

An Examination of School Environmental Health Awareness, Attitudes, and Practices of Nigerian Secondary School Students

Ayodeji P. IFEGBESAN*

Razaq O. AZEEZ*

Opeyemi O. SHOAGA*

Abstract

Schools are fundamental to the promotion of sound behaviour practices. However, Nigerian secondary offer limited environmental health awareness for attitude practices in student learning. This study described Nigerian secondary school students' school environmental health awareness, attitude and practices. A 34-item instrument was administered to 1000 students out of which 867 were returned, representing 86.7 % response rate. Data were analysed using simple percent, mean, t-test, and analysis of variance. The results indicated that students possessed rather moderate/average levels of school environmental health, and equally positive attitudes and practice of school environmental health. Results of T-test revealed that there was significant difference between male and female students in awareness and practice of school environmental health while, no significant difference was observed in their attitudes. Similarly, no significance difference was observed in awareness, attitudes and practice according to age, school ownership, class and school location. ANOVA results showed significant differences in awareness and attitudes of students of mixed schools and boys only schools. The results suggested the need for multi-sectorial actions to gear up effort towards preparing teachers for educating students and other stakeholders in the school system for environmental sustainability.

Keywords: School environmental health, awareness, attitude, practice.

* Dr., Faculty of Education, Department of Arts and Social Sciences, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria.
E-mail: ifegbesan.ayodeji@oouagoiwoye.edu.ng

* Faculty of Education, Department of Educational Foundations and Counselling, Olabisi Onabanjo University, Ago-Iwoye, Nigeria.

* Faculty of Education, Department of Educational Foundations and Counselling, Olabisi Onabanjo University, Ago-Iwoye, Nigeria.

Introduction

Globally, consequences endangering humanity from human-environment actions require scholarly research on previous attitudes and behaviour inertia that impede a healthy environment (Msengi & Doe, 2017; Obembe et al., 2016; Odeyemi & Chukwe, 2015). The World Health Organisation (WHO) 2018 report states that 26 percent of deaths in children below age five are directly the result of poor environmental factors such as hygiene, sanitation, and air and water pollution. These interwoven factors in the physical layout of school locations, school activities, types of buildings constructed, maintenance culture, environmental pollutants, and students' teachers' attitudes and behavior (Filardo & Vincent, 2017; UNICEF, 2018).

Numerous conventions and declarations guide human behaviour toward sustaining environments for better living conditions. Additionally, human self-behavior, community treatment, and development for engendering conditions on general healthy living for people highlight an institution's concern for local, international, governmental, and state awareness programs for a healthy environment.

The aphorism "catch them young" promotes schools' facilitation of health education and inculcation of the student's ages (12-18 years) and programs offering knowledge, skills, and attitude on environmental matters. To this end, in 1995, the Global School Health Initiative (GSHI) launched a healthy student provisional program to support a healthy school environment (WHO, 2009). The last two decades have witnessed a paradigm shift in school environmental health, approaching more comprehensive service-learning options (Deschesnes et al., 2003).

Similarly, Nigeria's National School Health Policy (NSHP, 2006) aimed at improving the health and well-being of pupils through an increased ability of the student to process for independence in healthier choices. Comparatively, (Kenya's NSHP (2018) aimed at enhancing the quality of health in school communities by creating a healthy and child-friendly environment for teaching and learning, thus,

engendering the application of Healthy-Food Plans which focus on students' capabilities for food selection, activity, etc. According to the 2006 NSHP Policy paper, a healthy school climate guaranteed skill-based education for health and nutrition services for all school-home and community policy initiatives (source needed).

Additionally, the NSHP Policy (2006) stipulates that a secure school environment for staff and students improves performance metrics for individual-level intelligence. Programs developed for new academic levels for individuals assist with new resources for equipment instrumental to the environment's physical, social, and emotional stability.

Various research conducted in developing countries, for instance, in Nigeria (Amaran et al., 2017; Odeyemi & Chukwe, 2015), Myanmar (Htun et al., 2013), Iran (Abolli, et al., (2018) reported poor environmental health situation in schools and suggested that inspection teams be empaneled to monitor schools and communities for healthier school environments. In the Nakhon Si Thammarat province, Southern Thailand, Decharat and Pan-in (2019) assessed the safety status, environmental health, and the teachers' perception in primary schools. The results revealed that the teachers' perception of safety status and environmental health in primary schools was moderate to high. The teachers' training experience and years of working experience were related to the perception of environmental health and safety status.

Nevertheless, in the United States of America, Naquin et al. (2014) investigated grade four children's environmental health knowledge, attitudes, and practices using a mixed methodology. Research variations in the participants' knowledge, attitudes, and practices indicate that gender and students' grade level significantly differ in environmental health knowledge, attitudes, and practices.

However, research into school health is rare in Nigeria. Among the available few studies, Adeniran and Ezeiru (2016) conducted a study on implementing a school health program (SHP) in Lagos State, finding that private schools had a good understanding and implementation of the program

SHP. Similarly, Obembe et al. (2016) examined teachers' knowledge of the SHP in the metropolis of Ibadan. They noticed that the NSHP's awareness was low as only a third of respondents had heard about the NSHP while a few had seen the document. However, teachers' age and education level are related to their knowledge of SHP.

In Nigeria, students and teachers spend approximately six hours in school daily. Within this period, the teachers and students engaged in lots of activities that have health implications – these include playgrounds, physical contact during break periods, consumption of the mid-day meal, and using the toilet for urination and excretion. Therefore, unhealthy school environments can affect students' health, school attendance, participation in extra activities, concentration in classrooms, and academic performance. It is the responsibility of stakeholders to recognize and address the elements that influence the outcome. It is the responsibility of stakeholders to recognize and address the factors that influence the school's environmental health to take appropriate steps toward eradicating the potential adverse health effects. Based on the previous narration, examinations for school environmental health awareness, attitudes, and practices among secondary schools in Ogun State, Nigeria, identified two research questions:

1. What are the levels of school environmental health awareness, attitude, and practice among secondary school students in Ogun State?
2. Will school environmental health awareness, attitude, and practice among secondary school students in Ogun State differ based on demographic characteristics?

Theoretical Framework

Scholars have postulated various theories that explain the promotion of behavior and health practice. The widely accepted theoretical models for behavior include 1) Health Belief Model (HBM), 2) Social Cognitive Theory (SCT), and 3) the Social-

Ecological Model. Other theories include the Theory of Reasoned Action and Theory of Planned Behavior (TRA/TPB), diffusion of innovations, and several behavioral change theories (Ajzen, 1985; 1991; Dearing & Cox, 2018; Fishbein & Ajzen, 2010; Jones, et al., 2015). These theories served as a guide for identifying, developing, and implementing interventions. Rosenstock's (1974) Health Belief Model uses a theoretical basis for studying interplay-environmental health behavior and its practice among students. This model asserts that individuals' environmental health behaviors are influenced by awareness of risk, the nature of the threat, the imperativeness of behavior change, obstacles to behavior change, and self-efficacy.

Method

One thousand questionnaires were distributed using face-to-face method to participants with the assistance of some teachers who served as field research assistants. However, only 867 that were returned were used for analysis. A stratified randomized sample was employed for ten secondary schools to select from the Senatorial Districts totaling thirty schools from three districts.

A pilot study was conducted to determine the instrument's internal accuracy and reliability. The questionnaire collected data consisted of demographic questions and items designed to assess awareness, attitude, and practices. The awareness section comprised nine true and false items; the attitude comprised thirteen statement questions. The practice section consisted of ten statements on a 3-point scale of Yes, No, and Not sure questions. The internal validity of the overall scale and subscales was determined using Cronbach's alpha with an alpha rating of 0.70 or above for Cronbach's suitability. For the environmental health attitude sub-scale (13-items; alpha = 0.705) and the environmental health practice sub-scale (10 items; alpha = 0.786), the Cronbach alpha of the 32 items = 0.814 indicated that the scale was accurate.

Additionally, provide a reference for research in Nigeria). The questionnaires were administered to

students who consented to participate in the study in their classroom after explaining the purpose of the study with the assistance of a senior teacher in each school. This was after permission had been sought and approval granted by the principals of the selected schools. The questionnaire took less than 10 minutes to be completed by each student.

The collected data were analyzed using descriptive analysis of sample percentage. Inferential statistics of t-test analyzed variance in school environmental health awareness, attitude, and practices according to their demographic characteristics.

There were 44.4% male and 55.6 % female respondents, with the mean age of the respondents at 15yrs. Many of the respondents, 741 (85.5%), were from public schools, while 126 (14.5%) were from private schools. Forty-six percent of respondents were from mixed schools, 39.7% were boys only, while 14.4 were from girls-only schools. Furthermore, 57.7% of the respondents were senior secondary students (Grade 10 -12), 42.3% were junior secondary school students. (Grade 7-9). Majority 92.25 of the students claimed their school are in urban, 7.8% from rural area.

Results

Demographic Characteristics of the Respondents

Awareness, Attitude, and Practices of Environmental Health

Table 1 Awareness of environmental health in the schools

| To what extent do you worry about your surrounding? | Frequency | Percent |
|---|-----------|---------|
| Not sure | 5 | .6 |
| Not worried | 375 | 43.3 |
| Worried | 307 | 35.4 |
| Very worried | 180 | 20.8 |
| Total | 867 | 100.0 |
| How interested would you say you are in wastes around you? | | |
| Not sure | 36 | 4.2 |
| Not at all interested | 271 | 31.3 |
| Somewhat interested | 222 | 25.6 |
| Very interested | 338 | 39.0 |
| Total | 867 | 100.0 |
| How satisfied are you with the way the wastes are handled by your School? | | |
| very dissatisfied | 11 | 1.3 |
| fairly dissatisfied | 354 | 40.8 |
| fairly satisfied | 281 | 32.4 |
| Very satisfied | 221 | 25.5 |
| Total | 867 | 100.0 |
| Do you feel any personal danger by the way wastes are treated in your school? | | |
| Don't know | 93 | 10.7 |
| No | 411 | 47.4 |
| Yes | 363 | 41.9 |
| Total | 867 | 100.0 |

From Table 1, more than half (56.2%) were worried about their surroundings. In comparison (43.3%) said they were not worried—In the analysis of the response to the question of how interested they were in the wastes around them, 39% were very interested, 26% were somewhat interested, 31% were not at all interested while 4% were not sure. Concerning their level of satisfaction with the handling of waste in their school, deduced from their responses that most of the students were dissatisfied with waste management practices in their school. Only 26% of the students claimed to be very satisfied, 32% somewhat satisfied, and 41% dissatisfied.

Table 2 Frequency and percentage of methods of waste management in schools

| | Frequency | Percent |
|---------------------------------|-----------|---------|
| Burying waste in landfill sites | 148 | 22.4 |
| incinerating waste | 336 | 6.8 |
| composting | 53 | 6.8 |
| Recycling | 300 | 0.3 |
| Opening burning of waste | 30 | 63.3 |
| Total | 867 | 100.0 |

As revealed in Table 3, approximately 42% of the students affirmed that their school has rules/regulation for dealing with student bad environmental behaviour, while 34.5% said 'No'. One-third (32.6%) said they have written policies on school environmental health. Forty-eight per cent

When students were asked if they felt any personal danger in how waste or managed disposal at their schools 42% answered 'Yes,' while 47% said 'No' and 11% claimed they 'don't know. These responses imply that students do not see any health risk to their personal life with waste management in the school environment.

In Table 2, responses were received to the question about what happened to waste generated in your school 63.3% of the students selected open burning of waste, 22.4% responded to landfill sites, while all others listed had less than 10% responses for this question.

answered affirmatively that their schools have committee in charge of school environment. This study indicated that students surveyed were not aware of environmental health policy and regulations in the schools.

Table 3

Awareness of school environmental health policy and regulations

| | Yes | No | Don't know |
|---|---------------|---------------|---------------|
| Does your school have rules/regulations for dealing with students' bad environmental behaviour? | 363 (41.9) | 299 (34.5) | 205 (23.6) |
| Are you aware of the National School health Policy | 192 (22.1) | 419 (48.3) | 256 (29.5) |
| Does your school have written policy on school environmental health? | 283 (32.6) | 389 (44.9) | 195 (22.5) |
| Does your school have committee in charge of the school environment? | 416 (48.0) | 309 (35.6) | 142 (16.4) |

In Table 4, almost all the thirteen items exhibited a high percentage of agreement to the statements,

thus indicating that students possessed positive environmental health attitude.

Table 4

Students' attitudes towards School environmental health

| | Strongly agree | Agree | Disagree | Strongly disagree |
|--|----------------|----------------|---------------|-------------------|
| 1 Solid waste disposal is the major environmental problem in my school | 393 (45.3) | 260 (30.0) | 180 (20.8) | 34 (3.9) |
| 2 A healthy student needs a healthy school environment | 403 (46.5) | 251 (29.0) | 167 (19.3) | 46 (5.3) |
| 3 Indiscriminate littering of school compound can cause illness | 403 (46.5) | 251 (29.0) | 167 (19.3) | 46 (5.3) |
| 4 I'm always angry whenever I see litters on the classroom floor | 388 (44.8) | 278 (32.10) | 164 (18.9) | 37 (4.3) |
| 5 I am willing to promote better environmental practices in the school | 275 (31.70) | 386 (44.5) | 164 (18.9) | 42 (4.8) |
| 6 Students should be punished for poor environmental behavior | 240 (27.7) | 399 (46.0) | 173 (20.0) | 55 (6.3) |
| 7 Healthy school environment has benefit | 271 (31.3) | 355 (40.9) | 179 (20.6) | 62 (7.2) |
| 8 Every student must be made to participate in cleaning of classroom/school compound | 235 (27.1) | 327 (37.7) | 222 (25.6) | 83 (9.6) |
| 9 Every school should have school environmental health policy | 336 (38.8) | 357 (41.2) | 126 (14.5) | 48 (5.5) |
| 10 Open burning of waste is not the best way to dispose of waste on school compound | 370 (42.7) | 287 (33.1) | 127 (14.6) | 83 (9.6) |

| | | | | | |
|----|--|---------------|---------------|---------------|-------------|
| 11 | Teaching students about environmental education is a good way to solve waste problems in our schools | 343 (39.6) | 332 (38.3) | 118 (13.6) | 74 (8.5) |
| 12 | Increasing students' awareness about wastes problems is very important | 261 (30.1) | 521 (60.1) | 66 (7.6) | 19 (2.2) |
| 13 | Government is not doing enough to help schools with school environmental problems. | 424 (48.9) | 286 (33.0) | 101 (11.6) | 56 (6.5) |

An item-by-item analysis revealed that 75.3% of students agreed that solid waste disposal is the major environmental problem in my school. While 75.5% of the students agreed that a healthy student needs a healthy school environment, 75.5% of the respondents believed that indiscriminate littering of school compounds could cause illness. Also, more than two-thirds of the respondents, 76.2%, agreed to promote better environmental practices in the

Table 5 Students' School Environmental Health Practices

| | | Yes | No | Not sure |
|----|---|---------------|---------------|---------------|
| 1 | Would you be willing to change your ways to reduce the amount of waste generated in school? | 588 (67.8) | 174 (20.1) | 105 (12.1) |
| 2 | I picked up litters in my classroom/school compound without been told | 499 (57.6) | 222 (25.6) | 146 (16.8) |
| 3 | Would you support the development of Environmental policy for your school? | 708 (81.7) | 81 (9.3) | 78 (9.0) |
| 4 | Attend seminar/workshop on school environmental health programme | 208 (24.0) | 547 (63.1) | 112 (12.9) |
| 5 | Plant flowers to beautify the front of our classroom | 259 (29.9) | 397 (45.8) | 211 (24.3) |
| 6 | Avoid doing public urination | 344 (39.7) | 327 (37.7) | 196 (22.6) |
| 7 | Reported a student who dirty the classroom/school compound. | 332 (38.3) | 336 (38.8) | 199 (23.0) |
| 8 | I always participate in cleaning of my classroom every day. | 561 (64.7) | 222 (25.6) | 84 (9.7) |
| 9 | I always discourage colleagues from littering the classroom. | 341 (39.3) | 348 (40.1) | 178 (20.5) |
| 10 | I participate in clearing grown field and refuse site around my school | 754 (87.0) | 44 (5.1) | 69 (8.0) |

Almost 82% of the students would support environmental policy development for their school.

schools and advocated for promoting harsher peer punishment for poor environmental behavior.

Almost all students, 67%, indicated that they would be willing to change their ways to reduce the amount of waste generated. A little above average, 57.6%, students reported that they picked up litter in the classroom and school compounds without being told, as shown below in Table 5.

Less than one-fourth, 24%, reported attending seminars or workshops on school environmental

health programs. Approximately 30% claimed to plant flowers to beautify the front of the classroom, and 87% stated that they participated in clearing a grown field and refuse site around their schools.

Differences in Awareness, Attitude, and Practices of School Environmental Health

T-test analyses were conducted to determine differences in awareness, attitudes, and practices of school environmental health. The results are presented in Table 6.

Table 6

Test of significant difference of awareness, attitude, and practices of school environmental health by gender, class, school ownership and school location

| | N | Mean | Std. D | N | Mean | Std. D | T | Sig. |
|-----------|---------------|--------|--------|----------------|--------|--------|--------|--------|
| | Male | | | Female | | | | |
| Awareness | 385 | 19.187 | 1.902 | 482 | 18.523 | 2.507 | 4.302 | 0.000* |
| Attitudes | 385 | 26.454 | 6.353 | 482 | 27.054 | 6.262 | -1.391 | 0.164 |
| Practices | 385 | 21.870 | 3.021 | 482 | 22.440 | 3.265 | -2.638 | 0.008* |
| | JSS | | | SSS | | | | |
| Awareness | 367 | 18.956 | 2.155 | 500 | 18.716 | 2.366 | 1.534 | 0.125 |
| Attitudes | 367 | 27.011 | 6.219 | 500 | 26.624 | 6.370 | 0.893 | 0.372 |
| Practices | 367 | 21.485 | 3.356 | 500 | 22.702 | 2.924 | -5.685 | 0.000* |
| | Public | | | Private | | | | |
| Awareness | 741 | 18.738 | 2.300 | 126 | 19.285 | 2.116 | 2.498 | 0.013* |
| Attitudes | 741 | 27.052 | 6.287 | 126 | 25.230 | 6.209 | 3.013 | 0.003* |
| Practices | 741 | 22.117 | 3.195 | 126 | 22.595 | 2.999 | -1.565 | 0.118 |
| | Urban | | | Rural | | | | |
| Awareness | 799 | 18.771 | 2.301 | 68 | 19.367 | 1.969 | -2.074 | 0.038* |
| Attitudes | 799 | 26.841 | 6.321 | 68 | 26.161 | 6.136 | 0.853 | 0.394 |
| Practices | 799 | 22.201 | 3.165 | 68 | 22.014 | 3.243 | 0.466 | 0.641 |

- significant

Results showed that concerning gender of the secondary school students, no significant differences were found in environmental health attitudes between and female participants ($t = -1.391$, $p = 0.164$). However, significant difference was observed in awareness ($t = 4.302$, $p = 0.000$) and practices ($t = -2.638$, $p = 0.008$) environmental health. The male students had higher mean score than female in the case of awareness. While female had significantly mean score than male participants in case of environmental health practice.

Other demographic variables tested for differences showed varied results. A significant difference was found between Junior and Senior secondary school health environment practice ($t = -5.685$, $p = 0.000$). However, significant differences were not found between Junior and Senior secondary

students' environmental health awareness and attitudes. In terms of ownership of the school, it was observed that significant differences existed between environmental health awareness ($t = 2.498$, $p = 0.013$) and attitudes ($t = 3.013$, $p = 0.003$) of students from public schools and private schools' students. Participants from private schools had higher mean score than participants from public schools while respondents from public schools had significantly higher mean score in attitudes. However, no significant difference was found in their practices of environmental health. Results for school location revealed no significant difference in environmental health attitude, and practices between respondents from urban and rural schools. However, significant different was found in the environmental health awareness between rural and urban students with

rural students having higher mean score than urban students.

Table 7

Test of significant difference of awareness, attitude, and practices of school environmental health by school type

| School Type | | Sum of Squares | df | Mean Square | F | Sig. |
|-------------|----------------|----------------|-----|-------------|-------|-------|
| Awareness | Between Groups | 85.587 | 2 | 42.793 | 8.362 | 0.000 |
| | Within Groups | 4421.620 | 864 | 5.118 | | |
| | Total | 4507.206 | 866 | | | |
| Attitudes | Between Groups | 685.057 | 2 | 342.528 | 8.769 | 0.000 |
| | Within Groups | 33749.894 | 864 | 39.062 | | |
| | Total | 34434.950 | 866 | | | |
| Practices | Between Groups | 5.777 | 2 | 2.888 | 0.287 | 0.751 |
| | Within Groups | 8697.953 | 864 | 10.067 | | |
| | Total | 8703.730 | 866 | | | |

Analysis of Variance (ANOVA) results indicated a significant difference in school type on awareness of environmental health ($F(2, 864) = 8.769, p = .001$), attitudes of secondary students ($F(2, 864) = 8.362, p = .001$). To determine the direction of significant,

Turkey post hoc analysis was conducted for significant indices of environmental health; that is awareness and attitude. Results are present in Table 8.

Table 8

Summary of pairwise comparisons of the differences in awareness and attitude towards environmental health by school type

| Dependent Variable | (I) School Type | School (J) Type | School | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|--------------------|-----------------|-----------------|--------|-----------------------|------------|-------|-------------------------|-------------|
| | | | | | | | Lower Bound | Upper Bound |
| Awareness | Mixed | Boys only | | -0.586* | 0.166 | 0.001 | -0.976 | -0.195 |
| | | Girls only | | -0.728* | 0.233 | 0.005 | -1.275 | -0.182 |
| | Boys only | Mixed | | 0.586* | 0.166 | 0.001 | 0.195 | 0.976 |
| | | Girls only | | -0.143 | 0.237 | 0.819 | -0.699 | 0.414 |
| | Girls only | Mixed | | 0.728* | 0.233 | 0.005 | 0.182 | 1.275 |
| | | Boys only | | 0.143 | 0.237 | 0.819 | -0.414 | 0.699 |
| Attitudes | Mixed | Boys only | | -1.915* | 0.460 | 0.000 | -2.994 | -0.835 |
| | | Girls only | | -0.617 | 0.643 | 0.603 | -2.125 | 0.892 |
| | Boys only | Mixed | | 1.915* | 0.460 | 0.000 | 0.835 | 2.994 |
| | | Girls only | | 1.298 | 0.655 | 0.117 | -0.239 | 2.835 |

| | | | | | | |
|------------|-----------|--------|-------|-------|--------|-------|
| | Mixed | 0.617 | 0.643 | 0.603 | -0.892 | 2.125 |
| Girls only | Boys only | -1.298 | 0.655 | 0.117 | -2.835 | 0.239 |

Note: * implies that the mean difference is significant at the 0.05 level.

Results in Table 8 revealed that participants in boys only schools had significantly higher awareness mean scores than participants in mixed schools (MD= 0.586; $p < .001$). Also, participants in girls only schools had significantly higher mean score than

Discussion

This study assessed secondary school students' awareness, attitude, and practices of school environmental health. The results revealed that secondary school students had a low awareness of school environmental health policies and regulations. The studies result compared with Ratnapradipa et al. (2011) and Abubakar et al. (2019) - reporting economic conditions impacting health education programs among students and head administration decisions for primary and secondary programs. However, it contradicts Msengi and Doe's (2017) study which reported students in high school possessing higher levels of environmental health policy regulations and awareness in the USA.

The result showed no significant differences between males' and females' environmental health attitudes and practices. However, significant differences between males' and females' awareness of environmental health supported by Hussein and Hasoon (2013) and Msengi and Doe (2017) research found no significant difference between environmental health attitudes and behavior of male and female students in high school schools.

ANOVA results showed significant differences in school environmental health awareness and attitude of the secondary students by school type. In terms of ownership of the school, it was observed that significant differences existed between environmental health awareness and attitudes of students from public schools and private schools' students. However, no significant difference was found in their practices of environmental health. Results for school location revealed no significant difference in environmental health awareness,

those in mixed schools (MD= 0.728; $p > .001$). However, for environmental health attitudes, participants in boys only school had significantly higher mean scores than participants from mixed schools (MD= 1.915; $p < .001$).

attitude, and practices between respondents from urban and rural schools. Research findings negated Msengi and Doe's (2017) theory for significant differences between the school location and environmental health attitude and behavior.

Conclusion

The study has thus far described the awareness, attitude, and practices of the environmental health of Nigerian secondary students in Ogun State, Nigeria. According to the findings of the report, there was a low level of awareness of the policy among the students. Most public and private schools do not have rules and regulations on environmental health. If it exists, little is known to the students on environmental safety, health policy, and student well-being programming. However, there are positive attitudes and practices for environmental health. Students from public schools appeared to have a better positive attitude than private school students. The results indicate that promoting a healthy school setting is critical for community services. The result implication for poorer communities is a socioeconomic division in the state of SHP for Nigeria policy implementation. Recommendations for future research further integrated environmental health for sustainability practices of student education programs.

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