

GENERAL EFFECTS OF NATURAL DISASTERS ON HEALTH

B.J. Queensly Jeyanthi¹

C. Kalaivani²

Abstract

Global warming has brought tremendous changes in the climate as well as in the atmosphere. Natural calamities are common nowadays because of all sorts of pollution. It affects all the people in different ways. The frequency of disasters is increasing year by year. So it is imperative to analyse the impact of natural disasters. In this paper, we have highlighted our attention on the impact of natural disasters on health and how it can be mitigated.

Introduction

The term "disaster" usually refers to the natural event (e.g., a hurricane, flood, earthquake, tsunami etc) in combination with its damaging effects (e.g., the loss of life or destruction of buildings). A natural disaster is defined as an event of nature, which devastates local resources and threatens the function and safety of the community. Generally, disasters are the ultimate test of a community's emergency response capability. A meticulous and well-organised emergency strategy will be able to quickly adjust and adapt to unforeseen situations and complications. Every disaster scenario is unique in its own way and presents new and unusual challenges to victims and rescue emergency personnel alike. In this paper we have highlighted the general view on natural disasters in India and the health problems related to all the disasters.

General View of Natural Disasters

The Indian subcontinent has a history of earthquakes. The reason for the high frequency and intensity of earthquakes is the Indian plate driving into Asia at a rate of approximately 49 mm/year. The following is a list of major earthquakes which have occurred in India.

Table - 1 : Earth Quake in India from 2011 – 2015

Date	Location	Deaths
January 2016	North East India	9 dead, 100 injured in Manipur & Assam
October 2015	Northern India, Pakistan, Afghanistan	260 in Pakistan and Afghanistan till 01.34 am on 27 Oct'15
September 2015	Dibrugarh, Assam	0
April 2015	Northern India, North East India	121+
April 2015	Northern India, North East India	Aftershock

April 25, 2015	Northern India	Aftershock
April 25, 2015	Northern India, North East India	8900
March 21, 2014	Andaman and Nicobar Islands	0
April 25, 2012	Andaman and Nicobar Islands	0
March 5, 2012	New Delhi	1
September 18, 2011	Gangtok, Sikkim see 2011 Sikkim earthquake	118

Earthquake very often breaks out in North East area. Earthquake on April 25, 2015 had adverse effect it swallowed 8,900 lives (Table : 2)

Health Problems Common to All Natural Disasters

Social Reactions

After a major natural disaster, behaviour only rarely reaches generalized panic or stunned waiting. Earthquake survivors often begin search and rescue activities minutes after an impact and within hours they have organized themselves into groups to transport the injured to medical posts. Antisocial behaviour such as widespread looting also occurs only in exceptional circumstances. A person's conflicting roles as family head and health official, can't reporting to duty until their relatives and property are safe. There will be lot of rumours about epidemics. As a result, considerable pressure may be put on the authorities to undertake emergency humanitarian work such as mass vaccinations against typhoid or cholera, without sound medical justification. In addition, people may be reluctant to submit to measures that the authorities think necessary.

During warning periods, or after the occurrence of natural disasters, people are reluctant to evacuate, even if their homes are likely to be or have been destroyed. These patterns of behaviour have two major implications for

¹Associate Professor in Commerce, J.A. College for Women, Periyakulam.
²Assistant Professor in Commerce CA, J.A. College for Women, Periyakulam.

Table - 2 : Indian Ocean earthquake and tsunami (26th December 2004)

Country where deaths occurred	Confirmed	Estimated	Injured	Missing	Displaced
Indonesia	130,736	167,799	n/a	37,063	500,000
Sri Lanka	35,322	35,322	21,41	n/a	516,150
India	12,405	18,045	n/a	5,640	647,599
Thailand	5,395	8,212	8,457	2,817	7,000

those making decisions about humanitarian programs. First, patterns of behaviour and demands for emergency assistance can be limited and modified by keeping the population informed and by obtaining necessary information before embarking on extended relief programs. Second, the population itself will provide most rescues and first aid, take the injured to hospitals if they are accessible, build temporary shelters, and carry out other essential tasks. Additional resources should, therefore, be directed toward meeting the needs that survivors themselves cannot meet on their own.

Communicable Diseases

Natural disasters do not usually result in massive outbreaks of infectious disease, although in certain circumstances they do increase the potential for disease transmission. In the short- contamination of water and food increases the diseases; hence, such diseases are mainly enteric. The risk of epidemic outbreaks of communicable diseases is proportional to population density and displacement. These conditions increase the pressure on water and food supplies and the risk of contamination (as in refugee camps), the disruption of pre-existing sanitation services such as piped water and sewage, and the failure to maintain or restore normal public health programs in the immediate post disaster period.

In the longer term, an increase in vector-borne diseases occurs in some areas because of disruption of vector control efforts, particularly following heavy rains and floods. Residual insecticides may be washed away from buildings and the number of mosquito breeding sites may increase. Moreover, displacement of wild or domesticated animals near human settlements brings additional risk of zoonotic infections. In complex disasters, where malnutrition, overcrowding, and lack of the most basic sanitation is common, catastrophic outbreaks of gastroenteritis (caused by cholera or other diseases) have occurred, as in Rwanda/Zaire in 1994. In Chennai and Cuddalore Government has taken proper measure to control the diseases and many health camps were conducted in the affected area by the NGOs. Many people are saved because of these cautious activities.

Population Displacements

When large, spontaneous or organized population movements occur, an urgent need to provide humanitarian assistance is created. People may move to urban areas where public services cannot cope, and the result may be an increase in morbidity and mortality. If much of the housing has been destroyed, large population movements may occur within urban areas as people seek shelter with relatives and friends. The Hindustan Times Report indicates that 400,000 people have been displaced by the floods in Tamil Nadu . Over 70,000 have been rescued and 280 people have died. Estimates suggest that the floods have caused over \$1 billion of damage.

Food and Nutrition

Food shortages may arise in two ways. Food stock destruction within the disaster area may reduce the absolute amount of food available, or disruption of distribution systems may curtail access to food, even if there is no absolute shortage. This happened in the Tamil Nadu flood in December 2015, though many accumulated the food and all the necessary items for the affected people it was not properly distributed. Voiceless and Dalits are not able to get the goods because of the domination of the high caste people and more over their shelter is in interior area so they cannot be easily accessed. Flooding and sea surges often damage household food stocks and crops, disrupt distribution, and cause major local shortages. Food distribution, at least in the short term, is often a major and urgent need, but large-scale importation/donation of food is not usually necessary. During flood, such as those occurring in Tamil Nadu, or in complex disasters, the homeless and refugees may be completely dependent on outside sources for food supplies for varying periods of time. Depending on the nutritional condition of these populations, especially of more vulnerable groups such as pregnant or lactating women, children, and the elderly, it may be necessary to institute emergency feeding programs.

Water Supply and Sanitation

Drinking water supply and sewerage systems are particularly vulnerable to natural hazards and the

disruptions that occur in them pose a serious health risk. The systems are extensive, often in disrepair, and are exposed to a variety of hazards. Deficiencies in establishing amounts and quality of potable water and difficulties with the disposal of excreta and other wastes result in the deterioration of sanitation, contributing to conditions favourable to the spread of enteric and other diseases.

Mental Health

Anxiety, neuroses, and depression are not major, acute public health problems immediately following disasters, and family and neighbours in rural or traditional societies can deal with them temporarily. Wherever possible, efforts should be made to preserve family and community social structures. The indiscriminate use of sedatives and tranquilizers during the emergency relief phase is strongly discouraged. In industrialized or metropolitan areas in developing countries, mental health problems are significant during long-term rehabilitation and reconstruction and need to be dealt with during that phase. The psychological stress experienced by flood victims will strongly influence mental and physical well-being. Psychological effects can continue to last for months and even years after the flood and are therefore an important consequence.

Damage to the Health Infrastructure

Natural disasters can cause serious damage to health facilities and water supply and sewage systems, having a direct impact on the health of the population dependent on these services. In the case of structurally unsafe hospitals and health centres, natural disasters jeopardize the lives of occupants of the buildings, and limit the capacity to provide health services to disaster victims. The earthquake that struck Mexico City in 1985 resulted in the collapse of 13 hospitals. In just three of those buildings, 866 people died, 100 of whom were health personnel. Nearly 6,000 hospital beds were lost in the metropolitan facilities. As a result of Hurricane Mitch in 1998, the water supply systems of 23 hospitals in Honduras were damaged or destroyed, and 123 health centers were affected. Peru reported that nearly 10% of the country's health facilities suffered damage as a result of El Niño events in 1997–1998. International Business Times reports that in India in December 2015, 18 patients died over a span of three days after flood waters entered the rooms affecting generators and cutting off power to the hospital building.

Environmental impact

Beyond the heavy toll on human lives, the Indian Ocean earthquake has caused an enormous environmental impact that will affect the region for many years to come. It has been reported that severe damage has been inflicted on ecosystems such as mangroves, coral reefs,

forests, coastal wetlands, vegetation, sand dunes and rock formations, animal and plant biodiversity and groundwater. In addition, the spread of solid and liquid waste and industrial chemicals, water pollution and the destruction of sewage collectors and treatment plants threaten the environment even further, in untold ways. The environmental impact will take a long time and significant resources to assess.

According to specialists, the main effect is being caused by poisoning of the freshwater supplies and of the soil by saltwater infiltration and a deposit of a salt layer over arable land. It has been reported that in the Maldives, 16 to 17 coral reef atolls that were overcome by sea waves are completely without fresh water and could be rendered uninhabitable for decades. Uncountable wells that served communities were invaded by sea, sand, and earth; and aquifers were invaded through porous rock. Salted-over soil becomes sterile, and it is difficult and costly to restore for agriculture. It also causes the death of plants and important soil micro-organisms. Thousands of rice, mango, and banana plantations in Sri Lanka were destroyed almost entirely and will take years to recover. On the island's east coast, the tsunami contaminated wells on which many villagers relied for drinking water. The Colombo-based International Water Management Institute monitored the effects of saltwater and concluded that the wells recovered to pre-tsunami drinking water quality one and a half years after the event.

Remedy for reducing the health impact of disasters

Interested donors and social activists could:

- **Support local efforts to strengthen critical services and build community resilience.** On a larger scale, strengthen water treatment and sewer facilities to better withstand disasters. On a smaller but equally as important scale, fund efforts to improve health care equipment, support hygiene programs, and ensure plans for mental health access are in place.
- **Help risk reduction activities such as vulnerability assessments for potential disaster-prone areas and impact mitigation.** Collect reliable data about the needs of affected communities after disasters occur. In addition, identify marginalized and vulnerable populations that suffer the most in disasters, assessing their unique needs. In terms of mitigating impact, include the creation of public health communications that are reliable, consistent, and culturally relevant.
- **Fund training for healthcare providers to identify and strengthen the most vulnerable populations.** Recognize that different populations may be more vulnerable to different disasters.

- **Support programs that assist caregivers in disaster-affected areas.** They may be coping with their own grief while assisting others.
- **Support research into the ongoing effects of disasters on populations, as well as effective ways to build coping capacities among individuals and communities.** Also worth study: methods of promoting early recovery and mitigation of the impact of future disasters.

Conclusion

Natural disasters have become common events in recent years, especially in India. The debate on whether such events are potentially affecting the development of affected areas is still under way. An effective disaster mitigation program must include public education, professional training, and multi-discipline collaboration. Programs, which educate the public and promote personal disaster safety, are the backbone to a successful disaster response. Disaster plans must also account for the possibility of mass evacuation and should also provide a basic stockpile of medical supplies.

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