

Effect of Climate Change on the Health Status of Children In South West Nigeria

E.O. Babatunde Ph.D

Research Fellow

Institute of Education

University of Ibadan

Ibadan, Nigeria

babatundeezekiel11@gmail.com; babatundeezekiel11@yahoo.com

+234 803 332 5661; +234 705 788 3139

Abstract

Children represent a particularly vulnerable group that is likely to suffer disproportionately from both direct and indirect adverse health effects of climate change. Conservative environmental estimates of the impact of climate change that are already in process indicate that they will result in numerous health effects to children. The study examined the effect of climate change on the health status of children in South West Nigeria. One hundred and twenty medical practitioners and two hundred and sixty parents of affected children were randomly sampled from ten health facilities in Oyo, Ogun, Osun and Lagos States Data were collected through interview schedule and structured questionnaire. The data were analysed using descriptive statistics and Pearson Product Moment Correlation at $p < .0.05$ level of significance. The result of the study indicated that 53.0% of the severely affected children are boys .and a significant relationship between climate change on gender ($r=0.228$, $p=0.022$ $\alpha=0.05$). There was no significant relationship between age and climate change. More than half of the parents(87.0%). do not have access to adequate information on the negative effect of climate change on their children It was recommended that adaptation agenda that focuses on the realities of children's health be pursued vigorously from the homes to the Federal government levels. Parents should be educated through print and electronic media on the need to plant trees to combat the effect of the ozone layers depletion.

Keywords: Ailment, Vulnerable, Children, Climate Change, Health Status

Aims Research Journal Reference Format:

E.O. Babatunde (2015): Effect of Climate Change on The Health Status of Children In South West Nigeria.

Aims Research Journal. Vol 1, No. 1 Pp 71 -78.

1. INTRODUCTION

Climate change has become a defining issue of our time. The global challenges it presents are enormous and they affect us all. Our responses will define the future for millions of people that have become more exposed to climate threats especially those in developing countries. There is broad scientific consensus that Earth's climate is warming rapidly and at an accelerating rate. Human activities, primarily the burning of fossil fuels, are very likely to be the main cause of this warming. Climate-sensitive changes in ecosystems are already being observed, and fundamental, potentially irreversible, ecological changes may occur in the coming decades. Conservative environmental estimates of the impact of climate changes that are already in process indicate that they will result in numerous health effects to children. The nature and extent of these changes will be greatly affected by actions taken or not taken now at the global level

Climate change is defined as a thirty or more years of persistence pattern of revolving changes in weather characteristics, as in relation to temperature, pressure, wind system and direction, humidity, cloud cover and precipitation (Ebong, 2010). This definition differs from that in the United Nation Framework Convention on Climate Change (UNFCCC, 2007) which defines climate change as change of climate which attributed directly or indirectly to human activity that alter the composition of the global atmosphere, and which is in addition to natural variability observed over a comparable time (IPCC, 2007).

In summary, it can be defined as an average atmospheric condition of a place for a long period of time or refer to any change in climate over time whether due to natural variability or as a result of human activities. Climate change patterns play a fundamental role in shaping natural ecosystems and the human economies and cultures that depend on them. In view of the fact that many systems are tied to climate, a change in climate can affect many related aspects of where and how people and animal live, such as food production, availability and use of water and health risks.

Health status is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity which may be determined by genetic, environmental, or something else entirely. In Nigeria, just as in many developing countries in the sub-tropical region, children in particular and people on poor health, and those with low level of education in general are more vulnerable and exposed to risk of climate change (Barber, 2003).. The effect of climate change on health may impact on most population in the coming decades and put the lives and well being of billions of people at increase risks if no attempt is made now. Women and children with livelihood systems based on agriculture may have to cope with increased weather variability; and, more extreme weather events having both positive and negative impacts on crop yields. Climate change is already hitting poor and vulnerable people hard, and these groups must be at the heart of efforts to build resilience.

Physicians have written on the projected effects of climate change on public health, but little has been written specifically on anticipated effects of climate change on children's health. Children represent a particularly vulnerable group that is likely to suffer disproportionately from both direct and indirect adverse health effects of climate change.. There is strong evidence that significant global warming is occurring. The evidence comes from direct measurements of rising surface air temperature and subsurface ocean temperatures; and from phenomena such as: increases in average global sea levels, retreating glaciers, and changes to many physical and biological systems (Act Alliance, 2010). Other impacts may likely include energy supply, environmental health and human settlements. As warnings about the potential severity of climate change impact increase, so the urgency grows in putting into action, effective adaptation responses as majority of the adverse effects of climate change are experienced by poor and low-income communities around the world, who have much higher levels of vulnerability to environmental determinants of health, wealth and other factors, and much lower levels of capacity available for coping with environmental change. It is clear that climate change adaptation requires a fundamental change in approaches to development. (Christian Aid, 2010).

Climate change poses a wide range of risks to population health that will increase in future decades, often to critical levels, if global climate change continues on its current trajectory. The three main categories of health risks include: (i) direct-acting effects (e.g. due to heat waves, amplified air pollution, and physical weather disasters); (ii) impacts mediated via climate-related changes in ecological systems and relationships (e.g. crop yields, mosquito ecology, marine productivity); and (iii) the more diffuse (indirect) consequences relating to impoverishment. Nigeria is currently experiencing increasing incident of disease, declining agricultural productivity, increasing number of heat waves, unreliable or erratic weather pattern , flooding, decline rainfall in already desert-prone area in the north causing increasing desertification, decrease food production in central region.

The effect of climate change in children can be both direct and indirect. For direct effect, as the climate changes, environmental hazards may shift and possibly increase and children are likely to suffer disproportionately from these changes. Anticipated direct health consequences of climate change include injury and death from extreme weather events and natural disasters, increase in climate-sensitive infectious diseases, increase in air pollution-related illness, and more heat-related, potentially fatal illness. For the indirect effect, food availability could be reduced as land and ocean food productivity patterns shift and species diversity declines. Water availability will change and become too abundant in some regions (flooding) and much reduced in others (drought) while coastal populations will be forced to move because of the rising sea level.

1.1 Statement of the Problem

The effect of climate change on the health of children cannot be over emphasized, and there is no doubt that there are dearth of literature on effect of climate change on the health of children.. The few available studies examined other variables of climate change and not the potential dangers this may pose for future leaders of tomorrow. In view of this, the study examined the effect of climate change on the health status of children in South West Nigeria.

In addition, it described the most prevalent ailments as a result of climate change on children, examined the most vulnerable gender due to climate change and determined the frequency of reported cases of common disease associated with climate change. Finally, it determined the correlation among gender, age and effects of climate change on the health status of children.

1.2 Research Questions

1. To what extent has air pollution, excessive heat exhaustion, drinking of polluted water and weather contributed to health in children?
2. What is the rate of prevalence of reported cases of each identified ailments in all the health facilities?
3. Which gender is more vulnerable to the effect of climate change on their health?

1.3 Hypothesis

H₀: There is no significant relationship between effects of climate change and health status of children.

H₀: There is no significant relationship between effects of climate change and
 (i) Age
 (ii) Gender
 on children's health status

2. METHODOLOGY

The study is a survey type. The study population was parents and medical practitioners in South West Nigeria and was conducted in all the six states of South West geo-political zone of Nigeria. Random sampling technique was used to sample two (2) health facilities from four of the six States and one teaching hospital. Purposive sampling technique was used to sample twelve (12) respondents from each of the health facility and two hundred and sixty parents for inclusion in the study. Medical Practitioner Questionnaire (MPQ) with reliability of 0.83 and structured interview schedule was used to collect data from the parents. Data were analysed using descriptive statistics and Pearson Product Moment Correlation at $p < 0.05$ level of significance.

3. RESULTS AND DISCUSSION

Research Question 1: To what extent has air pollution, excessive heat exhaustion, drinking of polluted water and weather contributed to health in children?

From the analysis in table 1 below, drinking of polluted water and air pollution contributed significantly to the health status of children. This was in line with the findings of Ojo and Mohammed (2008) who in their study revealed that more than 96% of the children were affected by air pollution and contaminated water as affirmed by the responses of the health personnel. The implication is that the respondents are more likely to have come in contact with children in the paediatric department that might have been affected by climate change as a result of their specialty and experience in dealing with children, while most of them (56.0%) were from the teaching hospital and only 28% and 16% respectively were from the State hospital and Health centres (Figure 1). Furthermore, the result revealed that 87% of the parents of the affected children lack knowledge of the adverse effect of climate change on the health of their children. This is in agreement with the findings of Ndanitsa (2005) and Tsoho (2005) who in their separate study reported that most parents in the South West Nigeria are characterized with low level of literacy.

Further investigation of the result as shown in Table 1 below revealed that majority of the respondents agreed that the weather situation in Nigeria (80.0%), drinking of polluted water (82.5%), and air pollution (80.8%), have adverse effect on the health of children especially from developing countries (82.5%) who are more vulnerable to the effect of climate change.

Table 1: Climatic Conditions Contributing to Children's Health Status

ITEMS	YES	%	NO	%
Weather situation in Nigeria has implication for the health of children.	96	80	24	20
Drinking polluted water can lead to change in health condition of children.	99	82.5	21	17.5
Air pollution has adverse effect on the health condition of children.	97	80.8	23	19.2
Deforestation is a major cause of children's deteriorating health condition.	54	45	66	55
Many deaths among children were caused by effect of climate change.	63	52.5	57	47.5
Excessive heat exhaustion was a major cause of death among children.	61	50.8	59	49.2
Children in developing countries are more vulnerable to climate change.	99	82.5	21	17.5
Parent's lack of knowledge of climate change contributes to ailment of children.	97	80.8	23	19.2

Research Question 2: What is the rate of prevalence of reported cases of each identified ailments in all the health facilities?

Table 2 showed the prevalence of ailments affecting children's health status as a result of climate change. In the table, malaria (70.0%) was the most prevalent of all the ailments identified. This was closely followed by chicken pox (62.0%). Malaria and headache combined together was the least prevalent among children (Table 2). This result was very surprising despite government efforts to curb the prevalence of malaria through the distribution of mosquito nets to households particularly in the South West

Table 2: Prevalence rate of Diseases (ailments) among children

Disease	N	%
Malaria	84	70.0
Chicken Pox	75	62.0
Cholera	71	59.0
Diarrhea	67	56.0
Pneumonia	58	48.0
Tuberculosis	50	42.0
Typhoid	43	36.0
Vomiting	42	35.0
Malaria & Cholera	41	34.0
Partial blindness	38	32.0
Malnutrition	34	28.0
Anemia	33	27.0
Malaria & Typhoid	33	29.0
Stomach ache	26	22.0
Headache	22	18.0
Malaria & Headache	16	13.0

Figure 1 below presents the frequency of weekly reported cases of the above ailments. The result showed a mean report of 28 cases per week. This result is on a high side considering what implication this will hold for the future of the nation.

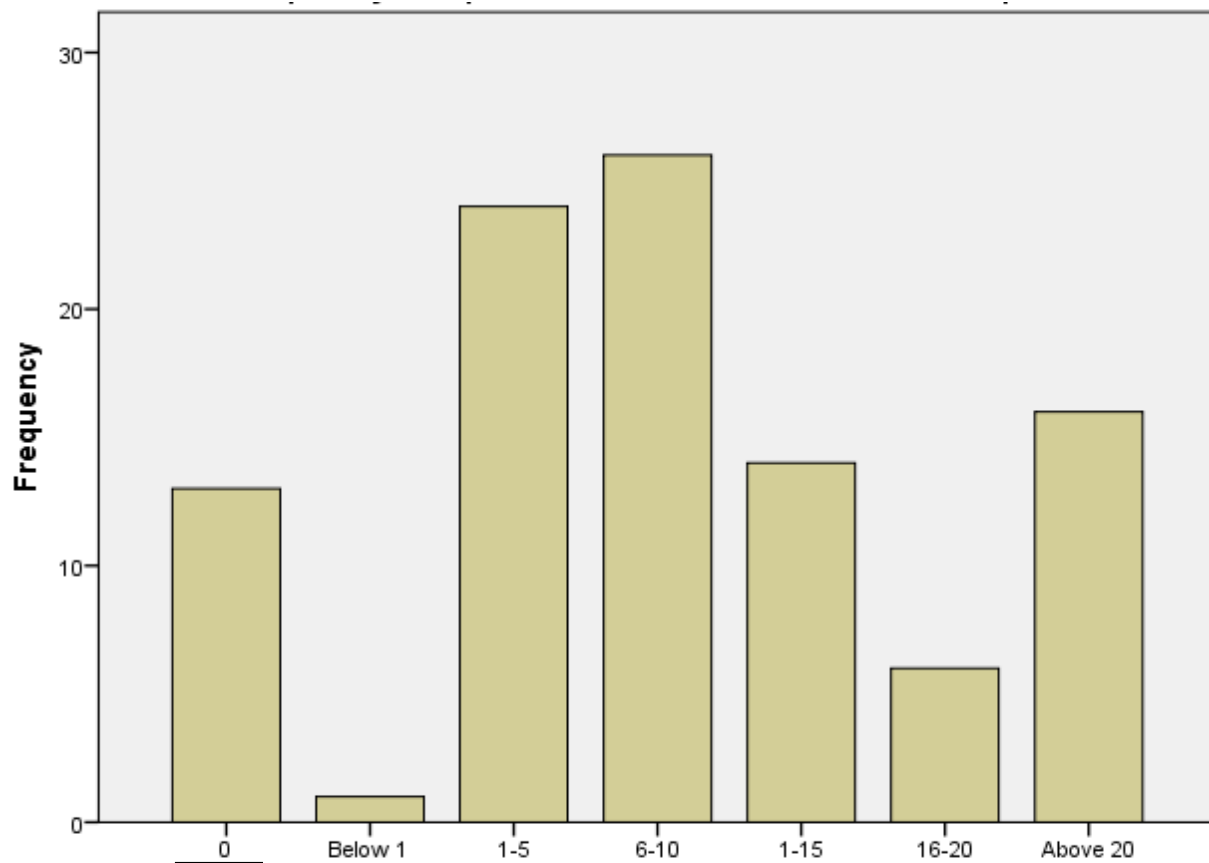


Figure 1: Frequency of reported cases

Research Question 3: Which gender is more vulnerable to the effect of climate change on their health?

Figure 3 below presents the gender that is more vulnerable to the effect of climate change. From the figure, it was concluded that more boys (53%) than girls (32%) are more vulnerable to the effect of climate change. This result is in consonance with the result of Ebong (2010) who reported that boys are more prone to the effect of climate change in Nigeria. This result was also in agreement with that of Barber (2003).

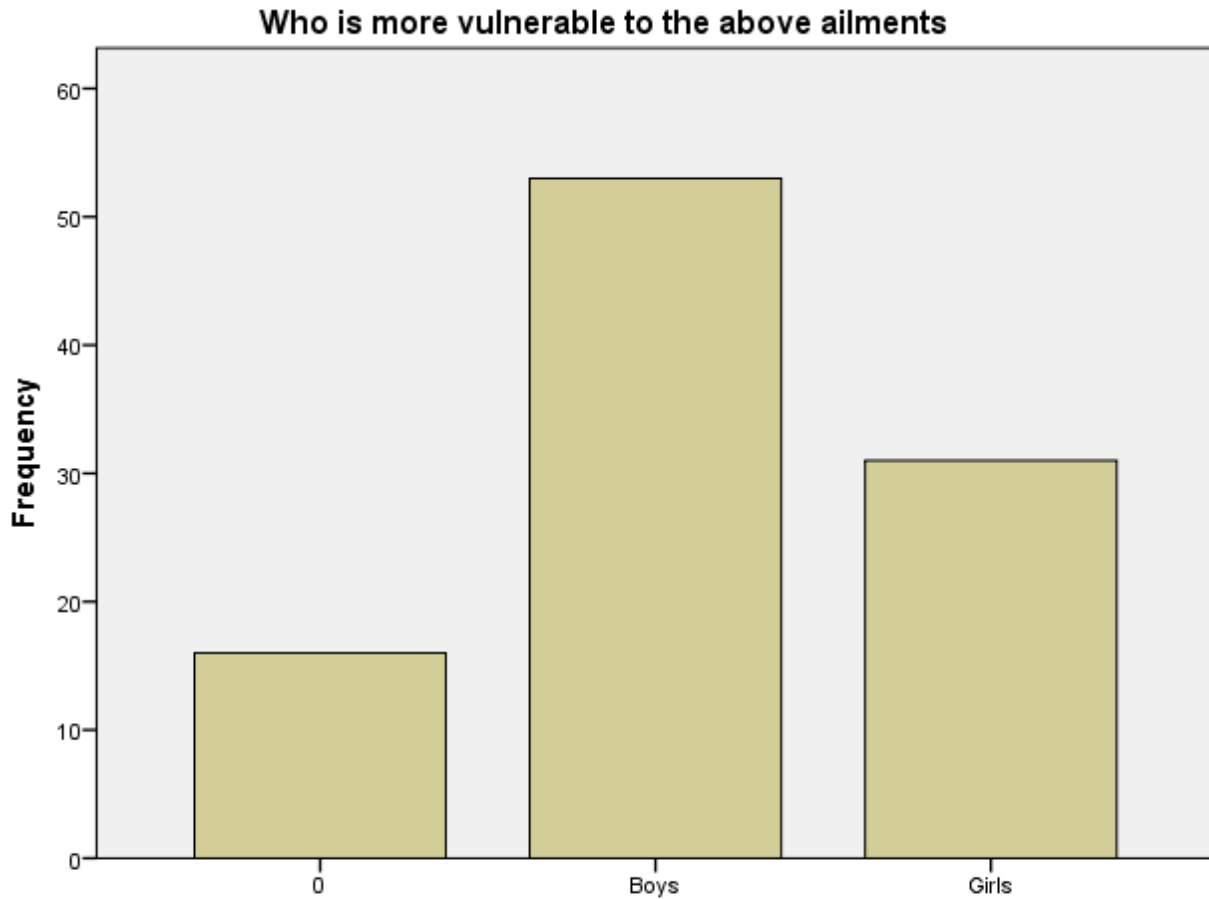


Figure 2: Vulnerability to Climate Change

Table 3: Relationship between Effect of Climate Change, Age and Gender N = 120

Variable	X	SD	R	P	Sig. Level	Decision
Effect	6.41	1.240			0.05	
Health Status	3.55	1.461	-0.115	0.289		NS
Age	1.10	0.628	0.090	0.376		NS
Gender	1.15	0.672	0.022	0.228		*

NS = Not Significant

• = Significant

H0: There is no significant relationship between effects of climate change and health status of children

In Table 3, the effect of climate change on health status, age and gender is presented. The correlation coefficient was 0.289 and signifies that there is no significant relationship between age and health status ($p=0.005$, $r=0.289$). This can be verified from the significant value ($p=0.376$) which is lower than the critical p -value 0.05. Furthermore, there is negative and no significant relationship between effect of climate change and children health status ($p=0.05$, $r=0.090$) thus, null hypothesis is accepted. The implication of this result is that age has no relationship with effect of climate change. Anyone can be affected with the effect of climate change.

H0: There is no significant relationship between effect of climate change and
 (i) Age
 (ii) Gender
 on children's health status

From Table 3 above, it was seen that there was significant relationship effect of gender ($p=0.05$, $r=0.022$) on health status. Thus, the null hypothesis is rejected. This implies that effect of climate change is felt more on one sex than the other.

4. CONCLUSION AND RECOMMENDATIONS

The study revealed the characteristics of children and the effect of climate change on their health status; the most prevalent ailment as well as the gender that was more vulnerable. It was deduced from the study that malaria is the most common and severe disease affecting the children with malaria and headache as less severe. It also revealed that there was no significant relationship between the effect of climate change and age on health status of children but a significant relationship between gender and effects of climate change on their health status. It was therefore recommended that: Government at all levels should educate the parents through mass media and the use of Non-Government organizations (NGOs) to plant trees to combat the effect of ozone layer depletion which is associated with climate change. Provision of basic medical facilities to combat the action of mosquitoes which are the carriers of malaria.

There is a need for green economy, greater cooperation for sustainability and the urgency of ensuring food security for the growing population by developing methods of controlling climate. Climate change adaptation policies and strategies need to be considered as integral components of economic growth strategy transformation agenda of the Federal Republic of Nigeria. Development of aggressive, long-term policies to reduce the major contributing factors to global climate change is very critical while investing in prudent and vital preparations for our public health care systems, including immunization programs and disease surveillance, reporting, and tracking. Attention should be given to the needs of children in emergency management and disaster response. Government should support education and public awareness of the threats from climate change and their implications for public and children's health now and in the future. Lastly, interdisciplinary research to develop, implement, and measure outcomes of innovative strategies to both mitigate and adapt to climate change, particularly in areas with direct implications for children's health. The scientific community should be involved in the studying climate change and forecasting weather and then transmitting this information to all sectors of the society.

REFERENCES

1. American Academy of Pediatrics, Committee 2007. Environmental Health. Global climate change and children's health. Pediatrics.;120(5) . Available at www.pediatrics.org/cgi/content/full/120/5/e1359
2. Araromi, M.A. and Babatunde, E.O. 2013. Evaluation of Health Status and Occupational Wellness of University of Ibadan Academic Staff using some selected Well-being Indices in S.O. Ayodele edition Selected Studies in the Humanities.
3. Barber, R. E. 2003., Indigenous people's perception on climate change adaptation strategies in Jemata. local Government Area of Kaduna State. Nigeria
4. Ebong, V.O. 2010, Climate change and the threats to Nigeria food security. Proceedings of 11th Annual National Conference of National Association of Agricultural Economics (NAAE) Pp 361-365, Kwara State, Nigeria.
5. Intergovernmental Panel on Climate Change 2007. Guiding Principles on Climate Change for ACT Alliance Programmes, revised, March, 2010, www.actalliance.org
6. Ishaya, S. and Abaje, J.B. 2010. Available online at <http://www.academicjournal.org> IGRP ISSN 2070-1845
7. Ikeme, J. 2009. Assessing the future of Nigeria's economy: Ignore threat from the global climate change debacle. *African Economic Analysis*, 1(2), 6-9. IPCC (2007), Summary for policy makers. In climate change 2007: Impact Adaptation and Vulnerability. Contribution of working group II to the Fourth Assessment Report of the intergovernmental panel on Climate Change,
8. M.L.Parry,O.F.Canziana,J.P. Palutiko,P.J van der Linden and C.E. Hanson,Eds 2005.Cambridge University press, Cambridge, U.K 7-22 Ndanitsa, M.A. , Economics analysis of Fadama crop production in Niger State. Unpublished M.Sc Thesis, Department of Agricultural Economics and Farm Management University of Ilorin, Ilorin. Nigeria.p.67
9. National Climatic Data Center. Climate, 2005. Annual review: temperature trends. Available at: www.ncdc.noaa.gov/oa/climate/research/2005/ann/global.html#Trends. Accessed April 18, 2007
10. Ojo, M.A. and Muhammed, U.S. 2008, Resource used efficiency in maize production among small scale farmers in Lavun Local Government Area of Niger State, *International Journal of Tropical Agriculture and Food System* 2(1),170-174,
11. Tsoho, B.A. 2005. . Economic of tomato based cropping system under small scale irrigation system in Sokoto State, Nigeria. Unpublished M.Sc Thesis Department of Agricultural Economics and farm Management, University of Ilorin, 105pp
12. Shea K. 2003. Global environmental change and children's health: understanding the challenges and finding solutions. *J Pediatr*.;143 :149- 154
13. UNFCCC, 2007, Indigenous agricultural adaption to climate change. A case of study of Imo and Enugu State in south Nigeria