

CLIMATE CHANGE; AWARENESS AND THE IMPACT ON THE HEALTH OF THE ELDERLY IN RIVERS STATE

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ABSTRACT

The present study is aimed at examining the level of awareness and impact of climate change on the health of the elderly in Rivers state. Climate change is a serious environmental challenge affecting humans of all age, group and status. The study adopted the survey research design, the multi-stage sampling technique was used for data collection, two hundred and seventy six elderly persons from three senatorial districts constituted the sample size, a self-structured questionnaire was used to elicit response from the respondents, descriptive statistics was used to analyze the result. The findings showed that climate change has had adverse impact on the health of the elderly especially through extreme temperature, high vector borne disease burden and respiratory illness as a result of inhaling contaminated air, however, the elderly had good actual knowledge on the existence and effect of climate on their health. The study recommends amongst others, regular blood Pressure check for the elderly especially those between 75-84 and 85 and above, also increased awareness on the need for life style change among the elderly persons so as to strengthen their age compromised immunity.

Keywords: Climate Change, Elderly, Health of the Elderly, awareness of climate change.

1.0 INTRODUCTION

Climate change is a slow and gradual change in the average weather pattern that has come to define local, regional and global climate of the earth (Canlon and Austen, 2019). According to the anthropogenic global warming theory first proposed by Arrhenius Svante in 1896, human activities such as burning of fossil fuel, oil, gas, coal biomass, change in land use, deforestation among others lead to increase production and release into the atmosphere of Green House

gases, including water vapor, carbon dioxide, methane and nitrogen oxide, among these gases carbon dioxide is the most notorious culprit. These gases trap the sun's energy in the earth system. The extra energy warms the atmosphere, ocean and land leading to widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere. All these changes cause rise in atmospheric temperature and subsequently to global warming. The earth's climate has been changing since the pre-industrial era, however industrialization brought about astronomical change in the climate globally. Currently the rate of warming is 10 times faster than what has ever been recorded in history and this is affecting the weather pattern of the world (IPCC). High amount of carbon dioxide from the air is being dissolved in the oceans of the world causing acidity of the ocean. Surface water of the ocean is 26% more acidic than in pre-industrial era. Observational studies show that ocean has been getting warmer, ice sheets and glaciers melting, sea level rising. The global mean sea level has risen by 7 centimeters within 25 years some seaside cities around the world are losing their coasts to rising sea level. In Africa flooding, drought, change in distribution of rainfall, drying-up of rivers, melting of glacier and receding of bodies of water are all effect of climate change on the continent. In Nigeria climate change has affected the weather pattern, causing untimely rainfall, worsening land degradation, flash floods, landslides and gully erosion. Rivers State has been witnessing high level of atmospheric temperature, heavy rainfall accompanied by thundering activities, flooding of the coastal communities after heavy rainfall, more frequent and intense drought storms as result of climate change. The Change in Climate affects Health. Anderko, schnk, Huffling and Chalupka (2017) opined that climate change is a global phenomenon that poses great threat to public health including mental health. Climate change has been described as the "biggest global health threat of the twenty first century (Walts, Amann, Ayerb...Kanson.. and Costell (2018). In 2016, the world

health organization noted that the driving forces of climate change contributed to 12.6 million (23%) of all deaths worldwide.

Okoye (2011) observed that climate change constitute risk for the elderly. This is so because as people age their immune system gets weakened and cannot longer protect them against sicknesses and diseases. Some elderly persons suffer muscle and bone loss that can limit mobility. Their physical and mental capacity decline, their sensory ability is lowered; there is also reduced temperature moderation and susceptibility to environmental stress (Harper, Ostapchuk, Willox and Edge 2012). Their adaptive capacity is decline and some have pre-existing chronic health conditions that exacerbate the impact of climate change on their health. Sex gender, diet, level of physical activity, body mass index (BML) and genetic makeup all contribute to Senior citizens susceptibility to the impact of climate change (USEPA). The health and physical strength of the Senior citizens decline with each passing day making them physically, socially, emotionally and economically vulnerable to the impact of climate change.

1.1 Objectives of the study

The objectives of this study are to:

- (i). Establish the major climate change predictor in the study area
- (ii). Examine the level of the awareness of the elderly on climate change.
- (iii). Examine the level of knowledge of the elderly on impact of climate change on their health.

1.2 Research Questions

- (i). What are the major climate change predictor in the study area?
- (ii). What is the level of the awareness of the elderly on climate change?
- (iii). What is the level of knowledge of the elderly on impact of climate change on their health?

2.0 Literature Review

Marasinghe, (2014) assessed the level of illusory and actual knowledge of climate change among the population in Singapore. They carried out door-to-door survey, recruited and trained interviewers and used stratified sampling method to have a sample that represented the population. Interview was done in English and their local language for maximum response. Respondents from households were gotten using the next birthday method which has been shown to be very good for getting representatives in a study randomly. The age, gender distribution, educational level and household income of sample respondents was same as what obtained in the population. Actual knowledge was measured using 12 item questionnaire where respondents answered true or false or I don't know to each question. Questions like (what do you know about climate change, how do you perceive the heat, e.t.c). Illusory knowledge was measured on a scale 0 to 10 where 0 equaled knowing nothing while 10 was knowing everything 10, finding from both were changed into percentage. Independent sample t-test was used in analyzing the results. Finding from the survey showed that the level of actual knowledge of climate change was higher among male than female respondents: However, there was no statistically significant difference between males and females in illusory knowledge of climate change.

Leal, Bönecke, Spielmann, Azeiteiro ... & Nagy (2018) observed that climate change impacted on the health of the elderly through exposure to heat waves, air pollution, incidence of infectious diseases, malnutrition, forced migration and at times conflict. The degree of impact on the health of citizens is health is not the same among the populace, as children, women outdoor workers and the elderly are usually most impacted with older persons bearing the brunt of the impact. Location, level of biological, social and economic vulnerabilities, and of types of climate hazard also affect the extent of impact an observational studies show that heat waves may impair the ability reason, solve problem and plan. Harmful Ozone air pollution increases as the temperature gets warmer and this is very detrimental to health.

3.0 Methodology

The study was carried out in the three senatorial districts within the state. Projected population of Rivers state is 7,303,900 (2016), population of persons age 60 years and above is 86,401 in Rivers west senatorial district, there are 103,000 elderly persons aged 60years and above in Rivers West Senatorial district and 61,838 in Rivers South East (citypopulation.ae2021).

The study adopted the multi- stage sampling techniques. One LGA was randomly selected from each of the three senatorial districts, two communities were selected from each of the selected L.G.A, 5% of the population aged 60 years and above from each of the two communities were selected. A total population of eight hundred and fifty three (853) elderly was gotten as the population, the Taro Yamene formula was used to deduce a sample size of 276. A self-structured questionnaire was used to elicit response from the respondents. Data gotten was analyzed using SPSS version 21 and the result presented in frequencies and percentages.

4.0 Results and Discussions

Research Question One: What are the major climate change predictor in the study area?

Table 4.1: Have you observed/experienced High temperature/heat wave

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	240	87.0	87.0	87.0
No	25	9.1	9.1	96.0
Uncertain	11	4.0	4.0	100.0
Total	276	100.0	100.0	

Table 4.1 shows the response of respondents on whether they have observed/experienced high temperature/heat wave as a result of climate change in the last ten years. The table shows that 87% had observed/experienced high temperature/heatwave, 9% had not while 4% were

uncertain, therefore, majority of the respondents had observed/experienced high temperature/heat wave as a result of climate change in the last ten years.

Table 4.2: Have you observed/experienced flooding in the last ten years?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	195	70.7	70.7	70.7
No	41	14.9	14.9	85.5
Uncertain	40	14.5	14.5	100.0
Total	276	100.0	100.0	

Table 4.2 shows the response of respondents on whether they have observed/experienced flooding as a result of climate change in the last ten years. The table shows that 70% had observed/experienced flooding, 15% had not while 15% were uncertain, therefore, majority of the respondents had observed/experienced flooding as a result of climate change in the last ten years.

Table 4.3: Have you observed/experienced increased vector borne disease like malaria

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	212	76.8	76.8	76.8
No	45	16.3	16.3	93.1
Uncertain	19	6.9	6.9	100.0
Total	276	100.0	100.0	

Table 4.3 shows the response of respondents on whether they have observed/experienced increased vector borne disease like malaria as a result of climate change in the last ten years. The table shows that 77% had observed/experienced increased vector borne disease like malaria, 16% had not while 7% were uncertain, therefore, majority of the respondents had not observed/experienced increased vector borne disease like malaria as a result of climate change in the last ten years.

Table 4.4: Have you heard of climate change before?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	251	90.9	90.9	90.9
No	25	9.1	9.1	100.0
Total	276	100.0	100.0	

Table 4.4 shows the response of respondents on whether they have heard of climate change in the past. 91% of the respondents had knowledge of climate change while 9% had no knowledge of climate change. Therefore, majority of the respondents had prior knowledge of climate change.

Table 4.5: Have you ever heard of greenhouse gases?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	81	29.3	29.3	29.3
No	195	70.7	70.7	100.0
Total	276	100.0	100.0	

Table 4.5 shows the responses of respondents on their knowledge of greenhouse gases. 30% of the respondents had knowledge of greenhouse gases while 70% had no knowledge of greenhouse gases. Therefore majority of the respondents had no knowledge of greenhouse gases, the major culprit of global warming and subsequent climate change.

Table 4.6: Which of these indicate impact of climate change

	Frequency	Percent	Valid Percent	Cumulative Percent
Sea Level rise	42	15.2	15.2	15.2
Global warming	41	14.9	14.9	30.1
Extreme weather	130	47.1	47.1	77.2
flooding	63	22.8	22.8	100.0
Total	276	100.0	100.0	

Table 4.6 shows the response of respondents on what to them was the impact of climate change.

The table reveals that 15% indicated sea level rise as the impact of climate change, 15% attributed global warming to be an impact of climate change, 47% attributed extreme heat to be an impact of climate change and 23% attributed flooding to be an impact of climate change. Therefore, majority of the respondents felt extreme heat indicated the impact of climate change.

Table 4.7: What changes in the weather patterns have you observed more

	Frequency	Percent	Valid Percent	Cumulative Percent
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Too much cold/rain	65	23.6	23.6	23.6
High tide/flooding	41	14.9	14.9	38.4
extreme heat/sun	145	52.5	52.5	90.9
Drought	13	4.7	4.7	95.7
Others	12	4.3	4.3	100.0
Total	276	100.0	100.0	

Table 4.7 shows the response of respondents on the sort of changes they had observed in the climate. The table reveals that 24% of the respondents had observed too much cold and rain, 15% had observed high tide and flooding especially in riverine areas, 53.5 had observed and experienced extreme heat/sun and 4.7% had observed drought. Therefore, majority of the respondents had observed and experienced extreme heat/sun as changes in the climate recently.

Research Question Three: What is the level of knowledge of the elderly on impact of climate change on their health?

Table 4.8: As the temperature becomes extreme, the elderly might be affected negatively

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	183	66.3	66.3	66.3
Agree	93	33.7	33.7	100.0
Total	276	100.0	100.0	

Table 4.8 shows the response of respondents on the negative effect of extreme temperature on the elderly. 66% strongly agreed that there are negative effect of extreme temperature on the elderly and 34 agreed that there are negative effect of extreme heat on the elderly. Therefore, majority of the respondents strongly agreed that extreme temperature might negatively affect the elderly.

Table 4.9: Extreme heat can expose elderly persons to risk of illness and death

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	87	31.5	31.5	31.5
	Agree	189	68.5	68.5	100.0
	Total	276	100.0	100.0	

Table 4.9 shows the response of respondents the risk of extreme heat exposure on the elderly. The table reveals that 32% of the respondents strongly agreed that the elderly are at risk when exposed to extreme heat and 68% also agreed to this. Therefore majority of the respondents agreed that exposure to extreme heat poses a threat to the health of the elderly.

Table 4.10: Poor Air quality as a result of climate change will induce respiratory condition in older adults and worsen existing respiratory conditions

		Frequency	Percent	Valid Percent	Cumulative Percent
	Strongly Agree	164	59.4	59.4	59.4
	Agree	99	35.9	35.9	95.3
	Neutral	13	4.7	4.7	100.0
	Total	276	100.0	100.0	

Table 4.10 shows the response of respondents on the effect of poor air quality on respiratory condition in older adults. The table reveals that 59% of the respondents strongly agreed, 36% agreed and 5% were neutral that poor air quality could induce respiratory conditions in the elderly.

Table 4.11: Older adults with weakened immune system are vulnerable to disease carrying ticks and mosquitoes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	137	49.6	49.6	49.6
	Agree	139	50.4	50.4	100.0
	Total	276	100.0	100.0	

Table 4.11 shows the response of respondents on the vulnerability of older adult to disease carrying mosquitoes as a result of weakened immune system. 50% of the respondents strongly agreed and 50% also agreed that older are more vulnerable to disease carrying ticks and mosquitoes.

Table 4.12: Older adults will not likely suffer from mobility restriction as a result of extreme events necessitated by climate change

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	129	46.7	46.7	46.7
	Agree	119	43.1	43.1	89.9
	Neutral	28	10.1	10.1	100.0
	Total	276	100.0	100.0	

Table 4.12 shows the response of respondents on the likelihood of older adults suffering from mobility restriction as a result of extreme environmental events. The table reveals that 47% of the respondents strongly agreed and 43% agreed that older adults will not suffer mobility restriction as a result of extreme events necessitated by climate change. This will depend on

the health condition of the elderly. Those that suffer from Arthritis and other musculoskeletal conditions may suffer mobility restriction.

4.1: Discussions

The results showed that the major predictor of climate change observed in the study area was extreme/high temperature, high rainfall and flooding. Climate change has also led to increased vector borne diseases such as malaria. One of the potential effects of climate change, according to the National Climate Change Response Strategy (NCCRS), will be an increase in the incidence and geographic spread of vector-borne diseases like malaria (GoK 2007). This is in line with a study that suggests that climate change could make more rural people more likely to get malaria by the 2050s (SEI 2009). It also backs up the LVBC report from 2011 that said malaria was the most common disease in the Lake Victoria Basin. The elderly were very much aware of the existence, effect and impact on climate change as majority have heard and experienced climate change in the past. Majority of the elderly were aware of the impact climate change had on their health such as mobility challenges in times of displacement, increased malaria burden, respiratory illnesses which is exacerbated by inhaling of contaminated air occasioned by climate change. Climate change has had profound impact on the elderly through extreme heat which has exacerbated existing illnesses in the elderly as a result of weakened immune system.

5.0 Conclusion

Climate change and its profound impacts are very prominent among the elderly in Rivers State. The level of knowledge on climate change and its impact is very high among the elderly in Rivers State. The major climatic factor which have posed serious heat risks among the elderly is extreme heat and increased burden of vector borne disease such as malaria. The elderly have also suffered psychological and mental stress as a result of worrying about the effects of climate change.

6.0 Recommendations

1. Every senior citizen in Rivers State should do Blood Pressure check regularly; those of them within age bracket 75-84 and 85+ should do so bi-monthly.
2. Awareness should be raised on the need for life style change among the elderly persons so as to strengthen their age compromised immunity as this will enable them to withstand the impact of climate change on their health. Their nutrition should be mainly whole plant based, they should do regular exercise, sleep for between 7-9 hours daily and have 20-30 minutes nap in the afternoon, practice social connectedness, learn to reduce or manage stressful situations and avoid use of harmful substances.
3. Gas flaring should be curtailed, illegal crude oil refining, “kpofire” should be stopped and replaced by modular refinery.
4. Residents of Rivers State should be encouraged to plant trees within their space. The state should set up “Green Climate Fund” and climate technology centre and network as agreed at the Glasgow climate summit-COP 26.

7.0 References

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