CHAPTER 1

Definitions and Concepts in Disaster Research

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This chapter outlines some of the definitions and concepts that lie behind understanding the impact of disasters on the health and welfare of the affected communities. We first define varied meanings of the term *disaster* and the (fuzzy) boundaries of research that aims to understand the mental health consequences of these events. We then describe the traditional typology that has guided this field of study, noting distinctions among natural disasters, technological accidents, and sudden episodes of mass violence. Next, we describe other important characteristics of disasters and disaster exposure and conclude by elaborating on the temporal dimension of disaster impact and recovery. Chapter 2 (Norris & Elrod) then delves into the effects of disasters drawn from the research to date.

DEFINITIONS OF DISASTER AND BOUNDARIES OF THE FIELD

Although the word *disaster* may suggest a readily apparent meaning, it is actually difficult to define the term precisely. The original derivation of the word came from the Latin *dis astro* or "bad star" and implied a calamity

blamed on an unfavorable position of the planet. The *Oxford English Dictionary* (1987) defines disaster as a "sudden or great misfortune; calamity; complete failure." Although consistent with the day-to-day informal usage of the term, this definition is highly inadequate because it fails to distinguish disasters from other adversities (Green, 1996). For the purposes of this book, we define a disaster as *a potentially traumatic event that is collectively experienced, has an acute onset, and is time-delimited; disasters may be attributed to natural, technological, or human causes*. The rationale for this definition follows.

Disasters as Potentially Traumatic Events

Not surprisingly, mental health researchers usually think of disasters as a particular type of traumatic event (see Figure 1). It is important to note that *disaster* is not a synonym for *trauma*; rather it is a category, an exemplar, of trauma. By classifying disasters as traumatic events, we imbue certain meanings that should be made explicit. The fourth edition of the American Psychiatric Association's (1994) *Diagnostic and Statistical Manual of Mental Disorders* defines a traumatic event as one in which both of the following were present: "(1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others," and (2) the person's response involved intense fear, helplessness, or horror (pp. 427–428). By qualifying the term *traumatic events* with the adjective *potentially,* we acknowledge that while not every disaster will cause death or injury to self or others, certainly all disasters have the potential to do so.

Because disasters belong to a larger set of potentially traumatic events, it is useful to consider their place in the overall epidemiology of trauma and posttraumatic stress disorder (PTSD). Most of what is known about the mental health consequences of disasters has been derived from studies of specific groups of victims or workers or the communities in which they live. This is the type of research that is the focus of this book. However, research on the epidemiology of trauma and PTSD in general populations gives us different information that has both advantages and disadvantages relative to the primary mode of this research. The National Comorbidity Survey, a nationally representative mental health survey, determined that 19% of men and 15% of women in the United States had been exposed to a disaster, with respective conditional probabilities of lifetime PTSD being 3.7% and 5.4% (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Similarly, in a nationally representative sample of Australians, 20% of men and 13% of women reported that they had experienced a disaster at some point in their lives, but only 4 of the 158 past-year cases of PTSD were specifically attributable to these events (Creamer, Burgess, & McFarlane, 2001).

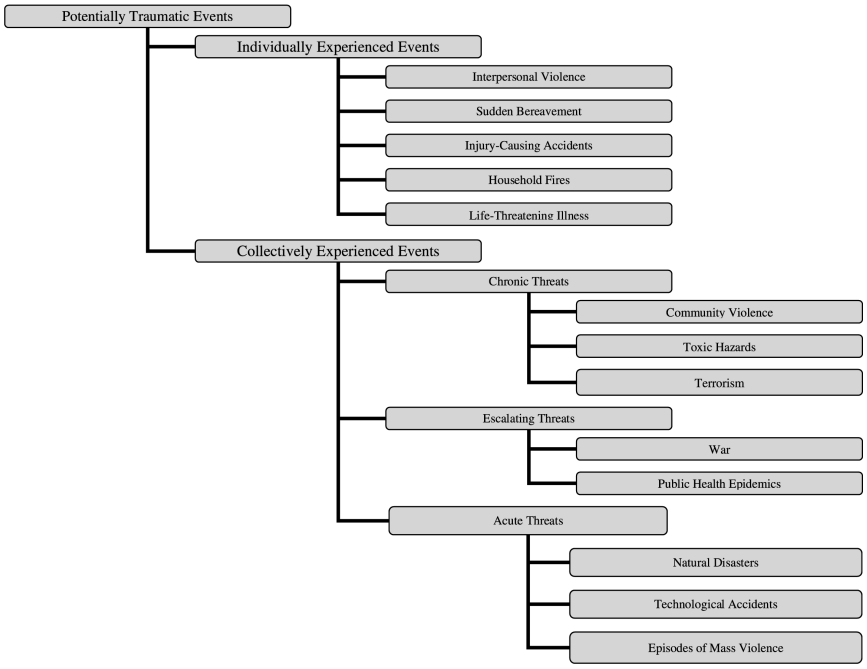

FIGURE 1.1. Classification of potentially traumatic events. Subordinate categories are illustrative, not exhaustive.

There are three important observations to make about such findings. First, the findings help to keep this area of research in perspective. Compared to the conditional probabilities of PTSD following interpersonal violence and some other forms of individually experienced trauma, the conditional probability of PTSD after disasters is relatively low. Accordingly, disasters account for only a small proportion of posttraumatic morbidity on a national level. Second, it is nonetheless important to keep in mind that percentages that seem quite small translate to large numbers when applied to a population. Third, national epidemiological studies are problematic in terms of the information they provide about disasters. Unlike most other types of trauma, major disasters are not evenly distributed. Minor flood and storm damage may be relatively common, but the major disasters that are of most concern occur less often. Typically, in broad surveys, a single question asks only whether the individual has experienced a disaster, with no definition or threshold given. It is likely that national epidemiologic findings under-estimate the lifetime prevalence of PTSD in specific disaster-affected communities.

Disasters as Collectively Experienced Events

The distinction between individually and collectively experienced events is important for our purposes (see Figure 1.1). Early disaster researchers Kinston and Rosser (1974) suggested that the term *disaster* be used to describe "massive collective stress." Disasters create stress for many people simultaneously. Almost all present-day definitions emphasize the collective nature of disaster exposure (Bolin, 1986; Quarantelli, 1986) but differ in the relative emphasis placed on the physical or social impacts of the agents (e.g., destruction, loss) or political phenomena (e.g., declarations).

Definitions Based on Collective Impacts

For many years, the International Federation of Red Cross and Red Crescent Societies has published the *World Disasters Report*, which provides an excellent example of a definition that emphasizes the physical or social impacts of collective crises. In this report, events are considered disasters if (1) 10 or more people are reported killed, (2) 100 or more people are reported affected, (3) an appeal for international assistance is issued, and/or (4) a state of emergency is declared (International Federation of Red Cross and Red Crescent Societies, 2000). The detailed reports allow statistics for subcategories of events to be compiled by country or global region, and have been instrumental in documenting that developing countries and Asia are at particular risk for disasters (DeGirolamo & McFarlane, 1996; Somasundarum, Norris, Asukai, & Murthy, 2003).

The Red Cross definition of *disaster*—based on severity of impact with little attention to the onset/duration of impact—includes public health epidemics, mass displacements, war, droughts, famine, natural disasters, and large accidents and fires. From a response perspective, this makes a good deal of sense. The same principles are often involved in planning and mounting relief efforts for disasters, war, and other collective traumas. Massive destruction and loss reliably follow in the wake of war, creating environments that share many qualities with those created by large-scale natural disasters. Overlap between political conflicts and mass displacement is quite salient, as modern warfare is increasingly driven by ethnic cleansing and religious bigotry. The active eviction of families from regions is used as a weapon of war. For example, in Kosovo, the refugee crisis meant that NATO troops were tied down because of the immediate needs to provide relief for the refugees and could not take a more active peacekeeping role until further logistical resources were mobilized. In addition, the communities into which refugees move are often destabilized.

Ongoing environmental hazards also have added to the global refugee crisis. As water and other natural resources become increasingly scarce,

combined with climate change due to global warming, droughts, and other disasters, there will be increasing problems with refugee migration. The changing distribution of vector-borne disease will further complicate the boundaries between disaster, war, and epidemic. These modern humanitarian crises must be studied from multiple dimensions to characterize their full impact and ensure the development of optimal management strategies.

Political Definitions

As noted previously, some definitions of disaster focus on political declarations in addition to severity of impacts alone. Political definitions have much practical importance. Political definitions of disaster distinguish between large-scale accidents, emergencies, and disasters, a determination that is often made by the civil domain of government. Disaster declarations evoke certain instrumental powers that allow temporary suspension of normal civil administration and the rapid coordination of protective and relief efforts. A bus or plane crash will not be called a disaster unless it causes large numbers of dead and injured. Whether such an event is defined as a large-scale accident or disaster will also be determined by its impact on the surrounding community. The crash of an aircraft into a housing complex near an airport, killing passengers on the plane and residents on the ground, may well be deemed a disaster, whereas the crash of an aircraft in a remote region may not be considered a disaster by governmental entities. These differentiations are somewhat artificial, and many of the same principles apply in both settings. The mental health of survivors (or rescue workers) has often been studied after events that were not officially designated as major disasters; thus political considerations have not played a strong role in defining this field of research.

Proposing a definition that was related to but distinct from merely political ones, Quarantelli (1986) defined disaster as a consensus-type crisis occasion in which demands exceed capabilities. This definition is useful conceptually because it reminds us that the consequences of disasters follow not only from needs of the community but from the community's capacity to meet those needs. In smaller communities with fewer emergency relief resources, the threshold for an event to disrupt the capacity to manage and organize an effective response will be lower than in larger communities. However, the definition is broad and rather abstract for the purposes of defining the boundaries of a field of research.

Disasters as Acute-Onset, Time-Delimited Events

For building a knowledge base, it is important to define not only what is included in the phenomenon under study but also what is not. Because they

are characterized by collective impacts and political considerations, disasters share much in common with stressors such as war, epidemics, and mass displacements, but they differ in temporal dimensions. Disregarding labels for a moment, we should consider the various ways in which collectively experienced traumas unfold. To do so, we rely largely on the notion of threat, which is the perceived possibility of future harm or loss. Actual harm/loss may or may not be preceded by a period of threat, and it may or may not be followed by a period of threat.

On this basis, we here differentiate between chronic, escalating, and acute threats as they describe collectively experienced events or mass trauma. The same typology could be used to distinguish among individually experienced events (e.g., ongoing domestic violence vs. a sudden single-episode assault), but that discussion is beyond the purposes of this chapter.

Sometimes, the course of the phenomenon is characterized by a prolonged, relatively constant period of threat. Actual harm/loss may or may not occur, and the threat subsides little or not at all. The event is not delimited, that is, neither the beginning nor the end of the event is easy to demark or define. Hypothetically, if one could chart the population's threat over time, it would be moderately high but relatively flat; kurtosis (peakedness) would be minimal. Such circumstances just barely adhere to the meaning of *event,* except that there is generally a point at which one first learns of or is confronted with the threat. We label these as *chronic* threats, with the connotation of a continuing, constant, unremitting threat of harm or loss. Many toxic hazards, ongoing community violence, and threat of terrorism (as opposed to a terrorist attack) might be examples of chronically threatening, collectively experienced, potentially traumatic events (see Figure 1.1).

Sometimes the course of the phenomenon begins with a period of escalating threat. There was a point at which the threat was absent, but it emerges and then grows over time. There will be a period in which harm or loss peaks, followed by a period of gradually declining threat. Hypothetically, if one could chart the threat over time, it might look like a classic normal, or bell-shaped, distribution. Of course, this description oversimplifies matters, as any or all of these periods may be prolonged, and the iterations may be cyclic rather than clearly phased. We label these as *escalating/peaking/diminishing* threats, or merely as escalating threats, for short. Many public health epidemics, political conflicts, and refugee crises adhere to a pattern like this.

Sometimes, the course of the phenomenon begins suddenly; the threat (or warning) period is short (no longer than a few days) or absent completely. As in the preceding case, there is also a period in which harm or loss peaks, but it is followed by a rapidly declining threat, a point when the worst is clearly over and the magnitude of the threat declines markedly.

Hypothetically, the course of threat over time is sharply peaked, radically changing from low to high and back to low, at least relative to the first two clusters. Many events, such as earthquakes, storms, accidents, and shooting sprees, follow a pattern like this. We label these as *acute onset, time-delimited* threats, or as acute threats for short. The descriptor *acute* carries the meaning of a short/sharp but severe course. In our use, the meaning is relative because, of course, the disruption following disasters may be long-lasting, but the period of peak danger is short-lived relative to chronic or escalating threats.

As might be evident, constructs like threat and duration are continuous rather than categorical, and words like *escalating* and *declining* and even *constant* cannot be easily or precisely defined. The scaling is undoubtedly multidimensional rather than unidimensional, as the preceding simplified grouping implies. Notwithstanding these difficulties, we believe the temporal dimension is the key to classification (at least for research purposes) and recommend reserving the term disaster for events of the third type: those with a relatively clear beginning and a relatively clear end. The exclusion of certain human experiences from the definition of disaster does not imply that the excluded events are less important. Certainly, worldwide, more people are affected by public health epidemics, such as the AIDS crisis, than are affected by natural or human-caused disasters (International Federation of Red Cross and Red Crescent Societies, 2000). Indeed, one could argue that the consequences of ongoing community violence, political violence, or environmental hazards are potentially more pathogenic than disasters. The point is simply that an area of study is defined in part by its boundaries, and the characteristic of sudden, forceful, but time-limited impact appears to define the boundaries of disasters reasonably well. We revisit some of the issues around the boundaries subsequently, after describing the primary types of disasters.

TRADITIONAL DISASTER TYPOLOGY BY AGENT/CAUSE

Arising out of these definitions, various typologies of disaster have been proposed. Most commonly, distinctions are made according to the determinants or agents of the destruction, especially whether they were *natural* in origin, such as floods and earthquakes, or *human-caused*. Human-caused disasters can be further subdivided into *technological accidents* and *mass violence*. Technological accidents are disasters caused by neglect, carelessness, or failures of technology, such as mass transportation accidents or dam collapses, whereas mass violence refers to disasters caused by intent or malevolence, such as shooting sprees or peacetime terrorist attacks.

Technological disasters may be more difficult for individuals to tolerate than are natural disasters because of the meanings imparted to the events. Natural disasters possibly are able to be dismissed as acts of God. Technological accidents, on the other hand, represent callousness, carelessness, and insensitivity (Bolin, 1986). At times these failures involve frank negligence rather than simply failing to foresee a risk, the Bhopal (India) disaster being one such example. These technological disasters have the capacity to divide communities, particularly where one party is seen to represent a sector of privilege and wealth that is exercised with little concern for the welfare of the broader community. The historic 1889 disaster in Johnstown, Pennsylvania, was a dramatic example of this division. Technological disasters are frequently followed by lasting disputes and litigation concerning the allocation of blame that further fragment and politicize the community (Kroll-Smith & Couch, 1993).

However, the notion that, in general, technological accidents have greater mental health impact than do natural disasters has not withstood empirical test. A meta-analysis of the relationship between disasters and psychopathology in controlled studies (Rubonis & Bickman, 1991) came to the opposite conclusion—namely, that natural disasters resulted in greater rates of disorder. Norris et al. (2002) found no overall difference between the effects of the two types of disasters in their more recent and comprehensive review (see also Norris & Elrod, Chapter 2, this volume), although technological disasters had somewhat greater effects than did natural disasters when the analysis was limited to studies conducted in developed countries.

The differentiation between natural and technological forces might be somewhat illusory. For example, failure to comply with construction codes can lead to the collapse of buildings in earthquakes, with much greater resultant loss of life than would have been the case if the standards were adhered to. Without question, land-use policies in coastal regions, such as extensive development on barrier islands, contribute to the financial impact of "natural" disasters. The distinction between natural and technological disasters is especially blurred when disasters occur in developing countries. Overall, housing quality is poor relative to that found in the developed countries, so houses are less capable of withstanding the forces of water and wind. Lacking means for obtaining other property, families may "invade" flood plains, steep mountainsides, and other undesirable locations. Deadly mudslides are often the result of deforestation. Natural disasters, as well as technological accidents, are frequently politicized because of issues surrounding the availability and distribution of resources both within and between communities.

The evidence does suggest that disasters of mass violence are more likely to have serious mental health consequences than either natural disasters or technological accidents (see Norris & Elrod, Chapter 2, this vol-

ume). To perceive oneself as a victim of intentional harm is especially difficult and threatening. Several studies of peacetime (terrorist) bombings (e.g., North et al., 1999; Scott, Brooks, & McKinlay, 1995) and sniper attacks (e.g., Creamer, Burgess, Buckingham, & McFarlane, 1993; Pynoos et al., 1987) have documented quite severe effects on mental health. However, the category of "mass violence" disasters is also difficult to define precisely. Wildfires, for example, are typically classified as natural disasters, but they may result from human intent (arson). Moreover, the boundaries between acts of war and terrorism are not clear-cut. Terrorist attacks, such as occurred in Bali on October 12, 2002, and in New York City on September 11, 2001, target civilians, but in many regards terrorism is undeclared warfare fought by unconventional means. Generally, we classify terrorist events as disasters when they meet the criteria of acute onset and time-limited threat, that is, victims of these events had no anticipation of the events that unfolded, in contrast to the combatants in a more typical armed conflict or even civilians in a context of continued political conflict.

Bioterrorism is especially difficult to classify because the agents are invisible and strange, the course of threat will vary depending upon the extent of contagion or contamination, and the aftermath is potentially unbounded by time and space (Ursano, Norwood, Fullerton, Holloway, & Hall, 2003). Depending upon the agent, bioterrorist incidents could begin suddenly with a severe threat that lessens over time, but they could just as easily behave like epidemics with an escalation of the threat once recognized. The nature of the impact of these events may be different as well, with people being uncertain about their levels of exposure and fearful of infection or quarantine. Naturally occurring epidemics, like that associated with severe acute respiratory syndrome (SARS), provide a glimpse into the range of potential consequences, including stigma and isolation of direct victims (extending even to medical professionals who have treated them) and severe economic hardship for cities associated with the outbreak (e.g., Des Jarlais, Galea, Tracy, Tross, & Vlahov, 2006).

Considering the sum total of these issues, we may eventually find that any agent-based nomenclature—differentiating natural disasters, technological accidents, and episodes of mass violence from one another as well as from chronic hazards, epidemics, and war—has little descriptive or predictive value. Describing specific incidents dimensionally according to time, space, scope, magnitude, and mixture of causes will continue to be important.

OTHER CHARACTERISTICS OF DISASTERS AND DISASTER EXPOSURE

Characteristics of disasters and disaster exposure are important determinants of the consequences of such events and may influence the nature of

the public sector's response. Here we will describe a few of the primary dimensions on which disasters (and other collective traumas) may be expected to vary.

Centripetal versus Centrifugal Disasters

Most disasters can be described as either centripetal or centrifugal (Lindy & Grace, 1986). This is an important way of typing disaster that is often overlooked. *Centripetal* refers to disasters that strike an extant community of people, and *centrifugal* to disasters that strike a group of people congregated temporarily. The former category might describe the prototypical disaster, where members of a geographically circumscribed community are struck by a disaster, such as a hurricane or earthquake. These disasters pose a risk to all those who live and work in these communities and may affect social and community functioning as well as psychological functioning. Moreover, the community that is harmed will also be called upon for rescue and recovery, creating a conflict between the role of victim and rescuer for many individuals. Centripetal disasters vary among themselves in the extent to which they are geographically circumscribed. For example, forest fires and tornadoes are events where there are typically clearly defined margins to the disaster. In contrast, events such as earthquakes and tropical storms have long gradients of exposure where the margins of the disaster are less precise.

Centrifugal disasters differ from centripetal disasters in two important ways: (1) they are highly concentrated and localized; and (2) they strike a group who happen to be congregated, often by chance. Mass transportation accidents, office tower explosions, and nightclub fires are good examples of centrifugal disasters. In these events, very few of the injured or dead may come from the locality of the disaster. The victims of mass transportation disasters are not always strangers (for example, there are examples of plane crashes where the plane was occupied by a group of travelers from the same community who were intentionally traveling together). Occasionally, these disasters have an international impact, with the survivors or the bereaved coming from many regions. One such example would be the 2002 Bali bombing, which killed more than 200 people. While a significant number of Balinese were killed, the bombing of a tourist venue meant that people from all around the world were killed or grievously injured. These distinctions have major implications for how rescues are mounted and the provision of services in the aftermath. Centrifugal disasters pose particular challenges for research with direct victims, so they have been studied less often than have centripetal disasters. The sinking of the Jupiter cruise ship and the Beverly Hills Supper Club fire are two examples of centrifugal disasters where survivors were studied (Green, Grace, & Gleser, 1985; Yule et al., 2000). Many studies of these events have focused on rescue/recovery

workers (e.g., Dougall, Herberman, Delahanty, Inslicht, & Baum, 2000; Fullerton, Ursano, & Wang, 2004) or the broader community in which the disaster happened (e.g., Chung, Werrett, Farmer, Easthope, & Chung, 2000).

Onset and Duration Revisited

Although disasters by definition are acute stressors, they nonetheless vary in the *rapidity of onset*. The slower the onset, the longer is the warning period, which can save countless lives and reduce the prevalence of injuries. This characteristic is correlated with the centripetal–centrifugal distinction, as centrifugal disasters are almost always rapid in onset, whereas centripetal disasters sometimes are slower in onset, such as in the case of riverine floods. The impact of a disaster may be lessened by the anticipation and implementation of mitigation and protective strategies. As the threat emerges, there are also many actions by communities and individuals that can limit the destruction and protect life and property.

Similarly, although we have defined disasters as time-limited in character, they also vary in the relative *duration of the crisis*. Most disasters are characterized by an acute threat that is contained, and there is a relatively rapid restoration of order and safety. However, in some disasters, the postdisaster environment has many ongoing intrinsic threats to the individual and community, especially those where there is risk of epidemics or the income-earning infrastructure and housing have been destroyed. Further there are those where the nature of the danger is more insidious and difficult to identify and control. The implications of this prolonged threat are substantial because it may disrupt the development of a sense of safety. At the extreme end of this continuum, disasters become indistinguishable from chronic toxic hazards or ongoing political violence. Perhaps it might be said that an event can switch categories, beginning as a disaster and evolving into a chronic hazard.

The Times Beach contamination disaster (Robins et al., 1986) and the Chornobyl nuclear disaster, where a power reactor melted down and released toxic materials (Bromet et al., 2000), are illustrative of events that began as disasters but initiated a period of persisting threat. The invisible nature of chemical and radiation hazards has a number of implications. First, it is difficult to be immediately aware of exposure, as this occurs in an invisible manner. Second, when the hazard has been contained, it is hard to reassure the exposed community that the hazard is no longer a risk, especially if there is no visible evidence and there have been initial failures to warn of the risk, resulting in mistrust of the information given by the public authorities. Also, the harmful consequences of exposures are often slow to manifest, and there are long latency periods before diseases emerge, such as cancers and degenerative diseases. Genetic damage leading to congenital

malformations remains an incipient fear for generations. Public distrust and fear of misinformation further erode the sense of safety in the community and maintain the sense of injustice, victimization, and loss. As is the case after all disasters, bringing an end to the sense of threat is critical to recovery.

Severity of Exposure at Population and Individual Levels

When studying the mental health impact of disasters, it is essential to characterize severity of exposure at both the population and individual levels. At the population level, an important characteristic is the *impact ratio*, the proportion of the population that is affected directly by the disaster. This characteristic emphasizes the proportion of persons directly affected rather than the absolute number of these persons, because the former may have more to do with the ability of the community to respond effectively. As the impact ratio increases, the mental health consequences of the disaster may likewise increase (Phifer & Norris, 1989). North and Norris (Chapter 3, this volume) discuss the implications of choosing research participants to represent severely exposed disaster victims or the general population of a disaster-stricken area.

Of course, from a psychological perspective, the extent of *terror and horror* associated with the disaster is especially important. Some disasters engender more fear, threat to life, and actual loss of life than do others. Although individual differences in severity of exposure typically are highly predictive of psychological outcomes (see Norris & Elrod, Chapter 2, this volume), there are important interactions between grief and traumatic psychopathology that are not yet thoroughly understood. In normal grief, the individual is able to revisit the memory of the person who died with a sense of longing and pain but also able to search positive memories. In disasters, the traumatic memories intrude and inhibit this normal process.

There are numerous challenges in conceptualizing the nature of individuals' disaster exposure. To begin with, losses can be in a series of domains, such as homes, the death and injury of friends and relatives, the destruction of community resources, and a loss of property that is involved in the generation of income and the provision of employment. Communities share losses in the natural, built, social, and economic environments. From an ecological perspective, an important question is this: When predicting individuals' psychological responses and recovery, do only their own losses matter, or are they influenced by the severity of losses and degree of recovery experienced by the community at large? If the exposure within a population is to be measured, these various dimensions must be scaled. Little work has been done examining the validity of such methods of scaling. Understanding of these matters is critical to the comparison of disaster studies. Equally, if information is to be used in making predictions

about the likely effects of some recent event, estimates based on the degree of exposure are required.

Measurement of exposure is not a trivial issue, because researchers often underestimate the complexity of characterizing the experience of individuals. Van der Kolk et al. (1996) have argued that one of the primary characteristics of traumatic experiences is that they are events that challenge an individual's capacity to create a narrative of his or her experience and to integrate the traumatic experience with other events. As a consequence, traumatic memories are often not coherent stories and tend to consist of intense emotions or somatosensory impressions. Thus, these are events that test the capacity of language to capture and characterize experience. Hence, it is easy for researchers and clinicians alike to not fully embrace the horror and the helplessness that research data and patients' stories embody. This is a critical issue for the development of adequate methodologies and instruments to describe and characterize disaster experience.

Phases of Disaster

If the defining characteristics of disasters, relative to other collectively experienced potentially traumatic events, are their acute onset and time-limited threat, it follows that the temporal unfolding of a disaster is extremely important in planning services or research. In October 2001, an international panel of experts on trauma and mental health convened to determine best practices in disaster mental health (National Institute of Mental Health, 2002). As part of this effort, the group reached consensus on the differentiation of phases and identified the primary goals, behaviors, roles of helpers, and roles of mental health professionals that corresponded to each phase. Table 1.1 summarizes the main points of this guidance according to phases of *preincident*, *impact* (0–48 hours), *rescue* (0–1 week), *recovery* (1–4 weeks), and *return to life* (2 weeks–2 years). The table is relatively self-explanatory, and therefore we will not repeat the various points. We invite readers to reflect on this table, as thoughtful consideration of the identified roles and actions may help one to generate potential questions for research that are relevant to policymakers and practitioners. Myers and Wee (2005) also provide an excellent introduction to phased disaster mental health services that may be a good source of research ideas.

CONCLUSION

We have defined disasters as potentially traumatic events that are collectively experienced, have an acute onset, and are time-delimited. We have acknowledged that the boundaries of disaster research are not always clear and that there is considerable overlap between disasters and the larger set

TABLE 1.1. Guidance for Timing of Early Interventions

Phase	Preincident	Impact (0–48 hours)	Rescue (0–1 week)	Recovery (1–4 weeks)	Return to Life (2 weeks–2 years)
Goals	• Preparation • Improve coping	• Survival • Communication	• Adjustment	• Appraisal Planning	• Reintegration
Behavior	• Preparation versus denial	• Fight, flight, freeze, surrender, etc.	• Resilience versus exhaustion	• Grief, reappraisal, intrusive memories, narrative formation	• Adjustment versus phobias, PTSD, avoidance, depression, etc.
Role of helpers	• Prepare, train, gain knowledge.	• Rescue, protect	• Orient, provide for needs.	• Respond with sensitivity.	• Continue assistance.
Role of mental health professionals	*Prepare:* • Train, gain knowledge. • Collaborate. • Inform and influence policy. • Set structures for rapid assistance.	*Meet basic needs:* • Establish safety, security, survival. • Ensure food, shelter. • Provide orientation. • Facilitate communication with family, friends. • Assess environment for ongoing threat/toxins. *Provide psychological "first-aid":* • Provide support. • Keep families together. • Provide information. • Reduce arousal. *Monitor environment:* • Observe, listen. *Provide technical assistance/ consultation:* • Improve capacity of organizations and caregivers.	*Needs assessment:* • Assess current status, how well needs are being addressed, and recovery environment. • Identify needs for interventions for individuals, groups, populations. *Triage:* • Clinical assessment. • Refer when indicated. • Identify vulnerable, high-risk individuals and groups. • Emergency hospitalization or outpatient treatment. *Outreach:* • Provide information about coping and recovery through established structures in community. *Foster resilience:* • Build natural supports. • Repair organizational fabric. • Educate.	*Monitor recovery environment:* • Observe, listen to those most affected. • Monitor environment for toxins. • Monitor past and ongoing threats. • Monitor services that are being provided. Continue relevant activities from earlier phases, by providing technical assistance, performing community outreach and fostering resilience.	*Treatment:* • Reduce or ameliorate symptoms or improve functioning via individual, family, or group psychotherapy, pharmacotherapy, or short-term or long-term hospitalization. Continue relevant activities from earlier phases, by providing technical assistance, performing community outreach, fostering resilience, and monitoring recovery environment.

Note. Summarized from National Institute of Mental Health (2002, Appendix B).

of collective crises, which includes war, public health epidemics, and mass displacements. Although this book primarily addresses methods that are useful for studying disasters, many of the fundamentals, methods, and challenges described in this volume have relevance for the study of escalating threats, such as political conflicts and epidemics, as well as for the study of chronic threats, such as toxic hazards and community violence.

We have also advised the reader to consider and describe the disaster under study in terms of several important attributes, including (1) whether it was centripetal or centrifugal and, if the former, the extent to which the impact was geographically circumscribed or diffuse; (2) the rapidity of the disaster's onset, extent of warning, and the duration of the period of threat; and (3) the severity of its impact, both in terms of the proportion of the population affected and the nature and magnitude of the stressors experienced by individuals and shared by the community. As these factors are considered and described in more standardized ways in future research, we may be able to determine whether these characteristics influence the mental health consequences of disasters more so than does their classification as natural disasters or technological accidents or episodes of mass violence.

We returned to temporal issues in concluding this chapter, this time through a practitioner's lens rather than through a researcher's lens. The two perspectives sometimes compete in the aftermath of disasters, but they do not have to, as each perspective has much to offer the other. Practitioners and researchers would undoubtedly agree that consequences and needs are changing rapidly and that data are perishable, meaning that disasters must be studied with minimal delay and with focused attention on the way that the event unfolds over time.

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