



PERSONAL CHARACTERISTICS AS DETERMINANTS OF STUDENTS' CLIMATE CHANGE AWARENESS IN RURAL COMMUNITIES IN ABIA STATE

BY

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Abstract

The investigated the demographic determinants of climate change awareness for living in rural communities in Ikwuan local government area of Abia state, Nigeria. The study employed a descriptive survey research design. Eight research purposes with eight corresponding research questions, and eight null hypotheses guided the study. The geographical scope of the study was Ikwuano LGA of Abia State. The population of the study consists of 2,735 secondary school students in Abia State aged between 12 – 19 years. The sample size of the study was 348 selected through purposive sampling techniques. The instrument used for data collection was a structured questionnaire developed by the researchers and titled climate change awareness and adaptation questionnaire. This instrument was validated by three experts two from the Department of Social Science Education and one from Measurement and Evaluation Unit of the Department of Science Education. The instrument had an overall reliability index 0.70. The researcher with the aid of research assistants administered the questionnaire. The questionnaire was completed and returned immediately. The data collected for the study were analyzed using mean, standard deviation, t-test and ANOVA. The findings of the study revealed that demographic variables such as age, parental income and education level have significant influence on students' awareness of climate change in Abia State. The students' gender did not significantly determinants their climate change and adoption of climate change awareness. Based on the findings, the study among others recommended that Governments should take the lead in developing and implementing climate change education policies, allocating resources, and establishing research centres for climate change awareness and adaptation. They should also support community-based initiatives and monitor program effectiveness.

Key Words: Climate, Climate Change, Awareness, Adaptation, Rural Settlement

Introduction

A Major threat to global environment in the past two decades is climate change. Climate change is a long-term change in the distribution of weather element over periods of time typically decades or longer with changes in mean and variability (World Bank, 2021). Climate change is the “long-term change in the average weather patterns that have come to define Earth’s local, regional and global climates National Aeronautics and Space Administration (NASA), (2018). Succinctly, climate change refers to any observed variations in climate systems

resulting from human activities, particularly those that interrupt the earth's atmospheric composition and equilibrium eventually contribute to what is known as global warming.

In Nigeria, the impact of climate change is clearly evident. Nigeria’s climate has been changing, and this is evident in the increase in temperature; variable rainfall, rise in sea level and flooding; drought and desertification; land degradation; and many more frequent extreme weather events. According to

Ifeanacho and Okudu (2020), the durations and intensities of rainfall have increased, producing large runoffs and flooding in many places. These changes are impacting agriculture and food security, depleting resources in every part of the country and posing a serious food security challenge in the face of a rapidly growing population. Low crop yield, food shortages, reduced livestock production, loss of income, and growing desperation over food supply are driving resource conflicts across Nigeria (Dauda, 2023).

Many environmental issues are subject to verifiable interpretations; climate change is one of them. Illness is often explained in terms of climate change, especially at the beginning of rainy season and dry season. It is interesting to know that the word 'climate' is the average weather pattern of a place. It includes the following: patterns of temperature, precipitation (snow or rain), humidity, wind and seasons.

Climate change awareness is rapidly evolving, with fresh perspectives emerging to encapsulate its multifaceted nature. The Intergovernmental Panel on Climate Change (IPCC) described it as "the understanding of the human influence on the climate system, its effects, and potential future impacts" (IPCC, 2018). The United Nations Framework Convention on Climate Change (UNFCCC) adopts a more action-oriented stance, framing climate change awareness as "the process of becoming aware of the effects of climate change and how to address them" (UNFCCC, 2024). Abbass, Qasim., Song, Murshed, Mahmood, & Younis (2022) described climate change awareness as "the capacity to notice, comprehend, respond to, and anticipate climate change impacts. Climate change awareness and understanding are essential for properly assessing its effects and dangers on a local and global level as well as encouraging actions across diverse strata of society to address climate change (Joro et al., 2022). Climate change awareness is important to understanding the causes and effects of climate change, as well as taking actions to adapt to the impacts of climate change.

According to the Institute for Security Studies Africa (2022), women often bear the brunt of climate change impacts due to their traditional roles in water and food security.

This can lead to increased workloads and vulnerability, particularly in developing countries where women have limited access to land, credit, and technology (Ayanlade, 2023). Understanding the gender dimensions of climate change awareness is crucial for designing inclusive and effective strategies. Parent's income level can also determine students' ability to be aware of climate changes in the society.

Research suggests a nuanced interplay between age and climate change awareness, with varying abilities to cope across different life stages. Age in this study refers to a combination of biological and chronological age. Climate change impacts young and old people differently and also limits their ability to adapt to these impacts. Children, who are chronologically young, often lack the knowledge, autonomy and experience to navigate climate risks effectively like older people (Ayalon & Roy, 2023). Like Age, income level informs climate change adaptation. Research paints a stark picture of how income level shapes climate change awareness. Wealthier individuals and communities can afford investments in climate-resilient infrastructure and technology, like flood-proof homes or drought-resistant crops (Thorn et al., 2021).

The level of education an individual has attained somewhat informs the individual's climate change awareness and resilience. Higher education levels equip individuals with the knowledge and skills to understand climate risks, access technology and information, and implement adaptation strategies, as studies across regions show (Reimers, 2020). Farmers with education in drought-resistant agriculture better adjust to changing rainfall patterns (Novenario, 2023). Conversely, limited education restricts information and adaptation options, particularly for marginalized communities, exacerbating their vulnerability. Conversely, limited education can hinder access to information and resources. The influence of personal characteristics (demographic variables) on individuals' awareness and response to climate change has remained a pressing question. Thus, this study delves into this crucial topic, examining how personal characteristics like age, gender, income level, and level of education shape climate change awareness among students in rural communities in Abia state, Nigeria.

Purpose of the Study

The study investigated the demographic variables that determine of climate change awareness of secondary school students' in rural communities of Abia State, Nigeria. Specifically, the study ascertained whether;

1. Gender determine climate change awareness of rural secondary school students.
2. Age determine climate change awareness of rural secondary school students.
3. Parental level of education determine climate change awareness of rural secondary school students.
4. Parental income level determine climate change awareness of rural secondary school students.

Research Questions

The following research questions were posed to guide the study:

1. How does gender determine climate change awareness of rural secondary school students.
2. How does age determine climate change awareness of rural secondary school student.
3. How does parental level of education determine climate change awareness of rural secondary school students.
4. How does parental income level determine climate change awareness of rural secondary school students.

Method

Ex post-facto research design was adopted for the study. According to Shaporovha (2012), ex post-facto research is a type of study which aims at collecting data, and describing in a systematic manner, the characteristics, features or facts about a given population.

The study was carried out in Abia State, Nigeria. The population of the study

was 2,735 secondary school students in the 9 secondary schools in Ikwuano LGA of Abia state . This population consist of 703 and 600 students respectively for junior and senior male students respectively while 730 and 702 represent junior and senior female student, making of a total of 2,735 students in all. The sample size for the study is 348 secondary school students, selected through the purposive sampling technique. The sample size was first computed using Taro Yamane formula for sample size determination.

The instrument for data collection was the climate change awareness questionnaire (CCAQ) developed by the researchers. The instrument was structured into two sections A and B. Section A sought to collect data on respondents' demographic variables. These variables are gender, age, income level and educational level. Section B contains the questionnaire items and is organized into two clusters I and II. Cluster I contains 40 items, designed with a 4-point response option of very highly aware (VHA), highly aware (HA), aware (A) and not aware (NA). Cluster II contains 13 items, design on a response option of very highly aware, highly aware, aware and not aware. The Cronbach Alpha technique was used to determine the reliability estimate of the instrument. This technique was considered ideal for determining the reliability of the CCAQ because the items that make up the instrument are polychotomously scored. The reliability coefficients CCAQ was 0.74. Mean of 2.50 was used as the criterion level to accept or reject the mean responses.

Results

The presentation of the results was done in tables based on the research questions that guided the study.

Research Question 1: How does gender determine rural secondary school students' awareness of climate change?

Table 1: Mean rating and standard deviation analysis on gender and rural secondary school students' awareness of climate change.

Gender	N	Mean	SD
Male	166	2.61	0.91
Female	182	2.63	0.77

Table 1 revealed that the mean and standard deviation of male and female respondents are 2.61 and 2.63. These mean scores are above the 2.50 acceptance benchmark which implies that both male and female students are aware of climate change. However, female respondents

expressed higher awareness of climate change. This prompted further analysis to ascertain if this difference is significant.

Research Question 2: How is age a determinant of rural secondary school students' awareness of climate change.

Table 3: Mean rating and standard deviation analysis on age and rural secondary school students' awareness of climate change.

Age	N	Mean	SD
12-14	188	2.56	0.84
15-17	124	2.62	0.76
17-19	36	2.68	0.88

Table above shows that students with age ranging from 12-14 had mean awareness score of 2.56 (0.82), 15-17 age range had mean awareness of 2.62 (0.76) while students with age range 17-19 had mean awareness score of 2.68 (0.88). These mean scores are above the 2.50 acceptance benchmark thus

implying that students of different age ranges are aware of climate change however higher aged students have higher awareness of climate change.

Research Question 3: How is parental income level a determinant of rural secondary school students' awareness of climate change?

Table 3: Mean rating and standard deviation analysis on parental income level and rural secondary school students' awareness of climate change.

Parental Income	N	Mean	SD
Low Income	226	2.54	0.77
Middle Income	95	2.63	0.67
High Income	27	2.69	0.61

Table 3 above shows that students with low level income parents recorded mean awareness score of 2.54 (0.77), students with middle income parents had mean awareness score of 2.63 (0.67) while students with high income parents expressed mean awareness score of 2.69 (0.61). These mean scores are

above the 2.50 acceptance benchmark thus implying that they are accepted. However higher levels of parental income level expressed higher levels of climate change awareness among rural students.

Research Question 4: How does parental educational level determine rural secondary school students' awareness of climate change.

Table 4: Mean rating and standard deviation on parental educational level and rural secondary school students' awareness of climate change.

Parental Education Level	N	Mean	SD
Uneducated	89	2.52	0.78
Primary Education	131	2.56	0.76
Secondary Education	103	2.68	0.88
Tertiary Education	25	2.72	0.89

Table 4 indicates that students with uneducated parents, primary education, secondary education and tertiary education expressed respective mean and standard

deviation scores of 2.52 (0.78), 2.56 (0.76), 2.68 (0.88) and 2.72 (0.89). These mean scores are above the 2.50 acceptance benchmark thus indicating high awareness of climate change among students with varying

level of parental education. Also, students with higher levels of parental education level expressed higher awareness scores.

Discussion

Gender as determinant of Rural Secondary School Students' Awareness of Climate Change

The study found that male and female rural secondary school students' expressed similar levels of climate change awareness with female students expressing higher awareness scores. Further analysis showed that the difference in their level of awareness on climate change phenomenon based on gender showed that the observed difference in awareness was not statistically significant. The finding that male and female rural secondary school students exhibit similar levels of climate change awareness, with females showing slightly higher awareness scores, is a noteworthy discovery. Several factors contribute to this outcome. Firstly, gender equality in education plays a significant role. Both males and females have equal access to education, leading to similar exposure to climate change information through the school curriculum. Female empowerment initiatives and active participation in environmental clubs may contribute to the slightly higher awareness scores among females. However, the overall similarity in awareness levels suggests that both genders have equal opportunities to engage with climate change information. This finding is in line with the finding of Shaporovha (2012) found out that the students' gender influence their climate change awareness. Also, in corroboration, Ishaya and Abaje (2018) who revealed that gender has no significant influence on students' climate change awareness. Bolaji and Adekoye (2012) also reported that gender has no significant influence on students' climate change awareness.

Age as a determinant of Rural Secondary School Students' Awareness of Climate Change

The study also found that rural secondary school students' in Ikwuano LGA of Abia State of different age ranges are aware of climate change. Further analysis showed that the difference in their level of awareness on climate change phenomenon based on their age showed that the observed

difference in awareness was statistically significant. The study's revelation that rural secondary school students exhibit varying levels of climate change awareness across different age ranges, with statistically significant differences, is a profound finding. This disparity can be attributed to several factors. As students mature, their cognitive abilities refine, enabling better comprehension of complex climate change concepts. Senior students have received more extensive education, including environmental science and climate change topics, thereby broadening their understanding. Life experiences, such as witnessing climate-related events, also contribute to heightened awareness among older students. Social influence plays a significant role, as peer discussions and social media exposure amplify climate change awareness. In consonance with this study finding, Daniel (2016) reported that age significantly influenced respondents' awareness to climate change. In contrast, Shaporovha (2012) reported that students' age has no significant influence on their climate change awareness.

Parental Income Level as a determinant of Rural Secondary School Students' Awareness of Climate Change

The study also found that rural students with higher levels of parental income level expressed higher levels of climate change awareness. Further analysis showed that the difference in their level of awareness on climate change phenomenon based on parental income level showed that the observed difference in awareness was statistically significant. The study found that rural students from higher-income families exhibit greater climate change awareness. This disparity can be attributed to several factors. Access to quality education, a privilege of higher-income families, exposes students to climate change information, fostering awareness. Greater financial resources also provide access to diverse information channels, such as newspapers, television, internet, and social media, further broadening climate change knowledge. Social networks and environmental experiences, more common among affluent families, contribute to heightened awareness. Samara (2018) also reported that students from parents in occupations with higher income have more

climate change awareness than those from parents with lower income occupation.

Parental Education Level as a determinant of Rural Secondary School Students' Awareness of Climate Change

An important outcome here is that rural students with parents having higher educational level expressed high awareness of climate change. The revelation that rural students with higher levels of parental education exhibit greater climate change awareness is a compelling discovery. This can be attributed to several factors. Educated parents are more likely to engage their children in climate change discussions, fostering awareness and understanding. They are also likely to instill environmental values, shaping their children's perspectives and influencing their attitudes toward climate change. Furthermore, educated parents provide access to diverse information channels, encouraging critical thinking and media literacy. In consonance, Klistoch (2015) and Samara (2018) indicated that parental level of education has significant influence on students' climate change awareness. In consonance, Samara (2018) reported that education level has significant determinant of students' climate change awareness. In contrast, Nkola (2018) and Davidson (2017) reported that parents' level of education has no significant influence on students' climate change awareness and adaptation.

Gender as determinant of rural secondary school students' awareness of climate change

The study found that male and female rural secondary school students' expressed similar levels of awareness on climate change adaptation strategies however female students expressed lower mean score. Further analysis showed that the difference in their level of awareness on climate change adaptation strategies based on gender showed that the observed difference was not statistically significant. The study's finding that male and female rural secondary school students exhibit similar levels of awareness on climate change adaptation strategies, with females scoring slightly lower, is a noteworthy discovery which is consistent with Ahmed (2013) who conducted a study on the influence of gender on students' climate change adaptation in selected secondary schools in Wakiso District,

Sokoto State and revealed that gender has influence on students' climate change adaptation. Galadima (2017) also revealed that gender has influence on students' climate change adaptation and mitigation strategies. This similarity can be attributed to equal access to education and shared environmental experience. This finding is also in line with the findings of Musa (2013) who revealed that gender has no significant influence on students' climate change adaptation.

Conclusion

Based on the research findings, the study hereby concludes that personal characteristics such as age, parental income and education level have significant influence on students' awareness and adoption of climate change adaptation strategies in rural communities in Abia State. The study also concludes that students' gender did not significantly influence students' awareness of climate change in the rural communities in Abia State.

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