



Impact of Climate Change Awareness on Undergraduates' Socio-emotional Well-being in Nigeria

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Students' living conditions may suffer as a result of climate change. This research examined the impact of climate change awareness on undergraduates' beliefs about socio-emotional well-being in Nigeria. The total number of undergraduate students in Kwara state made up the study's population, with the sample size being 589. The Climate Change and Mental Wellbeing Questionnaire (CCMWQ) was used to collect data from randomly selected undergraduate participants for the study. The acquired data was evaluated using descriptive statistics, t-test, ANOVA and PPMC at a significance level of 0.05. The results showed that most undergraduates are aware of climate change but have little understanding of its origins, effects, and preventive strategies. The results further revealed that the undergraduates' level of climate change awareness influences their beliefs about their socio-emotional wellbeing. At different ages, participants' opinions on how climate change would affect their socio-emotional health varied dramatically. Similarly, a correlation exists between climate change awareness and beliefs about socio-emotional well-being and awareness and attitude towards protecting the environment.

Keywords: Awareness, Climate change, Socio-emotional wellbeing, undergraduates, Nigeria

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Introduction

There are various physical and mental health problems associated with the rate at which the climate is changing for living things in general and humans in particular (McMichael et al., 2006). According to NASA (NASA,

1

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2020), climate change is a global phenomenon that involves changes in the planet's typical climate (temperature, precipitation, and wind), which are primarily caused by human activities. The shift in climatic circumstances threatens the viability of the planet's ecosystems, as well as the future of humanity and the stability of the global economy. Natural internal climate system processes, as well as external, natural or human influences, can all contribute to climate change (external variability). Hence, natural human influences are the primary causes of climate change.

Human factors such urbanisation, deforestation, population growth, industrialization, and greenhouse gas production have been identified as key contributors to the increase in the quantity of carbon dioxide, which has altered the composition of the climatic conditions in recent decades (Buba, 2004; Odjugo, 2007). Studies show that the continent most at risk from climate change is Africa (Ilevbare & Idemudia, 2017). Because of their lack of climate knowledge, financial resources, and capacity for adaptation, poor nations in Africa have already experienced climate change and are oblivious to its impacts (Ojomo et al., 2015). Due to its susceptibility and inadequate coping capability, Nigeria, one of Africa's most populous countries with over 215 million inhabitants has been negatively impacted by climate change (During, 2017).

Climate change implications in Nigeria, according to Adepoju (2017), include increased temperatures, sea level rise and more severe and unpredictable weather. Increased water and food shortages, as well as increased heat stress and ultraviolet radiation, are all effects of climate change. The social and environmental determinants of health, such as access to clean water, food security, and clean air, are all impacted by climate change events, according to research by Borokinni (2017). Climate change thus raises a variety of health issues. Weather patterns and the climate have been shown to be indicators of health-related problems (During, 2017). Nwoke and colleagues (2009) linked climate change to higher temperatures, which in turn increased the production of several secondary pollutants, increasing the incidence of allergy and cardio-respiratory disorders as well as the mortality rate. Additionally, environmental catastrophes like flooding, rising sea levels, and water scarcity lead to population shifts and mental health problems.

According to Horton and McMichael (2008), people's health is at risk due to emotional stress and mental health issues brought on by the sense and fear of climate change. In light of the above, the purpose of this paper is to investigate the implications of climate change awareness on Nigerian undergraduates' mental well-being. Climate change, its consequences, as well as mitigation and adaptation strategies have received a lot of attention in rich countries, but this attention is lacking in poor countries (Ovuyovwiroye, 2013; Sakka, 2017). Furthermore, it is possible that in the rural areas of the majority of developing countries, climate change will be seen as a minor environmental problem. Additionally, this could be the reason why the majority of rural residents still indulge in practises like bush burning and deforestation to produce charcoal for cooking. These activities have led to climate change and the inadequate adaptation ability of the majority of people in rural regions. Numerous studies have shown that both urban and rural Nigerian regions have very little awareness of climate change (Akpomi & Vipene, 2016; Harmer & Rahman, 2014; Ogunbode et al., 2019; Ovuyovwiroye, 2013).

Several causes, including education, politics, social, and economic considerations, might be blamed for this. For example, a person's financial level is more likely to limit where and what sort of information they get about particular concerns (such as climate change) (Ogunbode et al., 2019). Additionally, the location of a person has an impact on how they perceive climate change because wealthy individuals are more likely to be able to adjust to changes and are less likely to suffer serious consequences. This may have an impact on how individuals feel and react to issues like climate change and environmental harm (Haider, 2019; Sakka, 2017).

By promoting climate change literacy among young and adult populations, encouraging changes in their attitudes and behaviours, and helping the population adapt to climate-change-related issues, climate change awareness is an educational process that aims to help people understand and address the global, regional, and local impacts of global warming. Numerous studies have shown that there is an urgent need to inform the public about the catastrophic effects of climate change or to increase public awareness of them (Akerlof et al., 2010; Pandve et al., 2011). The tactics and strategies to be used to raise awareness and sensitise people are determined by their projected hazard sensitivity and the severity of climate change's impacts on them (Below, Mutabazi et al., 2012).

Climate change awareness and understanding are essential for properly assessing its effects and dangers on a local and global level (Hansen et al., 2012), as well as encouraging actions across diverse strata of society to address climate change (Ochieng & Koske, 2013). Newspapers and other forms of media in Nigeria now have a role to play as a result of the emphasis on information availability and the importance of awareness. Nigeria takes up a significant amount of land and water on the planet. It is a large producer of hydrocarbons and natural gas with a population of more than 200 million people, who are employed in subsistence manufacturing, farming, fishing and grazing mostly. This means that climate change will inevitably affect Nigeria and Nigerians (Tribune.com.ng, 2012). According to Umeje (2010), Nigeria is at risk of being devastated by global climate change difficulties because the Nigerian media seems to be very uninterested in bringing attention to these issues. According to Umeje (2010), the Nigerian media appears to be lagging in climate change awareness campaigns, preferring to leave it to individuals. The majority of Africans, according to Umeje (2010), are oblivious of climate change, and the media must urgently play a crucial role in spreading awareness of the issues. Within the last 12 years, this position could have shifted. Many children, on the other hand, were educated about climate change through environmental education, which was a concerted effort to instruct students on the functioning of natural ecosystems, with a focus on how to effectively manage human behaviour within ecosystems (Bhattarai et al., 2015; Eneji et al., 2017).

Buggy and McGlynn (2014) investigated Tanzanian secondary school pupils' awareness of climate change. While this and other research provide information about students' understanding of climate change, critical problems such as its effects on socio-emotional well-being and attitudes toward climate change prevention are not addressed. Improving pupils' understanding of climate change can assist society as a whole to become more conscious of the issue (Buggy & McGlynn, 2014). As a result, Buggy and McGlynn (2014)

proposed that boosting climate awareness in society should begin in the classroom, emphasizing the need to determine students' perceptions and misunderstandings of climate change.

In Nigeria, Ayanlade and Jegede (2016) found that undergraduates are considerably more aware of climate change than they were learnt in university, citing sources such as the Internet and foreign media. Agboola and Emmanuel (2016) discovered that youth are more conscious of climate change and agree that it will have far-reaching consequences for humanity's survival. According to Oruonye (2011), 90% of the respondents were aware and agreed that bush burning, and the burning of fossil fuels are examples of human actions that lead to climate change. Previous research from various regions of the world have found that people who have a basic background in science, and some awareness and understanding of climate change, are more concerned about tackling the issue (Maddison 2007; Leiserowitz 2005, 2006; Amdu et al., 2013).

Despite students' awareness of climate change, their behaviour contradicts their consciousness which demonstrates little effort to safeguard the environment despite having a fundamental understanding of the issue (Hamid et al., 2021). Their behaviour slightly changed when they voiced concern about climate change while making minimal efforts, such as opposing open burning that produces greenhouse gases like carbon dioxide, methane, and particulate matter. Some people use public transportation or bicycles to get to distant places or travel around town. Some experts argue that raising awareness is not the most important factor in influencing behaviour change to combat climate change. For instance, they have no intention of participating or contributing (Bakar et al., 2013; Altin et al., 2014).

The Current Study

Countries around the world have ratified a number of treaties in response to global warming, agreeing to minimize actions that exacerbate the problem. Moreover, despite numerous studies (Balogun, 1995; Olajide et al., 2011) attempting to identify the primary elements and potential repercussions, the problem remains. Even within the most educated school communities, there are still many misconceptions and incorrect views regarding climate change, even though its repercussions are indisputably appearing everywhere. This present study, therefore, examined the impacts of climate change awareness on undergraduates' socio-emotional well-being in Nigeria.

Research Questions

The purpose of this study is to address the following research issues and hypotheses:

1. Are undergraduates in Kwara State universities aware of the changes in global climate?
2. What is the students' awareness of the causes of climate change?
3. What is the students' awareness of the effects of climate change?
4. What is the students' awareness of the prevention of climate change?

Research Hypotheses

1. Undergraduates' level of awareness will not significantly impact their belief regarding climate change knowledge effect on socio-emotional well-being.
2. Belief about the impact of climate change awareness on undergraduates' socio-emotional well-being will not significantly vary across gender, age and course of study.
3. There will be no significant relationship between belief about climate change awareness and undergraduates' socio-emotional well-being.
4. Substantial relationship will not occur between belief about climate change awareness and undergraduates' attitude towards protecting the environment.

Method

The research type used in the study was a descriptive survey. All undergraduate students in the research area, which was projected to consist of more than 50,000 students, made up the population in this study. The Research Advisor (2006) recommends a required sample size of 357 for a population of this size; nonetheless, 700 copies of questionnaire forms were distributed (400 online and 300 physically). Out of these 700, 589 responses were retrieved: 340 online, 249 physically. The sample was selected from three purposively selected universities in the study area, using proportional sampling based on the student population in a ratio of 2:1:1. Hence, 393 responses were retrieved in college A and 98 responses each in colleges B and C respectively.

A three-sectioned questionnaire *Climate Change and Socio-emotional Well-being Questionnaire* (CCSEWQ) was developed by researchers with expertise in counselling. A four-point Likert Type scale was used as the basis for the survey of Very Much Aware (VMA), Aware (A), Somehow Aware (SA), Not Aware (NA), as well as a two-point Likert Type scale of Yes and No, with scoring patterns of 3 to 0 for the former and 1 to 2 for the later. Percentages were used to analyse Sections A, B and C. At a significance level of 0.05, the proposed hypotheses were examined using the t-test, ANOVA and PPMC.

Results

Table I demonstrates that, with 363, or 61.6% of the study's population, women made up the majority of participants. The highest participation rate, at 57.0%, was among students between the ages of 21 and 26. 49.4% of the participants in the tested population offered courses connected to science.

Table II revealed that the majority of the undergraduates (90.7%) were aware of climate change. 77.4% of the respondents were aware that human activities caused climate change, while the majority of respondents (67.9%) were not aware of the UN framework convention on climate change.

Table III shows that more than 50% of the respondents were unaware that human activities including burning fossil fuels (54.3%), improper waste disposal (54.7%) and deforestation (52.3%) were contributing to climate change. The use of chemicals for cleaning and refrigeration contributes to climate change, according to 34.6% and 29.9% of students

Table I. Respondents' Distribution by Demographics

Variables	Frequency	Percent
Gender		
Female	363	61.6%
Male	226	38.4%
Total	589	100.0%
Age		
15 to 20 years	156	26.5%
21 to 26 years	336	57.0%
27 to 36 years	83	14.1%
37 years and above	14	2.4%
Total	589	100.0%
Course of Study		
Science related course	291	49.4%
Arts course	126	21.4%
Social Sciences	172	29.2%
Total	589	100.0%

Table II. Percentage Distribution of the Respondents' Awareness of Climate Change

Awareness	Yes	No
General awareness	534 (90.7%)	55 (9.3%)
Climate change is as a result of human activities	456 (77.4%)	133 (22.6%)
Awareness of UN framework convention on climate change	189 (32.1%)	400 (67.9%)

Table III. Percentage Distribution of the Respondents Awareness on the Causes of Climate Change

S/N	Climate change is as a result of:	VMA	A	SA	NA
1	Deforestation	28 (4.8%)	54 (9.2%)	199 (33.8%)	308 (52.3%)
2	Inappropriate waste disposal	36 (6.1%)	60 (10.2%)	171 (29.0%)	322 (54.7%)
3	Human factors such as vehicular and industrial pollution	29 (4.9%)	48 (8.1%)	161 (27.3%)	251 (59.6%)
4	Burning fossil fuels	38 (6.5%)	53 (9.0%)	178 (30.2%)	320 (54.3%)
5	Chemical use in refrigeration	80 (13.6%)	132 (22.4%)	204 (34.6%)	173 (29.4)
6	Burning of refuse	27 (4.6%)	54 (9.2%)	177 (30.1%)	331 (56.2%)
7	Cleaning chemicals	80 (13.6%)	108 (18.3%)	176 (29.9%)	225 (38.2%)

Table IV shows that more than 56.9% of participants were unaware of the effects of climate change on health-related issues such as water-borne diseases, malnutrition, and air-borne diseases (56.9%), frequent

natural disasters such as floods, droughts, and acid rain (56.5%), pollution of water sources (56.2%), extreme weather conditions (53.8%), declination of forest ecosystems (49.7%), reduction in agricultural production (47.2%), and reduction in the quality and quantity of water (43.8%).

Table IV. Percentage Distribution of the Respondents Awareness on the Effects of Climate Change

S/N	Climate change can result into:	VMA	A	SA	NA
1	Increase in sea level	142 (24.1%)	91 (15.4%)	157 (26.7%)	199 (33.8%)
2	Reduction in quality and quantity of water	68 (11.5%)	74 (12.6%)	189 (32.1%)	258 (43.8%)
3	Energy related issues	62 (10.5%)	64 (10.9%)	224 (38.0%)	239 (40.6%)
4	Formation of smug in urban area with large vehicular movement	64 (10.9%)	106 (18.0%)	191 (32.4%)	228 (38.7%)
5	Health related issues such as water borne diseases, under nutrition, air borne diseases	26 (4.4%)	62 (10.5%)	166 (28.2%)	335 (56.9%)
6	Declination of forest ecosystem	31 (5.3%)	74 (12.6%)	191 (32.4%)	293 (49.7%)
7	Pollution of water source	26 (4.4%)	63 (10.7%)	169 (28.7%)	331 (56.2%)
8	Extreme weather condition	20 (3.4%)	71 (12.1%)	181 (30.7%)	317 (53.8%)
9	Reduction in agricultural production	23 (3.9%)	96 (16.3%)	192 (32.6%)	278 (47.2%)
10	Frequent natural disaster such as flood, draught, acid rain	31 (5.3%)	60 (10.2%)	165 (28.0%)	333 (56.5%)

Table V shows that 67.9% of the respondents were not aware that climate change could be prevented by planting and protecting trees, conducting investigations regarding the causes and consequences of climate change (61.1%), educating others about preventing climate change (59.3%) and using conventional sources of energy (39.6%). While 36.5% and 26.3% of the respondents were somehow aware of using non-conventional sources of energy and reducing electricity use, respectively

Based on the level of climate change awareness, Table VI demonstrates a significant difference in the socio-emotional health of undergraduates. Because of this, undergraduates' level of awareness has a significant impact on what they think about how understanding of climate change impacts socio-emotional wellbeing.

Table VII demonstrates that although there was no significant difference in belief regarding the impact of climate change awareness on undergraduates' socio-emotional well-being based on gender or course of study, there was a significant difference depending on age. Scheffe Post-Hoc was used to determine the location of the significant difference; the results are displayed in Table VII.

Table V. Percentage Distribution of the Respondents Awareness on the Prevention of Climate Change

S/N	Climate change can be prevented by:	VMA	A	SA	NA
1	Planting and protecting trees	20 (3.4%)	38 (6.5%)	131 (22.2%)	400 (67.9%)
2	Using conventional sources of energy	56 (9.5%)	80 (13.6%)	220 (37.4%)	233 (39.6%)
3	Using non-conventional sources of energy	88 (14.9%)	109 (18.5%)	215 (36.5%)	177 (30.1%)
4	Reducing electricity use	165 (28.0%)	133 (22.6%)	155 (26.3%)	136 (23.1%)
5	Using public transport instead of personal vehicle	154 (26.1%)	123 (20.9%)	162 (27.5%)	150 (25.5%)
6	Educating others about preventing climate change	18 (3.1%)	51 (8.7%)	171 (29.0%)	349 (59.3%)
7	Making investigation regarding the causes and consequences of climate change	9 (1.5%)	50 (8.5%)	170 (28.9%)	360 (61.1%)

Table VI. Mean, Standard Deviation and t-value showing Climate Change Knowledge Effect on Mental Well-being of Respondents based on their Level of Climate Change Awareness

Awareness	N	Mean	SD	df	Cal. t-value	Crit. t-value	p-value
High	534	26.57	3.021	587	2.21*	1.96	.027
Low	55	25.62	3.148				

Note: *Significant, p is <0.05.

Table VII. Univariate Analysis of Variance showing the Impact of Climate Change Awareness on Undergraduates' Socio-emotional Well-being of Respondents Based on Gender, Age and Course of Study

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	724.65 ^a	22	32.93	3.95	.000
Intercept	87608.20	1	87608.20	10509.09	.000
Gender	9.25	1	9.25	1.11	.292
Age	279.40	3	93.13	11.17*	.000
Course of Study	48.02	2	24.01	2.88	.057
Error	4718.41	566	8.33		
Total	418512.00	589			
Corrected Total	5443.06	588			

a. R Squared = .133 (Adjusted R Squared = .099)
* Significance, <0.05

Table VIII shows that respondents who were 31 years of age and above had a higher mean score 28.64 (in subset 2) and thus contributed more to the significant difference.

Table VIII. Scheffe post-hoc based on Age

Age	N	Subset	
		1	2
15-20 years	156	25.58	
27-36 years	83	26.05	
21-26 years	336	26.92	
37 years and above	14		28.64
Sig.		.200	.054

Table IX indicates a significant relationship between climate change awareness and undergraduates' beliefs about socio-emotional wellbeing. Table X shows that there is significant relationship between climate change awareness and undergraduates' attitude towards protecting the environment.

Table IX: Pearson 'r' Showing Relationship between Climate Change Awareness and Undergraduates' Beliefs about Socio-emotional Well-being of the Respondents

Variables	N	Mean	SD	Cal. r-value	p. value
Awareness	589	1.09	0.29	-.091*	.027
Mental Well-being	589	26.48	3.04		
*Significant, p<0.05					

Table X: Pearson 'r' Showing Relationship between Climate Change Awareness and the Respondents Attitude towards Protecting the Environment

Variables	N	Mean	SD	Cal. r-value	p. value
Awareness	589	1.09	0.29	-.127*	.002
Attitude towards Environmental Protection	589	9.04	1.21		
*Significant, p<0.05					

Discussion

The findings of the study revealed that the majority of undergraduates are aware of climate change. While most participants are unaware of the UN Framework Convention on Climate Change, they are aware however, that human activities are to blame for climate change. This finding agrees with the study of Buggy and McGlynn (2014), who found students to be highly aware of climate change. Agboola and Emmanuel (2016) also found increased awareness of climate change among youth.

In the study, it was found that more than 50% of the participants were not aware that climate change is the result of human factors such as vehicular and industrial pollution, inappropriate waste disposal, burning fossil fuels and clearing forests. This implies that many undergraduates have shallow knowledge regarding specific human activities that cause climate change. The finding contrasts with the studies of Orunoye (2011) and Ogunsola et al., (2019). Orunoye (2011) who reported that 9 out of 10 were aware that bush burning and the burning of fossil fuels are part of the human activities that cause climate change. Likewise, according to Ogunsola et al., (2019), the majority of students were aware that poor sewage disposal, industrial discharges, gas flaring, bush burning, overgrazing, and deforestation are some of the human activities contributing to climate change. The reasons for the difference in findings could possibly be as a result of the selective information that people seek, especially young people, focusing more on entertainment news, events, and money-making ventures than climate and other related messages.

The study showed that more than the majority of the participants are not aware of the effects of climate change on health-related issues such as water-borne diseases, undernutrition, air-borne diseases, frequent natural disasters such as floods, draughts, acid rain, pollution of water sources, extreme weather conditions, declination of forest ecosystem, reduction in agricultural production, and reduction in quality and quantity of water, among others. This reflects the study of Pandve and Raut (2011), who also reported that some of the students were not aware of direct physical hazards of extreme climatic events, malnutrition, water-borne illnesses, vector-borne illnesses and health risks associated with natural disasters. On the contrary, Majra and Acharya (2009) discovered that the vast majority of those surveyed were aware of the direct health risks associated with climate change. The scant knowledge about the consequences of climate change on health explains the negative attitude of the participants towards taking remediating actions to protect the environment.

The participants also reported low awareness that climate change could be prevented by planting and protecting trees, conducting investigations on the causes and consequences of climate change, educating others about preventing climate change, and using conventional sources of energy. This diverges from the study of Gautam, Mandal and Yangden (2021), who reported that in terms of preventive measures for climate change, the majority of the respondents believed in afforestation and environmental sanitation. On the other hand, Altin et al., (2014), found that many do not intend to take action to help prevent climate change.

The results showed that there is a significant difference in the belief about the impact of climate change on socio-emotional well-being based on climate change awareness. That is, differences were found in the beliefs on the impact of climate change on socio-emotional wellbeing between participants who are aware of climate change and those who are not aware. It could be that the socio-emotional wellbeing of participants who have no knowledge about climate change could not be compared to those who are aware. This is in line with the studies of Stokols et al., (2009), Böhm (2003) and Weber (2006), who found that some people's sensitivity to climate change is not particularly strong, while causing uncertainty and emotional distress in others.

It was also found that the belief about the impact of climate change awareness on undergraduates' socio-emotional well-being does not differ by gender and course of study, but a significant difference is found between age groups, with the older groups being more aware. Rahman et al. (2014), however, found that whereas female respondents paid more attention to the psychological effects of climate change, male respondents paid more attention to the physical effects of climate change, such as heat-related stress. The reason for this could be that both genders could be socially and emotionally sensitive to issues of climate change due to new access to information. With regards to age differences, Martin et al., (2022) and Kuang and Root's (2019) found that older adolescents and youngsters were more likely than younger children to experience anxiety and concern.

The study indicates that climate change awareness has a negative impact on the mental well-being of undergraduates. This result is consistent with a study by Clayton et al., (2017), which found that climate change has a negative impact on mental health because extreme weather events can exacerbate mental illnesses like schizophrenia and bipolar disorder by increasing hostility and violence. Sanson et al., (2019) asserted that climate-related forced relocation might aggravate negative psychological effects such as trauma and adjustment difficulties.

Finally, it was found that climate change awareness has a positive impact on the undergraduates' attitudes towards protecting the environment. This result is in contrast with that of Oruonye's (2011) study, which found that students at tertiary institutions had a negative attitude towards climate change. Additionally, Ishaya and Obaje (2008) found that secondary school students also had a negative attitude toward combating climate change. The lack of understanding of the causes and effects of climate change could be the root of the unfavourable attitude towards preventative climate change strategies.

Conclusion

The study examined the impact of climate change awareness on undergraduates' beliefs about their socio-emotional well-being in Nigeria. It concluded that while most undergraduates have heard about climate change, many were not aware of specific human activities that result in climate change and of the effects of climate change on health-related issues. It was also established that the majority of undergraduates in the study have a negative attitude towards protecting the environment and that knowledge of climate change significantly impacts the belief that it influences socio-emotional well-being. Finally, the study concluded that undergraduates' level of climate change awareness influences their beliefs about their socio emotional well-being. Their beliefs about the impact of climate change on their socio-emotional well-being vary significantly across different ages but not by gender and course of study. Similarly, awareness of climate change is related to attitudes towards protecting the environment. These findings have implications on policies and practices in higher educational institutions, such as increasing students' awareness of human factors responsible for climate change as well as its effects and prevention and protection, and its relationship with wellbeing and mental health.

Disclosure

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