Differences in World Responses to Natural Disasters and Complex Emergencies

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The massive tsunami that affected 11 countries over 2 continents, killed approximately 220,000 people, and made millions of others destitute is a tragedy that deserves all of the media attention, funds, and response it has received. The current crises in Darfur, Sudan, and the Democratic Republic of Congo (DRC), among others, deserve the same, but are not getting it. Why does a natural disaster invoke such a heartfelt and generous response from the news media, governments, United Nations (UN) agencies, nongovernmental organizations (NGOs), and the private and public sectors, whereas complex emergencies do not? The answer is relatively straightforward—response to natural disaster is easier and less politically risky.

A disaster is a serious event that causes an ecological breakdown in the relationship between humans and their environment on a scale that requires extraordinary efforts to allow the community to cope, and often requires outside help or international aid. Disasters can be divided into 2 major categories—those caused by natural phenomenon and those generated by the will of humans. In natural disasters, a natural hazard affects a population or area and may result in severe damage and destruction and increased morbidity and mortality that overwhelm local coping capacity. Natural disasters can have an acute onset, such as geological and climatic hazards (eg, tsunamis, floods, and hurricanes), or slow onset, such as drought and desertification. In complex emergencies, mortality among the civilian population substantially increases above the population baseline mortality, either as a result of the direct effects of war or conflict, or indirectly through the increased prevalence of malnutrition and/or transmission of communicable diseases, especially if the latter result from deliberate political and military policies and strategies.

There are areas of overlap between these 2 types of major disasters. For example, Sen argues that famines are usually caused by a lack of purchasing power or entitlements and not necessarily caused by drought and consequent food shortage; in effect, more the result of human actions than natural phenomenon. Furthermore, natural disasters and complex emergencies can occur concurrently. For example, in the recent tsunami, affected areas in Sri Lanka and Aceh province, Indonesia, have rebel insurgencies, and Somalia has been in civil war for decades.

The consequences of and responses to natural disasters and complex emergencies may have more similarities than differences. Both often have increased mortality, morbidity, and displacement, with varying degrees of environmental impact and potential for epidemics. They have similar basic public health needs (eg, water, sanitation, food, shelter, health care, and protection) that are not always properly assessed, coordinated, and managed. Each requires additional funding, immediate and long-term effective aid, and data to make decisions and evaluate interventions. Both have economic and political implications. However, within and between these 2 broad categories of disaster, the disease epidemiology can differ depending on numerous factors, including the type and location of the disaster as well as the level and length of response. For example, major earthquakes usually result in many deaths with severe traumatic injuries, while food scarcity and major population movements are minimal; this is often the opposite of floods (not flash floods or tsunamis). Among complex emergencies in more developed countries, such as Kosovo, lower mortality rates may occur and major causes of death are likely due to war-related trauma and chronic disease compared with complex emergencies in developing countries in which mortality rates increase as a result of communicable disease exacerbated by conditions such as malnutrition. The potential for epidemics of communicable disease increases because of overcrowding and poor sanitation in both natural disasters and complex emergencies. However, the risk is generally relatively small in natural disasters and large in complex emergencies.

Sexual exploitation and violence against women and children as well as mental health problems may occur in varying degrees and duration following both types of disasters. Any case of sexual violence is a horrific act, and interventions that prevent, mitigate, care for, and treat the survivors are needed at the onset of a response. Early during the recent tsunami crisis, concerns regarding the trafficking of women and children were identified and measures were...
implemented to address these problems.\textsuperscript{11,12} Unfortunately, the same is not true in Darfur, Sudan, and the DRC, where rape is used as a tool of war and an unknown number of women and children have been and continue to be sexually violated.\textsuperscript{13,14}

The short- and long-term mental health effects of both natural disasters and complex emergencies may be immense, and social interventions are needed at the onset of the response and long after the disaster is over.\textsuperscript{15} The effects of mental trauma in both natural disasters and complex emergencies may also be intergenerational. For example, torture and ethnic cleansing have been common features of several recent conflicts, resulting in feelings of hatred and revenge among survivors that may affect future generations and need to be addressed over the long term.\textsuperscript{16,17}

The long-term intergenerational mental health effects of the tsunami are not known; however, these should be clearly documented to serve as a guide in the future.

Effective response to disasters is challenging in all situations. However, within 12 days of the tsunami disaster, 19 governments attended an international aid conference and pledged over $4 billion\textsuperscript{18}; some also sent their military forces to help the affected countries. Meanwhile, rapid assessments conducted in 2004 in Darfur, where more than 1.6 million persons have been displaced and more than 200 000 are now refugees in Chad,\textsuperscript{19} reported mortality rates at 2 to 10 times the expected rate in sub-Saharan Africa.\textsuperscript{20-22} During the past 6 years in the DRC, an estimated 3.8 million persons have been killed,\textsuperscript{23} more than 17 times the number killed in the recent tsunami in Asia. Both conflicts continue unabated with an inadequate UN Security Council response and insufficient funds, relief personnel, and peacekeepers.\textsuperscript{19,23} The number of deaths due to murder and communicable disease increases daily, as do the cases of sexual violence.\textsuperscript{19,23} As Richard Brennan of the International Rescue Committee so poignantly recently asked, “How many innocent Congolese have to perish before the world starts paying attention?”\textsuperscript{23}

The sudden onset of the massive tsunami during a December holiday period with widespread and real-time media coverage was certainly the catalyst to the huge outpouring of generosity and a concerted response. However, the reasons for the response are more complicated than that. The tsunami occurred in a region with political and economic interests to many governments and private companies. Certainly the number of Westerners who were killed while vacationing in the region generated empathy about this horrific disaster. But the same widespread and rapid response did not occur during the civil wars in the Balkans in the 1990s. Furthermore, the killings and massive suffering among the peoples in Darfur and the DRC have been occurring over a prolonged period of time. The news media does not have the same access to these areas of conflicts nor are the events of the conflicts as sudden or massive as was the tsunami.

In fact, the response to the tsunami disaster is not exceptional to that of other natural disasters. Over $4 billion has currently been pledged compared with $1.5 billion following the Bam earthquake in 2003 (approximately 26 000 deaths), $3 billion to Honduras following Hurricane Mitch in 1999 (approximately 10 000 deaths), and $900 million following the Bangladesh floods in 1998 (approximately 1000 deaths).\textsuperscript{24,25} Although the amount of aid received compared with the amount pledged is often much lower (approximately 33\% to Honduras for Hurricane Mitch and 16\% to Iran for the Bam earthquake),\textsuperscript{26} pledging conferences occurred and funds were provided. Such pledging conferences have not occurred for the current crises in the DRC or Darfur, whereas only $520 million was pledged to rebuild postwar Liberia in February 2004,\textsuperscript{27} and only $25 million (5\%) of the $500 million pledged in October 2004 to rebuild Southern Sudan after decades of civil war has been provided.\textsuperscript{27}

Although each disaster is context-specific and must be evaluated individually, natural disasters generally allow for easier access to affected populations, even if they occur in remote and marginalized areas, as conflict situations often tend to be. Due to the tsunami, a unilateral ceasefire by the separatist rebels in Aceh province, Indonesia, continues that could be used as a bridge toward peace. For the first time since 2003, peace talks occurred between the Indonesian government and the separatist rebels from the Free Aceh Movement in January 2005. A second set of talks occurred in February and others are tentatively planned.\textsuperscript{28} The same could hold true for the fragile peace already under way in Sri Lanka between the government and the Tamil Tigers. However, enmity and mistrust between the groups and consequently local populations has also acted as a deterrent to the delivery of effective aid.\textsuperscript{29} Existing conflict in a region affected by disaster is often a barrier to a well-coordinated and successful response.

In natural disasters the most important first responders are the locally affected populations.\textsuperscript{6} That is why organizations such as local Red Cross/Crescent movements who rely on volunteers and local NGOs are so important. In complex emergencies, the crisis continues for an indefinite period of time and people are often fleeing for their lives and become widely displaced; international NGOs generally are the first to respond in these insecure and difficult environments. This task has become even more difficult during the past decade as relief workers have increasingly become targets of fighting forces.\textsuperscript{30,31}

In the current tsunami crisis, the World Health Organization warned about the potential massive increase in the number of deaths due to waterborne and other communicable disease epidemics if basic services, particularly sufficient quantity and quality of water and sanitation services, were not provided.\textsuperscript{18} However, large outbreaks of communicable disease have not occurred,\textsuperscript{32} as a prompt and well-funded response to the relatively accessible areas has been provided by the local and international communities. Un-
Fortunately, the same is not true in many complex emergencies. In 2002, 207 outbreak events of international public health importance were verified; a disproportional amount (29%) were recorded in countries affected by complex emergencies. Of the 15 countries that reported a national measles vaccination coverage of less than 50% in 1999, at least 7 were affected by complex emergencies. Since then, widespread measles epidemics have been reported in the DRC, Afghanistan, and Darfur.\(^\text{33,34}\)

Among the reasons the news media, governments, UN agencies, NGOs, and the private and public sectors respond more generously to natural disasters than to complex emergencies are that (1) natural disasters can occur suddenly anywhere in the world and (2) cause and blame cannot be easily attributed to people. Complex emergencies are more political, complicated, and sullied; there is always someone else or another group to blame or hold accountable, and sentiments of inevitability and lack of accountability are common. Governments have to take sides and the UN has to consider the independence and autonomy of their member states. There is little downside to a government pledging money and even the use of their military to aid countries affected by natural disasters. Indeed, as occurred recently, reports of nations not pledging enough can shame governments into pledging even more funds.\(^\text{35}\) However, providing troops to keep or enforce the peace in complex emergencies is expensive and risky (eg, US troops killed in Somalia in 1993 and 9 UN peacekeepers recently killed in the DRC).\(^\text{36,37}\) Furthermore, providing aid in a complex emergency can sometimes exacerbate the situation,\(^\text{38}\) as occurred in Liberia and the Great Lakes crisis in the 1990s, with repercussions still being seen today in the DRC. It is easier to “do no harm” when responding to a natural disaster than a complex emergency.

There are no simple solutions to ensure that the world responds equitably to natural disasters and complex emergencies. Governments have already pledged to establish a tsunami warning system like the one in place in the Pacific.\(^\text{39}\) However, unlike early warning systems that can be established to warn governments and populations of an impending natural disaster, effective early warning systems for complex emergencies\(^\text{40}\) are of questionable validity and often do not translate into action. Good governance, strong political will from powerful nations and the UN, a news media that focuses on the world’s problems, increased public attention, and less national parochialism are needed to help reduce the differences in responses to natural disasters and complex emergencies.

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REFERENCES


EDITORIAL

Deaths Attributable to Obesity

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In this issue of JAMA, two studies1,2 present new analyses on the subject of obesity. The study by Flegal et al1 is likely to generate interest because it provides an estimate for deaths attributable to obesity that appears to strongly contradict prior estimates published in JAMA. Flegal et al1 estimate that there were about 112,000 obesity-attributable deaths in the United States in 2000, far lower than the 414,000 estimated by Mokdad et al3,4 for the same year and the 280,000 estimated by Allison et al5 for 1991. The magnitude of the differences cries out for explanation of the reasons behind these differences. Some might wonder: If well-intentioned efforts to calculate this number can result in such widely varying estimates, is it worth trying to do at all?

The underlying methods of all these studies involve the concept of population-attributable fraction. Population-attributable fraction (or attributable fraction or etiologic fraction) is the proportion of morbidity or mortality in a population that can be attributed to a particular cause or risk factor and is one of the empowering concepts of the public health perspective on health. The attributable fraction focuses attention not on a particular disease or risk of disease in the individual but on the health of populations. In its most basic equation, this quantity shows that the burden of disease caused by any risk factor is a function of the prevalence of that risk factor and the magnitude of its causal association with disease, usually expressed as relative risk. The greater the prevalence of the risk factor and the greater the relative risk, the greater the population-attributable fraction. The calculation offers a perspective on health that crosses disciplines and specialties and attempts to focus attention on causes of disease that are most responsible for death and illness. Over the past 40 years, cigarette smoking, a common habit with highly elevated relative risks for several different causes of death, has always risen to the top of the list. The attention paid to the problem of cigarette smoking as a major cause of disease and death has been in part a result of the information and perspective provided by population-attributable fraction calculations.

Thus, it is natural, almost imperative, for public health care practitioners to apply this perspective to obesity, an issue perceived to be a growing public health problem. There is no doubt that the prevalence of obesity is increasing in the United States. However, for many reasons it is much more difficult to estimate the burden of disease due to obesity. Although weight is an easily measured characteristic, at a conceptual level attributing deaths to obesity requires many assumptions that are often not fully spelled out in most studies.

Consideration of the causal pathways through which obesity increases mortality is important. Body mass index itself is affected by dietary intake and physical activity lev-