

Assessment of Lagosians' Perception of Climate Change as a Public Health Concern

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The study examined the perception of Lagosians on climate change and its likely public health concerns. Three variables – gender, level of education and occupation were used to examine the peoples' perception on climate change. The population of the study consists of residents of Lagos metropolis. Purposive/convenient sampling technique was used to select six hundred (600) respondents as the sample size, but only five hundred and seventy-six (576) questionnaires were good enough for data analysis. A self-structured questionnaire with a reliability of (0.7098) 0.71 was used for data collection. T-test and ANOVA analyses were used to test the three (3) hypotheses that were generated, but all were rejected. This implies that all variables examined had influence on Lagosians' perception of climate change. Based on these findings some recommendations were suggested among which are: the need for environmental education as far as climate change is concerned; the need for the government and policy makers to carry the masses along in the formulation and implementation of environmental health policies.

Keywords: Lagosians, perception, climate change, public health concern.

Introduction

Climate change is the greatest environmental challenge facing the world today. According to scientific evidence, rising global temperatures will bring changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather. The effects will be felt locally, nationally, regionally and internationally; especially in many developing countries that are particularly vulnerable.

The concerns for climate change and its perceived catastrophic consequences worldwide were responsible for the creation of the United Nations Framework Convention on Climate Change (UNFCCC), The UNFCCC is an international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED) (also known as the Earth Summit informally), held in Rio de Janeiro, Brazil from June 3 to 14, 1992.

The treaty is aimed at stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. According to the terms of the UNFCCC, having received over 50 countries' instruments of

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ratification, it entered into force on March 21 of 1994. About 198 countries are signatory to the treaty (UNFCCC, 1997).

Since 1994, several annual follow-up conferences have been convened by the UNFCCC. Such conferences are known as Conference of Parties to the treaty (or simply, COP). They are aimed at assessing progress in dealing with climate change, for example, beginning in the mid-1990s, these annual conferences negotiated the Kyoto Protocol that established legally binding obligations for developed countries to reduce their greenhouse gas emissions (UNFCCC, 1997).

Nigeria, being one of the signatories to the convention, was ably represented in all these conferences over the years. However, apart from the top-level government officials that shuttle to attend these conferences, there have not been public consultations, debates or legislative oversight regarding this very weighty international commitment. Hence, not much is known of the Nigerian general public perception of this global phenomenon.

Studies made of public perceptions of environmental problems therefore, should include investigations of the way in which the issues are understood by different sections of society and their evaluation of and attitude towards them (Bostrom, Morgan, Fischhoff and Read, 1994). The relative importance of environmental issues to other public concerns has been investigated, as has the degree of public support for action at political, community and personal levels through risk analysis techniques (O'Connor, Bord and Fisher, 1999).

There are a number of international comparisons which seek to explore differences between different societies either through large scale surveys (Bord, Fisher and O'Connor, 1998) or in-depth work with small groups (Dunlap, 1998).

Since we now live in highly pluralist societies a single unique 'public attitude' or 'opinion' on any specific environmental issue is unlikely, although some societies display a more developed consensus than others. In general, the different constituencies of the public must be expected each to present a spectrum of opinion.

Similarly it can be expected that there will be considerable differences between the most commonly held views of the different publics. There is, therefore an issue about the general relevance of work on public perception, even where the results are taken from a sample chosen to represent a cross section of the wider public in a particular society. There is also a question about the degree to which perception should be translated into a propensity for action. Where surveys suggest support for particular official positions or policy initiatives, does this continue to apply even where the consequences might be problematic at an individual level? (Bon, Fisher and O'Connor, 1998; Blake, Guppy and Urmetzer, 1997; Berk and Shulman, 1995).

Despite these methodological issues, several broad common themes have emerged from the work on public perception of the environment. This section aims to describe some of these themes as they apply to the specific issue of health and climate change.

However, within the study of public understanding of the environment, the problem of health impacts of climate change is highly specific and there is little work available. The principle route into the topic is therefore through a combination of work on the broader issues of climate change and health and the environment.

There is a large amount of published work on public understanding of climate change. Much of it derives from interest in the cognitive or psychological processes by which people make sense of risk associated with climate change (McDaniel, Axelrod and Slovic, 1996). There are also works on the understandings people acquire from the representations of the climate change as shown, for example in the media (Bell, 1994). There are a few studies of the way in which the understanding reached is embedded in (and affected by) the broader notions of

citizenship and individual and institutional responsibility in different societies (Harrison, Burgess and Filius, 1995).

The following is an attempt to summarize the broad themes that emerge from this work. There is considerable consensus amongst investigators that the problem of global warming is now understood by lay publics as a reality and as an issue of concern within society. It tends to dominate discussions of global environmental problems. However, most studies suggest that global warming is no longer peoples' main social or environmental concern; crime and unemployment commonly rank above the environment for and of environmental concerns, air pollution and toxic waste are generally perceived as more pressing than climate change (Witherspoon, 1994).

Studies also show that people have a strong tendency to use 'global warming' as a catch-all phrase, so that the problems of stratospheric ozone depletion and air pollution in general often become included within it (Kempton, 1991). There is also evidence that there is a tendency to confuse climate and weather (Gowda, Fox and Magelky, 1997). Some investigators believe this to be driven, at least in part, by the media treatment of recent episodes of severe weather. It is widely recognized that there are cycles of media attention and that these have a powerful role in influencing the type and framing of issues within the public arena for debate (Hilgartner and Bosk, 1988). Environmental issues, including global environmental change, are subject to these cycles of attention (Mazur, 1998) and where periods of higher media attention to environmental issues coincide with particular catastrophic events or risk issues; these are often conflated in both the framing strategies of the media and in lay discussions (Harrison, Burgess and Filius, 1995).

Apart from increased incidence of severe weather, people may attribute changed agricultural yield, species extinction and health effects to climate change; the health impact is seen largely in terms of an increase in skin cancer (Bostrom, Morgan, Fischhoff and Read, 1994). When environmental issues are framed as health concerns any gender variation in the perception of risk tends to disappear (Bord and O'Connor, 1997).

People's perception of the responsibility for action seems diffuse. There is wide understanding that pollution from energy conversion and industry is the prime cause of climate change, but few people make the link between their own energy consumption and greenhouse gas emissions. This is a common finding in studies of public understanding of climate change: the failure to link global impacts to the personal action of individuals (Kempton, 1991).

Studies of public reaction to environmental risk issues suggest a considerable mistrust of governments companies or experts. However, there seems to be strong belief that governments should take the lead in resolving environmental problems (O'Connor, Bord and Fisher, 1998). This is linked to feelings of lack of personal efficacy identified above, as well as the social desire for institutional accountability.

There appears to be a moderate degree of trust in the ability of experts to address climate change effectively, more so than in their ability to address other key concerns such as crime or traffic accidents. However, there is less confidence in expert ability to address climate change than environmental pollution in general or health risks such as AIDS or heart disease (O'Connor, Bord and Fisher, 1998).

Studies of perception between different societies suggest that the patterns described above are broadly repeated, though with differing emphasis. A comparative study of public understanding in the UK and the Netherlands, for example, found that the mistrust of claims of safety was particularly pronounced in the UK. The citizens of the Netherlands had a firmer

'social contract' with their government and institutions, and seemed more willing to accept change (Harrison, Burgess and Filius, 1995).

At a local scale, people routinely include issues of health in their evaluations of their environment. In particular, the main issue associated with traffic pollution is that it is a threat to health (Boyes and Stanisstreet, 1998). Perceived risk to health seems to be a major factor in determining whether or not individuals will take environmental action (Segun, Pelletier and Hyunsley, 1998). Studies of claims made by campaigning groups and the media suggest that such groups tend to focus on the health aspects of environmental issues, probably because these make a powerful and direct appeal to the individual, motivating people politically but without making an overtly party political point (Garvin and Eyles, 1997).

Experience in the United Kingdom suggests that the most effective campaigns for both non-government organizations (NGOs) and government are those where health effects can most directly be linked to environmental pollution in public perception. The unleaded petrol campaign in the UK was driven by the health impacts of exposure to lead. In Germany the leading issue was that unleaded petrol was essential for the introduction of new vehicle technology (catalytic converters) reduce other pollutants from petrol driven vehicles. This was translated into action in the two countries in different ways. In Germany there was political and individual support for the Federal German Government Campaign in Europe for stringent emission standards, but little interest in unleaded petrol as an issue in its own right. In the UK the Government ran an aggressive campaign to promote unleaded petrol with vigorous NGO and public support, but failed to elicit much enthusiasm from the public for the campaign on vehicle emission standards.

The main focus of public concern at a global level seems to be the belief that the stratospheric ozone layer will be affected by global warming, with the threat of increasing levels of skin cancer (Bostrom, Morgan, Fishchhoff and Read, 1994).

This is interesting in itself as it suggests that the link between the ozone layer and health has been established, even in countries like the UK with generally low levels of sun. There seems therefore to be no intrinsic reason why an issue of global concern cannot be linked to local health impacts. Despite the considerable volume of published and well publicized work on health impacts of climate change, there are few studies which have explored the detailed public understanding, beyond the general appreciation that there may be health effects mostly linked to skin cancer. However, it is likely that the issue will enter the public domain more forcefully following the publication of this report. As the debate moves from scientific and policy circles to the public arena an explosion of contested understandings and competing claims can be expected. There will then be a vigorous public debate with the potential for a more informed discussion of public health in a changing climate. There will also be an opportunity to study public understanding of the specific health issues likely to arise as climate changes.

Despite considerable public awareness of climate there is little evidence to indicate whether there is good understanding of its health impacts. Such evidence as there is tends to the conclusion that public understanding conflates climate change with the depletion of the stratospheric ozone layer and thus skin cancer. There is, however, the prospect that the connection between climate change and health, once established by the public, will invigorate the debate on the scale and nature of action to be taken. Therefore the objective of this study is to assess the perceptions of Lagosians regarding climate change as a public health concern.

Climate Change and Human Health

Climate change refers to any significant long term change in current normal climate conditions, such as temperature, precipitation, extreme weather events, snow cover and sea level rise. There is a clear scientific consensus that the world's climate is changing, largely as a result of human activities, and that this will bring about changes in weather conditions and other natural system in general, climate change is anticipated to result in generally warmer temperature, shorter and milder winters, longer and hotter summers, more frequent or more intense severe weather events such as hurricanes, thunderstorms, wildfires, flood and droughts. (Public Health Agency of Canada 2013, Center for Disease Control and Prevention 2014).

Climate change is a complex phenomenon and a range of unanticipated ecological effects may result. Many of these ecosystem effects could have indirect health effects. Increased concentrations on ground-level carbon dioxide and longer growing seasons could result in higher pollen production, worsening allergic and respiratory disease. Increased carbon dioxide concentrations in sea water may cause oceans to grow more acidic and is likely to contribute to adverse ecosystem changes in the world's tropical oceans. This would have potentially dramatic implications for fisheries and the food supply in certain regions of the world. (Australian Department of Environment and Heritage, 2005, CDC, 2014)

The United Nations University Institute for Environment and Health Security (UNU-EHS 2007) reported that the impact of extreme weather events around the globe has already created millions of environmental refugees. These refugees have been displaced from their homes and countries due to sudden extreme weather events and slower environmental shifts such as an increase in desert area, diminishing water supplies and rising sea levels.

Climate change can impact health in the following ways:

- Changes in precipitation and temperature could increase the amount of water-borne and food-borne diseases and diseases transmitted through insects (also known as vector-borne diseases).
- Changes in climate can lengthen the transmission session of certain vector-borne diseases and expand their geographic range.
- More variable precipitation patterns can increase the risk of water-borne diseases. In Canada it has been shown that there is an increased risk of having water-borne disease outbreak with higher precipitation.
- Climate change could increase the frequency, timing, intensity and duration of many extreme weather events such as severe storms, floods, hurricanes, wildfires and droughts.
- Extreme weather events can cause a range of direct and indirect health effects, from mental disorders to infectious diseases.
- Hurricanes and forest fires are also recurring natural disasters that raise important health risks for Canadians and worsen as the result of a changing climate.
- Heats causes' heat stroke, heat syncope (fainting) and heat cramps, and worsen many pre-existing conditions such as cardiovascular and respiratory diseases.
- Extreme heat can also increase the levels of pollen and allergens that trigger asthma attacks.
- Poor air quality is already a serious public health issue in Canada and expected to become an even greater burden as climate change continues.
- Heart disease, respiratory diseases and allergies are some of the major health issues related to air pollution.

The Roles of the Health Educators in Climate Change and Human Health

The goal of Health Education is promotion of healthy life style and modification of individual behaviours and social environment.

In relating this goal to climate change and human health, health educators, should ensure effective teaching of health education in both school settings and at community level in order to inculcate healthy lifestyle in all and sundry. Promotion of personal and environmental sanitation at all levels should be further intensified especially in developing nations e.g. Nigeria, Ghana. Small family size and effective use of family planning devices should be encouraged in the individual, family and community lives. Public should be educated on the customer health services so as to be able to make informed decisions on health products they consume for example buying of fairly used products like cars, electronic appliances should be discouraged because they contribute to climate change. Deforestation should be minimized while tree planting should be embraced by all and sundry.

Statement of the Problem

Africa is the continent most vulnerable to the impacts of change because widespread poverty and low levels of technical development limit adaptation capabilities.

The impacts of climate change are predicted to affect the livelihood of Africans in many ways. Climate change is likely to affect the distribution patterns of infectious diseases e.g. there is likely to be an increase in mosquitoes which spread dengue and yellow fever.

Climate change has been documented in the literature to have negative impact on human as a result of human activities which is responsible for green house gas emission into the atmosphere. Lagos is industrialized city which is densely populated. Considering the activities of the residents, there is possibility of increasing the release of green gas emission into the air. Since behavioral intervention has been noted to be a product of perception, it is therefore imperative to determine the perception of Lagos residents on climate change as a public health problem for better intervention.

The following research hypotheses were generated and tested for the purpose of the study:

1. There is no significant difference in the perception of male and female respondents on climate change as a public health concern in Lagos, Nigeria.
2. There is no significant difference in the perception of the respondents based on the level of education in Lagos, Nigeria.
3. There is no significant difference in the perception of the respondents based on occupation in Lagos, Nigeria.

Methods

Design

This is a descriptive survey research, which employed the questionnaire for the purpose of collecting data on Lagosians' perception of climate change as a public health concern.

Sample and Sampling Procedure

Six hundred subjects were drawn from the five (5) divisions of Lagos State (Ikeja, Badagry, Ikorodu, Lagos Island and Epe) with the use of purposive/convenient sampling technique (120 respondents per division). 576 out of 600 copies were retrieved in good condition giving a response rate of 96%, same were coded and analyzed.

Instrumentation

The instrument was a self structured questionnaire which consists of two sections.

Section A: demographic information and Section B: perception of climate change as public health concern.

The questionnaire was validated using test-retest method giving reliability co-efficient of 0.71.

Procedure

The researchers visited the different divisions along with three research assistants that were trained in the administration of the questionnaires. Apart from soliciting for co-operation, the respondents were informed of the purpose of the study and the need for factual and objective response. Participants filled the questionnaire at individual pace and the completed copies were retrieved immediately. 576 out of 600 copies were retrieved in good condition giving a response rate of 96%, same were coded and analyzed.

Data Analysis

Frequency counts and percentages were used to present data in tables, while T-test and Analysis of variance (ANOVA) were used to test the hypotheses at 0.05 significant levels.

Results

Table 1: Distribution of the respondents by sex

	Frequency	Percent	Valid Percent	Cumulative percent
Valid Male	306	53.1	53.1	53.1
Female	270	46.9	46.9	100.0
Total	576	100.0	100.0	

The table shows that 53.1% of the respondents were male while 46.9% were female.

Table 2: Distribution of the respondents by age

	Frequency	Percent	Valid Percent	Cumulative percent
Valid 18-24 yrs	90	15.6	15.6	15.6
25-31 yrs	279	48.4	48.4	64.1
32-38 yrs	117	20.3	20.3	84.4
39-45 yrs	63	10.9	10.9	95.3
46-52 yrs	18	3.1	3.1	98.4
56-59 yrs	6	1.0	1.0	99.5
60 yrs & above	3	.5	.5	100.0
Total	576	100.0	100.0	

The above table shows that 15.6% of the respondents were between ages 18-24, 48.4% were 25-31 years, 20.3% were between 32-38 years, 10.9% were of 39-45 years, 3.1% were between 46-52 years, 1.0% was of 56-59 years and .5 were above 60 years.

Table 3: Distribution of the respondents by level of education

	Frequency	Percent	Valid Percent	Cumulative percent
Valid None	18	3.1	3.1	3.1
Below first degree	198	34.4	34.4	37.5
First degree	288	50.0	50.0	87.5
More than first degree	51	8.9	8.9	96.4
Professor	21	3.6	3.6	100.0
Total	576	100.0	100.0	

The above revealed that 3.1% of the respondents had no education, 34.4% of them were below first degree, 50% which was the highest percentage had their first degree, 8.9% had a second degree and 3.6% of them had an additional professional qualification.

Dependent variable: perception

Scheffe

(I) Occupation	(J) Occupation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Civil Servant	Industrial Worker	-2.38*	.69	.003	-4.07	-.69
	Self Employed	-.82	.56	.339	-2.20	.55
Industrial Worker	Civil Servant	2.38*	.69	.003	.69	4.07
	Self Employed	1.56	.75	.116	-.28	3.39
Self Employed	Civil Servant	.82	.56	.339	-.55	2.20
	Industrial Worker	-1.56	.75	.116	-3.39	.28

*.The mean difference is significant at the .05 level.

Table 7 shows that the F-value (6.077) is significant at 0.05 ($p < 0.05$). Therefore, respondents significantly differ in their perception based on occupation. The multiple comparisons on the table 7 revealed that the difference is significant between industrial workers and civil servants.

Discussions of Findings

The findings have revealed that women perceived climate change as a public health concern more than their male counterpart. This implies that climate change cannot be perceived directly in the way by individual because of the temporal scale associated with it. In addition, human perception of climate is strongly influenced by expectations, which may have little relationship to the true nature of climate as provided by the instrumental record (Rebetez, 1996). This finding also concur with the study of Semenza, Hall, Wilson, Bontempo, Sailor and George (2008) which found out that almost all respondents (USA) have heard about climate change or global warming, are rather concerned (women more than men) and some 50% reported behaviour changes like decreased energy usage at home, reduced gasoline consumption, increased recycling and some other bahaviours. Furthermore, respondents significantly differ from their perception based on level of education. This means that education play a major role in supporting efforts toward addressing climate change. The outcome of the study is also in line

with the position of Leal et.al (2007). Occupation as one of the variables under study has also influenced the perception of the respondents and the difference is significant between industrial workers and the civil servants. The finding support the outcome of (Thompson and Jayapaul, 1997) that industrialists among other workers have perceived climate change as a public health problem.

Conclusion

There is clear linkage between the environment and health problems. Climate change would likely have an increasingly severe impact on health particularly with regard to vector and water borne diseases. With change in climate and other stress factors, peoples' perception and behaviour must also change in order to effectively cope with the situation. Carbon dioxide has an effective lifetime of about 100 years. This means that any changes in the atmosphere will take a long time to develop. If we cut down on the amount of carbon dioxide we use, the rate of climate change will slow down. The challenges of climate change however, calls for meaningful cooperation between individuals and government. Furthermore, climate change issue is not a monopoly of the Ministry of Environment and Forest (MOEF). Other relevant ministries such as health, agriculture, livestock, water resources, planning etc should work together to mitigate and combat the impacts of climate change.

Recommendations

- There is the need for continuous education on climate change; hence, government should intensify efforts in raising awareness on the causes and consequences of climate change which will serve as further means to work towards a reduction of greenhouse emission.
- The need for government/policy makers to carry the masses along in the formulation and implementation of environment and health policies is recommended.
- Integrate gender concerns and perspectives in policies and programmes for sustainable development.
- Extended range weather forecasts are fundamental for all climate change adaptation strategies.
- Individual-level mitigation can be a policy option under favourable contextual conditions but must be accompanied by mitigation efforts from industry, commerce and government.

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