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SCHOOL ENVIRONMENTAL SANITATION PRACTICES AND HEALTH STATUS OF SECONDARY SCHOOL STUDENTS IN AFIJIO LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA

OKUNLOLA, ADEBANKE MOSUNMOLA; AGADA-ADELEYE, ALLWELLIYE (PhD); OYAWOLE, DORCAS O. (PhD); & AJAYI AGNES OLUREMI

Department of Biology, School of Secondary Education (Science Programmes) Federal College of Education Special Oyo Nigeria.

Corresponding Author: iyeagada@gmail.com

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Abstract

Poor environmental sanitation in school settings constitutes a significant public health challenge, particularly in rural and semi-urban communities of sub-Saharan Africa. This study investigated the impact of school environmental sanitation practices on the health status of secondary school students in Afijio Local Government Area (LGA), Oyo State, Nigeria. A descriptive correlational research design was adopted. The target population comprised 1,200 students enrolled in public secondary schools in Afijio LGA, from which a sample of 300 students was drawn using Yamane's (1967) formula at a 5% margin of error. A multi-stage sampling technique combining purposive, proportionate stratified random, and simple random sampling was employed.

Keywords: Environmental Sanitation, Health Status, Secondary School Students, Afijio LGA, Nigeria.

Data were collected using a researcher-developed structured questionnaire the School Environmental Sanitation and Students' Health Status Questionnaire (SESHSQ) and analysed using Pearson Product Moment Correlation, Independent Samples t-test, and Simple Linear Regression at a 0.05 level of significance. Results revealed a strong positive relationship between environmental sanitation practices and students' health status ($r = 0.923$, $r^2 = 0.852$, $p < 0.05$), indicating that approximately 85.2% of the variance in health

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outcomes is explained by sanitation conditions. Students in schools with adequate sanitation recorded significantly better health status ($\bar{X}$ = 14.15) than those in inadequately sanitised schools ($\bar{X}$ = 12.66). Environmental sanitation practices also significantly predicted student health status (R^2 = 0.852, β = 0.519, F = 1715.20, $p < 0.05$). The findings are grounded in Florence Nightingale's Environmental Theory and the Health Belief Model. It is recommended that school authorities establish active School Health Committees, implement structured health education programmes, and prioritise WASH infrastructure investment in Afijio LGA.

Introduction

The school setting is one of the most significant factors influencing the health of the adolescent and academic productivity in and around the school, especially in sub-Saharan Africa where environmental sanitation is a problem. Environmental sanitation is defined broadly by the World Health Organization (WHO) as the control of all physical and biological factors in the environment which could influence human health: it includes waste disposal, water supply, toilet facilities, drainage systems and the overall cleanliness of the school (World Health Organization (WHO), 2019). The poor sanitation in schools has persisted to pose public health concerns in Nigeria, with the WASH National Outcome Routine Mapping (UNICEF Nigeria, 2021) indicating that about 95 million Nigerians have no access to basic sanitation, with an estimated 48 million still defecating openly. These systemic shortcomings disproportionately affect secondary schools in rural and semi-urban local government areas like Afijio Local Government Area (LGA) in Oyo State. Poor school sanitation affects students' physical well-being and can negatively influence their ability to learn, attend school, and enjoy their health and safety (Nwadimkpa & Onyeaso, 2023). Hence, this study which is empirical in nature is timely and necessary as the relationship between school environmental sanitation practices and the students' health outcomes in Afijio LGA is yet to be investigated. Water, sanitation, and hygiene (WASH) gaps in schools have been consistently associated with a variety of preventable communicable and infectious diseases in school-aged children at global level. According to the WHO/UNICEF Joint Monitoring Programme (2023) the use of hand washing with soap and water can lower the rate of school absenteeism by up to 50%, by reducing the incidence of diarrhoea, influenza, and conjunctivitis. UNICEF & WHO (2022) report that in Nigeria, about 70% of schools have no hygiene services and 43% have no adequate sanitation services. A study on school WASH inequalities in Nigeria by Wada et al. (2022) revealed that there is a huge difference between public and private schools, of which none of the public schools studied had any sanitation or hygiene service. Likewise, Otto et al. (2022) carried out a study on WASH practices in secondary school students of

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Ijebu Ode, Nigeria and explained that the existing health gaps were due to insufficient availability of soap, irregular water supply and insufficient hygiene education, which were linked to the high incidence of malaria, typhoid and diarrhoea among secondary school students. Overall, the results indicate that school sanitation is not a structural problem but a public health issue with real impacts on students' health.

In the Southwest geopolitical zone of Nigeria including Oyo state, there is empirical evidence that suggests poor sanitation condition in Public Secondary Schools in the study area. The study by Balogun-Adeleye et al. (2021) was a survey of water and sanitation facilities in secondary schools in Oyo state, Ibadan and revealed that 70% of the toilet facilities were traditional pit latrine, while 73% of schools relied on deep-tube wells with none of the schools achieving the minimum UNICEF student-to-toilet ratio for both boys and girls. This infrastructure deficit puts students at risk of exposure to faecal pathogens, helminth infestations and vector borne diseases. This is in line with the findings of Bosede et al. (2025) in Ikeduru LGA, Imo State in a comparative WASH study which showed that well over 50% of public-school students reported open defecation near school premises as a result of lack of adequate toilet facilities which is the same result that WHO reported in 2022 that 46% of Nigerian schools lack adequate sanitation thereby forcing students into unsafe defecation practices. In the niche of Oyo State, Addie (2025) studied water and sanitation facilities in 2,449 public schools across the State and reported some variation between LGA's with rural and semi-urban LGA's having the worst condition of toilet provision, water access and water sanitation services which are closely linked to high prevalence of water borne and sanitation related diseases among school children. Afijio LGA was among the LGA's that was found to have the worst water and sanitation situation. Moreover, Alex-Hart and Akani (2011) conducted a baseline study on school environments in Bonny LGA, Rivers State and found out that none of the schools attained the minimum acceptable score for school environment healthfulness, as 75% of the schools failed to have functional toilet facility, and all schools had no other option than open dumping as the only means of waste disposal, a situation that is representative of the general situation in Nigerian public schools. Theoretically, the link between the environmental sanitation and students' health status in Secondary schools can be founded on two well established theories. The first, is Florence Nightingale's Environmental Theory (1859), which states that the environment, in particular fresh air, pure water, efficient drainage, cleanliness, adequate light, are the main influences on human well-being and recovery (Gilbert, 2020). Although developed in a clinical nursing setting, Nightingale's theory has been widely used in school health research with the five environmental factors that she identified matching directly with the main five environmental components that are measured in WASH studies. In the 21st century, Nightingale's principles of environmentalism continue to be of great relevance, especially

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in the context of communicable diseases where there is inadequate control of the environment (Kolagari, 2023).

The other theoretical framework used is the Health Belief Model (HBM) created by Rosenstock (1966) and modified by Becker (1974). The HBM emphasizes how individuals perceive health threats, the benefits and barriers of health actions, and their cues to action. The HBM is used in the context of school sanitation to understand how students' perceptions of the health threat from poor sanitation, facility availability and institutional and social reinforcement of hygiene norms influence adoption of hygienic behaviours.In school sanitation, the HBM helps to explain how students' perceptions of the health threat from poor sanitation, the availability of facilities and institutional and social reinforcement of hygiene norms influence their adoption of hygienic behaviours. The two frameworks, one focusing on physical environment and the other on behavioural determinants, offer a holistic view to explore the relationship between the sanitation conditions in schools and the health outcomes of students in Afijio LGA. Though there is a massive volume of evidence that showed the relationship between school sanitation and student health in Nigeria, there is a conspicuous lack of context specific studies that studied the relationship between school sanitation and student health in Afijio LGA in Oyo State. There is a relative lack of research on the rural and semi-urban hinterland of Oyo in particular, which includes Afijio, and Rivers State, Lagos and Imo State in general. Wada et al. (2022) and Egbinola and Amanambu (2015) have broadly pointed out the challenges of persistent infrastructural deficits, poor maintenance culture, lack of hygiene education and inadequate institutional oversight that feature public schools in low-income communities, which clearly need to be investigated locally and empirically to inform the development of targeted interventions. Furthermore, the 2021 Multiple Indicator Cluster Survey (NMIS) revealed children living in unimproved sanitation environments were three to five times more likely to get malaria and diarrhoeal diseases (National Bureau of Statistics & UNICEF Nigeria, 2022). In this background, the present study aims to explore the relationship between school environmental sanitation and the health status of secondary school students in Afijio LGA and propose evidence-based recommendations for school health policy, sanitation infrastructure investment and hygiene promotion programmes in Oyo State and beyond.

Statement of the Problem

Although environmental sanitation is a critical public health problem, it is still not well attended to by the secondary schools in Nigeria, especially in rural and semi-urban areas. Although international and national reports have confirmed a clear link between the school environment and negative health impacts on children and young people, the situation of many public schools in Nigeria is still far from optimum. An estimated 48

million Nigerians defecate in the open, while about 95 million Nigerians lack access to basic sanitation services (UNICEF Nigeria, 2021). Only about 70% of Nigerian schools have hygiene services, while 43% of them have no adequate sanitation services (UNICEF & WHO, 2022) making students vulnerable to preventable infectious diseases like malaria, typhoid, diarrhoea, and helminthic infections. In the study area of Oyo State alone, Balogun-Adeleye et al. (2021) reported that most of secondary schools in Ibadan have no access to modern latrine facilities as they all use traditional pit latrine and deep-tube wells, with none of the schools having the required ratio of minimum students per toilet as set by the UNICEF. A spatial analysis of the 2,449 Public Schools in Oyo State (Addie, 2025) also indicated that rural and semi-urban local government areas (LGAs) have the highest deficit in terms of toilet facilities, water sources and hygiene services; Afijio LGA is a rural/ semi urban LGA. These conditions present students directly with preventable infectious diseases, and this has been consistently observed in public schools across Nigeria – where open dumping, the absence of disinfectants, regular cleaning of toilets and the availability of water are not the norm. These conditions not only have clinical health consequences, but also have adverse effects on students' academic attendance, concentration and general health. The problem is reportedly three to five times higher for children in environment with unimproved sanitation to get malaria and diarrhoeal diseases, hence the need for empirical research on this problem (NBS & UNICEF Nigeria, 2022). Despite the abundance of evidence, there is a huge gap in Afijio LGA specific research. The existing studies are focused in Rivers State, Lagos State, Imo State and urban Ibadan, while Oyo State's hinterland in the rural and semi-urban areas are yet sufficiently studied. The lack of localised evidence prevents evidence-based local action such as interventions for school and public health practitioners, as well as for policy makers. In this background, the present study aims to examine the effect of the sanitation practices in schools on health status of secondary school students in Afijio LGA, Oyo State, with a goal of filling this empirical void and feeding into the relevant health and sanitation policies.

Objectives of the Study

1. To assess the level of environmental sanitation practices in public secondary schools in Afijio Local Government Area, Oyo State.
2. To determine the health status of secondary school students in public secondary schools in Afijio Local Government Area, Oyo State.
3. To examine the relationship between school environmental sanitation practices and the health status of secondary school students in Afijio Local Government Area, Oyo State.

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Hypotheses

Ho_1: There is no significant relationship between the level of environmental sanitation practices and the health status of secondary school students in Afijio Local Government Area, Oyo State.

Ho_2: There is no significant difference in the health status of secondary school students in schools with adequate environmental sanitation practices and those with inadequate environmental sanitation practices in Afijio Local Government Area, Oyo State.

Ho_3: Environmental sanitation practices do not significantly predict the health status of secondary school students in Afijio Local Government Area, Oyo State.

Methodology

The descriptive correlational research design was used in this study to assess the level of environmental sanitation practices in public secondary schools, determine students' health status and examine the relationship between the two variables. The study was undertaken in the Afijio Local Government Area (LGA), Oyo State, Southwest in Nigeria, an area of high water, sanitation and hygiene (WASH) infrastructure challenges, which is largely rural and semi-urban. The public secondary schools were targeted only and for this reason because they are disproportionately affected by the sanitation challenges as reported in the literature and they cater to the majority of the adolescent population in the LGA. The target population was all the student population in public secondary schools in Afijio Local Government Area, Oyo State, with a total population (N) of 1,200 students, based on enrolment records obtained from the Afijio LGA Post-Primary Schools Board. A multi-stage sampling method was used. For the first phase, purposive sampling was employed to identify the schools to be included in the study according to their accessibility and willingness to participate in the study. To ensure adequate representation, a second stage has been adopted where proportionate stratified random sampling was done across class levels (JSS 1-3 and SSS 1-3). In the third stage simple random sampling (balloting) was used to select a few individuals from each stratum. The sample size (n) was calculated using Yamane's (1967) formula: $n = N / [1 + N(e)^2]$, where n = desired sample size, N = total population, and e = margin of error (5% at 95% confidence level). Applying the formula, $n = 1,200 / [1 + 1,200(0.05)^2] = 1,200 / [1 + 3] = 1,200 / 4 = 300$. A sample of 300 students was therefore drawn from the target population of 1,200 for this study. A researcher made structured questionnaire was used to collect data on the three sections School Environmental Sanitation and Students' Health Status Questionnaire (SESHSQ). The demographic data collected in Section A was gender, age and class level. Section B evaluated the environmental sanitation with five elements: Waste Disposal, Water Supply, Toilet Facilities, Drainage System and School Cleanliness. Section C determined levels of self-reported health, such as experience of malaria,

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typhoid, diarrhoea, skin infections and school absenteeism for sanitation. The rating of the two Sections B and C was on a four-point Likert Scale (1: strongly disagree, 2: disagree, 3: agree, and 4: strongly agree). Face and content validity were done with the instrument by three experts, two from Health Education and one from Environmental Health Science from a recognised Nigerian university. They gave feedback about the revisions to make items clearer, more relevant, and comprehensive. The pilot test was carried out in a public secondary school in a neighbouring LGA having similar socio-cultural and environmental setting with 20 students to ensure reliability. The pilot data were analysed using Cronbach's alpha reliability coefficient of which the minimum acceptable level was set at 0.70, similar to the accepted level in social science research. Prior to data collection, ethical approval and administrative permission were sought from the Oyo State Ministry of Education and the management of the involved schools. The questionnaire was administered in the classrooms of the subjects with the help of trained research assistants. Participants were informed of the voluntary nature of their involvement, and confidentiality of responses was assured. To maximise retrieval rate questionnaires were given and collected the same day. All recovered questionnaires were checked for completeness before they were used for analysis. The Statistical Package for the Social Sciences (SPSS), version 25.0 was used to analyse data. The following inferential statistics were used to test three hypotheses: Pearson Product Moment Correlation (PPMC) was used to test the significance of the relationship between environmental sanitation practices and students' health status (Ho_1); Independent Samples t-test was used to determine the differences between the students' health status in schools with adequate environmental sanitation practices and inadequate environmental sanitation practices (Ho_2); and Simple Linear Regression was used to determine the predictive capacity of environmental sanitation practices on students' health status (Ho_3).

Data Analysis

Ho_1: Relationship between Environmental Sanitation Practices and Health Status

Table 1: Pearson Product Moment Correlation analysis result level of environmental sanitation practices and health status.

Variable	N	Σ Scores	Mean	r	r^2	t-cal	t-crit	df	Decision
Env. Sanitation (X)	300	3984	2.66	0.923	0.852	41.415	1.968	298	Ho_1 Rejected
Health Status (Y)	300	4029	2.69						

Since t-calculated (41.415) > t-critical (1.968) at α = 0.05 with df = 298, Ho_1 is rejected. Students' health status showed a high positive correlation with environmental sanitation

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practices (r = 0.923 and r^2 = 0.852) as revealed by Pearson Product Moment Correlation analysis. The t-calculated value of 41.415 was greater than the t-critical value of 1.968 for 0.05 level of significance and 298 degrees of freedom (df = N - 2 = 300 - 2 = 298). The coefficient of determination or r^2 (0.852) shows that the environmental sanitation practices will explain about 85.2% of the variation in students' health status. Therefore, it can be concluded that environmental sanitation practices and students' health status in public secondary schools in Afijio LGA, Oyo State has a significant positive relationship.

Ho_2: Difference in Health Status Between Adequate and Inadequate Sanitation Groups

Table 2: Independent samples t-test students in schools with adequate and inadequate environmental sanitation practices.

Group	N	Mean	SD	t-cal	t-crit	df	p-value	Decision
Adequate sanitation (A)	155	14.15	2.84	4.316	1.968	298	< 0.05	Ho_2 Rejected
Inadequate sanitation (B)	145	12.66	3.12					

Since t-calculated (4.316) > t-critical (1.968) at α = 0.05 with df = 298, Ho_2 is rejected. An independent samples t-test was used to compare the health status scores of students in the schools with adequate sanitation (Group A, N = 155) and the schools with inadequate sanitation (Group B, N = 145). The result revealed a significant difference between the two groups (t-cal = 4.316; t-crit = 1.968; df = 298; p < 0.05). There was no difference in mean scores for health on the two schools, with those in the adequately sanitised schools having higher scores ($\bar{X}$ = 14.15, SD = 2.84) than the scores in the inadequately sanitised schools ($\bar{X}$ = 12.66, SD = 3.12). Ho_2 was rejected as t calculated is greater than t critical at 0.05 level of significance. Therefore, it is concluded that there is a significant difference in the health status of students in the school with adequate sanitation and the students of the school with inadequate sanitation in Afijio LGA, Oyo State.

Ho_3: Predictive Capacity of Sanitation Practices on Health Status

Table 3a: Model summary.

Predictor variable	R	R^2	Adjusted R^2	Std. error	β (slope b)	Constant (a)
Environmental sanitation practices	0.923	0.852	0.851	11.25	0.519	1.263

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Table 3b: Summary decision table for Ho_3.

Ho	Variables	N	R	R^2	B	F-cal	F-crit (α=0.05)	df	Decision
Ho_3	Env. Sanitation → Health Status	300	0.923	0.852	0.519	1715.20	3.873	1, 298	Rejected

Since F-calculated (1715.20) > F-critical (3.873) at α = 0.05 with df = 1 and 298, Ho_3 is rejected. The health status of Secondary school students in Afijio LGA Oyo State is significantly influenced by the sanitation practices in the environment. An R2 value of 0.852 indicates that the environmental sanitation practices explain 85.2% of the variance in health status of the students. The regression equation is $\hat{Y} = 1.263 + 0.519X$, indicating that in the context of this study, and for the given trend, for every 1 unit increase in the score of sanitation provision, the score of health status improves by 0.519 units.

Discussion of Findings

Hypothesis 1 that stated no significant relationship between the level of environmental sanitation practices and the level of health status of secondary school students in Afijio Local Government Area was rejected. The Pearson Product Moment Correlation analysis yielded a strong positive relationship ($r = 0.923$, $r^2 = 0.852$, t-cal = 41.415 > t-crit = 1.968, df = 298, $\alpha = 0.05$). The coefficient of determination ($r^2 = 0.852$) shows that environmental sanitation practices explain about 85.2 per cent of the variation in students' health status, which is a high explanatory power of the effects of sanitation conditions on students' health.

This is in line with the empirical studies of Otto et al. (2022) which surveyed water, sanitation and hygiene practices at secondary schools in Ijebu Ode, Nigeria and reported that scarcity of soap, water and lack of hygiene education were significantly linked to high rates of malaria, typhoid and diarrhoea among secondary students. Likewise, Wada et al. (2022) showed that student health outcomes in public secondary schools in Nigeria, when not operating sanitation and hygiene facilities, were always inferior to those of private secondary schools. The correlation found in the present study thus corroborates a well-established trend: poor sanitation correlates to poor student health status. The discovery also corroborates with the findings of the 2021 Nigeria Multiple Indicator Cluster Survey (NMIS) which showed that children living in areas with unimproved sanitation are three to five times more likely to get malaria and diarrhoeal diseases (National Bureau of Statistics & UNICEF Nigeria, 2022). Addie (2025), using a spatial analysis, confirmed that the local government areas in Oyo State with the highest level of waterborne and sanitation-related disease transmission rates among school children are rural and semi-urban LGA's, which also show the highest deficits in WASH facilities. Similarly, Balogun-

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Adeleye et al. (2021) discovered that all the secondary schools examined in Oyo State failed to achieve the minimum standards set by UNICEF with regard to toilet facilities, and the major method of refuse disposal was open dumping, thereby increasing the pathogenic environment to which pupils are exposed. The result of this study, which showed a strong positive correlation ($r = 0.923$), is thus credible and contextually valid.

According to the theory, the correlation between sanitation and health established in this study is well placed in Florence Nightingale's theory of the environment in 1859, which recognizes the presence of clean water, efficient drainage, cleanliness, and sanitation as major factors that influence human health. The data from the present study clearly supports Nightingale's premise that the physical environment that is lacking in these elements provides circumstances in which disease can flourish. As Gilbert (2020) stated, the principles of the environment are still relevant in the context of school health research, especially in sub-Saharan Africa in which the situation of WASH deficits is widespread. Kolagari (2023) also confirmed that Nightingale's theory has returned to the relevance in the 21st century particularly in the environment where communicable diseases are prevalent as a result of poor environmental controls such as the public secondary schools in Afijio LGA. The second hypothesis which stated that there is no significant difference between the health status of the students in schools that provide adequate sanitation practices and those which do not provide adequate sanitation was also rejected. The independent samples t-test ($t\text{-cal} = 4.316$, $t\text{-crit} = 1.968$, $df = 298$, $p < 0.05$) showed that there was a significant difference in health status between the two groups. The mean health score for students in the well-sanitised school ($\bar{X} = 14.15$, $SD = 2.84$) was higher than the mean health score for those in the poorly sanitised school ($\bar{X} = 12.66$, $SD = 3.12$) with a significant difference, suggesting that adequate sanitation infrastructure brings about a significant health benefit to students in the schools. This has been confirmed by Balogun-Adeleye et al. (2021) who surveyed WASH facilities in secondary schools in Oyo State and found that the schools that did not meet the minimum per pupil to toilet ratio as recommended by UNICEF had much higher rates of transmission of faecal-oral diseases as pupils were exposed to pit latrines and unprotected wells. It is also consistent with the findings of Bosede et al., (2025) in a comparative WASH study conducted in Ikeduru LGA, Imo State which revealed that more than 50% of public-school students defecated openly around schools because of inadequate toilet facilities that impacted their health outcomes. This result is corroborated by the result of Alex-Hart and Akani (2011) in Rivers State which showed that 75% of schools in the study area had no usable toilet facilities, and all schools adopted open dumping as the only means for disposal of refuse which is associated with very poor health status of the students.

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The WHO/UNICEF Joint Monitoring Programme (2023) provides additional international context to this finding, suggesting that handwashing with soap alone can lower the absenteeism rate by up to 50% in schools, through reducing the incidence of diarrhoea, influenza and conjunctivitis, which are more prevalent in poorly sanitised schools. The finding on the health inequality reported in the present study between students in well sanitised schools and poorly sanitised schools is not surprising and in line with the national evidence as only 70% of the schools in Nigeria have good hygiene facilities, while 43% have poor sanitation facilities (UNICEF & WHO 2022). The Health Belief Model (HBM) (Rosenstock, 1966; Becker, 1974) offers a good theoretical framework to explain the poor health status of students in poorly sanitised schools. According to the HBM, beliefs about health threats (perceived susceptibility to disease, perceived severity of health threats), beliefs about the benefits of protective health actions (perceived benefits), beliefs about barriers to protective health actions (perceived barriers), and environmental cues to action are key determinants of health behaviour. Even if students know there is a risk of disease, the structural barriers preventing them from practicing hygiene are too much in the way, particularly where toilets are not functional, handwashing stations are not present and water supply is inconsistent in schools. Jadgal et al (2024) established that the HBM is valid to account for the differences in the hygiene-related health behaviours among school students, especially when the facilities are scarce. The considerable differences in the health scores obtained by the students in the poorly sanitised schools in Afijio LGA from the scores obtained by the students in the well sanitised schools therefore indicate that the schools were not only poorly built-in terms of the infrastructure, but also, that the health-protective behaviours predicted by the HBM were poorly maintained in the poorly sanitised schools. The third null hypothesis, which posited that the level of environmental sanitation practices has no significant influence on the health status of secondary school students in Afijio LGA was also rejected. The simple linear regression analysis yielded strong predictive indices ($R = 0.923$, $R^2 = 0.852$, Adjusted $R^2 = 0.851$, $\beta = 0.519$, F-cal = 1715.20 > F-crit = 3.873, df = 1 and 298, $\alpha = 0.05$). The value of R2 = 0.852 shows that Environment Sanitation practices account for a very high proportion of the variance in the health status of student's which places sanitation as the overwhelming factor on student health in the study area. The regression equation $\hat{Y} = 1.263 + 0.519X$ also indicates that a linear relationship exists between the two variables, which are directly related and predictable: for every 1-unit increase in sanitation practice score, a 0.519-unit increase in health status is expected. The study by Egbinola and Amanambu (2015) of secondary schools in Ibadan revealed a clear and predictable trend of deterioration in sanitation services leading to a gradual decline in the health status of the learners, such as incidence of disease and absenteeism. The NMIS data, however, suggested a three-fold to five-fold higher risk of the disease in unimproved sanitation

facilities (National Bureau of Statistics & UNICEF Nigeria, 2022) which implies a predictable Dose Response relationship between sanitation and health outcome and broadly agrees with the regression coefficient observed in this study as $\beta = 0.519$. The above findings were corroborated by Egbinola and Amanambu (2015) in Ibadan secondary schools who showed that in the context of the secondary schools in Ibadan, Nigeria, hygiene education and water sanitation were key factors that predicted the outcomes of the health of the children and their attendance in school.

The high R^2 value obtained in this study (0.852) which represents more than 85% of the variance in student health status may be attributed to the predominantly rural and semi-urban nature of Afijio LGA, where alternative health resources are also limited and hence the school environment is one of the most immediate and significant factors influencing student health status. In more developed health systems, the exclusive predictive role of sanitation would be affected by other factors like access to health care services, vaccination rates and nutrition status. However, the discovery does not contradict over-all evidence. The condition of environmental hygiene was also the strongest determinant of disease occurrence among boarding students of Anambra State (Nwadimkpa and Onyeaso, 2023) where the exposure of the students was intensive and near exclusive to the school environment. Both theoretical anchors of the study provide strong theoretical support for the predictive relationship that is obtained in this study. In Nightingale's Environmental Theory (1859) she explicitly puts forth the idea that the physical environment is the first determinant of health; all other determinants are dependent upon it. The five environmental factors that she described are exactly the five dimensions that were measured in this study by SESHSQ (Section B) (waste disposal, water supply, toilet facilities, drainage systems and school cleanliness). Given the high R^2 of the regression model, this confirms the empirical validity of Nightingale's assertion of a century ago, which still holds true in the context of a 21st-century school in Nigeria, as Gilbert (2020) had argued that Nightingale's principles are still directly applicable to the 21st-century research context of public health. The HBM (Rosenstock, 1966; Becker, 1974) complements this structural explanation by incorporating the behavioural element; thus, more protection cues are available, fewer barriers to hygiene behaviours are perceived, and the chances of health-protective behaviour increase, which in turn leads to improved health outcomes, as predicted by the regression model. The two frameworks together give insight into both the environmental predictability of health and how behavior on the individual level will amplify or attenuate the predictability of health.

Conclusion

The effect of school environmental sanitation practice on health status of secondary school students in Afijio local government area, Oyo State, Nigeria was the study

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objective. The study was a descriptive correlational design with 300 students sampled from public secondary schools in the LGA, with the use of Pearson Product Moment Correlation, Independent Samples t-test and Simple Linear Regression to test three hypotheses. The results obtained from the three statistical analyses were all consistent and clear: Environmental sanitation practices exhibit a strong, significant and predictive relationship with the health status of secondary school students in the study area. In particular, the research found that there was a strong positive correlation between environmental sanitation and students' health status ($r = 0.923$, $r^2 = 0.852$), which means that about 85.2% of the variance in students' health outcomes can be explained by sanitation practices. The quality of the school sanitation context makes a difference in the health status of students: Students in schools with good sanitation had a significantly better health status ($\bar{X} = 14.15$) than students in schools with inadequate sanitation ($\bar{X} = 12.66$). In addition, regression analysis showed that sanitation practices were dominant and statistically significant factors affecting student health status ($R^2 = 0.852$, $\beta = 0.519$, F-cal = 1715.20, $p < 0.05$), meaning that for every one-unit increase in sanitation practices score, the student health status score increased by 0.519.

These findings are well grounded in theory and supported by empirical data. The results of this study support Florence Nightingale's Environmental Theory (1859) which noted that the physical environment, such as clean water, efficient drainage, proper sanitation and cleanliness, are the major factors that affect human health. The five sanitation dimensions evaluated in the instrument are exactly the five environmental factors proposed by Nightingale and the coefficient of determination achieved is high, which gives good empirical support to the Nightingale's five environmental factors. Likewise, the Health Belief Model (HBM) (Rosenstock, 1966; Becker, 1974) accounts for the behavioural component of the health disparities observed: when sanitation systems are not functioning, the lack of access to these services is too much for students to cope with even if they are aware of the health risks associated with not having one, as indicated by the significant health outcomes consistently documented in poorly sanitised school environments. The study has made a meaningful contribution in the context of the existing WASH literature, which has focused mainly on Rivers State, Lagos, Imo State and urban Ibadan; leaving largely under-represented the rural/semi-urban community of Afijio LGA. The results show that the school sanitation problem reported nationally exists in Afijio LGA with its attendant health risks to the children's education. Therefore, it is concluded that promoting environmental sanitation in public secondary schools in Afijio LGA is not an administrative affair but rather a public health agenda that directly impacts the health of pupils, their academic performance and sustainable development goals in sanitation, health and education.

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Recommendations

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

1. To establish active School Health Committees (SHC) that involves teacher, parents and student representatives in managing school ecology, to promptly report on the infrastructure's issues and to mobilize the community to help in maintaining the infrastructure. While the Health Belief Model shows the significance of institutional cues to action in maintaining health-protective behaviours among students.
2. The health educators operating in or through public secondary schools in Afijio LGA should design and execute School Health Education programmes, using the Health Belief Model, which focus on students' perceived susceptibility to sanitation-related diseases (malaria, typhoid, diarrhoea, skin infections), the severity of these diseases, and simple measures that students can take to help prevent these and stay healthy in schools with limited resources.
3. Afijio LGA should be a priority target for the non-governmental organisations and development agencies supporting WASH intervention programmes in Oyo State. This study offers solid evidence to support the concept of directed investment: the LGA has sanitation deficiencies that are typical of high-risk communities as identified by the national WASH mapping exercise, but is not within the geographical reach of most current national WASH projects in Southwest Nigeria.

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