

EXTENT OF CLIMATE CHANGE: THE INFLUENCE OF FLOOD ON THE EDUCATION OF EARLY CHILDHOOD PUPILS IN OGBARU LGA, ANAMBRA STATE, NIGERIA

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Abstract

Man's heritage, the ecosystem has constantly been attacked on daily basis by man's activities. Nature is violently reacting to the rebellious distortion acts of man. Unless we act now, the distortion will affect future generations adversely. The study examines the extent of climate change (flood) on the education of early childhood pupils in Ogbaru Local Government Area of Anambra State. The study was guided by three research questions and three hypotheses tested at 0.05 level of significance. The study adopted the descriptive survey design. The sample was 150 early childhood teachers who were randomly selected for the study. The instrument for data collection was a structured questionnaire validated by three experts. The reliability of the instrument was 0.71, 0.74 and 0.78. The overall reliability was 0.76 which was considered high. The data was analyzed using mean and standard deviation while t-test was used to test the null hypotheses. Findings showed that flood causes diseases as diarrhea and typhoid malaria, among pupils to a great extent. To a great extent, it also revealed that flood influence school attendance to a great extent. It was recommended that the state, local government and the communities should sensitize the populace on time before the rains and that pupils should be given vaccine against some diseases and typhoid.

Introduction

Human existence is always faced with one challenge or the other in a bid to survive and sustain development. Man in his infinite struggle to find solutions to development and its sustainability create more challenges which came up in varies spheres of life. These include climate change, political, social, economic, technological, scientific and religious challenges. These challenges are the major concerns of man, hence the engagement in exploration, migration, discoveries, revolutions and researches. Many activities were developed which drastically increased discoveries, research findings and mass production of goods and services, not minding its short, medium or long term effects of these activities on the eco-system. Man became relatively comfortable and technologically advanced as it were. The progress and comfort of man is seen today in the areas of science, technology, nutrition, education, communication, health just to mention these few. Arguably, man enjoyed relative comfort at the expense of the eco-system climate in particular whose eminent catastrophe know no bound. Today, McMichael (2003), a leading international epidemiologist noted that we are already seeing some of the negative effects of modern

ways of living with increased health impairments arising from chronic health problems. Similarly, Atanu and Olorundare (2007) observed that we are moving into a period of chronic global and extremely complex syndromes, that emerging syndromes threaten to constrain and even reverse progress and development in human society.

Climate change otherwise known as global warming, has been since the existence of man on earth but the diversity, magnitude and strength was not as it is today. Onwuka (2013) observed that climate change has also caused environmental changes which vary in intensity and diversity. The resultant effect of this climate change became glaring after industrial revolution and in the 21st century because of the increase in human activities such as reclamation, industrialization, urbanization and emission of gases into the atmosphere. Hence climate change is now a global concern, as evident in the Sustainable Development Goals which includes climate action as one of its concern. Some of the sustainable development goals hinge on climate action such as zero hunger, good health and well being, clean water and sanitation, affordable and clean energy, economic growth, sustainable cities and communities, life below water, life on land. In other wards, climate action to a great extent is a function of the above mentioned factors. Odeh (2009) stated that climate change pose great dangers with consequences such as desertification, sea level rise, flooding, water saturation among others.

Climate change has eaten deep into the fabrics of the ecosystem that government and people of the world are today confronted with climate change challenges on daily basis. Harma and Oliva (2016) noted that climate change may be the biggest health threat of the 21st century. Similarly, Onwuka (2013) maintains that the technological and scientific advancement has exacted much pressure on the eco-system causing stresses and strains. In the same vein, Arinze and Nnoruga (2015) opined that it is deeply disturbing that the much desired man's environment has been seriously abused through continuous release of prodigious amount of pollutants in it, unfriendly behaviours such as deforestation in the name of civilization, industrialization, modernization and development. According to Wikipedia, free encyclopedia climate change occurs when changes in earth's climate system result in new weather patterns that remain in place for an extended period of time. Ekpoh and Ekpoh (2011) asserted that climate change is any long-term change in the patterns of average weather of a specific region or the earth as a whole. Amanchukwu, Amadi-Ali and Olulube (2015) defined climate change as the alteration in the atmosphere that are over and above natural climate variation and are caused by human activity. Shafiel (2016) described climate change as a broad range of global phenomena which includes the increased temperature, trend described by global warming. In the context of this paper climate change is seen as distinct changes or deviations of the weather from the normal pattern over years which may be caused by man or natural factors otherwise known as internal and external factor, that pose challenges to human existence.

Climate change has two major causes' man and natural factors otherwise known as internal and external factors. Nature can cause climate change for example, the movement of molten magma within the earth crust which causes volcanic eruption. Others are drought,

flooding, erosion, ice melting, hurricane, rainfall, earthquakes. Human activities on the other hand such as industrialization, urbanization, pollution, emission of gasses, deforestation, destroying of vegetation, wild fire and overgrazing just to mention but a few can cause climate change. The populace are blamed for flooding in most areas by erecting structures on water channels, drainages and by dumping wastes into drainages which block them and cause water to find its own course which results in flooding. Arinze (2008) in Arinze and Nnoruga (2018) stated that increase in the heat of environment as a result of ozone layer depletion causes the melting of sea and ocean ice cap, causing over flooding in the coastal and delta regions leading to loss of lives and properties. Udeinya (2010) noted that climate change may lead to an increase or decrease in rainfall which may result in abnormal increase or decrease in ocean and sea level. Arinze and Nnoruga further said that the cumulative effects of the rise in sea and ocean levels may include the sub-emergence of coastal cities and coastal erosion due to flood.

The challenges presented by climate change has far-reaching effects on vegetations, oceans, weather and the populace which is made up of old people, youths and children. Davis (2007) noted that in a very short space of time global warming or climate change has hit the radar at all levels individually, locally, nationally and internationally. The effects of climate change cannot be overemphasized as it is evident in countries and the world at large. Onyali, Ezeugbor and Okoye (2015) observed that in Nigeria for instance noticeable consequences of climate change could be seen in areas such as intense thunder storms, widespread floods, which are incessant. Climate change affects children more especially those at the early childhood education stage. Harua and Oliva (2016) maintained that the challenges of climate change on children include poor nutrition and economic disruption which are likely to lower children's scholastic achievement or even keep them out of school.

According to the National Policy on Education (FRN, 2013) Early childhood education is the education given in an educational institution to children aged 3to5 years plus prior to their entering primary school. Chukwu (2015) defines Childhood Education as the education given to children from birth to 12 years. Its objectives include the following; effective and smooth transition from home to school, preparing the child for the primary level of education, providing adequate care and supervision while the parents are at work (on the farm, in the market, offices), inculcating social norms, inculcating in the child the spirit of enquiry and creativity through the exploration of nature and the local environment, playing with toys, artistic and music activities; teaching co-operation and team spirit, teaching the rudiments of numbers, letters, colours, shapes and forms through play and teaching good habits especially health habits. Similarly, primary education is the education given in institution to children aged 6-12years (FRN, 2013) its objectives are as follows- inculcate permanent literacy, numeracy and the ability to communicate effectively, promote patriotism, fairness, understanding and national unity, instill social, moral norms and value in the child, develop in the child the ability to adapt to the changing environment, lay a sound basis for scientific, critical and reflective thinking, and provide opportunities

for the child to develop life manipulative skills that will enable the child function effectively in the society with the limits of the child capacity.

Childhood education consists of pre-primary and primary education which is the focus of this paper. These laudable objectives can only be achieved in a conducive learning environment. Most times children in some locations are deprived of achieving these objectives due to climate change especially locations that are prone to flooding, drought and erosion. One of the objectives in the pre-primary education emphasizes inculcation in the child the spirit of inquiry and creativity through exploration of nature and the local environment. Most times this objective becomes unachievable for children in certain areas as Ogbaru L.G.A which is situated in the riverine area that is prone to flooding and is one of the agricultural areas of Anambra State. Hence, Umar (2009) expressed fear that continuous rise in sea level will increase the incidence of severe rainstorms and flooding in low-lying areas of the country as being experienced in the past in many states in Nigeria such as Lagos, Oyo, Ogun, Osun, Anambra, Imo, Delta, Bayelsa, Rivers, Cross River and Abia. Besides, when flooding destroys nature and local environments the achievement of the spirit of inquiry, creativity through exploration becomes questionable.

The United Nations in a bid to combat the eminent dangers of climate change established framework convention on climate change which was its intervention in climate change. The aim is to prevent dangerous human interference with the climate system. Today 197 countries are part of this convention. These efforts and more others were made globally to intervene in the climate change, knowing that it poses danger to people's lives. These challenges hold consequences for different groups of the populace-old, youth and children. Tribune Newspaper of 14th September 2020 published an article captioned flood swept two children. Children between the ages of 0-12 years are the most vulnerable to climate change. UNICEF (2015) stated that there can be no greater growing threat facing the world's children and their children than climate change. This is because they are at their growing stage and are dependent on their families for sustainability. Anything that disrupts the family has tremendous impact on them. UNICEF (2015) opined that children particularly young children are reliant on adults for their survival and development, whatever happens to adults often has a devastating impact on children. These children are in crèche, Kindergarten, Nursery and low Basic education. It is also a burden to them because it threatens their lives. For example in 2018, there was massive flooding in Ogbaru and many parts of the state. Flood comes with concomitant problems especially for these children. The school plant and other infrastructures were submerged, in that case all the infrastructures for activities, games, classrooms and school attendance abruptly boycotted. Onyali, Ezeugbor and Okoye (2015) maintained that climate change impacts could manifest in food security challenges, damage to infrastructures and social dislocation. UNICEF (2015) believes that severe weather events can destroy or disrupt infrastructure critical to children's wellbeing including schools.

School laudable objectives in this sense may not be achieved because the children no longer attended classes. Sometime these children need to migrate from their homes. They may be in Made-shift camps. Everything in the camp is made shift including the classrooms and these children education is affected. The environment may no longer be conducive for their learning because there in the camp, they may not have enough chairs or physical education facilities, and by this, their education is affected. It further said that draught and flooding can destroy crops, disrupt water systems and contaminate water reserves. Udeinya (2010) while stressing on the disastrous effects of climate change on Agriculture noted that it may affect our countries ability to feed its citizens and endangers livestock production. Researchers as such as Ikediashi (2014); Ikediashi and Agugoesi (2014) found out that environment to a large extent affect creativity. One of the objectives in the National Policy on Education (2013) is to encourage creativity in children. In a made shift camp, the children's access to learning materials are limited and the children may not be taught by familiar teachers whom they were use to and may not be able to improvise.

The children are exposed to diseases. Harma and Oliva (2016) asserted that climate change will likely increase the optimal condition for infectious and parasitic diseases through more heavy rainfalls more flooding and rising temperature. The authors further stated that the association between heavy rainfall, high water temperatures and cholera outbreaks has been well documented. Flooding affects their source of drinking water. The children as a result of lack of good drinking water may be exposed to diarrhea, typhoid, malaria, pneumonia, cholera and vomiting. UNICEF (2015) maintains that children face greater dangers from undernutrition and diarrhea diseases. When children are down with sickness, they cannot go to school and when they are absent from school, learning is disrupted. UNICEF (2015) noted that short term health effects, parasitic diseases may have long-term consequences for health and schooling. Already the scheme of work for the time has been scheduled so when flooding happens it affects children attendance to school.

Children are most vulnerable in case of climate change especially children from already disadvantaged homes. The concern of most parents in such circumstances is to first eat anything to keep the body and soul together. By this, the level of nutrition becomes questionable. According to Opara, Ibem-Chijioke and Ozor (2013) nutrition is intake of food considered in relation to body's dietary need. Some may not even have enough food to carry the children along. The children become malnourished as a result of nutritional deprivation. The school where this group of children can replenish their bodies through school feeding is disrupted. It affects their general body development and education. Such children that are malnourished are exposed to the danger of being infected by diseases. UNICEF (2015) maintains that children and families who are already disadvantaged by poverty-those with the fewest resources for coping are likely to face some of the most immediate dangers of climate change. They cannot attend school even there, in the made shift camp schools, they sleep, yawn and are at the risk of being sick and learning is affected.

These disadvantaged children are affected further more because their parents have been deprived of their means of livelihood, farmland, crops and investment by flood. Harma and Olive (2016) maintained that due to parental poor income whose parents depend on agriculture as a means of livelihood, the poor income itself caused by activities of climate change. The authors further states that children in developing countries also face more-severe threats from both air and water pollutions from infections and parasite disease carried by insects or contaminated water and possible displacement, migration and violence triggered by climate change. The cost of food becomes exorbitant or expensive; hence many parents cannot afford nutritious food for their children to grow and develop well because of poor means of livelihood. This affects their cognition which has multiplier effects on their education. Such children may drop out of school because their parents may not be able to pay school fees because of parental low income. Umeano (2015) noted that malnutrition disorder affects more than 42% of school children in Nigeria and are responsible for 49% absenteeism of primary school age children.

In case of children migrating from their original home to a new location, they are denied the opportunity of discovery, inquiry and creativity. Being new and unfamiliar with the new environment, and recovery from emotional and adjustment issues of moving away from their home abode offer children limited opportunity for meaningful activities that encourage discoveries, inquiry and exploration. The study was anchored on ecological systems theory. This theory focuses on ecology of human development indicating that children live within different environment within the system such as microsystem, mesesystem, exosystem, macrosystem and chronosystem. Anything that affects the system automatically affects the people which children are part of. Microsystem involves the people in close contact which include the family. So any issue that affects the family arguably affects the children.

Having seen the effects of flood. The researchers were motivated to empirically determine the extent of climate change (flood) on early childhood education pupils in Ogbaru Local Government Area of Anambra State.

Purpose of the Study

The study sought to find;

1. Extent of flooding in causing diseases to early childhood education pupils in Ogbaru L.G.A
2. Extent of flooding on school attendance of early childhood education pupils in Ogbaru L.G.A
3. Extent of flooding to nutritional deprivation of pupils in early childhood education pupils in Ogbaru L.G.A

Research Questions

The following research questions guided the study.

1. To what extent does flooding cause diseases to early childhood education pupils in Ogbaru L.G.A?

2. To what extent does flooding influence school attendance of pupils in early childhood education schools in Ogbaru L.G.A?
3. To what extent does flood cause nutritional deprivation among early childhood education pupils in Ogbaru L.G.A?

Research hypothesis

1. There is no significant difference in diseases caused by flooding among early childhood education pupils in Ogbaru L.G.A
2. There is no significance difference in school attendance of early childhood education pupils and flooded areas in Ogbaru L.G.A
3. There is no significant difference in nutritional deprivation caused by flooding among early childhood early childhood pupils in Ogbaru L.G.A

Method

The study adopted survey design. The population of the study comprised of all primary school teachers in the 60 primary schools in Ogbaru Local Government Area. 150 early childhood teachers were randomly selected as sample for the study. The instrument for data collection was a questionnaire with 15 items which was validated by three experts. The item statements were arranged in three clusters in accordance with the research questions. The first cluster had five items which sought the kind of diseases caused by flooding, the second cluster had five items and was on flood and pupils school attendance while the last cluster had five items and was on flood as a cause of nutritional deprivation in Ogbaru L.G.A. Cronbach alpha was used to find the reliability of the instrument which gave 0.75, 0.74 and 0.78 then the reliability of the instrument was 0.76. The data was analyzed using descriptive statistics of mean and standard deviation. It was a four point scale of Very Great Extent (VGE, 4point), Great Extent (GE, 3 point), Low Extent (LE, 2point) and Very Low Extent (VLW, 1 point). The bench mark for acceptance was 2.50 and above while below 2.50 was rejected while t-test was used in testing the hypothesis on .05 degree.

Results

Research Question: What is the extent of flooding in causing diseases to early childhood pupils in Ogbaru L.G.A?

Table 1: Extent of flooding in causing diseases to pre-primary and primary schools in Ogbaru L.G.A

N=150

S/N	ITEMS	\bar{X}	SD	Decision
	Flooding brings a lot of low quality environment which causes			
1	Diarrhoea	2.95	1.38	GE
2	Typhoid fever	3.02	0.71	GE

3	Pneumonia	2.71	0.60	GE
4	Malaria	2.85	1.78	GE
5	Vomiting	2.60	0.43	LE
6	Hepatitis	2.33	0.64	LE
7	Cancer	1.10	0.51	VLE
8	Cholera	3.05	0.67	GE

Table 1 above shows that the mean scores from item 1-8 were 2.95, 3.02, 2.71, 2.85, 2.60, 2.33, 1.30 and 3.05 respectively. Item 6 and 7 were rejected because their score were below 2.50. Other items were accepted because their score were from 2.50 and above.

Research Question 2: What is the extent of flooding on school attendance of early childhood pupils in Ogbaru L.G.A?

Table 2: Extent of flooding in relation to school attendance of early childhood pupils in Ogbaru L.G.A

N=150

S/N	ITEMS	Flood on school attendance	\bar{X}	SD	Decision
9	Children do not attend school at all		2.50	0.32	LE
10	Accessibility to school is hindered by flood		2.70	1.29	GE
11	Children come to school occasionally		2.25	0.36	LE
12	Children attend school few days in a week		3.01	0.77	GE
13	Children come to school late		3.21	0.53	GE
14	Nonattendance affects their academic activities		3.15	0.61	GE
15	In internal displaced persons camp, they are not serious with academics		1.15	0.21	VLE
16	The aid items provided by government and general public are not enough		3.05	0.56	GE

Table 2 above shows that the mean scores from item 9-16 were 2.50, 2.70, 2.25, 3.01, 3.21, 3.15, 1.15 and 3.05 respectively. Item 11, and 15 were rejected because their score were below 2.50. Other items were accepted because their score were from 2.50 and above.

Research Question 3: To what extent does flood in Ogbaru L.G.A cause nutritional deprivation among early childhood pupils?

Table 3: Extent flood cause nutritional deprivation among early childhood pupils
N=150

S/N	ITEMS	\bar{X}	SD	Decision
	Food cause nutritional deprivation			
17	Flooding disrupts school feeding	2.93	0.41	GE
18	Advantaged family eat quality meals despite the flooding	3.13	0.49	GE
19	Disadvantaged parents offer their children poor meals because they cannot afford the high cost of balanced diet as a result of effects of flood	2.68	0.71	GE
20	Children are not malnourished as a result of flooding.	1.38	0.23	VLE
21	Generally, flooding reduces crop production which affects food intake among children in homes	2.95	0.44	GE
22	Children feed more on available foods due to washing away of foods crops by flooding	2.00	0.53	LE
23	The prevalence of flooding made children to be malnourished	3.11	0.41	GE
24	Flooding affects the quality of water available	3.13	0.52	GE

Table 3 above shows that the mean scores from item 17-24 were 2.93, 3.13, 2.68, 1.38, 2.95, 2.00, 3.11 and 3.13 respectively. Item 20 and 22 were rejected because their score were below 2.50. Other items were accepted because their score were from 2.50 and above.

Testing of Hypotheses

Hypothesis 1:

There is no significant difference in diseases caused by flooding among early childhood education pupils in Ogbaru L.G.A

Respondents	N	SD	X	t-cal	Df	α	T-crit	Decision
Urban	117	1.82	2.74	3.482	148	.05	1.98	Reject H ₀
Rural	33	1.53	1.65					

On table 1 above, the t-cal is 3.482 and tcrit is 1.98. the t-cal is greater that t-crit, so the null hypothesis was rejected. Flood cause diseases in Ogbaru L.G.A

Hypotheses: 2

There is no significance difference in school attendance of early childhood education pupils and flooded areas in Ogbaru L.G.A

Respondents	N	SD	X	t-cal	Df	A	T-crit	Decision
Urban	117	0.59	1.66					

			0.273	148	.05	1.98	Accept H0
Rural	33	0.71	0.74				

On table 2 above, the t-cal is 0.273 and tcrit is 1.98. The t-crit is greater that t-cal, so the null hypothesis was accepted. There is no significance school attendance of early childhood pupils in Ogbaru L.G.A.

On the table 2 above, because t-cal (0.273) is less than t-crit (1.98). The null hypothesis is accepted. There is no significant school attendance of pre-primary school pupils in flood prone areas in Ogbaru L.G.A

Hypothesis 3:

There is no significant difference in nutritional deprivation caused by flooding among early childhood early childhood pupils in Ogbaru L.G.A

Respondents	N	SD	X	t-cal	Df	α	T-crit	Decision
Urban	117	1.71	1.87					
				2.453	148	.05	1.98	Accept H0
Rural	33	1.63	1.08					

On table 3 above, the t-cal is 2.453 and tcrit is 1.98. The t-cal is greater that t-crit, so the null hypothesis was rejected. There is no nutritional deprivation on early childhood pupils caused by flooding

Discussion of Findings

The finding showed that early childhood education teachers in Ogbaru L.G.A of Anambra State positively indicated that flooding causes diseases such as diarrhea, typhoid fever, pneumonia, vomiting and cholera in to pupils to a great extent. Harua and Oliva (2016) supported the finding by asserting that children in developing countries also face more serious threats from both air and water pollution from infectious and parasite diseases. In the same vein, UNICEF (2015) concurred with the finding that children face greater dangers from under nutrition and diarrhea diseases. The teachers indicated that flooding does not cause cancer and hepatitis to a great extent. The null hypothesis that there is no significant diseases caused by flooding was rejected because the t-cal was greater than the t-crit; meaning that flooding cause diseases among early childhood pupils in Ogbaru Local Government Area of Anambra state.

The finding further revealed that flooding relates to school attendance. The respondents responded positively that to a large extent children do not attend school at all, as the school is not accessible and that nonattendance to school affect their academic activities. The finding was in line with the view of Hama and Oliva (2016) which states that challenges of climate change on children include poor nutrition, economic disruption which are likely to lower children scholastic achievement and even keep them out of school. UNICEF (2015) concurred to the finding by noting that severe weather events can destroy or disrupt infrastructure critical to children's well-being including schools. Similarly, Onyali Ezeugbor and Okoye (2015) opined that climate change impacts could manifest in food insecurity challenges, damage infrastructure and social dislocation. The teacher negatively responded to the items that children attend school in times of flood, and internal displaced person's camp they are serious with academics. Their response might not be unconnected to the fact that, flooding submerges the infrastructures such as school building and others school facilities making it impossible for pupils to attend school. The null hypothesis that there is no significant school attendance of early childhood education pupils in flood prone areas in Ogbaru was accepted as the t -cal was 0.273 while the t -crit 1.98. It means that there is no significant school attendance of early childhood education in flood prone areas in Ogbaru L.G.A.

The teachers indicated that flooding cause nutritional deprivation among pupils in early childhood education. The parents of the pupils means of livelihood is affected by flood, for example their farm lands and crops submerge or are washed away thereby reducing production of crops. Their income is also affected by the flood. Flooding make children to be malnourished and he stake is much on poor parents or disadvantaged parents. Harma and Olive (2016) noted that challenges of climate change on children include poor nutrition and economic disruption.

UNICEF (2015) concurred to the finding when it opined that drought and flooding can destroy crops, disrupt water systems and contaminate water reserves. The authors further noted that children face greater dangers from undernutrition. Umeano (2015) supported the finding when the author said that malnutrition disorder differs more than 42% of children in Nigeria and are responsible for 49% of absenteeism of primary school age children. The null hypothesis that there is no significant nutritional deprivation caused by flooding was rejected as the t -cal was 2.453 while the t -crit 1.98. This means that flooding cause nutritional deprivation among pupils in early childhood education in Ogbaru.

Conclusion

Climate change flooding in particular has become a social problem and has far reaching effects on generation yet unborn. It therefore requires prompt attention from all stakeholders, government, communities, old, young and children. Prompt attention to flooding will preserve our environment and avoid catastrophe. It will also increase pupil's academic achievement and reduce insecurity in food and health hazards.

Recommendations

1. Anambra State government should awake to its responsibilities by making policies to deter the people from building on drainages/water channels.
2. The State, Local government and Communities should be sensitized on time about flooding by talking to town unions, men and women, using posters and flyers.
3. State and Local governments should make and improve on made shift camps in case of flooding
4. Children should be given vaccine against such diseases as cholera, typhoid etc.

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