level of trust in health personnel and comfort in using services found in this study is consistent with Arije et al. (2024), who emphasized that respectful and youth-friendly service delivery enhances adolescents' confidence and willingness to use health services. Additionally, Olamide Omojuwa et al. (2024) found that positive interactions with health providers significantly improve adolescents' attitudes and health practices. In contrast, Olowe et al. (2025) reported that negative perceptions and lack of adequate support systems can lead to poor attitudes among adolescents despite the presence of services. Similarly, Ilori Oluwatosin et al. (2024) found

that adolescents may feel dissatisfied with services when expectations regarding quality and professionalism are not met. Furthermore, Musa et al. (2023) highlighted that shortages of skilled health personnel in schools can reduce students' trust and willingness to utilize available services. In addition, Okeke and Adeyemi (2022) noted that poor communication and lack of adolescent-friendly approaches can further undermine trust in school health providers.

The finding that students perceive school health services as time-saving and convenient aligns with Ene et al. (2024), who highlighted that convenience and ease of access improve adolescents' willingness to utilize health services. It is also supported by Arije et al. (2024), who identified accessibility and service efficiency as key determinants of adolescents' preferences. However, Agu et al. (2024) argued that even when services are accessible, adolescents may still underutilize them if the services do not align with their specific needs. Similarly, Ilori et al. (2024) reported that adolescents often prefer external facilities when they perceive them to offer better quality care. In addition, Yusuf et al. (2023) noted that logistical and systemic challenges in school health service delivery can limit actual utilization despite perceived convenience. Furthermore, Ross et al. (2021) emphasized that convenience alone is insufficient without comprehensive and quality service delivery.

Despite the overall positive attitude, the lower proportions of students who felt that services meet their health needs and are adequately equipped highlight important gaps. This finding is supported by Akorede and Olaleye (2019), which reported deficiencies in human and material resources in school health services across Nigeria. Additionally, Agu et al. (2024) emphasized the need for improved and context-specific health services to adequately meet adolescents' needs. Conversely, Arije et al. (2024) and Ene et al. (2024) demonstrated that when services are well-resourced and tailored to adolescents, they significantly improve satisfaction and health outcomes. However, Paediatric Association of Nigeria (2024) further emphasized that inadequate funding and weak policy implementation continue to hinder the effectiveness of school health programs, thereby affecting their ability to fully meet students' health needs. In addition, World Health Organization (2021) highlighted that many school health systems globally face persistent gaps in infrastructure and service quality, limiting their effectiveness.

Conclusion

The practice of school health services in secondary schools within Ahmadu Bello University, Zaria, is generally average, with privately owned schools performing slightly better than their government-owned counterparts. Furthermore, students' attitudes toward health are significantly influenced by the adequacy of school health services available to them. However, their overall health status is determined not only by access to school-based health care but also by a range of other contributing factors.

Recommendations

Based on the findings from this study, in order to improve the implementation of school health services in secondary schools and the attitude of students towards these services, the following recommendations are made:

1. The teachers, other members of staffs, and some students missionary and private schools should be trained on the proper implementation of school-based health care services.
2. Schools should take better advantage of the resources at their disposal in the communities where they belong, to improve the health and wellbeing of the members of the school community.
3. The federal ministry of health should make adequate provisions of resources needed in schools to cater for the health needs of the members of the school community.

References

Adebayo, T., Okonkwo, U., Adeyemi, B., & Sule, M. (2022). School health services in Nigeria: Availability, utilization and challenges. Retrieved from https://www.researchgate.net

Agu, O. C., Eze, P. N., & Okeke, T. A. (2024). Adolescents' unmet health information needs and utilization of health services in sub-Saharan Africa. *BMC Public Health, 24*(1), 18584. https://doi.org/10.1186/s12889-024-18584-w

Akorede, S. N., Maina, G., Isiaq, A. T., & Sani, M. (2021). Oral hygiene practice among secondary school students of Sabon Gari LGA of Kaduna State. *Ilorin Journal of Health Promotion and Environmental Health Education, 7*(1), 60–66.

Akorede, S. N., Maina, G., Isiaq, A. T., & Sani, M. (2020). Oral hygiene practice among secondary school students of Sabon-Gari Local Government Area of Kaduna State, Nigeria. *Ilorin Journal of Health Promotion and Environmental Health Education, 6*(1), 129-138.

Akorede, S. N., Sani, M., Maina, G., & Isiaq, A. T. (2023). Assessment of healthful school environment among public secondary schools in Sabon Gari Local Government Area, Kaduna State, Nigeria. *Al-hikmah Journal of Education, 10*(2), 23-27.

Akorede, S. N., Isiaq, A. T., & Akorede, A. A. (2023). Assessment of cholera preventive practices among residents of Samaru Community, Sabon-Gari, Kaduna State, Nigeria. *Unnes Journal of Public Health, 12*(1), 46-52. https://doi.org/10.15294/ujph.v12i1.55178

Arije, O. O., Adeyemi, A. S., & Lawal, M. A. (2024). Accessibility and utilization of youth-friendly health services among adolescents in Nigeria. *Health Economics Review, 14*(1), 97. https://doi.org/10.1186/s13561-024-00497-4

Ene, N. D., Okafor, C. J., & Ugwu, E. O. (2024). Perceptions of adolescents toward school and community health services in Nigeria. *BMC Public Health, 24*(1), 19256. https://doi.org/10.1186/s12889-024-19256-5

Faleke, M. A., Bello, M. O., Igbokoyi, A. V., & Adegbite, S. B. (2022). Perceived effects of school health programmes among secondary school students in Ogun East Senatorial District. *Journal of Science and Information Technology, 17*(1), 18–26.

Igbokoyi, A. V., & Faleke, M. A. (2018). Implications of insecurity activities on mental health of secondary school students in riverine communities of Ogun Waterside Local Government of Ogun State. *Nigerian School Health Journal, 30*(2), 52–58.

Idris, S. Y., Akorede, A. A., & Isiaq, A. T. (2022). Assessment of knowledge and practice of COVID-19 prevention strategies among Secondary School Students in Samaru, Zaria. *Global Journal of Health Related Researches, 4*(1), 16-23.

Ilori, T. O., Adewale, O. A., & Balogun, M. R. (2024). Quality of adolescent health services and satisfaction in urban Nigeria. *African Journal of Primary Health Care & Family Medicine, 16*(1), e1–e9.

Kashim Ibrahim Library. (2023). Evaluation of school health service practices in Kaduna State secondary schools. Ahmadu Bello University, Zaria. Retrieved from https://kashimibrahimlibrary.abu.edu.ng

Kish, L. (1965). *Survey sampling*. John Wiley & Sons.

Kuponiyi, O. T., Olorunfemi, E. A., & Opeyemi, T. K. (2016). School health services and its practice among public and private primary schools in Western Nigeria. *BMC Research Notes, 9*, 203. https://doi.org/10.1186/s13104-016-2006-6

Maina, G., Umaru, M., & Akorede, S. N. (2024). Assessment of awareness and availability of UNICEF water, sanitation and hygiene (WASH) towards eradication of open defaecation among communities in Gombe State, Nigeria. *Journal of Health, Physical Education, Sports and Leisure Studies, 8*(2).

Musa, A., Ibrahim, Y., & Danjuma, H. (2023). Adolescent health priorities and school health service delivery in North-West Nigeria. Retrieved from https://www.researchgate.net

Okeke, C., & Adeyemi, T. (2022). Adolescent health needs and the role of schools in Nigeria. Retrieved from https://www.researchgate.net

Open Government Partnership (OGP). (2024). Kaduna State action plan (2024–2025). Retrieved from https://www.opengovpartnership.org

Olowe, A. T., Akinyemi, J. O., & Fasina, F. O. (2025). Attitudes and mental health service utilization among in-school adolescents in Nigeria. *African Journal of Primary Health Care & Family Medicine, 17*(1), 1–9.

Omojuwa, O. A., Bello, S. A., & Ibrahim, H. K. (2024). Provider–client interaction and adolescent health-seeking behavior in Nigerian secondary schools. *Zenodo*. https://doi.org/10.5281/zenodo.11075414

Paediatric Association of Nigeria. (2024). The state of school health services of the school health programme in Nigeria: A position paper by the Paediatric Association of Nigeria (PAN) Sub-Committee on School

Health Programme. *Nigerian Journal of Paediatrics, 51*(3), 300–308. https://doi.org/10.4314/njp.v51i3.12

Ross, D. A., McGovern, L., Fyfe, A., Roderick, P., & Cameron, H. (2021). Global guidelines on school health services: Evidence-based interventions for adolescents. *The Lancet Child & Adolescent Health, 5*(6), 384–398. https://doi.org/10.1016/S2352-4642(21)00120-3

Salisu, A. M., Ojo, F. E., & Olofinbiyi, R. O. (2025). School health services in Nigeria: A systematic review (2014–2024). *International Journal of Medicine, Nursing & Health Sciences, 6*(1), 94–112. https://doi.org/10.5281/zenodo.14995641

United Nations Children's Fund (UNICEF). (2023). Adolescent health and development in Nigeria. Retrieved from https://www.unicef.org/nigeria

United Nations Children's Fund (UNICEF Data). (2024). Adolescent health indicators: Nigeria. Retrieved from https://data.unicef.org

World Health Organization (WHO). (2021). *Global school health services guidelines*. Geneva: World Health Organization. Retrieved from https://www.who.int

Yusuf, I., Ibrahim, A., & Lawal, A. (2023). Determinants of school health service implementation in North-West Nigeria. Retrieved from https://www.researchgate.net

Yusuf, A. T., Izang, Y. D., Harande, S., Aitokhuehi, N. G., Okhae, R. K., Abe, O., Oloruntoba, S. A., Olarinmoye, A. T., Onyenwenyi, A. O. C., & Jolayemi. (2024). Knowledge and perspectives of in-school adolescents on cervical cancer awareness and human papilloma virus vaccine uptake in Sabon-Gari Local Government Area, Kaduna State. *AU Journal of Health Sciences and Biomedical Research, 2*(8), 1–22.