

The Impact of Natural Hazards on the Poor Communities in Zimbabwe: A Health Perspective

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Abstract

This study seeks to explore the impact of natural hazards on the poor communities in developing countries from the health perspective using Masvingo province as a case study. Natural hazards in Zimbabwe like cyclones, hail, storms, floods, among others, are cause for concern and warrant an in-depth investigation to see how they impact on the poor. The poor's exposure to natural hazards is always high and this study therefore seeks to unearth the impact of such hazards on their health conditions. The study was qualitative and employed case study design. It employed semi-structured interviews for data generation. Purposive sampling was used to select the participants. The study found out that the poor are usually left homeless without any food to survive upon. Some people end suffering from malnutrition as a result of lack of variety of the foods they eat which in most cases is provided by the donors. They end up erecting temporary shelter from papers and the whole family sharing the same shelter. They lack proper sanitation and end up suffering from various diseases like diarrhoea, dysentery and typhoid due to drinking unsafe water. Due to lack of decent shelter, children engage in early marriages and this is causing high rate of infant mortality, the spread of infectious diseases including the spread of HIV and AIDS. The study recommends that hazards mitigation must be done in a sustainable way by maintaining and improving environmental conditions, people's quality of life, local resilience, local economies, inter- and-intra generational equity, and local decision-making and opinion. The government should adopt a global systems perspective; accept human responsibility for hazards; anticipate ambiguity and change; reject short-term thinking; and take a broader, more generous view of social forces and their role in hazards.

Keywords: natural hazards; poor communities; health perspective; developing countries; climate change

1. Background

Natural hazards are a cause for concern in communities since they destroy and impact negatively on public health as witnessed in the 2013 / 2014 Tokwe-Mukosi dam flooding leading to Chingwizi camp. Natural hazards are related to human well-being in various aspects, including displacement, disruption of living conditions, economic outcomes, health, human rights of refugees, and mortality (ISDR, 2009). Zimbabwe has come under the cross fire from natural hazards in form of cyclones, floods, drought, among others. This has caused a lot of suffering by the communities. Many people are aware of the devastating impact of natural hazards throughout the global village. It is important to analyse the health impact of these natural hazards to communities. People the world over are experiencing different forms of natural hazards and are affected by these hazards at regular intervals that are unpredictable. The United Nations declared the 1990s as International Decade for Natural Disaster Reduction (IDNDR) to focus the attention of the international community on natural hazards (Hewitt, 1997). This demonstrates the gravity of natural hazards on the lives of communities. To that end, very little research has been done as regards the impact of the natural hazards on the health patterns of communities. This research aims to fill the void.

2. Statement of the problem

Natural hazards in Zimbabwe like in many other countries have caused a lot of human suffering and poverty living conditions. These have negatively impacted on the health of many individuals. Most people are left homeless, without anything to eat, susceptible to disease attack and entangled in poor sanitary conditions. This warrants an in-depth investigation into the impact of natural hazards on the health of communities.

Quite a number of studies have been done to look at natural hazards and their geographical nature. The natural disasters that are currently affecting people have not been looked into in terms of their health impact to communities affected. A compendium of environmental statistics has been taken to assess the death toll caused by natural hazards. This does not add up to a clear picture on the impact of the natural hazards to public health. This study seeks to explore the impact of natural hazards on the health patterns of communities in Zimbabwe.

3. Main research question

How do natural hazards impact on the health patterns of communities in Zimbabwe?

3.1 Research questions

- What kind of natural hazards are experienced in Zimbabwe?

- To what extent do natural hazards affect the health standards of communities in Zimbabwe?
- How do the natural hazards culminate the spread of disease in Zimbabwean communities?
- To what extent do natural hazards lead to poverty stricken communities in Zimbabwe?
- What strategies can be used to mitigate the impact of natural hazards on the health of communities?

4. Conceptual framework

Natural hazards are considered as those elements of the physical environment, harmful to man and caused by forces extraneous to him/her (Burton, Kates and White, 1978). Natural hazard is an aspect of nature's impact on human affairs (Walker, 2005, p 82). Burton, Kates and White (1993), Smith (1992) and Hewitt (1997) made classification of natural hazards in terms of meteorological, geomorphic and biological sectors. Meteorological hazards include snow, fog, extremes of cold and heat, storms, lightning strike and wildfire, flood and drought. Geomorphic hazards include avalanches and landslides, earthquakes, volcanic eruptions, and tsunamis. Biological hazards include various diseases and infestations that attack humankind directly or attack crops and livestock, dangerous plants and animals, etc. This list may appear to highlight extreme events, but beneath this lie normal climatic, geomorphological and ecological processes.

5. Theoretical framework

This study employed the Risk Reduction Measures theory. The theory is premised on the understanding that the risks from natural hazards can be reduced through public awareness of natural hazards and their impact on communities. Public education is educating the public on causes and characteristics of natural hazards. It can be created through sensitization and training programme for community, architects, engineers, builders, masons, teachers, government functionaries and students (Pokharel, 2003). Disaster survival requires integrated risk management programmes, organisational skills, safety programmes, disaster preparedness, mitigation and emergency plans (Grigg, 2003).

6. Literature

Contaminated land is an issue of concern due to the risks it poses to the health of communities. The health hazards like presence of potential carcinogenic substances, presence of bacterium and accumulation of explosive or flammable gas are effects of natural disasters to public health of communities (Harris and Herbert, 1994). It is said that the risk factors for increased infectious disease transmission and outbreaks are mainly associated with the after effects of natural hazards. These after effects include displacement of populations, environmental changes and increased vector breeding sites. Unplanned and overcrowded shelters, poor water and sanitation conditions, poor nutritional status, or insufficient personal hygiene are often the case. As a result there are also low levels of immunity to vaccine-preventable diseases, insufficient vaccination coverage and limited access to health care services (Isidore, Aljunid, Kanigaki, Hammad and Oshitam, 2012).

Natural hazards cause a lot of health problems in many countries. In Nepal, post-disaster epidemics and death in the countries are mostly related with the spread of water-borne diseases because of the contamination of drinking water sources by flash floods and landslide events. Water-borne diseases were the top ten reasons of hospital visits in Nepal. A large number of hospital visits occur in summer (June to September) every year and most of these visits were related to diarrheal diseases (Pokhrel and Viraraghavan, 2004). Diarrheal diseases alone claim approximately 30,000 deaths every year in Nepal (Pokhrel and Viraraghavan, 2004).

Howard, Brillman and Burkle (1996) pointed out that the public health consequences of flooding include disease outbreak resulting from the displacement of people into crowded camps and cross contamination of water sources with faecal material and toxic chemicals. Flooding is usually followed by the proliferation of mosquitoes resulting in an upsurge of mosquito-borne diseases such as malaria.

Earthquakes are found to be the second most reported natural disaster. Outbreak of infectious diseases may be reported when the disaster results in population displacement into unplanned and overcrowded shelters, with limited access to food and safe water. Disease outbreak may also result from the destruction of water and sanitation system and the degradation of sanitary conditions. Tsunamis have a similar clinical and threat profile water related consequences (www.gsa.an/resources/factitestsunami.polf(2008)

Connolly, Gayer and Ryan (2004) indicated that epidemics among victims are commonly related to polluted water sources (faecal contamination). Outbreaks have been related to shared water containers and cooking pots, scarcity of soap and contaminated food. Diarrheal diseases epidemics of more than 17000 cases have been reported after population displacement by flooding in Bangladesh in 2004 (Qadri, Han and Furuque, 2005). It was seen that diarrheal diseases are a leading cause of death (40percent) in disaster and camp setting (WHO 2006).

Overcrowding is common in populations displaced by natural disasters and can facilitate the transmission of communicable diseases, measles and the risk of transmission after a natural disaster are

dependent on baseline immunization coverage among the affected population. Crowded living conditions facilitate measles transmission (Marin, Nguuyen and Langi drik, 2006).

WHO (2009) noted that the risk of acute respiratory infections ARI'S may be increased due to overcrowding, poor ventilation and poor nutrition and in crowded shelters especially in cold weather. In Iran, respiratory tract infections were found among 14 percent of population displaced. ARI's account for 20 percent of all deaths in children less than 5 years of age , with the majority of deaths resulting from pneumonia, meningitis is transmitted from person to person, particularly in situations of overcrowding.

Literature points to the fact that natural disasters particularly those of meteorological event such as cyclones, hurricanes and flooding, can increase vector breeding sites and vector borne disease transmission, the crowding of infected and susceptible hosts and consequently result in a weakened public health condition (Isidore, Aljunid, Kamigaki, Hammad and Oshitani, 2012).

Aljunid (2012) cited that the prolonged health impact of natural hazards on a community may be the consequence of the collapse of health facilities, and health care systems, the disruption of surveillance and health programmes like immunization, vector control programmes, the limitation or destruction of farming activities, scarcity of food, food insecurity or the interruption of ongoing treatment and the use of un prescribed medications.

It is argued that the risk factors for increased infections transmission and outbreaks are mainly associated with the after-effects of the natural hazards rather than the hazard itself. These after effects include displacement of populations, increased vector breeding sites. Unplanned and overcrowded shelters, poor nutritional status or insufficient personal hygiene is usually the case. Consequently, there are low levels of immunity to vaccine preventable diseases or insufficient vaccination coverage and limited access to health care services (Isidore, Aljunid, Kanigaki, Hammad and Oshitani, 2012). It is argued that beyond damaging and destroying physical structures, natural hazards can lead to outbreaks of infectious diseases (Isidore, Aljunid, Kanigaki Hammad and Oshitani, 2012).

Feldman, Manchester and Maposhere (2002) pointed out that poverty makes communities less able to prevent and deal with the effects of HIV and AIDS as it undermines their capacity to provide for nutrition health and needs to poor recognition of health problems which result in late treatment of conditions such as tuberculosis or sexually transmitted diseases.

In a longitudinal study carried out by Ginex et al as cited in Ahem, Kovates, Wilkinson, few and Matties (2005). It was found out that the aged suffered from depression after floods. A case study in the United Kingdom found a fourfold increase in psychological distress among adults whose homes were flooded. The same study also cites that there were noticed among people whose homes and property had been destroyed. (Reacher as cited in Ahem, Kovates, Wilkinson, Few and Matties, 2005).

According to the Herald, February 26 (2014), it is noted with concern that gone are the hopes of a bumper harvest, maize, pumpkins, sorghum, groundnuts and cucumbers have all been washed away. Temporary homes are 150 km away from former homes. Life is hard more so for disabled, pregnant women and children. Water and sanitation issues are a major challenge. Although there are over 70 pit latrines that have been dug, they are inadequate. Water is rationed which is provided by humanitarian organisation. Water is a big challenge for breast feeding mothers because they have to wash nappies. People are living in constant fear civil deal with the psychological trauma and well being of the helpless villagers.

6.1 Natural hazards

Earthquake: Earthquake is one of the most destructive natural hazards. They may occur at any time of the year, day or night, with sudden impact and little warning. They can destroy buildings and infrastructure in seconds, killing or injuring the inhabitants. Earthquakes not only destroy the entire habitation but may de-stabilize the government, economy and social structure of the country (Smith, 1992; Hewitt, 1997).

Tsunami: The term Tsunami has been derived from a Japanese term Tsu meaning 'harbor' and nami meaning 'waves'. A tsunami causes damage to ports and airports and this may prevent importation of needed food and medical supplies. People will end up suffering from food shortages and continued illness due to lack of medical supplies (Kondo, Seon, Haisizume, Koido and Ninomiya, 2002; Harris and Hebert, 2002).

Cyclones: Cyclones affect crops and food supplies. High winds and rains ruin the standing crop and food stock lying in low lying areas. Plantation type crops such as banana and coconut are extremely vulnerable. Salt from the sea water may get deposited on the agricultural land and increase the salinity. The loss of the crop may lead to acute food shortage. Cyclones cause high winds which destroy infrastructure and leave people homeless. People are normally taken to camps for protection and stay in overcrowded conditions where there is poor sanitation, poor nutrition, insufficient personal hygiene and high rate of disease spread. Cyclones cause flooding and flying elements, contamination of water supplies and this may lead to viral outbreaks, diarrhoea, and malaria (Smith, 1992).

Floods: Ahem et al (2005) cited floods as the second most frequent cause of natural hazards after windstorms.

Floods affect more people than any other natural hazard. The consequences of flooding can be harmful as was seen in the aftermath of the powerful cyclones that struck Madagascar and Mozambique in February 2000. Many people died, hundreds were made homeless and epidemics of malaria and cholera broke out. This is a threat to the health of communities at risk. The public consequences of flooding are disease outbreaks mostly resulting from overcrowded camps and cross contamination of water sources with faecal material and toxic chemicals. Flooding is also followed by the proliferation of mosquitoes, resulting in an insurgence of mosquito borne diseases such as malaria. Lack of proper drinking water facilities, contamination of water (well, ground water, piped water supply), among others, lead to outbreak of epidemics, diarrhoea, viral infection, malaria and many other infectious diseases (Hewitt, 1997).

Drought: Drought is either absence or deficiency of rainfall from its normal pattern in a region for an extended period of time leading to general suffering in the society. The impacts slowly spread into social fabric as the availability of drinking water diminishes, reduction in energy production, ground water depletion, food shortage, health reduction and loss of life, increased poverty, reduced quality of life and social unrest leading to migration (Smith, 1992; Hewitt, 1997).

Landslide: The term 'landslide' includes all varieties of mass movements of hill slopes and can be defined as the downward and outward movement of slope forming materials composed of rocks, soils, artificial fills or combination of all these materials along surfaces of separation by falling, sliding and flowing, either slowly or quickly from one place to another (Smith, 1992). Landslides or mass movement of land occurs when the soil pores are saturated with water and sliding component of the mass becomes dominant than the vertical component.

7. Research methodology

The study was qualitative and employed case study design, focusing on Masvingo province in Zimbabwe. Qualitative research takes place in natural settings employing a combination of observations, interviews, and document reviews (Strauss and Corbin, 1990). It employed semi-structured interviews for data generation. Purposive sampling was used to select the participants. Patton (1990, p.169) argues that "the logic and power of purposeful sampling lies in selecting information – rich cases for study in-depth". This study focused on participants who had knowledge and lived experiences of natural hazards and who were willing to take part in the investigation (Flick, Kardorff and Steinke, 2004). These participants included families stricken by natural hazards mostly those at Chingwizi camp and people from organisations that participate in disaster management in Masvingo province.

8. Data analysis

For data analysis, the thematic approach was used to generate the emerging themes from data generated by participants. Basit (2003, p. 143) describes the analysis of qualitative data as being a difficult, dynamic, intuitive, and creative process, the aim of which is to determine the assumptions, categories, and relationships that inform respondents' views of the world in general and of the issue under investigation in particular (McCracken, 1988). This involves "working with data, organising it, breaking it into manageable units, synthesising it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others" (Bogdan & Biklen, 1982, p. 145). It allows research findings to be drawn from the dominant or significant themes teased from the raw data without the constraints of more structured methodologies (Thomas, 2003). The primary goal is to generate understanding of the participants' sense making in the research situation. The researcher identified the emergent categories and generated the themes from these for ease of presentation of findings and data discussion.

9. Findings and discussion

These people are suffering from lack of food

One of the participants had this to say:

I have been to the place where the floods have affected people around. People are left homeless with nothing to eat. Their crops have been destroyed and some of their animals drowned. They have nothing to sell for them to make a living. It is really pathetic, you know. Well wishers are trying to dish food handouts but these people cannot grow crops and harvest in their new places. They lack implements and it is a hard time for them to make a living. In fact, this is their route to poverty.

Poverty makes communities less able to prevent and deal with the effects of HIV and AIDS as it undermines their capacity to provide for nutrition, health and other needs related to HIV and AIDS. It leads to poor recognition of health problems which result in late treatments of conditions such as tuberculosis or sexually transmitted infections (Feldman, Manchester and Maposhere, 2002).

There is too much overcrowding

One of the participants pointed to overcrowding in the relief tents. The participant had this to say:

Culturally, the parents need their own house or room and should never mix with children. We are now like

brothers and sisters and this is likely to cause marriage problems. Some men will end up taking the risk of proposing love affairs from free women here. The net effect of this will be the spread of sexually transmitted infections. There is a lot of overcrowding in these temporary shelters and I think we are likely to suffer from respiratory problems

The well being of our children is now in danger, how are they going to survive? They are not even going to school now and even their health is in jeopardy

It is argued that risk factors for increased infectious transmission and outbreaks are mainly associated with the after-effects of the natural hazards rather than the hazard itself. These after effects include displacement of populations, increased vector breeding sites. Unplanned and overcrowded shelters, poor water and sanitation conditions, poor nutritional status or insufficient personal hygiene are often the case. Consequently, there are low levels of immunity to vaccine preventable diseases or insufficient vaccination coverage and limited access to health care services (Isidore, Aljunid, Kamigaki, Hammad and Oshitani, 2012).

There is a big problem for pregnant women

A participant said the following:

Pregnant women find it hard to make it at the new place. There are no clinics nearby and we have nowhere to get treatments from

Literature points to the fact that the prolonged health impact of natural hazards on a community may be the consequence of the collapse of health facilities and healthcare systems, the disruption of surveillance and health programmes like immunisation, vector control programmes, the limitation or destruction of farming activities, scarcity of food, food insecurity or the interruption of ongoing treatments and use of unprescribed medications (Isidore, Aljunid, Kamigaki, Hammad and Oshitani, 2012).

We are likely to be infected by too many diseases now

One of the participants had this to say:

We are likely to suffer from many diseases as a result of this and we fear for children and the old age

It is argued that beyond damaging and destroying physical structure, natural hazards can lead to outbreaks of infectious diseases (Isidore, Aljunid, Kamigaki, Hammad and Oshitani, 2012).

Scarcity of food is a big problem

Participants made the following sentiments:

There is no decent shelter in the tents that have been erected and for two weeks we have been mixed in the same classrooms, men, women, boys and girls, you know. Our culture does not allow that and children are now engaging in promiscuity

There are some of us who have to take ARVs after food and this scarcity of food is causing problems

Stress is going to be a real killer

One participant had this to say:

Some of us are already stressed and those with BP are likely to suffer worse

In a longitudinal study carried out by Ginexi et al as cited in Aherm, Kovates, Wilkinson, Few and Matties (2005), it was found out that the aged suffered from depression after floods. A case study in the United Kingdom found a fourfold increase in psychological distress among adults whose homes were flooded. The same study also cites that there were mental health impacts that were noticed among people whose homes and property had been destroyed (Reacher et al as cited in Aherm, Kovates, Wilkinson, Few and Matties (2005).

Contaminated water is going to affect us

Participants raised a very dangerous effect of drinking contaminated water and had this to say:

We have been placed in a place where there contaminated water

We have no toilets at all

Literature points to the fact that there is potential for increased faecal-oral transmission of diseases especially in areas where the population does not have access to clean water and sanitation (Aherm, Kovates, Wilkinson, Few and Matties, 2005).

People are now homeless and suffer from all the bad effects of the weather

Participants raised the problem of shelter as follows:

People are stranded and we feel helpless because we have been left homeless. Whatever comes, rain, thunder, cold, we are going to be affected because as you see, shelter is now a worry

The major point being pointed to is the kind of trauma that people suffer from due to lack of shelter. Shelter is basic because it gives people maximum protection from bad weather, wild animals and it gives particularly the young children security. Its absence causes people to suffer from all kinds of bad weather and their health is endangered.

Lack of food is our trouble now

Participants noted that:

We have no food, no more property, our land is gone

We have no food and our children are suffering

Injuries affected us

Participants raised the point that there were a lot of injuries that took place as people were rushing to relieve themselves from the deep waters. They had this to say:

As we tried to move out of the flooded area, many people particularly children and the aged were really injured. That kind of rush, they could not meet it and some old men were now resistant to move saying let us be killed because we have never seen such kind of trouble.

Elements of depression are being echoed here. They feel that life is now hopeless for them. It is argued that flood related injuries may occur as individuals attempt to remove themselves, their family, or valued possessions from danger (Aherm, Kovates, Wilkinson, Few and Matties, 2005).

10. Conclusions

From the study, it was evident that natural hazards have an impact on poor communities as echoed by some participants that they are left homeless, with nothing to eat, and all their crops have been destroyed and are now living in poverty which predisposes them to malnutrition and lowered immunity. It also emerged that there was so overcrowding in the relief temporary shelters and people are likely to suffer from respiratory problems and that children are now in danger of engaging in promiscuity.

The study also revealed that there is scarcity of food as participants pleaded that they had no food, nothing to eat and that their children were suffering and those on medication and the elderly. This study concludes that challenges of not having access to clean water and proper sanitation facilities predisposes the displaced communities to diarrheal diseases and cholera outbreaks as participants pointed out that they were placed where there were no boreholes and sanitary facilities.

11. Recommendations

In view of the findings and conclusions drawn from the study, the researcher suggests the following recommendations:

- Disaster management strategies have to be put in place before the disaster and people have to be proactive rather than reactive.
- Hazards mitigation must be done in a sustainable way by maintaining and improving environmental conditions, people's quality of life and local resilience.
- Prompt and adequate supplies of resources in terms of food to prevent malnutrition and boost their immunity.
- There is need to provide adequate supplies of water for drinking and management of waste are essential in preventing outbreaks of diarrheal diseases and cholera.
- Appropriate and sufficient water containers, and the drilling of adequate boreholes in the area.
- That there be proper adequate shelters for the displaced families to prevent respiratory infections and promiscuity which will lead to STIs, HIV and AIDS.
- That there be an urgent need to mobilise all well wishers to donate food specially to cater for those on medication and the elderly.
- The governmental and non-governmental organisations should be ready to manage natural hazards since they are a crisis and lessen the impact on public health.
- Public awareness and cooperation are essential to minimize the impact of natural hazards.

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