



Knowledge and Perception of Climate Change in Ethiope East Local Government Area of Delta State

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This study ascertains the knowledge and attitude towards climate change in Ethiope East Local Government Area of Delta State. Climate change poses a clear danger to life on earth and therefore to the continued existence of humanity. Rough estimates suggest that over the next 50 years or so, climate change may likely have more serious threats to meeting global food needs than other constraints on agricultural system. The study adopted cross-sectional survey design. The sample consists of 210 respondents and was selected through multi-stage sampling technique. Using Epistemology theory as the theoretical framework, five research questions and three hypotheses were formulated for the study. The data collected from the respondents were analyzed using chi-square (X²) statistics. The findings indicated that there is statistically significant relationship ($p < .000$) between place of residence and perception of climate change. Finally, the study revealed that there is statistically significant relationship ($p < .036$) between sex and knowledge of climate change. It was therefore recommended that enlightenment campaign should be carried out to sensitize the people on to environmentally friendly by planting more trees and encouraging afforestation. Pragmatic measures should be taken by the government to ensure that the effects of climate change are reduced to avoid its harmful health effects.

ABSTRACT



Keywords: Knowledge and Perception of Climate Change; Ethiope East Local Government Area; Delta State

Introduction

Climate change poses a clear danger to life on earth and therefore to the continued existence of humanity. According to, Intergovernmental Panel on Climate Change (IPCC 2007), rough estimates suggest that over the next 50 years or so, climate change may likely have a serious threat to meeting global food needs than other constraints on agricultural systems. Specifically, population, income, and economic growth could all affect the severity of climate change impacts in terms of food security, hunger, and nutritional adequacy. If climate change adversely affects agriculture, the effects on humans are likely to be more severe in the poorer societies.

According to Nzeadibe, Egbule, Chukwuone and Agu, (2011), the rising demand for food over the next century due to population and real income growth will lead to increasing global food scarcity, and a worsening of hunger and malnutrition problems particularly in developing countries. In addition, many African countries, which have their economies largely based on weather-sensitive agricultural productions systems like Nigeria, are particularly vulnerable to climate change (Ekwedigwe & Mbalisi 2008). This vulnerability has been demonstrated by the devastating effects of recent flooding in the Niger Delta, Niger-Benue confluence and some parts of south eastern region of the country, coupled with various prolonged droughts that are currently witnessed in some parts of Northern region.

Unfortunately, the biggest obstacle to climate change mitigation is lack of its knowledge especially in developing countries including Nigeria (Agwu & Okhimamhe, 2009; Ozor, 2010). It is painful that Africa is one of the most vulnerable continents to climate change (based on literature evidence), yet, most studies (Mastrandrea & Schneider, 2009; Mings & Jeffery, 2008) conducted in Africa and specifically in various Nigerian universities show that there was either little or complete lack of knowledge about climate change or change programmes in these universities. This also influences the attitude towards climate change.

There is urgent need for a better understanding of the changing climate pattern and how they affect extreme weather events (Mbalisi 2008). Enhancing knowledge of climate change is critical for improving projections of future climate change. Adequate knowledge and awareness of the effects of climate change will help make communities to join forces in reducing the vulnerability of societies to climate-related risks both now and in the future. Understanding attitude and the potential impacts of global environmental change is a first step in modelling what will happen when any one of them is changed as a result of possible global warming, and a prerequisite for defining appropriate societal responses. Therefore, the main thrust of this study is to ascertain knowledge and attitude towards climate change in Ethiope East Local Government Area of Delta State through the following questions:

- I. Does one's sex affect knowledge of climate change among residents of Ethiope East Local Government Area of Delta State
- II. Does place of residence influence the perception of climate change in Ethiope East Local Government Area of Delta State?

Empirical Literature on Knowledge of and Attitude to Climate Change

Poortinga, Pidgeon and Lorenzoni (2005) reported findings of a comprehensive empirical survey of public opinion towards future energy options for the UK, with a particular emphasis on attitudes towards nuclear power when placed in the context of climate change. Interviews for this study were conducted between 1 October and 6 November 2005. A quantitative survey was undertaken in Great Britain (England, Scotland, and Wales) by the market and opinion research company MORI. A national representative quota sample of 1,491 people aged 15 years and older was interviewed face-to face in their own homes. The interviews were carried out using fully trained and supervised market and opinion research interviewers and took on average about 32 minutes to complete. Interviews were conducted at 257 sample points comprising 1 Super Output Area (i.e., 1 pair of adjacent Output Areas). The sample points were selected randomly from a stratified sample of output areas sorted by Government Office and council area. Output Areas with a low number of addresses (<80 postal address files) were excluded, as were any non-residential area (e.g., hospitals, prisons, and college accommodation). The data were analyzed using percentage and the findings reveal that currently, climate change / global warming is a much higher concern for people than is nuclear power. Specifically, 82% of respondents were very or fairly concerned about the former compared to only

58% very or fairly concerned about the latter. People were also far more concerned about radioactive waste (80% very or fairly concerned) than they were about nuclear power. Interestingly, respondents also showed levels of concern about using up energy resources that are not replaceable, such as oil and coal (83% very or fairly concerned about this issue). The issue prompting highest concern was pollution of rivers and lakes and seas (92% very or fairly concerned), while the lowest was lack of access to parks/green spaces (56%).

Rawlins, Chen, Rawlins, Chadee and Legall (2007), conducted a study to determine the level of understanding of the issues of climate change (CC)/variability (CV) and public health by populations of St. Kitts and Nevis (SKN) and Trinidad and Tobago (T&T) and to find whether respondents would be willing to incorporate these values into strategies for dengue fever (DF) prevention. Using a cluster sampling system, representative samples of the communities of SKN (227) and T&T (650) were surveyed for responses to a questionnaire document with questions on the impact of climate variability on health, the physical environment, respondents' willingness to utilize climate issues to predict and adapt to climate variability for DF prevention. Data were analyzed by Epi Info. Sixty-two per cent (SKN) and 55% (T&T) of respondents showed some understanding of the concept of climate change (CC) and distinguished this from climate variability (CV).

Chah, Uddin and Odo (2016), identified gender differences in knowledge of climate change among livestock farmers in Nsukka agricultural zone, Enugu State. Data were collected using a multistage sampling technique to select 80 livestock farmers. Percentage, mean statistics and standard deviation were used in the presentation of the results. Hypothesis for the study was analysed using t-test. The results showed that the mean age of respondents was 49 years and 31.2 percent of farmers had secondary school education. Both male (50 percent) and female (55 percent) respondents had medium knowledge on climate change as it relates to livestock production. There was no significant difference between men ($M = 13.92$; $t = 0.971$) and women's ($M = 13.20$; $t = 0.971$) knowledge on climate change with respect to livestock production. Campaigns should be intensified to sustain and improve existing knowledge on climate change among male and female livestock producers in the study area.

Acquah (2011) conducted a study to assess the level of awareness and quality of knowledge regarding climate change in central Ghana. A survey of 78 randomly sampled respondents was conducted using a standard questionnaire. A well-structured interview schedule was the main tool of data collection while descriptive statistics and logistic regression analysis were the main analytical techniques. Empirical analysis revealed gaps in the level of awareness as well as limited knowledge on the causes and prevention of climate change. Logistic regression analysis finds gender, years of education and income as significant predictors of the awareness of the importance of climate change. The study suggested that there is the need for educational campaigns to target females, the poor and the illiterate among others given that gender, education and income were positive and significant on the awareness of the importance of climate change.

Cardwel (2011) conducted a study titled knowledge, attitudes and practices of global environmental change and health: toward sustainable behaviour change. The study was poised to find out how members of the public perceive and behave in relation to global environmental change. This research begins to explore the knowledge, attitudes and practices of Canadians related to global environmental change and health. In particular, the work focused on results from qualitative, semi structured in-depth interviews ($n=22$) with adults (18+) in the Golden Horseshoe region of Southern Ontario. Results indicated that although participants were environmentally aware and concerned about local environmental issues (e.g., air pollution), detailed knowledge of specific causes, impacts and risks of climate change and global warming was limited. While the majority of respondents expressed concern about global environmental change, there was also skepticism around the causes and impacts in the Golden Horseshoe Region. Participants demonstrated a willingness to act in environmentally friendly ways, and respondents described possible environmentally-friendly activities such as recycling and reducing energy consumption. The main contribution of the study according to the author, is the advancement of knowledge related to the public perception of climate change, global warming, and global environmental change as important emerging environmental health risks.

Ozor (2009), using descriptive analysis demonstrated the processes that lead to climate change so as to enable a better understanding of the concept. The study described in details the impacts of climate change on various issues of national development such as low agricultural productivity, food insecurity, resource conflicts, unemployment,

environmentally-induced migration, livelihood problems and health issues. The study also noted that these impacts are as a result of devastating effects of flooding, drought, erosion, desertification, sea level rise, heat stress, pests and diseases, erratic rainfall patterns, etc which are all due to climate change. The study further suggested the need for climate policy in Nigeria; the establishment of Nigerian Climate Change Commission (NCCC); the development of a national framework for climate change adaptation; and the embracing of emerging technologies among others. In addition, Ozor (2009) showcased the new role of agricultural extension in the face of climate risk management. These include awareness creation, mobilization, training, assistance, and dissemination of proven measures of mitigation/adaptation to climate change among vulnerable communities in Nigeria.

Furthermore, epistemology theory as postulated by Conner and Norman (1996), agrees that environment influences an individual's attitude to and level of knowledge of an object or event including climate change. If the members of the group under study receive information on climate change from school or from their environment through their senses (Epistemology Theory), their level of knowledge would increase. As their knowledge of climate change increases from low to very high level, they may likely develop more positive attitude to climate change. The reverse will be the case if they have low knowledge of climate change. Katz (1960) noted that the individual changes to positive attitude in order to get reward and/or to prevent danger like climate change.

Methodology

The study was carried out in Ethiope East is a Local Government Area of Delta State, Nigeria. The headquarter is located at Isiokolo. Ethiope East LGA has three districts, namely, Abraka, Agbon and Isiokolo. The study adopted cross-sectional survey design. The sample consists of 210 respondents and was selected through multi-stage sampling technique. Questionnaire was instrument for data collection and were analyzed using chi-square (X^2) inferential statistics

Findings

Table 1: Demographic Data

Sex	Frequency	Percent
Male	116	58.6
Female	82	41.4
Place of Residence		
Urban	87	43.9
Rural	111	56.1
Total	198	100.0

Table 1 It shows that about 58.6% of the respondents were males while 41.4% were females. In summary, it can be seen there were more males respondents than female respondents. Also, the table reveals that respondents' who reside in urban areas were 43.9% while those who reside in rural areas were 56.1%. It can be seen from the table that majority of the respondents were rural residents.

Table 2: Knowledge and Perception of Climate Change

Knowledge of climate change	Frequency	Percent
Yes	192	97.0
No	6	3.0
Perception of climate change		
Risky/harmful	111	56.0
Beneficial	87	43.9
Total	198	100.0

Table 2 shows that 97.0% of the respondents have heard of climate change while 3.0% stated categorically that they have not heard of climate change. This means that majority of the respondents (97.0%) who participated in the study have heard of climate change.

Table 2 reveals that 56.0% of the respondents perceived climate change as risky/harmful, while 43.9% of the respondents perceived it as beneficial. It is deduced that most respondents perceived climate change as risky/harmful.

Table 3: Cross-Tabulation of Sex and Perceived Effects of Climate Change

Sex	Knowledge of climate change		Total
	Have knowledge	No Knowledge	
Male	110(94.8%)	6(5.2%)	116(100.0%)
Female	82(100.0%)	0(0.0%)	82(100.0%)
Total	192(97.0%)	6(3.0%)	198(100.0%)

$\chi^2 = 4.374$; $df=1$, $p<.036$

The result shows that 94.8% of male respondents have knowledge of climate change and 5.2% have no knowledge of climate change. On the other hand, 100.0% of the female respondents have knowledge of climate change. However, with the computed $\chi^2 = 4.374$; $df=1$. the test shows that there is statistically significant relationship ($p<.036$) between sex and knowledge of climate change. This implies that knowledge of climate change is influenced by sex.

Table 4: Cross-Tabulation of Place of Residence and Perceived Effects of Climate Change

Place of residence	Perceived effect of climate change		Total
	Risky	Beneficial	
Urban	57(65.5%)	30(34.5%)	87(100.0%)
Rural	54(48.6%)	57(51.3%)	111(100.0%)
Total	111(56.0%)	87(43.9%)	198(100.0%)

$\chi^2 = 49.221$; $df=1$, $p<.000$

The result shows that 65.5% of urban residents perceived climate change as risky, 34.5% perceived it as beneficial. On the other hand, 48.6% of the rural residents perceived it as risky while 51.3% perceived it as beneficial. However, with the computed $\chi^2 = 49.221$; $df=1$, critical value =5.991 the test shows that there is statistically significant relationship ($p<.000$) between place of residence and perception of climate change. It can be deduced that perception of climate change is influenced by place of residence.

Discussion

This study shows a statistically significant relationship ($p<.036$) between sex and knowledge of climate change. This finding is consistent with Aaron (2010), who found that, women underestimate their climate change knowledge more than do men. Also, women express slightly greater concern about climate change than do men, and this gender divide is not accounted for by differences in key values and beliefs or in the social roles that men and women differentially perform in society. Chah, Uddin and Odo (2016), found male (50 percent) and female (55 percent) respondents had medium knowledge on climate change as it relates to livestock production. There was no significant

difference between men ($M = 13.92$; $t = 0.971$) and women's ($M = 13.20$; $t = 0.971$) knowledge on climate change with respect to livestock production.

Although earlier research on perceptions of climate change revealed the existence of differences in perception among local people (Anisimov and Orttung 2019), this study revealed the existence of statistically significant relationship ($p < .000$) between place of residence and perception of climate change. Amelia, Crews, Brian and Kenneth (2018) found that residents perceive environmental change in light of their residential histories and their production of place. Their results highlight that environmental change in an area is perceived in the context of previous residences, including the length of time spent in residence and the environmental characterization of that place.

Conclusion

This study investigated the knowledge and perception towards climate change in Ethiopia East Local Government Area of Delta State. the study arrived at certain revealing conclusions and then made some recommendations. Based on the analysis derived from fieldwork findings and the supporting theoretical framework, we can rightly conclude that residents of Ethiopia East Local Government Area of Delta State. They perceive climate change as risky as effects of the change in global climate. To curb the phenomenon, the following recommendations were made even though the is knowledge of climate change in the community, NGOs and relevant stakeholders should also be involved in the campaign to enlighten the people on need for afforestation and reduction in deforestation. Enlightenment campaign should be carried out to sensitize the people to be environmentally friendly by avoiding the degradation of the ecological system. Pragmatic measures should be taken by the government to ensure that the effects of climate change are reduced to avoid its harmful effects by the provision of adequate and standard infrastructure by road drainages, town planning, open spaces and parks etc

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