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PHYSIO-DEMOGRAPHIC FACTORS AS CORRELATE OF CLIMATE CHANGE AWARENESS AMONG SECONDARY SCHOOL STUDENTS IN SOUTH-EAST, NIGERIA

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Abstract

The main purpose of the study was to determine the relationship between physio-demographic factors and climate change awareness among secondary school students in South-East, Nigeria. Four research questions and four research hypotheses guided the study. The study adopted correlational research design. The study was conducted in South-East, Nigeria. The population of the study comprised 44,505 senior secondary two (SS2) students in South-East, Nigeria. The sample size of the study was 2700 senior secondary two (SS2) students in South-East, Nigeria. However, 176 of 2700 filled instrument were not properly done, thus 2524 respondents were used for the study. Multi-stage sampling procedure was used to draw the sample size. Structured questionnaire developed by the researcher was used for data collection. The questionnaire was titled "Relationship between Physio-Demographic Factors and Climate Change Awareness among Students". The questionnaire was validated by three experts. Cronbach Alpha was used to establish the internal consistency reliability of the instruments. The questionnaire yielded reliability coefficient of 0.88. Data collected were analyzed using linear regression to answer the research questions while regression ANOVA was used to test the null hypotheses. The findings of the study showed that parental level of education has high significant relationship with students' climate changes awareness with R value of 0.67 and R^2 value of 0.45. Parental occupation has high significant relationship with students' climate change awareness with R value of 0.62 and R^2 value of 0.38. Family size has high significant relationship with students' climate change awareness with R value of 0.59 and R^2 value of 0.35. Finally, residential topography has high significant relationship with students' climate change awareness with R value of 0.61 and R^2 value of 0.37. Based on the findings of the study, conclusions that represent the position of this research work were drawn.

Keywords: Climate change, awareness, parental education, parental occupation

Introduction

Climate change is one of the current serious global environmental challenges facing humanity which has attracted both government and non-governmental efforts of different countries (including Nigeria) under the auspices of the United Nations in controlling its menace. Climate change constitutes serious threat to human survival and development because it is capable of affecting negatively virtually all aspect of human endeavours from agricultural activities to industrial activities. Climate is the major factor controlling the global patterns of vegetation structure, productivity, plant and animal species composition. Climate means the average weather in a place over many years. While weather can change in just a few hours, climate takes years to change. According to Small and Nicholis (2023), climate is the average weather for a particular region over a long time. It describes weather occurring over a long period of years in a given place. This includes average weather conditions, regular weather season (winter, spring, summer and fall) and special

weather events (like tornadoes and floods). These climate patterns play a fundamental role in shaping natural ecosystems and human socio-economic activities that depend on them.

The term Climate equates to the average weather conditions in a certain place and during all of the certain seasons. According to Igwe (2023), climate encompasses the statistics of temperature, humidity, atmospheric pressure differentials that create wind, rainfall, atmospheric particle count and numerous other meteorological elements in any given region. Many plants are successfully reproduced and grown only within a specific range of temperatures and respond to specific amounts and seasonal patterns of precipitation, and may be displaced by competition from other plants or may fail to survive if climate changes (Mba, 2019). Climate change means average seasonal change in weather over a long period of time. Igwe (2023) defined climate change as the variation in global or regional climates over time. The changing state of the atmosphere over time scales ranging from decades to thousands of years refers to climate change. Climate change according to Nzewi (2019) refers to the measurable increase in the average temperature of earth's atmosphere, oceans and landmasses. Ezeudu (2019) defined climate change as a long term significant change in the average weather that a given region experience. Nwagu and Nzewi (2019) explained that climate change is the significant change in weather (wind, precipitation and temperature) over an extended period of time. Udenyi (2020) stressed that climate change is simply a change in the climate pattern of the world and the change is found by the scientists and other concerned agencies to be on the increase line. In the context of this study, climate change means the significant and measurable change in the global weather pattern which is believed to be rather on the increase.

The earth's climate is dynamic and always changing through natural causes such as volcanic eruptions, ocean current, the earth's orbital changes as well as solar variations (Anyadike, 2019). However, what the world is more worried about is that the changes that are occurring today have been accelerated because of human activities. In this regard, Uzochi (2019) notes that human beings have been changing their environment in very significant ways ever since they learnt how to hunt with weapons, domesticate animals and farm crops, in addition to human modernized transportation and industrial system, which facilitate easy movement and production. The impact of the above human activities on climate change could result in excessive emission of greenhouse gases (GHGs) into the atmosphere. According to Sjoberg (2022), greenhouse gases refer to the gases that contribute to the greenhouse effect by absorbing infrared radiation. Greenhouse gases include carbon dioxide, methane, chloroflorocarbon, water vapour, and nitrous oxide. Igwe (2023) explained that a greenhouse gas implies gaseous element in the atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect. Greenhouse effect is the rise in temperature that the earth experiences because certain gases in the atmosphere like carbon dioxide, methane, water vapour, nitrous oxide and chloroflorocarbon trap energy from the sun and retain greater part of the trapped energy which caused the warming and changing of the global climate experienced in the world today. Furthermore, the concentration of the greenhouse gases in the atmosphere caused ozone layer depletion because greenhouse gases usually attack ozone layer and cause hole in the ozone layer. The ozone layer forms a thin shield in the sky and is located in the stratosphere. It protects life on earth from the sun's ultra violet rays. In the 1980s, scientists began finding clues that the ozone layer was going away or being depleted. This ozone depletion allows more ultra violet radiation to reach the earth's surface and it increases the rate at which the global climate changes.

The above scenario could lead to increase in the rate of climate change which has severe consequences in the society such as drought, temperature rise, low agriculture yield, drying up of water bodies, flooding among others (Anyadike, 2019). Similarly, Igwebuike, Odoh, Ezeugwu, Okparaku and Opkaraku (2019) enumerated the effects of climate change in Nigeria to include rise in sea level. The rise in sea level usually cause flood disaster (which can wash away farmland, and crops, in addition to rendering the affected people homeless) as recently witnessed in Lagos, Abuja, Kogi, Anambra, Abia, and Delta states among others. In addition, the rise in temperature could lead to drought, desertification, declining water table, loss of some plant and animal species, low crop yield and outbreak of climate related diseases such as malaria and meningitis. All these consequences of climate change call for greater climate change awareness.

Awareness is a state of consciousness and purpose (Oragwam, 2014). Chinedu (2018) viewed awareness as the condition of being able to understand what is happening around one. Awareness is the state or ability to perceive, to feel or to be conscious of concrete and abstract events. Awareness means having idea of the existence of something. In relation with the above views, Carter (2019) equates awareness with knowledge of, understanding of, appreciation of, recognition of, attention to, perception of, conscious of, acquaintance with, enlightenment with, mindfulness of, cognizance of, something. Belloti (2022) explained that awareness involves knowing who is talking with whom; it provides a view of one another in the daily work environment. In the context of this study, though in relation to the above views, awareness implies understanding and knowledge of the activities and events (like climate change) going on around one's environment.

Students' climate change awareness could be influenced by some physical and demographic factors such as parental level of education, parental occupation, family size, and residential topography.Parental level of education is factor that could determine climate change awareness of secondary school students. Evidence from research findings such as Crosser (2011), Musa (2021), and Abdullahi (2023) indicated that students whose parents are educated possess greater awareness on wide range of environmental issues than students whose parents are uneducated. In contrast to the above studies which found a positive connection between parental level of education and greater awareness on wide range of environmental issues, Wood, Powell, and Knight (2014) stated that the level of parents' education is unrelated to students' eventual success or failure in school. Similarly, DeMeis and Stearns (2022) and Dietz and Wilson (2015) in their respective studies found no significant relationship between parents' education level and students' awareness of environmental issues. While most studies agree that parents' level of education influence students' awareness, other studies found no significant parental level of education influence on students' awareness. Besides, in Nigeria, there is little or no literature on studies that tried to determine the influence of parents' level of education on secondary school students' climate change awareness. This study intends to find out if parents' level of education has any relationship with students' climate change awareness in South-East, Nigeria.

Parental occupation is yet another factor that could influence secondary school students' climate change awareness. Students are from different family background particularly from parents of different occupational background. This could influence students' level of climate change awareness considering the fact that parents tend to discuss much about work and work related issues at home. In this regard, Ademola (2019) found out in a study that parents' home discussions are centred much on their respective job issues. Ademola further noted that parents equally show better interest in news and articles that directly or indirectly concern their job. However, evidence from other studies

appears to support the fact that parental occupation apart from office work could influence students' awareness to climate change. Campbell and Wu (2019) observed that students whose parents are farmers perform better in activities that concern weather and climate compared to students whose parents are public servants in Thailand. This study intends to find out if parental occupation has relationship with students' climate change awareness in South-East, Nigeria.

Family size is another factor that could influence secondary school students' climate change awareness. The issue of family size (small or large) has gained so much ground in recent times in most studies that deal with students' knowledge, and overall performance of students in school. The United State of America Census Bureau (2017) categorized family size based on number of children in a single family. USA Census Bureau stated that 0-3 children in a family signifies a small family size while 4 children and above in a single family is an indication of large family size. In a slightly different view, the National Population Commission (2006) and the Nigeria Educational Research and Development Council (2008) grouped small and large families based on the number of children in a single family. They defined small family as one with 1-4 children while the family with 5 children and above was defined as a large family. For the purpose of this study, small family size is one with 1-4 children while large family size is one with 5 children and above. Yet another variable in this study which could have relationship with students' climate change awareness in South East Nigeria is residential topography. In the context of this study, a residential topography implies the nature of the physical environment where the students reside. The physical environment nature of the students' residence that is of interest to this study includes river area, hilly area and plain area. According to Yaounda (2020), the nature of physical environment where people reside could influence their socio-economic activities. In view of this assertion, one can further deduce that the nature of physical environment where students reside could influence their climate change awareness. Yaounda (2020) further found out in a study that students' knowledge of environmental issues such as pollution and erosion have strong link to the nature of the environment where they reside.

Even though it could be argued that the physical environment where students reside could influence their climate change awareness, there is need to establish the efficacy or otherwise of this variable in Nigeria particularly in South-East Nigeria. This is important because Tetley (2023) stated that the nature and severity of physical environment differs from one continent to another and from one local region to another. This implies that even though one can easily find a group of people living in river lane for instance, however the degree to which they experience cold and flooding differ. Therefore, severity of the physical environment, same pattern of physical environment notwithstanding, could be a distinct factor to the argument of whether residential topography of the students influences their climate change awareness and attitude or not. It is against this background that the present study, among other things, intends to find out if physical factor such the residential topography of students has any relationship with students' climate change awareness in secondary schools in south-east, Nigeria. Climate change particularly has the potentials to deepen poverty, food insecurity, poor livelihoods and unsustainable development in South-Eastern Nigeria (Ekezie, 2020). The developing countries such as Nigeria are the most vulnerable because of their high dependency on ecosystem goods and services and their limited capacity to adapt to a changing climate (Somorin, 2021). For African countries, climate-related risks are expected to intensify existing problems and create new combinations of risks, given the existing widespread poverty and dependence on the natural environment (Sonwa, 2022). Areas of particular

concern include communities with vulnerable livelihoods, food and environmental insecurity, health, gender inequalities, weak security and governance, the lack of infrastructure and education, and the lack of access to appropriate resources and capacities to deal with extreme events. Thus, it is imperative that people are aware of climate change; its causes and consequences in order to act when and where necessary towards reducing the effects of climate change on socio-economic life of man.

It is to be noted that South-East Nigeria, in particular, is highly dependent on rain agriculture as irrigation is seldom practiced. The changes in the rainfall pattern have greatly affected vegetation and agriculture in the region. There is almost complete absence of primary forests in the region. Uncontrolled logging, agricultural activities, acid rain, oil exploration and exploitation in southern part of the South-East Nigeria, urbanization and mining activities contribute to lose of vegetation (Ekezie, 2020). All these have contributed to climate change, the impacts of which are already being felt in the region with food insecurity, increasing risk of disease and the rising costs of extreme weather damages such as erosion, flooding among others. The students are the future leaders who will certainly face the devastating effects of climate change. Man is probably locked into a planet that is on track to warm by 2 degrees; temperature fluctuations are already causing widespread food shortages, unprecedented heat waves and unpredictable weather in the nearest future (Anyadike, 2019). The future leaders who are the present day school children will be the ones to feel the increasing effects of climate change. However, the pertinent question is; are the students aware of climate change? Previous research findings have shown that the students have low and in some cases moderate climate change awareness (Ezeudu, Ezeudu & Sampson, 2016). There is the need for these students who are supposed future leaders to have high climate change awareness.

Research Questions

The following research questions guided the study.

1. What is the relationship between parental level of education and secondary school students' climate change awareness?
2. What is the relationship between parental occupation and secondary school students' climate change awareness?
3. What is the relationship between family size and secondary school students' climate change awareness?
4. What is the relationship between residential topography and secondary school students' climate change awareness?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

$H0_1$: There is no significant relationship between parental level of education and students' climate changes awareness.

$H0_2$: There is no significant relationship between parental occupation and students' climate change awareness.

$H0_3$: There is no significant relationship between family size and students' climate change awareness.

$H0_4$: There is no significant relationship between residential topography and students' climate change awareness.

Methods

This study adopted correlational survey research design. The study was carried out in South-East, Nigeria. There are five states and 95 Local Government Areas in the South-East, Nigeria namely Abia with 17 LGAs, Anambra with 21 LGAs, Ebonyi with 13 LGA,

Enugu with 17 LGAs and Imo with 27 LGAs. The area of the study is bounded in the south by Rivers and Akwa-Ibom states in the South-South zone, bounded in the east by Cross River state in the South-South zone, bounded in the north by Benue and Kogi states in the North-Central zone, and in the west by Edo and Delta states in the South-South zone all in Nigeria. The people of South-East Nigeria are dominantly Christians. In terms of occupation, overwhelming majority of south-eastern Nigerian people are traders. In terms of education, the entire zone, except for Ebonyi State, is regard as educationally advantage zone in the country. The population of the study comprised 44,505 senior secondary two (SS2) students in South-East, Nigeria. There are one thousand two hundred and fifty-one (1,251) secondary schools in South-East, Nigeria. The distributions of the secondary schools as well as students within the five states in South-East Nigeria are as follows; Abia State has 212 secondary schools with 7,568 SS2 Students, Anambra State has 249 secondary schools with 8,495 SS2 students, Ebonyi State has 199 secondary school with 5,361 SS2 students, Enugu State has 281 secondary schools with 10,349 SS2 students, and Imo State has 310 secondary schools with 12,732 SS2 students (Abia, Ananmbra, Ebonyi, Enugu and Imo States PPSMB Statistical Year book, 2017). The choice of students as respondents of the study was based on the conviction that they are the future social, economic, political and technological leaders. Therefore, it was really important to involve them in climate change issues particularly in the area of their awareness of climate change in order to ensure that their future activities would not increase climate change. The choice of SS2 students was anchored on the fact that the students have been in the secondary school for reasonable longer period of time. Besides, SS2 students are no longer adjusting to senior secondary school curriculum like the SS1 students. Again, SS2 students are not preparing for any external examination like the SS3 students.

The sample size of the study was 2,700 SS2 students in South-East Nigeria. Multi-stage sampling procedure was used to select the sample size. First stage, simple random sampling technique was used to draw 3 states namely Ebonyi, Enugu, and Imo out of the 5 states in the area of the study. Second stage, simple random sampling technique was used to sample 3 education zones in each of 3 sampled states and this gave a total of 9 education zones sampled for the study. Third stage, simple random sampling technique was used to sample 10 schools in each of the 3 education zones that were sampled. That gave a total of 90 schools sampled. Fourth stage, purposive sampling technique was used to select 30 SS2 students in each of the 90 schools based on parental level of education, parental occupation, family size, and residential topography. This gave a total number of 2,700 SS2 students. However, the actual number of student used for the study was 2524 SS2 students. This is because after the administration of the instrument, 176 instruments were not properly filled therefore they became invalid for the study.

The instrument for data collection was a structured questionnaire. The questionnaire was titled "Relationship between Physio-Demographic Factors and Students' Climate Change Awareness". The questionnaire was developed by the researcher. The questionnaire has two sections. Section A was titled "Physio-Demographic Variables" (PDV) and it contains the physical and demographic variables of the students. Section B was titled "Climate Change Awareness" (CCA) and it contains 40 item statements that deal with climate change awareness. The questionnaire was rated on a modified four point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The responses were weighted as follows:
SA = 4; A = 3; D = 2; and SD =1.

To ensure face validity of the questionnaire, the items in the questionnaire were validated by three experts in the Department of Science Education, in the University of

Nigeria, Nsukka. The questionnaire was trial tested using 20 SS2 students drawn from four secondary schools in Umuahia Education Zone of Abia State in South-East, Nigeria. The four secondary schools used for trial testing were not part of the sampled schools for the main study. The reliability of the items in the instrument was determined using Cronbach Alpha and the reliability coefficient of 0.88 was obtained and was considered appropriate for the study. The instrument was administered by the researcher with the help of three research assistants to facilitate data collection. Data collected were analyzed using Statistical Packages for Social Science (SPSS) software. Linear regression analysis method was used to analyzed the data to answer the research questions. Regression ANOVA was used to test the formulated null hypotheses. All the hypotheses were tested at 0.05 level of significance.

Results

The results of the study were presented in line with the research questions and hypotheses that guided the study.

Research Question One: What is the relationship between parental level of education and secondary school students' climate change awareness?

Table 1: Regression analysis of the responses on the relationship between parental level of education and secondary school students' climate change awareness.

Variables	R	R^2
Parental level of education and students' climate change awareness	0.67	0.45

(R^2) = Coefficient of Determination

The result in Table1 shows that the correlation coefficient between parental level of education and students' climate change awareness was 0.67. This means that, there exist a positive high relationship between parental level of education and students' climate change awareness. Table 1 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.67 was 0.45. This coefficient of determination (R^2) indicates that, 45% of variation in students' climate change awareness is attributed to parental level of education. This is an indication that 55% of the variation in students' climate change awareness is attributed to other factors other than parental level of education.

$H0_1$: There is no significant relationship between parental level of education and students' climate changes awareness.

Table 2: Regression ANOVA of relationship between parental level of education and secondary school students' climate change awareness.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.293	1	.293	1.884	.000
	Residual	391.903	2522	.155		
	Total	392.195	2523			

The result on Table 2 shows that an F-ratio of 1.884 with associated exact probability value of .000 was obtained. This probability value of .000 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .000 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between parental level of education and students' climate change awareness was rejected. The researcher therefore, concludes that there is a

significant relationship between parental level of education and students' climate change awareness.

Research Question Two: What is the relationship between parental occupation and secondary school students' climate change awareness?

Table 3: Regression analysis of the responses on the relationship between parental occupation and secondary school students' climate change awareness.

Variables	R	R^2
Parental occupation and students' climate change awareness	0.62	0.38

(R^2) = Coefficient of Determination

The result in Table5 shows that the correlation coefficient between parental occupation and students' climate change awareness was 0.62. This means that, there exist a positive high relationship between parental occupation and students' climate change awareness. Table 5 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.62 was 0.38. This coefficient of determination (R^2) indicates that, 38% of variation in students' climate change awareness is attributed to parental occupation. This is an indication that 62% of the variation in students' climate change awareness is attributed to other factors other than parental occupation.

$H0_2$: There is no significant relationship between parental occupation and students' climate change awareness.

Table 4: Regression ANOVA of relationship between parental occupation and secondary school students' climate change awareness.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	0.024	.001
	Residual	392.192	2522	.156		
	Total	392.195	2523			

The result on Table 6 shows that an F-ratio of 0.024 with associated exact probability value of .001 was obtained. This probability value of .001 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .001 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between parental occupation and students' climate change awareness was rejected. The researcher therefore, concludes that there is a significant relationship between parental occupation and students' climate change awareness.

Research Question Three: What is the relationship between family size and secondary school students' climate change awareness?

Table 5: Regression analysis of the responses on the relationship between family size and secondary school students' climate change awareness.

Variables	R	R^2
Family size and students' climate change awareness	0.59	0.35

(R^2) = Coefficient of Determination

The result in Table9 shows that the correlation coefficient between family size and students' climate change awareness was 0.59. This means that, there exist a positive high relationship between family size and students' climate change awareness. Table 9 also

revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.59 was 0.35. This coefficient of determination (R^2) indicates that, 35% of variation in students' climate change awareness is attributed to family size. This is an indication that 65% of the variation in students' climate change awareness is attributed to other factors other than family size.

H0$_3$: There is no significant relationship between family size and students' climate change awareness.

Table 6: Regression ANOVA of relationship between family size and secondary school students' climate change awareness.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.039	1	.039	.248	.000
	Residual	392.157	2522	.155		
	Total	392.195	2523			

The result on Table 10 shows that an F-ratio of .248 with associated exact probability value of .000 was obtained. This probability value of .000 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .000 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between family size and students' climate change awareness was rejected. The researcher therefore, concludes that there is a significant relationship between family size and students' climate change awareness.

Research Question Four: What is the relationship between residential topography and secondary school students' climate change awareness?

Table 7: Regression analysis of the responses on the relationship between residential topography and secondary school students' climate change awareness.

Variables	**R**	**R^2**
Residential topography and students' climate change awareness	0.61	0.37

(R^2) = Coefficient of Determination

The result in Table21 shows that the correlation coefficient between residential topography and students' climate change awareness was 0.61. This means that, there exist a positive high relationship between residential topography and students' climate change awareness. Table 21 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.61 was 0.37. This coefficient of determination (R^2) indicates that, 37% of variation in students' climate change awareness is attributed to residential topography. This is an indication that 63% of the variation in students' climate change awareness is attributed to other factors other than residential topography.

H0$_4$: There is no significant relationship between residential topography and students' climate change awareness.

Table 8: Regression ANOVA of relationship between residential topography and secondary school students' climate change awareness.

		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.075	1	.075	0.484	.000

Residual	392.120	2522	.155
Total	392.195	2523	

The result on Table 22 shows that an F-ratio of 0.484 with associated exact probability value of .000 was obtained. This probability value of .000 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .000 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between residential topography and students' climate change awareness was rejected. The researcher therefore, concludes that there is a significant relationship between residential topography and students' climate change awareness.

Discussion

The finding of the study with respect to research question one showed that parental level of education has a positive high significant relationship with students' climate changes awareness. The result in Table1 shows that the correlation coefficient between parental level of education and students' climate change awareness was 0.67. This means that, there exist a positive high relationship between parental level of education and students' climate change awareness. Table 1 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.67 was 0.45. This coefficient of determination (R^2) indicates that, 45% of variation in students' climate change awareness is attributed to parental level of education. This is an indication that 55% of the variation in students' climate change awareness is attributed to other factors other than parental level of education. For the hypothesis one, the result in Table 2 shows that an F-ratio of 1.884 with associated exact probability value of .000 was obtained. This probability value of .000 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .000 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between parental level of education and students' climate change awareness was rejected. The researcher therefore, concludes that there is a positive high significant relationship between parental level of education and students' climate change awareness.This finding was in support of the earlier findings of Klistoch (2015) and Vermelda (2019) who found out that parental level of education has significant relationship with students' climate change awareness. Similarly, Shingi (20211) and Kenyatta (2023) found out in their respective studies that parental level of education has significant relationship with students' climate change awareness. The agreement between the present finding and the previous findings is an indication that students' climate change awareness can be determined by their parents' level of education. In other words, students whose parents are educated may likely display higher climate change awareness compared to students whose parents are not educated.

The finding of the study with respect to research question three showed that parental occupation has a positive high significant relationship with students' climate change awareness. The result in Table5 shows that the correlation coefficient between parental occupation and students' climate change awareness was 0.62. This means that, there exist a positive high relationship between parental occupation and students' climate change awareness. Table 5 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.62 was 0.38. This coefficient of determination (R^2) indicates that, 38% of variation in students' climate change awareness is attributed to parental occupation. This is an indication that 62% of the variation in students' climate change awareness is attributed to other factors other than parental

occupation. For the hypothesis three, the result on Table 6 shows that an F-ratio of 0.024 with associated exact probability value of .001 was obtained. This probability value of .001 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .001 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between parental occupation and students' climate change awareness was rejected. The researcher therefore, concludes that there is a positive high significant relationship between parental occupation and students' climate change awareness. This finding is similar to the earlier findings of Samara (2022) and Andrew (2023) who found out in their respective studies that parental occupation has significant influence on students' climate change awareness. The similar findings between previous studies and the present study is an indication that the nature of parents' occupation has influence on students' climate change awareness. Parents' major line of discussions and stories at home with their children tend to be guided by the nature of their occupation. In other words, the students' climate change awareness is partly dependent on their parental occupation.

The finding of the study with respect to research question five showed that family size has a positive high significant relationship with students' climate change awareness. The result in Table9 shows that the correlation coefficient between family size and students' climate change awareness was 0.59. This means that, there exist a positive high relationship between family size and students' climate change awareness. Table 9 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.59 was 0.35. This coefficient of determination (R^2) indicates that, 35% of variation in students' climate change awareness is attributed to family size. This is an indication that 65% of the variation in students' climate change awareness is attributed to other factors other than family size. For the hypothesis five, the result on Table 10 shows that an F-ratio of .248 with associated exact probability value of .000 was obtained. This probability value of .000 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .000 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between family size and students' climate change awareness was rejected. The researcher therefore, concludes that there is a positive high significant relationship between family size and students' climate change awareness. This finding agrees with the earlier findings of Anderson (2021), Livermore (2022) and Kufur (2014) who found out in their respective studies that family size has significant influence on students' climate change awareness. However, this study disagree with the earlier findings of Yunde (2020) and Oyedeji (2022) who found out in their respective studies that family size has no significant influence on students' climate change awareness. The varying findings in the relationship between family size and climate change awareness of students is obvious particularly between the study of Onyedeji (2022) and the present study which are in the same country. The difference in the findings is anchored on scope of the study. Oyedeji limited the research work to one education zone in Ondo state whereas the present study had wider spread in term of scope by covering the entire south-east geo-political zone of Nigeria. This wide coverage enabled the present study to get more input in terms of respondents which result to this finding that supports those of Anderson, Livermore, and Kufur.

The finding of the study with respect to research question eleven showed that residential topography has a positive high significant relationship with students' climate change awareness. The result in Table21 shows that the correlation coefficient between residential topography and students' climate change awareness was 0.61. This means that,

there exist a positive high relationship between residential topography and students' climate change awareness. Table 21 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.61 was 0.37. This coefficient of determination (R^2) indicates that, 37% of variation in students' climate change awareness is attributed to residential topography. This is an indication that 63% of the variation in students' climate change awareness is attributed to other factors other than residential topography. For the hypothesis eleven, the result on Table 22 shows that an F-ratio of 0.484 with associated exact probability value of .000 was obtained. This probability value of .000 was compared with 0.05 set as level of significance for testing the hypothesis and it was found to be significant because .000 is less than 0.05 level of significance. Thus, the null hypothesis which stated that; there is no significant relationship between residential topography and students' climate change awareness. The researcher therefore, concludes that there is a positive high significant relationship between residential topography and students' climate change awareness was rejected. This finding supported the earlier findings of Maxwell (2022), Ahmed (2023), Lewis (2014), and Viktor (2014) which revealed that there is significant positive relationship between residential topography and students' climate change awareness and attitude. The environment including the physical environment has strong influence on human activities and in most times it influences human attitudes towards environmental events such as climate change. For example, people who live at the river line area usually settle for fishing, vegetable farming and relied on boats and ships for transportation of goods and services. On the other hand people on plain land take to crop farming, hunting bush animals, lumbering and usually relied on vehicle for transportation of goods and services. Furthermore, the experience of weather in different topography varies. All these factors contribute to the extent to which students have climate change awareness. Therefore, the present finding has shown that residential topography of students has positive relationship with students' attitude to climate change.

Conclusion

Based on the findings of the study, several conclusions were reached. The study established that parental level of education has a significant positive relationship with students' awareness of climate change. This indicates that well-educated parents positively influence their children's understanding of climate change issues. Similarly, parental occupation was found to have a significant positive relationship with students' climate change awareness, suggesting that the type of work parents engage in contributes to shaping their children's knowledge and attitudes toward climate change. Furthermore, the study revealed that family size is significantly and positively related to students' climate change awareness, as the results showed a clear link between the number of family members and students' awareness levels. In addition, residential topography was also found to have a significant positive relationship with climate change awareness among students, implying that the nature of the environment in which students live strongly influences their awareness and perception of climate change.

Recommendations

Based on the findings of the study, the following recommendations were made.

1. The study recommended that state governments should pay serious attention to adult education in various communities. This could help parents who do not have opportunity to be educated at young age to acquire relevant knowledge to enable them interact meaning at home with their children on important global issues like climate change

2. The study also recommended that the state governments should intensify awareness creation in term of family sizes and their implications to quality living within the environment.

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