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ASSESSMENT OF IMPACTS OF FLOOD DISASTER AND HAZARDS ON COMMUNITY HEALTH IN ILESE-IJEBU, OGUN STATE: THE HEALTH EDUCATION IMPLICATIONS

[*1]AGBOOLA, H. O., [1]OREDUGBA M. P., and [2]AKOREDE, S. N.

[1]Department of Health Promotion and Education, Ogun State Polytechnic of Health and Allied Sciences, Ilese-Ijebu
[2]Department of Human Kinetics and Health Education, Ahmadu Bello University, Zaria – Nigeria.
[*]Corresponding Author: Agboolahabib@gmail.com; 08033798904

ABSTRACT

Floods are one of the most common hazards to cause disasters and have led to extensive morbidity and mortality throughout the world. The study aimed to assess the impacts of flood disasters on community health, and the health education implications. and to identify, evaluate and determine the use of managerial skills on urban drainage systems and flood disasters in the community. A descriptive survey research design was adopted for the study. Two hundred and fifty (250) respondents were randomly selected among the inhabitants of Ilese-Ijebu. The findings reveal that 80% have adequate knowledge regarding flood disasters, they were aware that flood can lead to loss of life and properties, 70% of respondents agree that the waste disposal habit of the people is poor and has an impact on the occurrence of flood disaster, Results indicated by the perception of 98.4% that Health Education is vital to floods disaster mitigation. (80%) agreed that impacts on community health can be reduced by efficient disease surveillance during and after flooding, location of Health Care Facilities is also key to community health. The study concluded that people's perspective has a great impact on the consequences of flooding. The following recommendations were made the government should enforce environmental law and policy, and make provision for health educators and qualified environmental health officers in the community to educate and enlighten people on the proper way of disposing of their waste materials, causes and consequences of flood disaster.

Keywords; Flood Disaster, Community Health, Impacts, Health Education, Consequences

Introduction

Floods took over the access road to Ogun State College of Health technology due to poor drainage and other human activities in Ilese-Ijebu, Floods are the most common hazard to cause disasters and have led to extensive morbidity and mortality throughout the world. The impact of floods on the human community is related directly to the location and topography of the area, as well as human demographics and characteristics of the built environment (Du, FitzGerald, Clark & Hou, 2010). A common environmental problem in Nigeria is flood and it is said to occur when a body of water moves over and above an area of land which is not normally submerged. It could also be seen as the inundation of an area not normally covered with water, through a temporary rise in the level of stream, river, lake or heavy rainfall. Flood is a natural occurrence brought on by rainwater entering a drainage basin. The amount of flood varies according to precipitation and the drainage basin. In the words of Jonkman and Kelman (2015), flooding is "the presence of water in locations that are typically dry. Floods are defined as "the condition that occurs when water overflows the natural or artificial confines of a stream, river, or other body of water, or accumulates by drainage over low-lying areas." It is also described to be the accumulation of an abnormally large volume of water in an area which has refused to percolate or flow away, it usually occurs when there is heavy rainfall in an area and all the water refuses to sink into the soil but flows on the earth`s surface as floods. When such floods occur in the cities it is referred to as Urban Flooding (Ward, 2018).

Floods are typically categorized as natural disasters because they frequently result in severe property destruction, widespread homelessness, and, in many cases, fatalities. Excessive rainfall can result in rivers and canals overflowing their natural routes and spreading across the nearby area, which can result in floods. Additionally, storm-force winds pushing the ocean inland through low-lying areas can be the culprit (Robert, 2016). The occurrence of flood represents a major risk to riverside populations and floodplains, in addition to causing substantial impacts on the environment, including aquatic fauna and flora, and bank erosion. Flooding is becoming an increasingly severe and more frequent problem in Nigeria. Nigeria has witnessed diverse flood events in the past years and due to the high level of vulnerability and lack of coping capacity of the people, with the fast occurrence of extreme events resulting from climate change, many lives and properties are at risk of its impacts. According to Hunt (2015), weather elements like heavy or prolonged precipitation, snowmelt, or storm surges from cyclones, as well as significant human factors like structural dam and levee failures, changes to absorbent land cover with impervious surfaces, and insufficient drainage systems can increase the intensity of floods. Although the consequences of floods vary in intensity and scope depending on the topography, the level of human activity, the amount of water present, and the stakeholders' level of preparedness, they are always incapacitating (Dalil, Mohammad, Yamman, Husaini & Mohammed, 2015). Flooding is perhaps the weather-related hazard with the most significant global reach It can happen almost everywhere.

According to ActionAid (2006), four types of urban flooding can be recognized; localized flooding which occurs many times a year due to few and blocked drains, small streams in urban areas rising quickly after heavy rains but often passing through small culverts under roads, a major river flowing through urban area, and wet season flooding in lowland and coastal cities (Doswell, 2015).

Flooding occurs in Nigeria in three main forms which are; river flooding, urban flooding and coastal flooding. The heavy rainfall coupled with bad human activities about the environment and lack of drainage infrastructure in most Nigerian cities has left hundreds of people distressed and homeless. It should be mentioned that flooding in cities can contaminate water supplies and intensify the spread of epidemic diseases, diarrhoea, typhoid, scabies, cholera, malaria, dysentery and other water-borne diseases (Akorede, Isiaq & Akorede, 2023; Aminu, Abdulkareem & Akorede, 2020). However, flooding is not entirely natural and threatens the ecosystem. Furthermore, due to man's propensity towards coastal areas and flood plains, flooding frequently has an unfavourable impact on human activities and poses a risk when it does (Dalil, Mohammad, Yamman, Husaini & Mohammed, 2015).

Elaborated on the causes of flood disasters around the world, including the following: Human Interaction with his environment, As was already established, human contact with the environment through industrialization, technological advancement, urbanization, deforestation, fossil fuel burning, and agricultural activities significantly contribute to flooding. This is closely followed by Bad Planning*:* which is also the product of poor design, the building of structures on natural waterways or canals, and when humans have tried to control the water resources available to them by damming and other water control structures leading to floods (Agbonkhese, Agbonkhese, Aka, Joe-Abaya, Ocholi, & Adekunle, 2014).

Heavy/Excessively Prolonged Rainfall: Floods are typically brought on by prolonged or excessively heavy rain, or perhaps by both. Flooding can occur along sea coasts as a result of tropical typhoons hurricane-related wind-driven storm surges, and rain-swollen streams. Amongst others including, human activities, and natural flooding through streams**,** the most frequent or typical flooding in Nigeria occurs naturally through streams and is usually brought on by heavy downpours. Water in the stream or river will inevitably spill across its border and into surrounding settlements as a result of this. Floods happen for several reasons, but climatological factors are the most significant. Smaller amounts of rainfall may also cause flooding in a region already submerged (Agbonkhese et al. 2013). Causal factors of flood in Nigeria which include indiscriminate dumping of refuse on drainage channels to channel adjustment and poor drainage conditions have been observed by People and it is indeed becoming increasingly vulnerable as the urban population increases and the poor ones are pushed into the fragile areas which are prone to flooding. This invariably causes water in the stream or river to flow beyond its boundary to nearby settlements. Flooding is, however, not totally a natural phenomenon but an environmental hazard. Flood becomes a hazard when they impinge unfavourably on human activities as they frequently do because of the affinity which man tends to have for flood plains and coastal locations (Agbonkhese et al. 2013).

Effective community communication of risks to the community is essential for those at risk to limit the health risks and health consequences both in the short and long term. The health consequences of floods may be categorized broadly as direct or indirect. Direct consequences are those resulting from direct exposure to the water and the flooded environment which include drowning, injuries from debris, chemical contamination, and hypothermia. Indirect consequences are those associated with risks associated with the damage done by the water to the natural and built environment and include infectious diseases, malnutrition, poverty-related diseases, and diseases associated with displaced populations (Akorede, Dayil, Akorede & Isiaq, 2022; Ahern & Kovat, 2010; Nofiu, Akorede, Abubakar & Hussaini, 2021). Impacts of flooding and perhaps its hazards according to Obinna et al. (2018) include economic damage, disease outbreaks, contamination of potable water, mental health challenges and growth of settlement.

Flood menaces in Nigeria have been on the increase and have gotten worse in recent times, to reduce the threat of floods, proactive and preventive approaches combining structural and non-structural measures must be developed and implemented to curb the menace of floods.

Statement of the Problem

In Nigeria, flooding has remained a prevalent environmental problem. Natural Hazards such as flood events are part of nature and natural processes. Except for some floods generated by dam failure or landslides, floods are climatological phenomena influenced by geology, geomorphology, relief, soil, and vegetation conditions, and more recently climate crisis activity. Referring to the latter, our society has become more vulnerable to natural hazards such as flooding due to our human activities, environmental interventions and activities impacting the natural environment. Urbanization, agricultural practice, deforestation, and alterations in the natural drainage patterns have considerably changed the status quo of the river system, exposing communities to risk and vulnerability to flooding. Available studies have shown that there is frequent occurrence of flooding. Bamidele and Badiora (2019) confirmed that flooding has negative implications for the survival of livelihoods, and social and economic activities. Udoh (2014) and corroborated by Evans, Dominic, Evans and Utting (2017) affirmed that flooding in Nigeria is caused by the weak implementation of various policies, including physical planning, urban drainage system, lack of adherence to environmental sanitation which leads to streams and channel obstruction due to indiscriminate

waste disposal habits and human activities in flood plains. This research is therefore designed to assess the impacts of flood disasters on community health and identify, evaluate and determine the use of managerial skills on urban drainage systems and flood disasters in the community.

Objective of the Study

The specific objectives are to;

1. assess the impacts of flood disasters on community health.
2. Evaluate and determine the use of managerial skills on urban drainage systems and flood disasters in the community
3. Use of health education skills to reduce the causes of flooding

Research Questions

1. What are the impacts of flood disasters on community health?
2. What are the uses of managerial skills in urban drainage systems and flood disasters in the community?
3. What are the health education skills required to reduce the causes of flooding in the community?

Methodology

This study was carried out on the assessment of the impacts of flood disasters and hazards on community health in Ilese-Ijebu Area of Ogun State, the health education implication. The researchers adopted a descriptive survey research design because it is broader and accepted for this kind of study, it enables collections of personal and general information on the study area. The population of the study comprises the inhabitants of Ilese-Ijebu, it is located in Ijebu North East Local Government area of Ogun State with a cosmopolitan outlook. The sample for this study was two hundred and fifty (250) inhabitants of Ilese-Ijebu. The instrument adopted to obtain information was a self-structured questionnaire with a reliability index of 0.95. The four rating scales of strongly agree, agree, disagree and strongly disagree was used, and the questionnaire was validated by research experts. The data obtained were analyzed using frequency and percentage count.

Results and Discussion

Table 1: Distribution of Respondents' Socio-Demographic Characteristics (n = 250)

Variables	Frequency	Percentage (%)
Gender		
Female	160	64
Male	90	36
Age		
21-40	60	24
41-50	70	28
50 and above	120	48
Educational Status		
Primary	110	44
Secondary	80	32
Tertiary	60	24
Occupation		
Civil Servant	70	28
Farmer	50	20
Petty Trader	130	52

Table 1 above indicates that 160(64%) of the participants were female while 90 (36%) of the respondents were male, this implies most of the respondents were female. With regard to age, 60(24%) of the respondents were between the age of 21-40 years, 70 (28%) were between ages 41-50 and 120 (48%) were above > 51. In terms of Educational status, 80 (32%) of the respondents are secondary school holders, 110(44%) passed through primary school before embarking on the business and 60(24%) had tertiary certificate holders. This indicated that the majority of the respondents had one form of education or the other. The study shows that 70 (28%) of the respondents were occupied by civil servants, 50 (20%) were farmers, and while majority of the respondents were occupied by petty traders representing 130 (52%).

Table 2*:* Tabular Reflection of Participants' Knowledge about Flooding, Attitude Towards Flooding, Attitude Towards Mitigation Measures, Risk Perception of Flooding and Managerial Skills Towards Flooding.

Variables	Frequency	Percentage
Knowledge about flooding		
Poor knowledge	50	20%
Good knowledge	200	80%
Attitude towards flooding		
Unfavorable attitude	175	70
Favorable attitude	75	30
Attitude towards mitigation measures of flooding		
Unfavorable attitude	150	60
Favorable attitude	100	40
Risk perception of flooding		
High risk	200	80
Low risk	50	20
Managerial skills towards flooding		
Waste disposal/drainage	85	34
Environmental sanitation/ health education	165	66

Table 3, Measurement of Impact of Flood Disaster, Use of Managerial and Health Education Skills to Reduce Causes of Flood Disaster in the Community

Variable name	Category	Frequency	COR (95%CI)	AOR(95%CI)	P_value
Are you aware of flood disasters?	No	50	1	1	
	Yes	200	2.02(1.45, 2.82)	2.39(1.66, 3.45)	0.001
Attitude of people towards flood disaster	Unfavorable attitude	175	1	1	
	Favourable attitude	75	0.63(0.37, 1.09)	0.96(0.53, 1.75)	0.91
Impact of health promotion and environmental health Officers towards the mitigation of flooding	Good	205	2.16(1.19, 3.90)	1.64(0.86, 3.11)	0.31
	Poor	45	1	1	
Effectiveness of monthly environmental sanitation in the community	Good	100	1	1	
	Poor	150	2.27(1.58, 3.24)	1.58(1.03, 2.43)	0.04
The most common method adopted by the people in the community to avoid flooding	Indiscriminate waste dumping	170	1	1	0.38
	Bush burning	80	0.41(0.30, 0.57)	0.79(0.46, 1.34)	
Do the government provide sufficient waste disposal systems in the environment?	Yes	50	1	1	
	No	200	2.68(1.94,3.71)	2.54(1.79,3.60)	0.001
Do the behavioural patterns of the people have an impact on the occurrence of flood disasters?	Yes	180	1	1	
	No	70	0.44 (0.32, 0.61)	0.75 (0.45, 1.24)	0.26
Does the means of construction of a drainage system have an impact on flood disasters?	Yes	190	1	1	
	No	60	0.41 (0.30, 0.58)	0.76(0.48, 1.19)	0.23
Do the government check the building system of the environment regularly	Yes	65	0.57(0.39,0.83)	0.61 (0.41, 0.92)	
	No	185	1	1	0.02

Reveal of association between all potential independent variables on impacts, and attitude of the people towards flood disasters, drainage channels in the community and the use of managerial skills on urban drainage systems were analyzed using binary logistic regression.

Discussion of Findings

The findings reveal that 80% have adequate knowledge regarding flood disasters, they were aware that flood can lead to loss of life and properties, 70% of respondents agree that the waste disposal habit of the people is poor and has an impact on the occurrence of flood disaster, Results indicated by the perception of 98.4% that Health Education is vital to floods disaster mitigation. (80%) agreed that impacts on community health can be reduced by efficient disease surveillance during and after flooding, location of Health Care Facilities is also key to community health. The above findings are corroborated by the study of Agbonkhese, Agbonkhese, Aka, Joe-Abaya, Ocholi and Adekunle (2014). The findings of this study indicated that more than half of the study participants (60%) had poor attitudes towards flood mitigation measures. Among the mitigation strategies used by the respondents was indiscriminate waste dumping with 68% and 32% practising bush burning.

Conclusion

Flood menaces in Nigeria have been on the increase in recent times. Based on the theoretical review carried out by diverse scholars, the study concludes that flooding is a menace that rides with it a plethora of negative emotional, psychological, economic, and physiological impacts that require swift human intervention to manage, minimize and possibly prevent its occurrence ever again. One recent study of flooded Nigeria residents found that 64% felt the disaster had adversely affected people's health, with stress and anxiety. Even those living in areas that have not been directly affected by flooding could experience an increase in the incidence of mosquito-borne diseases or household mould, which can make some people quite ill. From the study people's perspective has a great impact on the consequence of flooding, perhaps inadequate health education knowledge and attitude of the people also has an impact on the occurrence of flooding in the area. This occurs due to human interaction with the environment, indiscriminate waste disposal, and inappropriate building planning, lack of drainage, inappropriate and bad planning, excessive and prolonged rainfall.

Proactive and preventive options involving structural and non-structural measures need to be adopted and implemented to curb the menace of floods. Structural measures such as check dams, levees, flood walls and adequate drainage systems will help control periodic inundation in the areas that are liable to flooding (Agbonkhese, Yisa & Daudu, 2013). The importance of sensitizing government and communities at all levels on the reality of climate change and possible risk reduction strategies is crucial in preventing flood menace in Nigeria. The need for an effective community-based early warning system for flood prevention and control in Nigeria cannot be over-emphasized. The government of any nation, among its functions, must protect the lives and properties of its citizens. Government at all levels need to shift from being reactive to being proactive in responding to flood menace.

Recommendation

The following recommendations are stipulated which if followed by the authority of the communities shall improve the knowledge of the people toward the causes and consequences of flood disaster.

1. The government should enforce environmental law and policy, and make provision for health educators and qualified environmental health officers in the community to educate and enlighten people on the proper way of disposing of their waste materials, causes and consequences of flood disaster.
2. House management agencies and town planners should ensure that the building of houses and structures are supervised and well-planned in a way that will not precipitate flooding, also mobilizing the community on the proper ways of constructing their gully system.
3. Health education and the environmental health officer must be embraced by the community and encouraged to carry out their duties as partners in progress.
4. Mitigation strategies should be improved upon in the community to prevent flooding before it happens rather than looking for solutions after damages have been done.

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