THE PSYCHOLOGICAL IMPACT OF NATURAL DISASTERS IN SCHOOL

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DISASTERS ARE ABNORMAL SITUATIONS involving normal people, and those affected by them demonstrate an enormous range of emotional expressions. Educators who are engaged in responding to natural disasters face many challenges. Educators are sources of emotional support for students, as well as sources of academic and social education, but they have limited resources to deal with the full range of students' emotions, even in the best of situations. Educators must invariably struggle with a lack of experience and training, and are confronted by the need to use strained resources in the context of a chaotic, ever-changing environment. The rules seem unclear and constantly change—this is the very nature of disasters.

This chapter will offer guidance to teachers on dealing with the psychological impact of natural disasters in educational settings. Natural disasters include weather-related events (ice and snow storms, tornadoes, and hurricanes), toxic exposures (chlorine leaks), fires, and earthquakes. In all the above-mentioned cases, the goal of disaster mental health intervention is to mitigate significant emotional long-term harm and maximize successful adaptation strategies.

The Role of the School

In times of disaster, schools may serve to shelter the displaced community. Schools are often ideal because their size allows for large gatherings. Physically, they may be able to accommodate those with special needs and physical disabilities. Schools have parking lots, cafeterias, bathrooms and shower facilities, and audio-visual capabilities; however, in the long-term, schools cannot be all things to all people. Gyms and classrooms must be converted back to a place of learning, individuals will have to find other accommodations, and routines will need to be restored. Less tangibly, but still importantly, schools provide familiarity, shared experiences, cohesion, and a sense of community ownership and pride.

As students look to their teachers for encouragement and stability, the community looks to schools to provide safety in chaos and turmoil, but challenges exist. Educators are suddenly thrust into unfamiliar circumstances and must often work in an unstable and unpredictable environment. They are forced into roles they were not trained for or experienced in. This role change may be unwelcome and be its own traumatic experience. In some cases, the media may portray the response in an unfavorable light, and the mere presence of media can be distressing. Suddenly external eyes can magnify preexisting challenges, and there may be misperceptions and misunderstandings that are clearer in hindsight. Most people are not familiar or comfortable with that level of scrutiny. A goal of disaster intervention is to provide stability and predictability as quickly as possible; however, no one can predict how long and to what extent the physical and emotional effects will last.

Natural Disasters and Resulting Emotional Effects

Disaster environments are complicated, and no two disasters are alike. Multiple factors affect how and to what degree people will be emotionally and behaviorally affected. In some scenarios, the extent of damage to or availability of the school may be limited or nonexistent. Detailed response plans may not work as personnel may not be available, and deaths or injuries related to the disaster add significant stress to the situation.

The interaction of multiple factors shapes how the immediate and long-term response occurs. Predicting how long a disaster will evolve or how great the impact will be can help the school prepare and plan for how the students and community will respond, and appropriate material and personnel resources can be considered. Planning for how long the school will be inaccessible will help reduce anxiety and fear of the unknown. At the individual and community levels, a "one-time" or unique disaster, such as a toxic chlorine exposure from an overturned vehicle (with no physical school damage), will have less long-term impact than an unpredictable, unforeseen earthquake causing structural damage. In some cases, recurrent events may desensitize intense feelings, but in other cases, the new event

heightens emotions left from the last event.

Symbolism and triggers are important concepts in the development of post-traumatic distress. If a disaster occurs when school is in session, individuals will make sensory associations between the trauma, school, and individuals at the school. When the school returns to its schedule, students (and even staff) may want to avoid the sensory triggers that worsen negative symptoms. Even seemingly insignificant objects or their absence may convey a sense of anger, fear, or loss to an individual. An on-property event and the associated symbols can disrupt the educational process more than off-property events when school is not in session. As educators move toward rebuilding or recovery, they should consider the *shared meaning* of objects. A given object may bring negative emotions for some, but a sense of closure for others. The same object can hold opposite significance for different individuals. For example, the site of a building that collapsed, killing adults and children, may be a source of tension in a community. Some will want the building rebuilt as a sign of recovery and strength, while others will want the structure removed because its very presence reminds them of their loved one's death or injury. These types of schisms and disagreements about how to recover may undermine the collaborative process necessary for rebuilding.

Finally, the nature of community and individual exposure to a disaster influences the ways in which students and staff are affected. Disasters can either be evolving or one-time events. For example, a flood may rise and fall for days or weeks, or there may be aftershocks after an earthquake. These types of situations give the sense of an emotional rollercoaster with ups and downs; in contrast, a toxic leak may clear after a few hours. The psychological impact of these events is different because in the case of the former event, the community becomes fatigued after increased anxiety and poor sleep for an extended period of time. Another aspect of how people respond to the disaster is the degree to which the individual was exposed to the trauma. Those who were more directly exposed (witnessed a death or accident) commonly experience a greater psychological impact than those on the periphery (someone who was evacuated on the other side of campus). The immediate exposure is different, although both cases have a psychological impact. In these cases, a form of psychological triaging may help identify those who may be more vulnerable to significant emotional distress.

Disaster Experiences: Five Phases

Disasters and disaster response tend to be dynamic, evolving events. Zunin and Meyers conceptualize these phases as warning, rescue or heroic, honeymoon, disillusionment, and recovery and reconstruction.[1] The timing of these phases, whether or not they are present, and the extent to which they occur, are disaster specific. For example, some disasters do not have a warning phase. Models like this can help conceptualize how individuals and communities are progressing from the initial stages of a disaster into the long-term recovery, and common emotional responses may be anticipated.

Some natural disasters have a *warning* phase. In a hurricane, there may be days of warning and uncertainty prior to the hurricane that affect the lives of those preparing for disaster. The impending potential disaster is well known, and there may be time to react, enabling communities to avoid or mitigate the impact by moving out of the storm's predicted path or boarding up windows. The warning phase is characterized by increased anxiety, worry, and vulnerability, but these emotions wax and wane as new information comes, and frustration may occur as the storm changes and predictions prove inaccurate.

When the event arrives, emergency service workers and those within the immediate disaster zone switch to the *rescue/heroic* phase, and the duration depends on how the disaster evolves. In ongoing events, such as a rising and falling flood, there may be a week-long rescue/heroic phase, as compared to a toxic exposure, where a school may be evacuated for an hour. It is at this time that a sense of unification for a common cause happens. This "fight or flight" period may bring shock, initial grief, and disorientation.

The next phase, the *honeymoon*, is relatively shorter. People often think, "it could have been worse," and may feel grateful. There may be a sense of relief that the immediate danger is over, but this is generally short-lived.

In the next two stages, disillusionment as well as recovery and reconstruction, community emotions may be the most intense. *Disillusionment* brings elements of reality to the situation. Individuals and communities begin to consider how the situation (or the worst parts of it) could have been avoided, and anger and blaming may be directed at individuals or systems. These intense emotions can be exacerbated by emotional and physical fatigue.

In the final stage, *recovery and reconstruction*, communities begin rebuilding the physical and emotional damage. Physical recovery may not begin for months or even years, so frustration is common, as many impatiently want "everything to return to

normal." In many cases, "normal" will never occur, as the reality of vulnerability and potential for a similar disaster occurring again is realized. Planning for this disappointment and negative reaction can be anticipated and mitigated.

Psychological Aspects of Disaster

Disasters are abnormal situations, so most negative reactions to disaster are not "abnormal" or "pathological." There is a large range of "normal" behavior, and it is important not to pathologize atypical behavior within a disaster setting. Nervousness, anxiety, and worry are common and manifest in different ways. Symptoms can be separated into emotional/affective, behavioral/physical, and cognitive manifestations (see Table 1). Education may reduce symptoms, often referred to as "normalizing." Most symptoms will resolve without intervention; however for a minority, the symptoms are highly distressing and affect daily functioning.

Adults and children react differently to stress, and children's reactions are largely influenced by their developmental level and the reactions of adults around them. Young children lack the verbal ability to express their distress and concern. Thus, their distress often manifests in behavioral changes (see Table 2). In school, they may have decreased school performance, regression of behaviors, or an increase in aggressive play, possibly with themes of the trauma. Some of this increased stress may be triggered by upheaval within the home or feelings of misperceived guilt. Later, they develop different cognitive models for dealing with trauma. They are more likely to express their distress through behavioral outbursts, physical complaints, and nightmares. Importantly, children react to adult's reactions. Adults may feel that they are masking and hiding the significance of a disaster, but children are often aware that "something is wrong." The amount of information they should have and the manner in which it is disseminated to them is dependent on their developmental level, which is discussed below. Children are often afraid because of the unknown. The "unsaid" distress may increase children's anxiety because they imagine the worst

Table 1. Emotional, Behavioral, and Cognitive Symptoms of Stress

Affective/Emotional	Behavioral/Physical	Cognitive
Depression	Chills	Re-visualizing experience
Agitation	Shaking/tremor	Intrusive thoughts
Panic	Shortness of breath	Reliving past trauma
Fear	Sweating	Confusion
Anger	Restlessness	Decreased attention/concentration
Shock	Change in sleep	Hypervigilance
Denial	Withdrawal	Uncertainty
Crying	Vomiting	
	Headache	
	Elevated blood pressure	
	Rapid heart rate	

Table 2. Children and Adolescent Reactions to Stress

Young Children (up to age 6)	Older Children (age 6-10)	Adolescence (age 11+)
A sense of helplessness	Preoccupied talking about the event	A sense that the world is less safe
Fear	Diminished concentration	High-risk behaviors
Irritability	Sadness	Social anxiety
Crying	Anger	Feelings of being overwhelmed
Need for attention	Fear of recurrence	
Seeking affection/Being clingy		

scenario, including even unrealistic or improbable outcomes.

Teachers, staff, and administrators are not immune to similar distress. While trying to help others, they are challenged with their own lives, families, and personal loss. But the overall system goal is to restore the sense of stability and predictability, even within a chaotic situation. In the short- and intermediate-terms, individuals may experience worsening trauma from cumulative stress (from earthquake aftershocks, etc.). In the long-term (even a year or more after a disaster), individuals and communities may still be "temporarily" relocated, and anniversaries may bring back memories causing retraumatization.

While some of the aforementioned symptoms are common during and after a disaster, greater concern is warranted for more intense, prolonged reactions. When numerous symptoms manifest and affect a person's life, a clinical disorder may be present. The severity and duration of symptoms vary considerably. The major activity of disaster mental health is to mitigate pathological reactions, but several clinical disorders may be identified in this context, as well as those with pre-existing clinical disorders. For example, clinical anxiety disorders may be triggered by a disaster and can be considered to be typical reactions in terms of severity and duration. Individuals who are affected may experience a reduction in awareness (as if being in a daze) and feel like things are not real or like they are viewing themselves from the outside. These symptoms last for a minimum of 2 days and a maximum of 4 weeks, and occur within 4 weeks of trauma. Where adults may experience intense fear, helplessness, or horror, children's distress may be manifested as disorganized or agitated behavior. Negative feelings are dealt with by avoiding places, activities, and conversations that may worsen anxiety.

Rebuilding and Resiliency

There are many challenges when working in a disaster environment, but the overall goal is to resume learning without extended delay. For this to happen, schools must minimize the impact of the disaster by providing a safe learning environment for students, teachers, and staff. Long-term consequences of prolonged stress for teachers and staff include burnout, manifesting as emotional detachment, loss of mental energy, cynicism, and negative attitudes toward one's self and others. Practically, there are many obstacles that make long-term care difficult. The community may find that some individuals want to recover and move on quickly, while others want more time to process the trauma. In these cases, administrators must be sensitive to these issues and support myriad concerns.

Even with all of these complexities, there are several general principles that educators may use when working with students in a natural disaster. Supportive, empathetic leadership is a critical piece of successful recovery and rebuilding. Perceived messages of "suck it up" or no response to the emotional concerns of teachers, staff, and students can increase distress and feelings of isolation and helplessness. Leaders must convey a sense of hope and positive expectations, while appearing honest and credible; however, being overly optimistic and sending overly encouraging messages lessens a leader's credibility.

While not the focus of this chapter, it is worthwhile to note that there are many models of disaster mental health intervention. Few models are specific to children; however, the Sanford Model was developed by Nancy Sanford (following the Oklahoma Murrah Federal Building bombing in 1995) for a school setting. A recent, comprehensive disaster intervention is described in the Psychological First Aid (PFA) manual.[2] This was developed by the National Child Traumatic Stress Network and National Center for PTSD[3] and has intervention models for children. This manual is evidence-informed, detailing basic standards that can be used in actual events. Importantly, the PFA manual discusses cultural influences. These resiliency intervention models are designed to be time-limited and focus on the immediate crisis.

The concept of resiliency is widely used in disaster and crisis intervention, from local disasters to military settings. The basic concept is that, on balance, people are resilient and have inherent coping mechanisms to deal with disaster. Resiliency posits that even though the situation may be novel, most people recover on their own by using their existing personal resources (their inner strength). This concept works on the idea that most reactions are normal, not pathologic, and people may be more willing than not to talk about "resiliency" than "emotional trauma," a term which has a negative connotation. Although most people will recover using resiliency, some individuals will require greater support.

Several groups are considered to be more vulnerable to the emotional effects of trauma. First, children and adults with preexisting emotional disturbances, or who were struggling with traumatic events prior to the disaster, are more likely to need greater mental health support. Another vulnerable group is students with intellectual challenges. Typically, these children have difficulty when losing their routines and being placed in novel situations. Students with emotional disturbances or cognitive challenges are often identified before the natural disaster so they can be considered early on for additional support and the rapid establishment of structure; however, some children have not been recognized prior to a disaster. Of these unidentified children, those who are absent more after than before the disaster,

and whose absence is not explained by relocation, accessibility to the school, or extenuating circumstances (family member's death, injury, or illness), are of particular concern. School personnel may not see that they are struggling and in need of help. Follow-up calls to these children's parents may be useful in identifying and treating these children so they can resume learning in a supportive environment.

No matter what intervention model is used, educators can use general tips in disaster settings. At the administrative level, interventions need to be consistent and coordinated throughout the school and district. The staff should use consistent messages and language to facilitate understanding and a coherent, supportive message. A challenge in trying to provide a consistent message is to demonstrate sensitivity to diverse languages, races, ethnicity, traditions, and beliefs. Unintended slights may be perceived when these issues are not considered, and it may be difficult to provide quick, accurate information in a school with parents who speak many languages.

In addition to consideration of demographic factors, interventions need to be age appropriate. Young students have different needs, and the interventions need to be at their developmental level. For example, young children do not understand that death is permanent, but older children may be capable of understanding this. Whether young or old, children and staff need the opportunity to express their grief in their own way. Administrators can help with reassurance and confidence by dispelling rumors and myths, which are often counterproductive and may increase anxiety in a time of chaos. Setting a calm, direct, informative, authoritative, nurturing, and problem-solving oriented tone will help inspire the community, and modeling this behavior by supporting teachers and the staff can allay many fears and concerns.

Conclusion

The interactions of natural disasters and emotions is highly complex and difficult to appreciate during an event. It is difficult to prepare for the unknown, and the realities of a natural disaster are typically worse than planned for, since systems do not plan for emotional consequences. Understanding the significant long-term emotional effects may help educators better respond to student, school, and community needs.

NOTES

1. Leonard Zunin and Diane Meyers, *Training Manual for Human Service Workers in Major Disasters, 2nd Ed.* (Washington, DC: Department of Health and Human Services Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, DHHS Publication No. ADM 90-538, 2000).
2. Josef I. Ruzek, Melissa J. Brymer, Anne K. Jacobs, Christopher M. Layne, Eric M. Vernberg, and Patricia J. Watson, "Psychological First Aid," *Journal of Mental Health Counseling*, 29, n. 1 (January 2007): 17-49.
3. Center for Mental Health Studies in Schools, (Retrieved on July 11, 2009), smhp.psych.ucla.edu.