10.5281/zenodo.7566679

Implications of Flood on the Health of the People of Abarikpo Community in Orashi, Rivers State

[1]Patience Itaa, [2]Lenyima Festus Kale, Francis Itaa & Charles Itaa

[1]Department Community Health, Rivers State College of Health Science and Management Technology, Port Harcourt.

[2]Centre of Excellence, Marine and Offshore Engineering, Rivers State University Port Harcourt.

Abstract

Globally, flood disasters are reported to have one of the most devastating effects on economic development, livelihoods, agriculture, environment and the health of victims. This paper examined flood and its implications on the dwellers of Abarikpo community, Ahoada-East Local Government Area, Rivers State. The justification for this study is informed by the damages done by flood on the environment which in turn affects the well-being and the health of the people. The objectives of the study were to; examine the causes of flood in the study area; and assess its effects on the environment and health of the community dwellers. Descriptive survey design was adopted while purposive sampling techniques was employed in determining the study sample. Findings identified the causes flooding to include natural factors such as heavy rain fall; overflow of rivers and human factors such as deforestation, overgrazing, poor town planning and sanitations. The revealed effects of flooding include; overflows of farmlands, living houses, environment, drinking wells. The implications include destructions of crops, spreading of infestations on soil and water, degradation of agriculture land, contamination of drinking well-waters and wide spread of infectious waterborne diseases among the community dwellers especially children.

Keywords: diseases, environment, flood, health, infestation

1.0 Introduction

Globally, flood disasters (whether natural or human-caused) are considered to have one of the worst consequences on human existence in general, as well as economic development, livelihoods, agriculture, and health (Musah & Oloruntoba, 2013). Natural disasters have a substantial impact on health, the economy, and food security, especially in rural agricultural towns like Abarikpo where crop failures are caused by climate change-related floods and the likelihood of a food shortfall due to a bad harvest is increased (Tologbonse, et al, 2010; Tunde, 2011); the devastation of the environment; contamination of drinking waters and consequently, health challenges such as cholera and diarrhoea among other diseases.

A flood is a form of a disaster which involves an overflow of water that submerges lands that are usually dry. It could also be termed as an inflow or overflow of tide beyond the riverbank. Flood as an area of research in the hydrology field is very important to the fields of agriculture, civil engineering, and public health. People and communities are negatively impacted by floods on a social, economic, and environmental level. The consequences of floods—both positive and negative—can vary significantly depending on the location and intensity of flooding as well as the vulnerability and worth of the built and natural ecosystems they touch. There is no longer any doubt that the flooding phenomena is a component of current global environmental change. Flooding hazard turned out to be a recurrent and most commonly occurring natural hazard accounting for about one-third of all geophysical hazards negatively impacting the citizenry more than any other natural disaster as observed by Obeta (2014), Nigeria, not excluded.

Several Nigerian states, including Lagos, Cross Rivers, Adamawa, Plateau, Rivers, Bayelsa, Kebbi, and Zamfara, to name a few, have reportedly seen unprecedented flood levels (Obeta, 2014; Famous, 2013). These floods typically have wide-ranging effects on the physical, psychological, social, and cultural spheres. In addition to the loss of human lives, these calamities are followed by the devastation of homes, livelihoods, transit routes, farms, animals, marketplaces, and public utility infrastructure, which exacerbates economic and cultural challenges.

According to the Inter-Governmental Panel on Climate Change (IPCC, 2017) assessment, the rise in global average temperature is to blame for the rise in floods and other severe weather events. Scientists who have been monitoring global temperatures throughout time have seen an almost unnoticeable gradual rise in the average global temperature (Parry et al, 2017). Global warming causes warmer oceans, melting glaciers, and rising sea levels, all of which put towns at risk of floods (Gulledge, 2012; Ogbanga, 2015) particularly those found around rivers, creeks, and seacoasts, as is the case of Orashi region of the Niger Delta, where Ahoada is situated.

Also, human activities such as indiscriminate waste disposal especially in gutters, blockage of dams, burning of fossil fuel, deforestation, overgrazing and building on running waterways, among others, contribute to the occurrence of and vulnerability to flooding. Asthana and Asthana (2013) note that floods can be local, impacting certain neighbourhoods or communities, or global, affecting whole river basins and several different states or nations, as was the case during the 2012 flood disasters in Nigeria. Therefore, flooding can occur naturally or artificially. It is an issue that demands due treatment since, as, in the cases of Ahoada, Omoku, Bayelsa, and other regions of Nigeria, it has a devastating effect on the economy and the general well-being of the populace, especially their health.
The implication of flooding disasters is the high rate of movement of people from the affected areas to places where they can be safe. Also, during flooding, every commercial activity is suspended, and some of them are even directly or indirectly destroyed. According to the 2014 World Flood Disaster Report, flooding is one of the most environmentally harmful disasters, and because of its extreme size, it causes more fatalities than storms (41% versus 44%). In addition to the loss of human and animal life, the annual cost of the worldwide flood damages to households' livelihood, agriculture, infrastructure, and public utilities is in the billions of dollars (Parry, et al, 2017; International Federation; Red Cross and Red Crescent Society, 2020).

1.1 Statement of Problem

Unfortunately, climate change brought on by global warming is the biggest environmental shift the world is now experiencing. The rise in sea level, one of the main effects of global warming, is anticipated to cause floods, particularly in low-lying coastal regions, which will harm the health of the most vulnerable people, particularly women and children. The intensity of floods, which worsens food shortages and health problems, is mostly brought on by modest fluctuations in rainfall. Since climate change has an impact on many facets of human and environmental wellness, the link between climate change and health is highly complicated. These include problems accessing hospitals, contamination of well and stream waters, distribution of reptiles and other life-threatening animals and insects across buildings and residential areas, food insecurity and a lot more.

Flooding among all the common catastrophes has caused extreme harm to human well-being and communities. The harm of the surge incorporates human harms and losses, overwhelmed houses, flooding of private and mechanical places, overwhelmed farmlands and misfortune in the agrarian generation, particularly in country communities like Abarikpo in Ahoada East prevailed by children, ladies and the elderly who depend generally on their farmlands for their source of nourishment and business; well and streams as the main source of drinking and utility water. It is, therefore, necessary to study flooding and its implications on the environment and health of rural dwellers of Abarikpoto suggest solutions and or mitigation measures to improve the health and living condition of the people.

2.0 Research Methodology

2.1 Design of Study

This study adopted a survey design to investigate the flooding and its implication on the environment and the health of Abarikpo dwellers in the Ahoada-East Local Government Area of Rivers State. It employed both the qualitative approach which seeks to conduct and work with more descriptive data in context and events and the quantitative approach which allows for the data collected to be analysed numerically, make predictions, test causal relationships and generalize results to wider populations.

2.2 Population of Study

The population of this study is made up of adult men and women of Abarikpo Community in Ahoada-East Local Government Area, who have experienced flooding from time to time and had felt its impacts on their health, livelihood and the environment.

2.3 Study Location

The study was carried out in Abarikpo community of Ahoada-East Local Government Area; one of the twenty-three (23) Local Government Areas of Rivers State. Ahoada East is a local government area situated in the Rivers State of the South-South geopolitical enclave of Nigeria. Created in 1996, the LGA has its headquarters in the town of Ahoada and comprises towns such as Abarikpo, Ebiro, Edeoha, Mbiama, Odiemudie, Okolobiama, and Ubie.Ahoada-East is of geographical coordinates, Latitude: 5.07027, Longitude: 6.64302 5° 4′ 13″ North, 6° 38′ 35″ East; covering an area of 34,100 hectares, 341.00 km² (131.66 sq mi) and an altitude of 10 m (33 ft).

2.4 Sample and Sampling Techniques

Purposive sampling technique was used in selecting the sample for this study. This is because the researcher needed only target respondents that have experienced and have been affected by the ravaging floods that plague the area from time to time. The sample size used for this study is three hundred and twenty-two (322) men, women, and youths of Abarikpo community who have experienced flooding in the community.

2.5 Instrument for Data Collection

The questionnaire was the main instrument for data collection. It was structured and titled, Flooding and its Implications on Health (FIH). The questionnaire has two (2) sections, section A, and section B. Section A contains the personnel data of the respondents while Section B deals with the flooding, its effects and health implications on the health of Abarikpo dwellers. The reliability of the instrument used in this research work was done through a test re-test procedure; with a correlation coefficient of 0.75 using Pearson's moment correlation.

2.6 Method of Data Collection and Analyses

The instruments were administered to the respondents by the researcher in person, to explain items that might not be cleared to the respondents. Upon successful completion, the instruments were retrieved directly by the researcher for analysis. The responses from the respondents were organized into frequency distribution tables to determine the mean. The likert 4-Point scale was used with the standard mean of 2.50 of which the item means would be compared.

3.0 Results

The results of the findings are presented in three tables- considering the causes, effects and implications of flooding.

Table 2: The Causes of Flooding in Abarikpo

Causes of Flooding		Sample	Score	Mean	Decision
1	Flooding occurs naturally due to prolonged rainfall over several days or extreme rainfall within a short space of time.	322	966	3	Accept
2	Melting of the ice cap/glaciers causes the river level to rise and overflows thereby causing flooding of dry lands.	322	934	2.9	Accept
3	Flooding could be caused by the disturbance of land acommon and primary form of environmental degradation.	322	1030	3.2	Accept
4	Overpopulation, gutters & drainage blockage and building on waterways trigger flooding.	322	998	3.1	Accept
5	Poor town planning causes flooding within an	322	1063	3.3	Accept

	environment				
6	Activities such as deforestation, poor farming methods, overgrazing, over-cultivation, increase in population, levees or dam failure and development activities could trigger flooding.	322	1095	3.4	Accept

Standard mean, X = 2.5

Table 3: Effects of Flooding on the Environment

Effects of Flooding		Sample	Score	Mean	Decision
7	The impacts of a flood are manifested in the loss of life, and damage to buildings and other structures, including bridges, sewage systems and roadways.	322	1127	3.5	Accept
8	Flooding disrupts normal drainage systems of the community making sewage spills a common occurrence in the environment; this also results in serious health hazards alongside standing water and wet materials in homes.	322	1095	3.4	Accept
9	Flooding destroys farmlands and amateur farm crops.	322	1095	3.4	Accept
10	Flooding takes over people's houses and environment.	322	1095	3.4	Accept
11	Flood pushes and spreads deadly animals like snakes, and crocodiles, to household and within the living environment of humans	322	1030	3.2	Accept
12	Flood characteristically disperses and spreads dirt, and waste, within living neighbourhoods.	322	1159	3.6	Accept

Standard mean, X = 2.5

Table 4: Implications of Flooding on Health

Implication of Flooding		Sample	Score	Mean	Decision
13	Flood exposes humans to imminent danger and loss of lives in many instances.	322	1095	3.4	Accept
14	The destruction of crops and farmlands by flooding causes food scarcity and insecurity, starvation, hunger, and malnutrition.	322	1159	3.6	Accept
15	Destruction of both animal and human habitats exposes them to danger, infectious diseases, and death in some cases.	322	1030	3.2	Accept
16	Flooding of wells and other sources of drinking water exposes humans to waterborne diseases such as diarrhoea, corella, typhoid fever, etc.	322	1063	3.3	Accept
17.	The period of a flood could be a frightening time whereby patients in some cases cannot go to health facilities or administrations which in turn leads to tall mortality rate.	322	1095	3.4	Accept
18.	Transportation to rustic zones for satisfactory well-being care, and conveyance benefits are as a rule exceptionally troublesome during flood disasters. Subsequently, numerous pregnant ladies are not given appropriate restorative care and a few indeed deliver their babies outside the eye-watch of health facilities and personnel. This sometimes results in complications that could have been avoided.	322	1127	3.5	Accept

Standard mean, X = 2.5

4.0 Discussion of Findings

Table 2 considers the causes of flooding in Abarikpo Community of Ahoada-West L.G.A., of Rivers State. Six research questions were considered. The means of the six items were all accepted as they are above the standard mean of 2.50. In other words, the respondents agreed that flooding occurs naturally due to prolonged rainfall over several days or extreme rainfall within a short space of time. Also, the majority of them strongly believed and agreed that melting of the ice cap/glaciers causes the river level to rise and overflows thereby causing flooding of dry lands. Land disturbance is another environmental degradation that causes flooding as observed by the respondents. Over population, gutters & drainage blockage and building on water ways triggers flooding; poor town planning causes flooding within an environment and activities such as deforestation, poor farming methods, overgrazing, over-cultivation, increase population, levees or dam's failure and development activities were also identified as factors that could trigger flooding.

Table 3, shows the results for the effects of flooding on the environment of Abarikpo Community in Ahoada-East L.G.A. of Rivers State. Six items were considered under Research Question 2. The means of items 7 to 12 were all greater than the standard mean of 2.50 implying that the respondents either agreed or strongly agreed that the effects of flooding include: loss of life, damage to buildings and other structures- such as bridges, sewage systems and roadways, farmlands and the physical environment. Also, flooding disrupts normal drainage systems of the community making sewage spills a common occurrence in the environment. This in turn, results in serious health hazard alongside with standing water and wet materials in homes. Flooding destroys farm lands and amateur farm crops. It equally destroys people's houses and pollute the environment. Flood characteristically, disperses and spreads dirt, waste, within living neighbourhoods. Deadly and destructive animals like snakes, crocodiles, are pushed to households and within the living environment of humans by flood. These were all identified by the respondents as effects of flooding in Abarikpo community of Ahoada in Ekpeye land of the Niger Delta.

On the implication of flooding on the environment and health of dwellers of Abarikpo community in Ahoada, six items were considered under Research Question 3. The respective means of these items were also greater than the standard mean of 2.50, hence, they were all accepted as clearly shown on Table 4. Most of the respondents strongly agreed that the implications of flooding include: exposure of humans to imminent danger and loss of lives in many instances. This happens directly by driving water or driven objects and or exposure of humans to poisonous organisms or amphibians like snakes, crocodiles and bacteria which causes infections.

The destruction of crops and farm lands by flooding causes food scarcity and insecurity, starvation, hunger, and malnutrition and consequently, stunted growth of children, weakened immune system, avoidable sicknesses and death in some cases. Also, the destruction of both animal and human habitat by flooding, exposes them to danger, infectious diseases, and death in many cases. Flooding of wells and other sources of drinking water exposes humans to waterborne diseases such as diarrhoea, corella, typhoid fever, etc.

Besides, the period of flood could be a frightening time whereby patients need get to health centers or hospitals but are unable, which in turn leads to tall mortality rate especially among children and pregnant ladies. Typically, transportation to country regions or cities for satisfactory wellbeing medical centres is usually exceptionally difficult. Consequently, numerous pregnant ladies are not given proper therapeutic care and some give birth outside the health care facilities are not adequately and properly attended. This sometimes, results to complications and death that could have been avoided.

5.0 Mitigation Measures/ Way Forward

The way forward includes construction of floods ways- as channels of a river or other watercourse. Other proactive step that could be taken is the development of dams, supplies or maintenance lakes to hold additional water amid times of flooding: Numerous dams and their related stores are outlined totally or in part to help in surge security and control. Dams are counterfeit conduits that carry abundance stream water amid overwhelming precipitation (Ekine & Talbot, 2020).

Planting vegetation to hold additional water: Planting vegetation are characteristic flood-control structures to battle stream flooding and water surges limit waterways amid surges by giving common scope of arrive that anticipate runoffs from bursting floodplains.

Building of waterways and coastal protections: In numerous nations, waterways inclined to surge are regularly carefully overseen. Guards as levees, bunds, stores and weirs are utilized to anticipate waterways from flooding their banks.

Flood caution: Surge caution is the arrangement of progress caution of conditions that are likely to cause flooding to property and a potential chance to life. The most reason of flood caution is to spare life by permitting individuals, bolster and crisis administrations time to get ready for flooding. The auxiliary reason is to decrease the impacts and damage of flooding. Within the villages, the services of town criers, churches, associations can be employed to reach out to the people.

5.0 Conclusion

Flood is not alluring, subsequently, measures to turn away flooding must be followed entirely to turn away the negative effects of surge within the think about range and nation at large. Numerous communities in Nigeria especially those at the coast just like the Orashi region of Rivers State, are possibly uncovered to flooding coming about from extraordinary climate occasioned by such an overwhelming/ drawn out precipitation, coastal flooding and wind storm. This spells the urgent need for communities to engage in efforts aimed at combating the effects of flooding through the enhancement of community resilience and adopting local strategies to combat the flood in combination with government programs. Unfortunately, the government has not done much on flood control such as: construction of flood ways, drainages, gutters, dams, reservoirs or retention ponds, as obtainable in other climes to hold extra water during times of flooding. The community on their own part must planting vegetation to retain extra water, build rivers and coastal defences and must avoid over grazing, blocking of gutters, building on water ways as well as maintain regular weekly or monthly sanitations.

References

Asthana & Asthana (2013). A Textbook of Environmental Studies for undergraduate students. Chand and company limited, New Delhi.

Ekine, D. I. & Talbot, O. (2020). Flood and Ahoada West Local Government Area of Rivers State, Nigeria. *International Journal of Research and Innovation in Social Science* (IJRISS) |Volume IV, Issue VI, June 2020|ISSN 2454-6186.

Famous, O. F. (2013) Mitigating the Impact of Flood Disasters in Nigeria. http:pointblanknew.com/pbn/articlesopinions/mitigating-the-mpact-of-flood-disaster-in-Nigeria/.

Gulledge, J. (2012). The causes of global climate change. Center for climate and energy solutions, (C2ES) Arlington.

Musah, A.N.B. & Oloruntoba, A. (2013). Effects of seasonal floods on household livelihoods and food security in Tolon/Kumbumgu district of Northern region of Ghana. *American journal of Research Communication*, 1(8): 160-171.

Obeta, M.C. (2014) Institutional Approach to Flood Disaster Management in Nigeria: Needs for Preparedness Plan. *British Journal of Applied Science and Technology* 4 (33): 4575-4590, 2014 ISSN: 2231-0843. www.sciencedomain.org.

Ogbanga, M.M. (2015). *Socio-economic Livelihood Impacts and Coping Strategies of Flood Disaster in Selected Communities in Rivers State*. Port Harcourt. Emhal printing & publishing Co.

Parry, M. L., Canziani, O. F., Palutikof, J. P., VanderLinden, P. J., & Hanson, C. E. (2017). IPCC, 2017: Climate Change 2007: Impacts, Adaptation, and Vulnerability. *Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom, 1000 pp.

Tologbonse, E. B.; Auta, S.J.; Jaliya, M.M.; Onu, R.O. & Issa, F.O. (2021). Farmers' perception of the Effects of Climate Change and Coping Strategies in Three Agro-Ecological Zones of Nigeria. *Journal of Agricultural Extension* 14(1):125-136.

Tunde, A. M. (2021). Perception of Climate Variability on Agriculture and Food Security by Men and Women Farmers in Idanre L.G.A, Ondo State. Nigeria. *Ethiopian Journal Of Environmental Studies and Management* Vol. 4(2), 18-32. http://dx.doi.org/10.4314/ejesm.v4i2.3.