

## Health impacts of natural disasters: Are we prepared?

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A disaster is any occurrence that causes damage, ecological disruption, loss of human life or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area. This can lead to severe damage to the people and the whole society, both for short and long terms.<sup>1</sup> A natural disaster is the one which happens due to natural forces and which cannot be related to the civilisation or other human entities for its origin. On the other hands, a quick and effective strategy will adjust to both short and long term consequences of such disasters.<sup>2</sup> Nonetheless, all the natural disasters are difficult to predict even the advent of technological advances. The natural disasters are inevitable. Therefore, our aim should be to reduce the impacts of such disasters to the minimum.

Every disaster scenario has its different characteristic. Therefore, to tackle one particular type of disaster, there cannot be a tailor-made formula. Every disaster happening at each place brings up its independent issues, depending upon the local geography, human capital affected, existing system to tackle it etc. It is so much essential to keep a balance between “learning from past” and “searching for newer solutions” for such situations.<sup>3</sup> It is this reason why the role of community cannot be ignored. Apart from physical injuries, researchers have shown that much of the medical problems are bound to occur within the immediate and within days of the disaster.

There are several types of natural disasters happening across the globe. They are Earthquakes, Floods, Cyclones, Tidal waves, volcanic eruptions, Landslides, Tornadoes, Snow-storms, Heat waves and Famines.<sup>4</sup> The important thing to consider is there are several man-made factors which increases the vulnerability to most of such disaster. These factors include: Location of settlements; Inadequate building practices; High occupancy in buildings and the Absence of warning and awareness systems. Causes of mortality and morbidity in such disasters include direct causes like trauma, asphyxia, ARDS, hypothermia as well as indirect causes such as damages to water and sewer systems, energy lines, roads, telecom, and airports. In the state of Kerala, during 2018, the flood hit badly. The aftermath of the flood situation posed further threat to the public health. The rescue workers, who worked for flood victims in the water, suffered Leptospirosis lately. Thus the rescue work itself might bring epidemic situations. The Orissa cyclone and Kerala floods are the best known examples. The floods in Jammu and Kashmir lead to 150 deaths and displaced thousands.

Disasters are always associated with psychosocial effects. This includes fear, anxiety, loss of interest in social activities, self-blame, sleep deprivation, night terrors, aggressiveness, poor concentration, and separation anxiety.<sup>3</sup> Post Traumatic Stress Disorders are reported from around 50% of the studies done on children who were the victims of some natural disaster.<sup>5</sup> In such situations, the degree symptoms vary according to the physical/mental health, the type of upbringing and the amount of protection among the children.<sup>6</sup> The response also depends on the reaction as well as the protection conferred by their parents. A summary of the health impacts of some major natural disasters is given in table 1.

### Disaster Management in India

The state governments are responsible for the relief work, GOI plays the supportive role. The Ministry of Agriculture is the nodal ministry for the coordination of all activities. The special wing of Emergency Medical Relief Wing under the MHFW coordinated activities related to health. The Indian Meteorological Department acts as nodal agency in forecasting and foreseeing the disaster. It has five centres in Chennai, Kolkata, Bhubaneshwar, Mumbai and Vishakhapatnam.<sup>7</sup> For all the ships, formal warnings are issued six times daily. The table 2 described few of the major natural disasters which affected India in the past. Disaster management also involves collaborations with several international agencies like United Nations for the Coordination of Humanitarian Affairs (OCHA), World Health Organization (WHO), UNICEF (United Nations International Children's Emergency Fund), UNDP, FAO as well as the European Community Humanitarian Office (ECHO).

On the other hand, it is the community itself which can do the best to prevent disaster impacts, as-

1. They lose most if they remain vulnerable
2. Those who first respond will come from the community.
3. Resources are most easily pooled at community level.
4. Sustained developments best achieved by training the community members.

Post disaster public health measures include provision of safe water supply, food hygiene, proper disposal of excreta, vector-rodent control, public health education and strengthening epidemiological surveillance system.

**Table 1: Summary of short term health effects of major natural disasters<sup>8</sup>**

Health effects	Earthquakes	Floods	Land-slides	Fires	Volcanoes
Deaths/sever injuries	Many	Few	Many	Few	Many
Requiring extensive treatment	Many	Few	Few	Many	Few
Risk of epidemics	Yes	Yes	Yes	---	Few
Damage to water systems	Severe	Light	Severe but localized	None	Severe
Damage to health facilities	Severe	Severe	Severe but localized	Depends on location	Severe
Damage to health services	High	High	Low	Moderate	Severe
Food shortage	Possible	Common	Common (localized)	Possible	Rare
Major population movements	Common	Common	Common (localized)	Unlikely	Common but localized

**Table 2: Some of the well-known Disasters that hit the country in the past:**

Disasters	Year	Area affected	Death toll
Kashmir Floods	2014	Srinagar, Bandipur, Rajouri	500 plus
Uttarakhand Flash Floods	2013	Gobindghat, Kedar Dome, Rudraprayag district, Uttarakhand, Himachal Pradesh, Western Nepal	5000 plus
The Indian Ocean Tsunami	2004	Andaman & Nicobar Islands, Indonesia, Sri Lanka	2 Lakh plus
Gujarat earthquake	2001	Bhuj, Ahmedabad, Gandhinagar, Kutch, Surat, Surendranagar district, Rajkot district, Jamnagar and Jodia	20,000 plus
Odisha Super Cyclone	1999	Coastal districts of Bhadrak, Kendrapara, Balasore, Jagatsinghpur, Puri, Ganjam	10,000 plus
Latur Earthquake	1993	Districts of Latur and Osmanabad	20,000 plus

To conclude, natural disasters are inevitable phenomena. With the rise in both number and deaths due to natural disasters over the years, it is very essential for country like us to be prepared. There should be combined efforts made both by the authorities as well as local public to reduce the burden of mortality and morbidity due to various disasters. The public health consequences of natural disasters can be reduced to great extent through proper planning and utmost community participation.

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