



Review Article

Perception of Climate Change among Youths in a FBO in a South-Eastern Town in Nigeria: A Pilot Study

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Abstract

Background: Climate change is a grim reality facing humanity. The options left to humanity include: finding ways to reduce the rate at which climate change is occurring; adopting measures that help humanity cope with climate change and even take advantage of the effects of climate change where possible. This study aimed at determining the climate change awareness level and practice of adaptation strategies among the respondents.

Methodology: This was a cross-sectional descriptive study among members of the youth wing of a Faith-Based Organization (FBO) in Southeastern Nigeria. This study is a pilot study which serves as a preamble for a study that will have the entire Southeastern geo-political zone of Nigeria as its study population. Data was analyzed using SPSS data analysis software. Results were presented using frequency tables.

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Results: Fifty-six respondents participated in the study. Level of awareness of the respondents regarding climate change was very high as 96.1% of the respondents were aware of climate change. The cause of climate change that is most recognized by the respondents is "bush burning" (76.8%). The effect of climate change that is most recognized is "desertification" (55.4%). The effect of climate change that is least recognized is "landslides" (28.6%). The most commonly practiced measure to mitigate climate change among the respondents is "telling others about climate change" (46.4%). Only 5.4% "trek or use public transport instead of driving privately" as a measure to mitigate climate change.

Conclusion: This study demonstrated that the youths are aware of climate change but they have poor knowledge of both the causes and the effects/impacts of climate change. We recommend interventions to increase the knowledge of young people in Nigeria regarding climate change.

Keywords: Climate change; Nigeria; Perception

Abbreviations

FBO: Faith Based Organization

Introduction

Globally, human civilization is rife with its environmental signatures with its role on the sustainability of the earth with a consequential global ecological modification. The environmental signatures of certain environmental activities is felt as the Anthropocene, "a new geological time period that marks the age of colossal and rapid human impacts on Earth's systems has its health and social outcomes" [1]. According to the Australian Academy of Sciences, Climate change is a change in the pattern of weather, and related changes in oceans, land surfaces and ice sheets, occurring over time scales of decades or longer [2]. The National Aeronautics and Space Administration (NASA) of the United States of America defined climate change as a change in the usual weather found in a place. This could be a change in how much rain a place usually gets in a year. Or it could be a change in a place's usual temperature for a month or season [3]. This is a simplified definition for a lay man. "Global warming" is sometimes erroneously assumed to be the same as Climate change. Global warming is actually an aspect of climate change. Global warming refers to the rise in global temperatures due mainly to increasing concentrations of green house gases in the atmosphere. This is especially needful in the dire IPCC report of October 2018 of a global warming of 1.5°C above pre-industrial levels and related greenhouse gas emission pathways that emphasizes on environmental preservation from the anthropogenic activities to avoid the health and social consequences from further warming [4].

Climate change affects health in several ways and a few are highlighted. Climate change, especially in tropical regions, (via its effects on temperature and surface water) affects the breeding of vectors that transmit infectious diseases such as mosquitoes which transmit malaria

and viral diseases (eg dengue and yellow fever). Similarly, rodents which transmit diseases (such as leptospirosis and tularemia) show proliferation patterns that are associated with climate variability. Evidences abound that certain diarrhoeal diseases exhibit seasonal variability. Climate change also causes extreme temperatures which are obviously dangerous to health (such as high temperatures resulting in fatal heat waves). Climate change has also resulted in the occurrence of weather disasters (such as droughts, floods, storms and bushfires) which have led to mortalities.

Over time, efforts have been initiated (consciously or sub-consciously) to either reduce the occurrence of climate change (mitigation), or reduce the effects of climate change (adaptation), by individuals, communities and governments. According to the United Nations Environment Program (UN Environment), climate change mitigation refers to efforts to reduce or prevent emission of greenhouse gases [5]. Mitigation measures include using new technologies, harnessing renewable energies, making older equipment more energy efficient, even changing management practices or consumer behavior, all geared towards reducing the release of greenhouse gases into the atmosphere. After the awareness for climate change was created, mitigation was initially the only focus. Over the years, it became evident that mitigation was not enough to halt the effects of climate change. Instead scientists came to realize that there is need to adapt to the increasing world temperature. This gave rise to the concept of climate change adaptation.

According to the United Nations Development Program (UNDP), climate change adaptation is a process by which strategies to moderate, cope with and take advantage of the consequences of climatic events are enhanced, developed, and implemented [6]. Another definition was given by the United Nations Framework on Climate Change (UNFCCC) thus: adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change [7]. The central idea behind climate change adaptation is to help individuals, families, communities and governments to live as normally as possible even with the effects and impacts of climate change. It has to do with practical actions to manage the consequences of climate change and also take advantage (where possible) of the effects and impacts of climate change. Adaptation aims at making humans understand and accept that climate change is real and consequently find ways to coexist with the resultant effects of climate change.

This study aims at empirically determining the climate change awareness level and practice of adaptation strategies among a group of youths who belong to a faith-based organization in South-Eastern Nigeria.

Methodology

Study area: This study was conducted in Anambra State, South-East, Nigeria. Anambra State is one of the thirty-six (36) States of Nigeria and is situated on a generally low elevation on the eastern bank of the River Niger. It is bounded in the north by Kogi State, in the south by Imo State, in the east by Enugu State and in the west by Delta State. The State comprises of 21 Local Government Areas (LGAs), 3 senatorial zones, and 177 communities, with the capital at Awka. The predominant religion in the State is Christianity.

Study design, Sampling technique and Data collection: This was a cross sectional descriptive study which serves as a pilot study. The findings from this pilot study will inform the design of a full blown study in the entire Southeastern geo-political zone of Nigeria. The study population was the members of the youth wing of a faith based organization. All the members (56 in number) were administered questionnaires (total population sampling). The questionnaire was semi-structured and self-administered.

Data analysis: The data was analyzed using the Statistical Package for the Social Sciences (SPSS). The findings were presented using frequency tables.

Ethical considerations: Ethical clearance was obtained from ethics committee of the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka, and Anambra State, Nigeria. A verbal informed consent was obtained from the participants after a detailed explanation of the study.

Results

Table 1 shows the biodata of the respondents. Fifty six youths participated in this study. The average age of the youths was 16.56 (± 2.6) years. The lowest age was 12 years and the highest age was 27 years. The commonest age group was the 10 to 19 years age group (91%). There were more males (55.4%) than females. All the respondents were single and Christians by religion. Majority of the respondents have completed secondary school (75%).

Variable	Frequency	Percentage (%)
Age (as at last birthday)		
Less than 10 years	0	0.0
10 to 19 years	51	91.1
20 to 29 years	4	7.1
30 or more years	1	1.8
Total	56	100.0
Gender		
Male	31	55.4
Female	25	44.6
Total	56	100.0
Marital Status		
Single	56	100.0
Others	0	0.0
Religion		
Christianity	56	100.0
Others	0	0.0
Highest educational qualification		
Nil formal education	0	0.0
Vocational school	0	0.0
Completed junior secondary	4	7.1
Completed senior secondary	42	75.0
Completed tertiary education	8	14.3
Missing	2	3.6
Total	56	100.0

Table 1: Biodata.

Table 2 shows the awareness of the respondents. The level of awareness of the respondents regarding climate change was very high as 96.1% of the respondents were aware of climate change.

Variable	Frequency	Percentage
Aware of climate change		
Yes	54	96.4
No	1	1.8
I don't know	1	1.8
Total	56	100.0
Aware of global warming		
Yes	50	89.3
No	3	5.4
I don't know	1	1.8
Missing	2	3.6
Total	56	100.0
Aware of both climate change and global warming		
Yes	48	85.7
No	3	5.4
I don't know	1	1.8
Missing	4	7.1
Total	56	100.0

Table 2: Awareness of climate change and global warming.

Table 3 shows the perception of occurrence of climate change. 78.6% of the respondents have actually observed climate change. 28.6% of the respondents agreed that climate change is a very serious problem.

Table 4 shows the knowledge of the respondents regarding the causes of climate change. The cause that is most recognized by the respondents is bush burning (76.8%). The cause that is least recognized is the “use of plastic products” (5.4%).

Table 5 shows the knowledge of the respondents regarding the effects/impacts of climate change. The effect that is most recognized is desertification (55.4%). The effect that is least recognized is landslides (28.6%).

Table 6 shows the respondents’ opinion on whose duty it is to combat climate change. Those who feel it is the responsibility of the federal government had the highest vote (39.3%).

Table 7 shows the climate change mitigation measures practiced by the respondents. The most practiced measure is “telling others about climate change” (46.4%). Only 5.4% trek or use public transport instead of driving privately.

Discussion

Fifty-six youths participated in this study. The average age of the youths was 16.56 (±2.6) years. The lowest age was 12 years and the highest age was 27 years. The commonest age group was the 10 to 19 years age group (91%). There were more males (55.4%) than females. All the respondents were single and Christians by religion. Majority of the respondents have completed secondary school (75%).

The level of awareness of the respondents regarding climate change was very high as 96.1% of the respondents were aware of climate change. Similarly, 89.4% of the respondents were aware of global warming. A study conducted in the cities of Portland and Houston (both in the USA) also reported high levels of awareness of climate change (98% in Portland and 92% in Houston) [8]. In Gombe,

Nigeria, Msheliza & Bello reported that 85.6% of the respondents were aware of climate change [9]. This study was conducted among youths. It is commendable that the youths are aware of climate change because climate change is a long-term challenge and the youths are the leaders of tomorrow. If the youths become aware early in life and start making changes in their lifestyles it will lead to adaptive and mitigating measures being achieved.

Despite the high awareness, the respondents exhibited a poor knowledge of some specific causes of climate change as only 41.1% knew that tree cutting encourages climate change and only 7.1% knew that roofing styles affect environmental preservation. Worse still, only 5.4% knew that the use of plastics encourages ecological changes. A nationally representative study among 517 American teens reported that 46.4% of the respondents correctly identified causes of climate change [10]. A study in Accra, Ghana reported that none of the residents who participated in the study identified fossil fuels as a cause of climate change [11]. The respondents in our study also exhibited poor knowledge of the effects/impacts of climate change based on the proportion of respondents that acknowledged the following effects/impacts of climate change: famine (50.0%), desertification (55.4%), diseases (37.5), and landslide (28.6%). Similarly, a study done in Akwa-Ibom State and Lagos States of Nigeria reported that only 34.65% of the students recognized droughts as a consequence of climate change [12].

Variable	Frequency	Percentage
Have you personally observed environmental changes that confirm climate change is happening?		
Yes	44	78.6
No	8	14.3
I don't know	3	5.4
Missing	1	1.8
Total	56	100.0
Have you personally observed changes in weather and rain pattern?		
Yes	39	69.6
No	4	7.1
I don't know	3	5.4
Missing	10	17.9
Total	56	100.0
Have you personally observed increasing draught?		
Yes	47	83.9
No	9	16.1
Total	56	100.0
Do you think that climate change is happening in Nigeria?		
Yes	46	82.1
No	7	12.5
Missing	3	5.4
Total	56	100.0
How serious is the problem of climate change?		
Not serious	15	26.8
Very serious	16	28.6
Not sure	24	42.9
Missing	1	1.8
Total	56	100.0

Table 3: Respondents’ individual perception of climate change.

Variable	Frequency	Percentage
What are the causes of climate change?		
Human induced activities	27	48.2
Natural phenomenon	23	41.1
Supernatural/religious forces	2	3.6
Others	2	3.6
Missing	2	3.6
Total	56	100
Does tree cutting cause climate change?		
Yes	23	41.1
No	12	21.4
Don't know	2	3.6
Missing	19	33.9
Total	56	100.0
Does new roofing style cause climate change?		
Yes	4	7.1
No	24	42.9
Don't know	8	14.3
Missing	20	35.7
Total	56	100.0
Does bush burning cause climate change?		
Yes	43	76.8
No	1	1.8
Don't know	2	3.6
Missing	10	17.9
Total	56	100.0
Does improper refuse disposal cause climate change?		
Yes	23	41.1
No	6	10.7
Don't know	6	10.7
Missing	21	37.5
Total	56	100.0
Does use of plastic products cause climate change?		
Yes	3	5.4
No	21	37.5
Don't know	8	14.3
Missing	24	42.9
Total	56	100.0

Table 4: Knowledge of Causes of Climate change.

The level of knowledge of our respondents regarding the causes and effects/impacts of climate change is not encouraging because knowledge is the first step towards action though knowledge does not guarantee action. This actually indicates that interventions should be directed at increasing the knowledge of the youths in Africa regarding climate change.

Majority (78.6%) of the respondents reported that they have observed changes that indicate climate change is occurring. Similarly, 69.6% of the respondents have observed changes in weather and rain, while 83.9% have observed increasing droughts. Furthermore, 82.1% of the respondents believe climate change is occurring in Nigeria and 28.6% think it is a serious problem. These findings are actual-ly good because they bring home the reality of climate change. The

respondents having observed the changes and also seeing climate change as a reality will make them more likely to accept adaptation strategies if they are taught. They are also more likely to take ownership of policies instituted by government with respect to climate change mitigation.

Famine	Frequency	Percentage
Yes	28	50.0
No	4	7.1
Don't know	36	64.3
Missing	20	35.7
Total	56	100.0
Desertification		
Yes	31	55.4
No	1	1.8
Don't know	3	5.4
Missing	21	37.5
Total	56	100.0
Diseases		
Yes	21	37.5
No	6	10.7
Don't know	4	7.1
Missing	24	42.9
Total	56	100.0
Landslides		
Yes	16	28.6
No	5	8.9
Don't know	7	12.5
Missing	28	50.0
Total	56	100.0
Decreasing environmental resources		
Yes	17	30.4
No	9	16.1
Don't know	8	14.3
Missing	22	39.3
Total	56	100.0

Table 5: Knowledge of impact/effects of climate change.

Our study showed that the respondents do not appreciate the role individuals should play in addressing climate change in Africa. Only 19.65% of the respondents agreed that individuals should be involved in addressing climate change. Only 57.1% of the respondents knew that “learning and educating others on adaptation to climate change effects is needed against climate change”. Worse still, 53.6% identified “educating the public on energy use” as a measure to mitigate climate change. These findings are of great concerns because climate change mitigation and adaptation strategies cannot be successful without the input of individuals and families in the communities. Interventional approaches at the micro (individuals), meso (communities) and macro (policies, government) levels have a way of synergistic impact. Governments alone will not be successful in entrenching adaptation strategies and mitigation measures if the citizens do not adopt changes in lifestyle.

Variable	Frequency	Percentage
Who should address climate change in Africa		
Local governments should address climate change in Africa	14	25.0
State governments should address climate change in Africa	12	21.4
Federal government should address climate change in Africa	22	39.3
Individuals in Nigeria should address climate change in Africa	11	19.6
International governments should address climate change in Africa	7	12.5
National institutions should address climate change in Africa		
International institutions should address climate change in Africa	16	28.6
Governments and individuals should address climate change in Africa	21	37.5
Nigerian governments and individuals should address climate change in Africa		
None of the above	4	7.1
Measures to mitigate climate change		
Banning importation of used cars and electronic gadgets	6	10.7
Educating the public on energy use		
Adaptation measures are needed against climate change	17	30.4
Advocacy for clean energy policies is needed against climate change	14	25.0
Behavioral changes that reduce energy consumption are needed	12	21.4
Learning and educating others on adaptation to climate change effects is needed against climate change	32	57.1

Table 6: Respondents opinion of who should address climate change in Africa (multiple responses) and measures to mitigate climate change (multiple responses).

Variable	Frequency	Percentage
Switching off lights when not in use	18	32.1
Unplugging unused electronic gadgets	14	25.0
Trekking or using public transport instead of driving privately	3	5.4
Telling others about climate change	26	46.4

Table 7: Measures practiced by respondents to mitigate climate change (multiple responses).

Looking at the measures actually practiced by the respondents to reduce the effects of climate change, it is very evident that the respondents were doing very little to mitigate climate change and its effect. Only 5.4% of the respondents “trek or use public transport instead of driving” as a measure to mitigate climate change and only 25% “unplug electrical gadgets when not in use” as a measure to mitigate climate change. In the cities of Portland and Houston in the USA, 43% of respondents reported having reduced their energy usage at home, 39% had reduced gasoline consumption, and 26% engaged in other behaviors, largely recycling. It is not surprising that the practice of measures to mitigate climate change is very low among our study respondents because there can't be action without knowledge. Our respondents have already demonstrated poor knowledge of the causes of climate change.

Conclusion

In conclusion, our study has demonstrated that the youths are aware of climate change but they have poor knowledge of both the causes and the effects/impacts of climate change. They also do not practice mitigation measures against climate change. We therefore recommend as follows: Intensified efforts to increase the knowledge of young people in Nigeria regarding climate change, with special emphasis on the causes and effects/impacts of climate change. This can be done using the three levels of intervention for individuals such as at schools, families and communities through the use of media. We also recommend macro level intervention in the form of government policies that aim at increasing behavioral change in favor of lifestyles that foster climate change mitigation.

Declaration

Ethics approval and consent to participate: Ethical clearance was obtained from ethics committee of the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka, and Anambra State, Nigeria. A verbal informed consent was obtained from the participants after a detailed explanation of the study.

Consent for publication: Not applicable

Availability of data and material: The dataset used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

Ikechebelu NN and Azuike EC were involved in the conception and design of the study. Nwankwo BE was involved in the data collection, data entry and data analysis. All three authors participated in the writing up of the study. All three authors participated in final proof reading before submission of the paper.

Consent for participants less than 15 years

The authors sought a verbal consent from the parents of the participants that are less than 16 years. The parents of all the under-aged participants gave verbal consent after the study protocol was explained to them.

Conflicts of Interest

The Authors hereby declare that there were no conflicts of interest.

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