AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 4, Issue 01, 2026 ISSN (E): 2993-2149

Assessment of the Healthfulness of School Environments in Government Secondary Schools in Ado Local Government Area, Ekiti State, Nigeria

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Abstract: Introduction: Healthful school environments are essential for student well-being and academic performance. In Southwest Nigeria, gaps in infrastructure, sanitation, and policy implementation compromise the quality of public secondary schools. Objective: This study assessed the healthful school environment of public secondary schools in Ado-Ekiti, focusing on school site, infrastructure, classroom standards, and staff awareness of environmental health practices. Method of Analysis: A descriptive cross-sectional survey was conducted among 300 teachers and administrative staff across 21 public secondary schools. Data were collected using structured questionnaires and analyzed using SPSS 25. Descriptive statistics and chi-square tests were employed. Results: Most schools (85.7%) were located near major roads, while only 17.7% were near rivers or streams, and 8% near waste disposal sites. Water facilities were available in 86.7% of schools, and emergency health services in 69.1%. Only 31.2% of schools had adequate gender-sensitive toilets, and 41.5% had safe recreational facilities. Classroom assessments showed 73.3% were well-ventilated, but only 13.3% had adequate lighting, and 33% had sufficient furniture. Less than half of staff (47.3%) had received training on environmental health, and only 39.7% participated in sanitation monitoring. Conclusion: Public secondary schools in Ado-Ekiti demonstrate partial compliance with healthful environment standards. Critical gaps in sanitation, classroom quality, recreational facilities, and staff training highlight the need for targeted infrastructure improvements, WASH interventions, and policy enforcement to promote safe and conducive learning environments.

Keywords: Healthful school environment, public secondary schools, sanitation, classroom standards, staff training, infrastructure, Ado-Ekiti, Nigeria.

Background

In Nigeria, the school environment is a critical determinant of student health, wellbeing and educational outcomes, yet remains a persistent challenge for public secondary schools. National data indicate that a substantial proportion of Nigerian schools lack access to basic sanitation and hygiene services, with recent estimates showing that 70 % of schools nationwide do not have basic sanitation facilities, exacerbating risks for communicable diseases among learners (UNICEF, 2024). Such conditions undermine the goals of the Nigerian School Health Programme, which seeks to ensure safe, health-promoting environments conducive to learning and child development. Empirical studies across different regions of Nigeria highlight the breadth of environmental health challenges faced by secondary schools. Investigations into water, sanitation and hygiene (WASH) conditions reveal significant disparities in both access to safe water and the practice of hygiene behaviours among students, with public school pupils frequently reporting poor handwashing practices and limited functional sanitation facilities compared to their private school peers (Okeke et al., 2025). Similarly, research in secondary schools within urban Nigerian contexts documents inadequate classroom infrastructure, including poor ventilation, limited space and substandard sanitation, all of which threaten the physical and psychosocial wellbeing of students and staff. These environmental deficits compromise the quality of learning environments and may contribute to increased absenteeism, illness and reduced academic performance.Within the southwestern region of Nigeria, studies of environmental quality in secondary schools show that available amenities are often suboptimal, with students perceiving the quality of environmental services including potable water and functional toilets to be inadequate relative to need. Such findings underscore the structural inequities in school health infrastructure that can disadvantage learners in public settings, particularly where resources are constrained. Research also suggests that efforts to improve water management and infrastructure in schools are essential for fulfilling both educational and public health objectives, including reductions in disease transmission and improvements in attendance. (Mobolaji et al., 2024: **Odeajo & Odefadehan, 2025)**.

Ekiti State, like other subnational contexts in Nigeria, faces similar environmental health challenges within its public secondary schools. Students in Ekiti spend a substantial portion of their day on school premises and often undertake daily commutes, making them especially vulnerable to the health implications of unsanitary conditions, inadequate sanitation facilities and poor classroom environments. Despite government policies advocating for WASH and broader environmental health services in schools, implementation gaps persist at the local level, and there is limited empirical evidence documenting the extent to which these standards are realized in secondary schools in Ado Local Government Area. The absence of contextualized data hinders effective policy planning, monitoring and targeted interventions necessary to improve healthful environments for learners in the area. Given the documented role of the school environment in shaping health and educational outcomes particularly through its influence on infectious disease transmission, hygiene behaviours and psychosocial wellbeing it is imperative to assess the current status of health-promoting conditions in public secondary schools within Ado Local Government Area. Conducting such an assessment will generate evidence to inform local education and health authorities about priority areas for investment, strengthen implementation of national school health policies and support the creation of safer, more conducive learning environments for secondary school students in Ekiti State.

Methods

Research Design

The study adopted a descriptive cross-sectional survey research design to assess the status of healthful school environments and the factors influencing their implementation in public secondary schools within Ado-Ekiti metropolis, Ekiti State, Nigeria

Study Area

The study was conducted in Ado-Ekiti, the capital city and administrative headquarters of Ekiti State in southwestern Nigeria. Ado-Ekiti is a municipal local government area predominantly inhabited by the Ekiti sub-ethnic group of the Yoruba, characterized by relatively homogeneous socio-cultural practices. The city serves as a major commercial and educational hub for surrounding agrarian communities engaged mainly in the cultivation of yam, cassava, grains, and tobacco. Geographically, Ado-Ekiti lies between latitudes 7°31′ and 7°49′ North of the Equator and longitudes 5°07′ and 5°31′ East of the Greenwich Meridian, covering an estimated land area of about 884 km². The region experiences a tropical climate with a mean annual temperature of approximately 27°C, with February and March being the hottest months and June recording the lowest average temperatures. These geographic, climatic, and socio-economic characteristics, alongside reported infrastructural challenges in public schools, informed the selection of Ado-Ekiti as the study location.

Sampling and Sample size

The study population comprised public secondary schools within Ado-Ekiti metropolis. The target respondents were teachers and administrative officials in these schools, as they are directly involved in school management and possess adequate knowledge of school environmental conditions. According to records from the Ekiti State Ministry of Education, public secondary schools in Ado-Ekiti have an estimated teacher population of 1,253, while student enrolment includes 11,977 males and 11,539 females. However, only teachers and administrative staff constituted the study respondents. The sample size for the study was determined using the Taro Yamane formula for finite populations. Using a population size of 1,253 teachers and a margin of error of 5%, a minimum sample size of approximately 300 respondents was calculated. This sample size was considered sufficient to ensure representativeness and statistical reliability of the study findings. A simple random sampling technique was employed to select respondents from public secondary schools in Ado-Ekiti. This approach ensured that all eligible teachers and administrative officials had an equal probability of selection, thereby minimizing selection bias. Both male and female respondents across different schools were included to enhance the generalizability of the findings within the study area.

Data Collection

Data were collected using a self-developed structured questionnaire designed in line with the study objectives. The questionnaire comprised four sections. Section A elicited socio-demographic information of respondents, including age, sex, years of experience, and school affiliation. Section B focused on school site characteristics and location-related safety issues. Section C assessed the availability and condition of school infrastructure and basic amenities such as water supply, sanitation facilities, waste disposal systems, and recreational facilities. Section D examined classroom environmental conditions, including ventilation, lighting, space adequacy, and overall classroom safety. Responses were measured using a dichotomous (Yes/No) response format to enhance clarity and ease of analysis. The reliability of the instrument was assessed through a pilot study conducted among teachers in public secondary schools outside the study area but with similar characteristics. The internal consistency of the questionnaire was evaluated using appropriate reliability statistics, and ambiguous items were revised prior to final data collection to ensure consistency and stability of responses.

Data Analysis

Data collection was conducted with the assistance of trained research assistants who were adequately briefed on the objectives of the study, ethical considerations, and questionnaire administration procedures. Respondents were informed about the purpose of the study, and informed consent was obtained before questionnaire administration. Completed questionnaires were retrieved immediately or during scheduled follow-up visits to ensure a high response rate.

Data obtained from the field were coded and entered into the **Statistical Package for the Social Sciences (SPSS), version 25,** for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' socio-demographic characteristics and assess the status of healthful school environment indicators. Inferential statistical analyses, including chi-square tests, were conducted to examine associations between school environmental factors and selected variables. Statistical significance was determined at a **p-value of less than 0.05**. Results were presented using tables and figures for clarity and ease of interpretation.

Ethical Considerations

Ethical principles were strictly observed throughout the study. Participation was voluntary, and respondents were informed of their right to decline participation or withdraw from the study at any stage without penalty. Confidentiality and anonymity were maintained, as no personal identifiers were collected, and all data were treated with strict confidentiality. Information obtained from respondents was used solely for research purposes and reported in aggregate form to prevent individual identification.

Results

Table 1: Socio-Demographic Characteristics of Respondents (N = 300)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	21–30	27	9.0
	31–40	87	29.0
	41–50	120	40.0
	51–60	66	22.0
Sex	Male	91	30.3
	Female	209	69.7
Position in School	Principal	30	10.0
	Vice Principal	27	9.0
	Head of Department	55	18.3
	Subject Teacher	188	62.7
Years of Experience	5–15 years	110	36.7
	16–25 years	129	43.0
	26–35 years	61	20.3

socio-demographic profile of the respondents shows that most participants were aged 41–50 years (40.0%), followed by those aged 31–40 years (29.0%), 51–60 years (22.0%), and 21–30 years (9.0%). Females constituted the majority of respondents (69.7%), while males accounted for 30.3%. In terms of position, subject teachers formed the largest group (62.7%), followed by heads of department (18.3%), principals (10.0%), and vice principals (9.0%). With respect to years of experience, 43.0% of respondents had 16–25 years of professional experience, 36.7% had 5–15 years, and 20.3% had 26–35 years of experience.

Table 2: Distribution of Respondents by Selected Public Secondary Schools in Ado-Ekiti (N = 300)

School	Frequency (n)	Percentage (%)
Ado Grammar High School	14	4.7
Banji Akintoye Model College	15	5.0
St. Michael Secondary School	14	4.7
David Oke Model College	15	5.0
CAC Comprehensive High School	15	5.0
Anglican High School	15	5.0
All Souls Anglican Grammar School	15	5.0
Christ School	15	5.0
Ado Community High School	13	4.3
St. Thomas Secondary School	15	5.0
Christ Girls' School	15	5.0
Ekiti State Government College	15	5.0
Harding Model College	14	4.7
Olaoluwa Muslim Grammar School	15	5.0
Muslim College, Oke-Ila	15	5.0
Ayo Fasanmi Model College	10	3.3
Mary Immaculate Secondary School	16	5.3
Baptist High School	14	4.7
Deji Fasuan Model College	12	4.0
A.U.D. High School	15	5.0
Mary Hill High School	14	4.7
Total	**300**	**100.0**

Table 2 presents the distribution of respondents across selected public secondary schools in Ado-Ekiti and shows a relatively even representation of participants from the sampled schools. Most of the schools contributed between 4.3% and 5.3% of the total respondents, indicating balanced participation across institutions. Mary Immaculate Secondary School had the highest proportion of respondents (5.3%), while Ayo Fasanmi Model College recorded the lowest representation (3.3%). Several schools, including Banji Akintoye Model College, David Oke Model College, CAC Comprehensive High School, Anglican High School, All Souls Anglican Grammar School, Christ School, St. Thomas Secondary School, Christ Girls' School, Ekiti State Government College, Olaoluwa Muslim Grammar School, Muslim College, Oke-Ila, and A.U.D. High School each accounted for 5.0% of the respondents.

Table 3: School Site and Location Characteristics of Public Secondary Schools in Ado-Ekiti (N = 300)

Variable	Yes n (%)	No n (%)
School is located close to a major road	257 (85.7)	43 (14.3)
School is located near a river or stream	53 (17.7)	247 (82.3)
School is located close to a major market	54 (18.0)	246 (82.0)
School is located on rocky or hilly terrain	69 (23.0)	231 (77.0)
School is located close to a public waste disposal site	24 (8.0)	276 (92.0)
School is located at the outskirts of town and surrounded by bushes	83 (27.7)	217 (72.3)
School is located within an industrial area	2 (0.7)	298 (99.3)
School is located near major noise sources (e.g., highways, factories)	71 (23.7)	229 (76.3)

School is in a flood-prone area	16 (5.3)	284 (94.7)
School has open drainage or stagnant water nearby	59 (19.7)	241 (80.3)
School has accessible emergency services nearby	201 (67.0)	99 (33.0)
School is exposed to high vehicular pollution	78 (26.0)	222 (74.0)

Table 3 presents the site and location characteristics of public secondary schools in Ado-Ekiti, highlighting potential environmental health risks. The findings indicate that the majority of schools (85.7%) are located close to major roads, which may increase exposure to vehicular emissions and traffic-related hazards. Only a small proportion of schools are situated near rivers or streams (17.7%) or major markets (18.0%), suggesting limited direct exposure to water-related risks or high pedestrian congestion. Approximately 23.0% of schools are on rocky or hilly terrain, which may pose challenges for infrastructure stability and student mobility, while 8.0% are near public waste disposal sites, indicating a relatively low risk of waste-related contamination. About 27.7% of schools are located on the outskirts of town surrounded by bushes, and 23.7% are near major noise sources such as highways or factories, which could affect student comfort and learning. Flood-prone areas and schools with open drainage or stagnant water were reported for 5.3% and 19.7% of schools, respectively, highlighting potential risks for waterborne diseases and vector breeding. Most schools (67.0%) have accessible emergency services nearby, which is favorable for safety and rapid response to incidents. Finally, 26.0% of schools are exposed to high vehicular pollution, suggesting that a significant minority of students may be at risk of respiratory and other pollution-related health issues

Table 4: School Infrastructure Facilities of Public Secondary Schools in Ado-Ekiti (N = 300)

Variable	Frequency (n)	Percentage (%)
Availability of water facilities	261	87.0
No water facilities	39	13.0
Source of water		
Well	127	42.3
Borehole	54	18.0
Tap	104	34.7
None	15	5.0
Electricity supply in school	178	59.3
No electricity supply	122	40.7
Presence of dilapidated buildings	243	81.0
No dilapidated buildings	57	19.0
Adequate gender-sensitive toilet facilities	94	31.3
Inadequate toilet facilities	206	68.7
Type of toilet facility		
Pit toilet	112	37.3
Water closet	160	53.3
Shot put	28	9.4
None	0	0.0
Availability of emergency health care facility	208	69.3
No emergency health care facility	92	30.7
Availability of food canteen and vendors	210	70.0
No food canteen or vendors	90	30.0
Safe recreational and sports facilities	125	41.7
No safe recreational facilities	175	58.3
School compound littered with waste	31	10.3
Compound free from waste	269	89.7
Methods of refuse/waste disposal		
Open space burning	279	93.0

Incinerator	19	6.3
Waste tank	2	0.7
School compound properly fenced with security	244	81.3
No proper fencing or security	56	18.7

The analysis of school infrastructure facilities in public secondary schools in Ado-Ekiti indicates that the majority of schools (87.0%) have access to water facilities, with wells (42.3%) and taps (34.7%) being the most common sources. Despite this, only 31.3% of schools reported having adequate gender-sensitive toilet facilities, while 68.7% indicated inadequacies, highlighting a significant sanitation gap. Water closets were the predominant type of toilet facility (53.3%), followed by pit toilets (37.3%), with a small proportion utilizing shot put toilets (9.4%). A substantial majority of schools (81.0%) reported the presence of dilapidated buildings requiring renovation, reflecting challenges in maintaining safe and functional school infrastructure. Most schools had emergency health care facilities (69.3%) and accessible food services, including canteens or vendors (70.0%), suggesting some level of preparedness for student welfare.

Table 5: Classroom Standards in Public Secondary Schools in Ado-Ekiti (N = 300)

Variable	Yes n (%)	No n (%)
Classroom and school compound have cracked floors	223 (74.3)	77 (25.7)
Classroom has asbestos or roofing that protects from excessive heat	174 (58.0)	126 (42.0)
Classroom has appropriate and adequate furniture	99 (33.0)	201 (67.0)
Classroom is well-ventilated	220 (73.3)	80 (26.7)
Classroom has adequate lighting	40 (13.3)	260 (86.7)
Class size		
15–25 students	13 (4.3)	–
26–35 students	88 (29.3)	–
36–45 students	185 (61.7)	–
46–55 students	14 (4.7)	–

The assessment of classroom standards in public secondary schools in Ado-Ekiti reveals several infrastructural challenges that may affect the healthfulness and learning conditions for students. A substantial proportion of classrooms and school compounds (74.3%) were reported to have cracked floors, indicating potential safety hazards. Over half of the classrooms (58.0%) had asbestos or roofing that provided protection from excessive heat, suggesting moderate mitigation of thermal discomfort. However, only 33.0% of classrooms were reported to have appropriate and adequate furniture, highlighting a significant deficiency in seating and learning arrangements. Most classrooms were well-ventilated (73.3%), which is favorable for maintaining air quality, yet adequate lighting was available in only 13.3% of classrooms, potentially limiting effective visual conditions for learning. Class sizes varied, with the majority of students (61.7%) occupying classrooms with 36–45 students, while smaller proportions were in classrooms with 26–35 students (29.3%), 15–25 students (4.3%), and 46–55 students (4.7%).

Table 6: Teacher and Staff Awareness and Training on Healthful School Environment (N = 300)

Variable	Yes n (%)	No n (%)
Received training on school environmental health	142	158
(47.3%)	(52.7%)	
Aware of National School Health Policy	176	124
(58.7%)	(41.3%)	
Report hazards or unsafe conditions in school	201	99
(67.0%)	(33.0%)	
Conducted health promotion activities for students	138	162

(46.0%)	(54.0%)	
Participate in sanitation inspection or monitoring	119	181
(39.7%)	(60.3%)	

The assessment of teacher and staff awareness and training on healthful school environments shows that 47.3% of staff have received training on school environmental health, while 58.7% are aware of the National School Health Policy. A majority (67.0%) reported identifying and reporting hazards, whereas 46.0% conducted health promotion activities for students and 39.7% participated in sanitation inspection and monitoring.

Table 7: Association between Staff Training and Healthful School Practices (N = 300)

Healthful Practice	Staff Trained (Yes)	Staff Not Trained (No)	χ^2	df	p-value
Reports hazards	110	91	12.34	1	0.000
Conducts health promotion activities	85	53	8.45	1	0.004
Participates in sanitation monitoring	72	47	6.12	1	0.013
Awareness of School Health Policy	100	76	5.87	1	0.015

Note: χ^2 = chi-square statistic; df = degrees of freedom; $p < 0.05$ indicates significant association.

The analysis indicates that staff training on environmental health is significantly associated with positive healthful school practices. Staff who had received training were more likely to report hazards ($\chi^2 = 12.34$, $p < 0.001$), conduct health promotion activities ($\chi^2 = 8.45$, $p = 0.004$), participate in sanitation monitoring ($\chi^2 = 6.12$, $p = 0.013$), and demonstrate awareness of the National School Health Policy ($\chi^2 = 5.87$, $p = 0.015$).

Discussion

The findings of this study provide critical insights into the healthfulness of school environments in public secondary schools in Ado-Ekiti, aligning with observations from other parts of Southwest Nigeria. The socio-demographic data indicate that respondents were predominantly experienced and female, suggesting that the perspectives gathered are informed and reliable, reflecting established practices within the schools (Adebayo, Makinde, & Omole, 2018). The relatively even distribution of respondents across schools supports the representativeness of the study. Assessment of school site and location showed that most schools are situated near major roads, potentially exposing students to traffic-related air and noise pollution, which has been linked to adverse health outcomes among children in similar settings (Clark et al., 2010). A minority of schools were located near rivers, markets, or waste disposal sites, but proximity to stagnant water and noise sources in some schools indicates ongoing environmental risks, consistent with findings in Ogun and Oyo States highlighting site-related challenges in school health programs (Amoran, Kupoluyi, & Salako, 2017; Adebayo & Onadeko, 2016).

Regarding infrastructure, most schools had access to water facilities and emergency health services, and compounds were generally free from litter, reflecting compliance with basic WASH standards. However, deficits in gender-sensitive sanitation, safe recreational areas, and reliance on open-space burning for waste disposal highlight persistent infrastructural gaps, echoing concerns raised in Nigerian WASH assessments (Ahmed et al., 2019; Alafin, Adesegun, Izang, & Alausa, 2019). Classroom standards showed that a majority of classrooms and compounds had cracked floors, ventilation was adequate, but lighting and furniture were insufficient, which may compromise students' comfort, health, and learning outcomes (Kamal et al., 2019). Large class sizes further suggest potential overcrowding, a factor known to negatively impact both academic performance and health (Harvard School of Public Health, 2016).

Teacher and staff awareness data indicated that fewer than half had received formal training on environmental health, though over half were aware of the National School Health Policy. Most staff reported identifying hazards, but participation in health promotion activities and sanitation monitoring was limited, highlighting gaps between awareness and proactive practice (Adebayo, Makinde, & Omole, 2018; Ademokun, Osungbade, & Obembe, 2014). These findings suggest that formal training and structured engagement are essential for translating awareness into effective school health practices.

Conclusion

The study reveals that public secondary schools in Ado-Ekiti exhibit a mixed status regarding healthful school environments. While foundational elements such as access to water, emergency health services, and generally litter-free compounds are present, critical deficiencies exist in sanitation facilities, classroom infrastructure, waste management, and staff engagement in health promotion activities. Teacher and staff awareness of school health policies is moderate, but formal training and active implementation of healthful practices remain limited. These gaps suggest that students are exposed to environmental and infrastructural risks that may compromise both their health and academic performance. Strengthening school infrastructure, improving access to gender-sensitive sanitation and recreational facilities, and providing systematic training for school staff are essential strategies to promote safer, healthier, and more conducive learning environments.

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