

SAMHSA

**Disaster Technical Assistance Center
Supplemental Research Bulletin**

**Disasters and People With Serious
Mental Illness**

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The focus of the *Supplemental Research Bulletin* is to provide an overview of the current literature on a specific topic and make it easy to understand for disaster behavioral health professionals who are not otherwise exposed to the research. The product aims to assist professionals and paraprofessionals involved in all-hazards planning, disaster behavioral health response and recovery, and/or Crisis Counseling Assistance and Training Program grant activities.

INTRODUCTION

This issue of the *Supplemental Research Bulletin* focuses on the experiences of individuals with serious mental illness (SMI) before, during, and after disasters. In this issue, we use “individuals with SMI” to refer to individuals with schizophrenia, major depression, bipolar disorder, and/or posttraumatic stress disorder (PTSD). Although individuals with other mental illnesses, such as borderline personality disorder, panic disorder, and obsessive-compulsive disorder, may be considered to have SMI, we limited the mental illnesses we included in our definition within this issue to those mental illnesses most frequently associated with SMI in the disaster behavioral health research literature.

The Substance Abuse and Mental Health Services Administration (SAMHSA) and other entities sometimes define SMI in terms of functional impairment. For example, the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) Reorganization Act, which established SAMHSA, required SAMHSA to define SMI for the Community Mental Health Services Block Grant program, through which SAMHSA provides funding to states and U.S. territories for services for adults with SMI and children with serious emotional disturbance (ADAMHA Reorganization Act, PL 102-321, 1992). SAMHSA gathered input from a wide range of stakeholders and developed the following definition of SMI:

“Adults with a serious mental illness” are persons:

- Age 18 and over,
- Who currently or at any time during the past year,
- Have had a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within *DSM-III-R*,
- That has resulted in functional impairment which substantially interferes with or limits one or more major life activities (58 FR 29422).¹

Based on a definition of SMI that includes functional impairment, SAMHSA estimates that 11.2 million U.S. adults (4.5 percent) had an SMI in the past year (SAMHSA, 2018). In a paper on prevalence of SMI around the world, researchers used the World Health Organization Composite International Diagnostic Interview, which assessed individuals for serious functional impairment as well as mental illness, and found past-year prevalence of SMI to range from 0.8 to 6.8 percent of populations in individual countries (Kessler et al., 2009). The current *DSM, Fifth Edition (DSM-5)* provides prevalence estimates of multiple SMIs, as shown in Exhibit 1 (American Psychiatric Association, 2013). Wherever available, estimates are provided for people in the United States.

Exhibit 1. DSM-5 Estimates of Prevalence of Serious Mental Illnesses

SMI	Prevalence Type	Prevalence Estimate
Schizophrenia	Lifetime prevalence around the world	0.3–0.7%
Bipolar I disorder	12-month prevalence in the continental United States	0.6% (using definition from the <i>DSM, Fourth Edition, or DSM-IV</i>)
Bipolar II disorder	12-month prevalence in the United States	0.8%

¹ *DSM-III-R* is short for *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised*, the version of the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* that was published in 1987 and in effect until publication of the *DSM, Fourth Edition (DSM-IV)* in 1994. Published by the American Psychiatric Association, the *DSM* is used by psychiatrists, psychologists, and other professionals in diagnosing individuals with mental and substance use disorders in support of effective treatment and services (American Psychiatric Association, n.d.).

SMI	Prevalence Type	Prevalence Estimate
<i>DSM-IV</i> bipolar I, bipolar II, and bipolar disorder not otherwise specified	Combined rate in community samples from around the world	1.8%
Major depressive disorder	12-month prevalence in the United States	7%
PTSD	12-month prevalence among U.S. adults	3.5%

Many Americans, as well as people around the world, have experienced a natural or human-caused disaster. These include hurricanes, tornadoes, floods, and earthquakes; oil spills, water contamination crises, and nuclear disasters; and incidents of mass violence and terrorist attacks. One team of researchers reported that 50.5 percent of Americans in a national sample had experienced a natural or human-caused disaster (Kilpatrick et al., 2013). Another article reported lifetime prevalence of disaster experience in the United States as ranging from 13 to 19 percent (Burkle, 1996; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; as cited in Goldmann & Galea, 2014). Another article reported that approximately 22 percent of survey respondents had experienced disaster-related trauma (McCall-Hosenfeld, Mukherjee, & Lehman, 2014). Also, many have noted that natural disasters are increasing in frequency and severity (Goldmann & Galea, 2014; North, 2016; National Oceanic and Atmospheric Administration, 2019). Given how common disaster exposure is, the stressors disasters involve, and issues individuals with SMI face even in non-disaster times, it is crucial to understand how individuals with SMI fit into the overall profile of disaster-affected communities to plan services and promote effective preparedness, response, and recovery.

This issue of the *Supplemental Research Bulletin* is based on literature and scientific publications found through the National Center for Biotechnology Information and U.S. National Library of Medicine (PubMed), as well as Google Scholar. All research cited in this issue was published in English, and most was conducted in the United States (with a few exceptions where investigations in other countries proved useful to the topic). As noted, we focused on research on individuals with schizophrenia, bipolar disorder, major depression, and PTSD, and on individuals with SMI as defined in part through functional limitations.

PEOPLE WITH SMI BEFORE, DURING, AND AFTER DISASTERS

As briefly noted, people with SMI face challenges at all times, not only around the time of disasters. People with SMI around the world are more likely to die prematurely; a meta-analysis found an average of 10 years of potential life lost among people with SMI relative to the general population (Walker, McGee, & Druss, 2015). The main cause of premature mortality among people with SMI is chronic health conditions such as cardiovascular disease, diabetes, and chronic obstructive pulmonary disease (Bartels & DiMilia, 2017; Bahorik, Satre, Kline-Simon, Weisner, & Campbell, 2017; Olfson, Gerhard, Huang, Crystal, & Stroup, 2015; De Hert et al., 2011). More than 75 percent of individuals with SMI have more than one mental illness, or a mental illness and a substance use or misuse condition (Kessler, Chiu, Demler, & Walters, 2005). They are more likely than individuals without mental illness to be unemployed, living in poverty, or involved in the criminal justice system (SAMHSA, Center for Behavioral Health Statistics and Quality, 2018; Anakwenze & Zuberi, 2013; Robertson et al., 2018; Prins, 2011). They are also at heightened risk for homelessness (Gabrielian et al., 2019). Some research has found elevated suicide rates associated with major depressive disorder and PTSD, and with SMI in general, though findings are mixed (National Academies of Sciences, Engineering, and Medicine, 2019).

People with SMI may be at particular risk during and after disasters, when all community resources are limited and constrained. In this section, we look specifically at what research has found about disaster preparedness among individuals with SMI, differences in experiences for people with SMI after disasters, and SMI among disaster survivors.

Before a Disaster

INDIVIDUALS WITH SMI

Some evidence suggests that individuals with SMI may be less prepared for disasters than individuals without SMI. However, as noted in an earlier issue of this newsletter (https://www.samhsa.gov/sites/default/files/dtac/srb-low-ses_2.pdf), it is important to note that Americans in general are not well prepared for disasters. The National Center for Disaster Preparedness at Columbia University conducted a national survey in which they found that 65 percent of respondent households had no disaster plans or had plans that were inadequate (Petkova et al., 2016). And, according to national survey data from the Federal Emergency Management Agency (FEMA), less than half of Americans are familiar with local hazards, fewer than 40 percent have created a household emergency plan and discussed it with household members, and only about half (52 percent) have disaster supplies at home (FEMA, 2014).

In one study, researchers surveyed people in Los Angeles County regarding their disaster preparedness, asking respondents whether they had disaster supplies and an emergency communication plan, and found a statistically significant difference in the likelihood of having disaster supplies between individuals with SMI (29.5 percent) and those without SMI (49.2 percent) (Eisenman et al., 2009). They also found that individuals with SMI were less likely than those without SMI to have an emergency communication plan, but the difference did not reach statistical significance.

CMS EMERGENCY PREPAREDNESS FINAL RULE

A potential counter to lower levels of preparedness among individuals with SMI is the Emergency Preparedness Final Rule of the Centers for Medicare and Medicaid Services (CMS). Published in 2016, the rule applies to Medicare and Medicaid participating providers and suppliers, including community mental health centers (CMHCs), which may provide treatment and services for individuals with SMI (CMS Medicare and Medicaid Programs; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers; Final Rule, 2016). The rule requires CMHCs to have an emergency plan and update it at least annually; have policies and procedures to ensure safe and confidential handling and transmission of medical records and patients; have a communications plan with contact information of staff, patients, and emergency management contacts, among others; and conduct exercises to test the plan and train staff at least annually (Office of the Assistant Secretary for Preparedness and Response, 2018). Although the rule will not address the need for disaster preparedness for individuals with SMI who do not receive services through CMHCs, it does mean that individuals with ties to these facilities may have greater degrees of safety and preparedness than they otherwise would in the event of a disaster.

After a Disaster

In this section, we examine research on disaster survivors who have schizophrenia, bipolar disorder, major depression, or PTSD. It is important to consider research on individuals with preexisting SMI separately from research on individuals with post-disaster SMI, as their challenges, needs, and risk and protective factors are different.

It is also crucial to note that several researchers have reported that schizophrenia and bipolar disorder have not been found to have onsets linked to disasters (Maes, Mylle, Delmeire, & Altamura, 2000; Robins et al., 1986; Smith, Robins, Przybeck, Goldring, & Solomon, 1986; as cited in North, 2016; Katz, Pellegrino, Pandya, Ng, & DeLisi, 2002). In contrast, research on disaster survivors has shown that some will develop PTSD and/or major depression linked to their experience of a disaster (North, 2016; Norris, Friedman, Watson, Byrne, et al., 2002; Goldmann & Galea, 2014).

INDIVIDUALS WITH PREEXISTING SCHIZOPHRENIA

Greater Difficulties in Coping

In a study of survivors of the Northridge earthquake in Southern California (1994) with schizophrenia, bipolar disorder, or no diagnosis of mental illness, researchers found that those with schizophrenia reported more avoidance symptoms than did people in the control group (Horan et al., 2007). Individuals with schizophrenia reported the lowest levels of self-esteem, social support, and approach coping (including logical analysis, positive reappraisal, seeking guidance and support, and problem solving). Researchers had participants complete assessments 1 week and 5 weeks after the earthquake. Among individuals with schizophrenia, they found that higher levels of avoidance predicted higher residual stress symptoms at 5 weeks after the earthquake (Horan et al., 2007). It is important to note that these findings may be unrelated to the effects of the disaster. Research has found that individuals who use avoidance to cope are generally less mentally healthy than individuals who rely more on other coping methods (Norris, Friedman, Watson, Byrne, et al., 2002; Morris, Evans, Rao, & Garber, 2014).

INDIVIDUALS WITH PREEXISTING BIPOLAR DISORDER

Greater Difficulties in Coping

In the study of survivors of the Northridge earthquake (1994), individuals with bipolar disorder, similar to individuals with schizophrenia, reported more avoidance symptoms than did people in the control group (Horan et al., 2007). People with bipolar disorder reported higher levels of approach coping, self-esteem, and social support than people with schizophrenia, but lower levels than controls. As discussed earlier, higher levels of avoidance coping may be unrelated to the disaster and more associated with SMI in general.

Greater Likelihood of Adverse Reactions to a Distant Event

Bonanno, Brewin, Kaniasty, and La Greca report on a study involving patients with bipolar disorder living in Boston, approximately 200 miles from New York, who experienced a relatively high rate of new-onset PTSD (20 percent) associated with the 9/11 terrorist attacks, approximately 1 year post-attack (Pollack et al., 2006; as cited in Bonanno, Brewin, Kaniasty, & La Greca, 2010). However, the researchers also note that in studies that compare pre-disaster and post-disaster data, this effect disappears; instead, rates of mental illnesses show little change except in individuals who are directly affected by disasters (Bonanno, Brewin, Kaniasty, & La Greca, 2010).

FULL DISASTER-AFFECTED POPULATIONS

Effects of Disasters on Hospitalization for Schizophrenia

In considering research in this area, it is important to recognize that disaster may make SMI more apparent—and, therefore, hospitalization more likely—because disasters often destroy homes. As a result, many people move from living in individual or family settings to shelters and other sites where they share space with others, making any challenges they experience more apparent. North makes a similar point in relation to individuals with alcohol use disorders: “Importantly, the postdisaster period is one in which people with alcohol use disorders may be identified because they have been flushed out of their homes into collective settings, such as shelters, where their problems may be more apparent” (North, 2016, pp. 137–138).

One study found a significant increase in mandatory hospitalizations of people with schizophrenia in the 6 months after the Great East Japan earthquake in Tokyo, where people had likely been indirectly exposed to the earthquake and the tsunami and nuclear disaster that followed (Aoki, Aoki, & Harima, 2012). While the earthquake claimed the lives of more than 15,000 people, only 7 people in Tokyo were killed; however, residents were exposed to extensive media coverage of the disasters. Nearly 55 percent of total television broadcast hours, from March 11 to April 30, 2011, were coverage of the earthquake and the follow-on disasters, and about 28 percent of coverage focused on these topics in the 6 months after the earthquake (Aoki, Aoki, & Harima, 2012). The researchers point out that they do not know that all participants watched television, and so they cannot make any conclusions regarding causation. They also note that the Tokyo transportation and some infrastructure systems were affected by the disasters and that some medication became unavailable because the earthquake damaged or destroyed factories, and so individuals with schizophrenia in Tokyo may not have had access to their usual services and supports in the immediate aftermath of the disasters.

Another study found increases in hospitalizations for schizophrenia and psychosis in Norway after the 2011 Oslo and Utøya Island terrorist attack (Strand, Mukamal, Halasz, Vatten, & Janszky, 2016; as cited in Gradus, Marx, & Sloan, 2016). The researchers also found increases in hospitalization for suicide, acute myocardial infarctions, births, and preterm births.

In contrast to this research, a study after the Christchurch, New Zealand earthquake (2011) found that acute psychiatric bed occupancy and admission rates decreased in the first month after the earthquake. They note that the reduction held for all diagnostic groups except for individuals with schizophrenia, schizotypal, and delusional disorders, which suggests that rates of schizophrenia and related mental illnesses may be relatively unaffected by disasters (Beaglehole, Bell, Beveridge, & Frampton, 2015).

INDIVIDUALS WITH POST-DISASTER MAJOR DEPRESSION

In a study of survivors of the great Midwestern floods (1993), researchers found that major depression was the second most common post-flood diagnosis, after PTSD (North, Kawasaki, Spitznagel, & Hong, 2004). The researchers collected data in two waves, one an average of 4 months after the floods and the other 1 year later, an average of 16 months after the floods. Twenty-four percent of their sample had experienced major depression at some point in their lives before the floods; 4 months after the disaster, 20 percent were experiencing major depression, though at follow-up that percentage had dropped to 11 percent (North et al., 2004). Similarly, in a review of data on 811 survivors of 10 disasters (including both natural and human-caused disasters), researchers found that 14 percent of survivors experienced post-disaster major depression (North, Oliver, & Pandya, 2012). Post-disaster major depression was second only to disaster-related PTSD in its prevalence among disaster survivors.

A study of survivors of the 1995 Oklahoma City bombing found that at 6 months after the bombing, 38 percent of their sample was experiencing new-episode major depression, while 7 years after the disaster, nearly three-quarters (73 percent) of people with this mental disorder were in full remission (North, Pfefferbaum, Kawasaki, Lee, & Spitznagel, 2011). Remission was associated with more years of education, but not with comorbid PTSD, gender, ethnicity, age, or pre-disaster psychiatric history (North et al., 2011).

INDIVIDUALS WITH POST-DISASTER PTSD

In the study of survivors of the great Midwestern floods, investigators found flood-related PTSD in 22 percent of survivors in diagnostic interviews 4 months after the disaster (North, Kawasaki, Spitznagel, & Hong, 2004). One year later, they found that 16 percent of their sample still had flood-related PTSD. In a review of data on 811 survivors of 10 disasters (including both natural and human-caused disasters), researchers found that one-fifth of survivors experienced disaster-related PTSD (North et al., 2012).

In the study of Midwestern flood survivors, researchers found that before the disaster, 12 percent of their sample had experienced PTSD, while 4 months after the disaster, the percentage had nearly doubled (including individuals with PTSD associated with the floods as well as individuals with PTSD associated with other events). At 1-year follow-up, the percentage of individuals with PTSD had dropped back to 19 percent (North et al., 2004).

In the study of survivors of the 1995 Oklahoma City bombing, North et al. also found that at 7 years post-disaster, only 37 percent of survivors with disaster-related PTSD at 6 months were in full remission (in contrast to the 73 percent of survivors in full remission from disaster-related major depression) (2011).

POST-DISASTER MENTAL HEALTH SERVICE USE

Survivors of the 1995 Oklahoma City bombing were queried 7 years after the disaster to understand their mental health service use (Tucker, Pfefferbaum, Jeon-Slaughter, Garton, & North, 2014). The researchers found that most survivors with and without SMI took part in mental health interventions within the 7 years after the bombing, but few were still receiving mental health services at 7 years post-disaster. Most survivors with post-disaster major depression (95 percent) and PTSD linked to the bombing (98 percent) received mental health services of some variety. Within the first weeks after the bombing, survivors used informal interventions, including debriefings, support groups, and counseling from clergy, with more formal treatment use later. Forty-eight percent of survivors with major depression received treatment from psychiatrists, as did half of survivors with bombing-related PTSD, and only 15 percent reported taking psychotropic medications for bombing-related mental illness within the 7 years after the bombing. The researchers point out that these numbers may indicate that survivors with major depression and bombing-related PTSD were underserved, as both major depression and PTSD can be debilitating and may require medication as well as therapy. Seventy-nine percent of individuals with bombing-related PTSD and individuals with post-disaster major depression were treated by non-psychiatric mental health professionals (Tucker et al., 2014).

COMORBIDITIES

In particular, studies have found post-disaster comorbidity of PTSD and major depression. Two studies found that those with major depression after a disaster were more likely than those without the disorder to have post-disaster PTSD (North, Baron, & Chen, 2018; Lowe & Galea, 2015). In addition, in the study of survivors of the great Midwestern floods, researchers found that 51 percent of people with flood-related PTSD, but only 12 percent

of those without flood-related PTSD, were diagnosed with major depression after the flood, with the difference between these percentages reaching statistical significance (North et al., 2004). Researchers also found, through assessments at 4 months and 16 months after the disaster, that those with both PTSD and major depression 4 months after the disaster were more likely to still have PTSD at the 16-month follow-up (North et al., 2004). Bonanno, Brewin, Kaniasty, and La Greca also note that it is typical for PTSD to be comorbid with depression (2010).

Some evidence suggests that comorbidity may be more common among individuals with disaster-related PTSD than individuals with any other mental illness. North et al. found that 60 percent of individuals in their sample with flood-related PTSD had another mental illness, but 20 percent of individuals without flood-related PTSD had another mental illness after the disaster (2004).

RISK AND PROTECTIVE FACTORS

Several studies have identified SMI or psychiatric disability itself as a risk factor for post-disaster mental health issues and conditions (Ahern & Galea, 2006; Galea et al., 2002; Norris, Friedman & Watson, 2002; Waters, 2002; as cited in Hardiman & Jaffee, 2008). In a study of people directly affected by an earthquake in Spain as well as people in the same region who were less directly affected, researchers found that the two major predictors for developing a mental disorder in the 12 months after the earthquake were prior mental disorder and level of exposure (Navarro-Mateu et al., 2017). On the other hand, not all pre-disaster SMI may be a risk factor for post-disaster SMI. Many researchers have found that schizophrenia and other psychotic disorders do not place individuals at greater risk for further psychopathology after a disaster—although mood and anxiety disorders do (Katz et al., 2002).

Risk Factors

POST-DISASTER MAJOR DEPRESSION

One major risk factor for post-disaster major depression seems to be major depression before the disaster. North, Baron, and Chen combined data from 11 studies to find out more about major depression after a disaster. They found that post-disaster major depression was independently associated with pre-disaster major depression, as well as indirect exposure to disaster trauma through family and friends, and disaster-related PTSD. They write that “only 2%–7% of survivors who were negative on all 3 of these variables developed postdisaster major depression, but 80%–94% of survivors with positives on all three of these variables developed postdisaster major depression” (North, Baron, & Chen, 2018, p. 100). They also found major depression to be associated with terrorism. In a study using data from survivors of 10 disasters, researchers found that more than half of individuals with post-disaster major depression had major depression before the disaster (North et al., 2012).

POST-DISASTER PTSD

In a study of more than 800 directly exposed survivors of 10 disasters, researchers found that individuals were more likely to develop disaster-related PTSD if they were female, younger, Hispanic, less educated, or ever married; if they had been injured or witnessed injury or death in the disaster; and if they had pre-disaster psychopathology (North et al., 2012). The researchers found that three-fourths of cases of disaster-related PTSD were new cases of PTSD (occurring in individuals who did not have PTSD prior to the disaster, though they did have other types of psychopathology). In a study of survivors of the Oklahoma City bombing (1995), researchers

found that, 7 years after the bombing, individuals with PTSD who had experienced more adverse life events after the disaster were more likely to still have PTSD than those who had experienced fewer adverse life events (North et al., 2011). This finding suggests that adverse life events may be a risk factor for non-remission of PTSD in individuals with the disorder, rather than a risk factor for development of post-disaster PTSD.

Protective Factors

In a small literature review (exclusion criteria limited it to 12 studies examined), researchers found that when individuals with SMI were in assertive community treatment (ACT) programs, the vast majority did not require psychiatric hospitalization after the disaster if they were able to continue receiving treatment after the disaster (Person & Fuller, 2007). Another study found positive impacts on individuals with SMI in an ACT program following a Canadian ice storm; the program continued care provision through the disaster and its immediate aftermath (McMurray & Steiner, 2000).

Among adults, Goldmann and Galea report, older age may be a protective factor in relation to major depression (2014). It may also be a protective factor in relation to post-disaster PTSD, though this finding is not consistent (Goldmann & Galea, 2014).

INTERVENTIONS AND APPROACHES TO WHOLE-COMMUNITY DISASTER BEHAVIORAL HEALTH

Public Health, Whole-community Approaches

In a report, the Institute of Medicine (IOM) recommends a tiered approach to supporting whole disaster-affected communities, including individuals with SMI, as a way to use limited resources wisely to allow for optimal mental health— and substance use—related outcomes for the entire community. “A three-tiered public health approach that offers multiple intervention strategies at different post-disaster time points will ensure that survivors receive services based upon their disaster experience and current needs,” report authors write. “With a tiered approach, triage and assessment strategies are needed to determine the appropriate level of care in each case and to target interventions to priority groups (Pynoos et al., 2007)” (IOM, 2015). In the model proposed in the report, Tier 1 comprises universal interventions, such as psycho-education, outreach, public health messaging, and Psychological First Aid, to meet the needs of individuals at lowest risk of post-disaster mental illness. Tier 2 includes short-term/grief-focused interventions, such as Cognitive Behavioral Intervention for Trauma in Schools, and Skills for Psychological Recovery. At Tier 3 are the intensive interventions, such as psychiatric services and long-term treatment, most likely indicated for individuals with SMI that they experienced before the disaster or that began after the disaster. An example of an intervention at this level is trauma-focused cognitive-behavioral therapy.

Psychological and Psychiatric Therapy and Interventions for Individuals With SMI

In an international study, a research team reviewed the effectiveness of psychological therapies for individuals with mental disorders, including some with SMI, who were living in humanitarian settings in low- and middle-income countries (Purgato et al., 2018). They included only randomized controlled trials (RCTs) in which a group in treatment was compared with a control group. The review included 36 studies involving 33 RCTs with 3,523 participants. The studies examined a variety of therapies, primarily within the cognitive-behavioral therapy category. They found some evidence that psychological therapies in general have large or moderate effects in

reducing PTSD, as well as depressive and anxiety symptoms in adults. Treatment effects diminished at follow-ups at 1 month to 4 months and at 6 months, suggesting the need for ongoing therapy (Purgato et al., 2018).

Some research has also found that particular interventions have proven effective with individuals with SMI after disasters. For example, in an article about Project Liberty, a crisis counseling program established after the September 11, 2001, terrorist attacks, the authors describe the Project Liberty Peer Initiative (PLPI), a component of the larger effort that involved people with psychiatric disabilities providing peer support services for others with psychiatric disabilities (Hardiman & Jaffee, 2008). Based on interviews with PLPI staff and service recipients, the authors identify outreach as an important strategy for identifying and connecting with individuals with psychiatric disabilities in need of support after disasters.

Also in support of the importance of outreach, in a paper about Hurricane Katrina survivors, the researchers note that, among people with SMI who thought they needed mental health care but did not receive it, 86 percent said they did not due to a lack of what the researchers called “enabling factors” (such as availability of services, financial means, and access to transportation). The researchers note that this finding suggests the importance of outreach to increase access to care among individuals with SMI (Wang et al., 2007). The researchers also suggest stationing emergency mental health units in hard-hit areas and using telehealth and other remote service delivery options. In addition, they note that programs could be implemented like the Medicaid waiver programs after the World Trade Center disaster and by 17 states for Katrina survivors to help people in need to afford treatments (Wang et al., 2007).

CONCLUSION

Individuals with SMI face challenges at all times, and their vulnerability is heightened in the event of a disaster, when the whole community’s resources are constrained. Some research suggests that individuals with SMI may be less prepared than others for disasters, although it is important to note that Americans in general are not well prepared for disasters. In general, research suggests that schizophrenia and bipolar disorder do not have onsets linked to disasters, whereas PTSD and major depression do. Individuals with schizophrenia or bipolar disorder may have more difficulty in coping after a disaster than people without a diagnosis of mental illness. Some studies have found increases in hospitalizations for schizophrenia in some disaster-affected communities, though evidence is mixed.

PTSD is the most common post-disaster diagnosis across research in disaster behavioral health. Major depression is often the second most common post-disaster diagnosis, and remission over time is common. Many studies have found post-disaster comorbidity of PTSD and major depression.

Many studies have found that mood and anxiety disorders are risk factors for post-disaster psychopathology, but schizophrenia and other psychotic disorders are not. Risk factors for post-disaster major depression include pre-disaster major depression and disaster-related PTSD. Risk factors for disaster-related PTSD include female gender, younger age, Hispanic ethnicity, fewer years of education, and having been married, as well as experiencing more adverse life events after the disaster. Protective factors include continuity of care for individuals in ACT programs, suggesting that ongoing treatment may be a protective factor for individuals in other programs as well.

Public health, whole-community approaches may be particularly effective for identifying and ensuring care for individuals with SMI after disasters. Outreach also shows promise, though more research is needed on individuals with SMI after disasters.

REFERENCES

- Ahern, J., & Galea, S. (2006). Social context and depression after a disaster: The role of income inequality. *Journal of Epidemiology and Community Health, 60*(9), 766–770.
- “Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) Reorganization Act” (Public Law 102-321, 10 July 1992).
- American Psychiatric Association. (n.d.). *DSM history*. Retrieved from <https://www.psychiatry.org/psychiatrists/practice/dsm/history-of-the-dsm>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.
- Anakwenze, U., & Zuberi, D. (2013). Mental health and poverty in the inner city. *Health & Social Work, 38*(3), 147–157.
- Aoki, A., Aoki, Y., & Harima, H. (2012). The impact of the Great East Japan earthquake on mandatory psychiatric emergency hospitalizations in Tokyo: A retrospective observational study. *Translational Psychiatry, 2*, e168. <https://doi.org/10.1038/tp.2012.98>
- Bahorik, A. L., Satre, D. D., Kline-Simon, A. H., Weisner, C. M., & Campbell, C. I. (2017). Serious mental illness and medical comorbidities: Findings from an integrated health care system. *Journal of Psychosomatic Research, 100*, 35–45. <https://doi.org/10.1016/j.jpsychores.2017.07.004>
- Bartels, S. J., & DiMilia, P. (2017, March 16). Why serious mental illness should be designated a health disparity and the paradox of ethnicity. *The Lancet Psychiatry, 4*(5), 351–352. [https://doi.org/10.1016/S2215-0366\(17\)30111-6](https://doi.org/10.1016/S2215-0366(17)30111-6)
- Beaglehole, B., Bell, C., Beveridge, J., & Frampton, C. (2015, April). Psychiatric admissions fall following Christchurch earthquakes: An audit of inpatient data. *Australian & New Zealand Journal of Psychiatry, 49*(4), 346–350. <https://doi.org/10.1177/0004867414560651>
- Bonanno, G. A., Brewin, C. R., Kaniasty, K., & La Greca, A. M. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest, 11*(1), 1–49. <https://doi.org/10.1177/1529100610387086>
- Burkle, Jr., F. M. (1996). Acute-phase mental health consequences of disasters: Implications for triage and emergency medical services. *Annals of Emergency Medicine, 28*(2), 119–128. [https://doi.org/10.1016/S0196-0644\(96\)70051-3](https://doi.org/10.1016/S0196-0644(96)70051-3)
- Centers for Medicare and Medicaid Services (CMS) Medicare and Medicaid Programs; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers; Final Rule. 81 Fed. Reg. 63860 (Sep. 16, 2016) (to be codified at 42 C.F.R. pts. 403, 416, 418, et al.).
- De Hert, M., Correll, C. U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D., Asai, I., . . . Leucht, S. (2011). Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry, 10*(1), 52–77.
- Eisenman, D., Zhou, Q., Ong, M., Asch, S., Glik, D., & Long, A. (2009, March). Variations in disaster preparedness by mental health, perceived general health, and disability status. *Disaster Medicine and Public Health Preparedness, 3*(1), 33–41. <https://doi.org/10.1097/DMP.0b013e318193be89>
- Federal Emergency Management Agency. (2014, August). *Preparedness in America: Research insights to increase individual, organizational, and community action*. Retrieved from https://www.fema.gov/media-library-data/1409000888026-1e8abc820153a6c8cde24ce42c16e857/20140825_Preparedness_in_America_August_2014_Update_508.pdf
- Gabrielian, S., Hamilton, A. B., Gelberg, L., Koosis, E. R., Johnson, A., & Young, A. S. (2019). Identifying social skills that support housing attainment and retention among homeless persons with serious mental illness. *Psychiatric Services, 70*(5), 374–380. <https://doi.org/10.1176/appi.ps.201800508>
- Galea, S., Ahern, J., Resnick, H., Kilpatrick, D., Bucuvalas, M., Gold, J., & Vlahov, D. (2002). The psychological sequelae of the September 11th terrorist attacks in New York City. *New England Journal of Medicine, 346*(13), 982–987.
- Goldmann, E., & Galea, S. (2014). Mental health consequences of disasters. *Annual Review of Public Health, 35*, 169–183. <https://doi.org/10.1146/annurev-publhealth-032013-182435>

- Gradus, J. L., Marx, B. P., & Sloan, D. M. (2016, June). Investigating the aftermath of terror: Fundamental outcomes, methodological choices, and future directions [Editorial comment]. *Psychosomatic Medicine*, 78(5), 522–524. <https://doi.org/10.1097/PSY.0000000000000330>
- Hardiman, E. R., & Jaffee, E. M. (2008). Outreach and peer-delivered mental health services in New York City following September 11, 2001. *Psychiatric Rehabilitation Journal*, 32(2), 117–123. <https://doi.org/10.2975/32.2.2008.117.123>
- Horan, W. P., Ventura, J., Mintz, J., Kopelowicz, A., Wirshing, D., Christian-Herman, J., . . . Liberman, R. P. (2007). Stress and coping responses to a natural disaster in people with schizophrenia. *Psychiatry Research*, 151(1–2), 77–86. <https://doi.org/10.1016/j.psychres.2006.10.009>
- Institute of Medicine (IOM). (2015). *Healthy, resilient, and sustainable communities after disasters: Strategies, opportunities, and planning for recovery*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/18996>
- Katz, C. L., Pellegrino, L., Pandya, A., Ng, A., & DeLisi, L. E. (2002). Research on psychiatric outcomes and interventions subsequent to disasters: A review of the literature. *Psychiatry Research*, 110(3), 201–217.
- Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., Chatterji, S., Lee, S., Ormel, J., Ustün, T. B., . . . Wang, P. S. (2009). The global burden of mental disorders: An update from the WHO World Mental Health (WMH) surveys. *Epidemiologia e psichiatria sociale*, 18(1), 23–33. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3039289/pdf/nihms264248.pdf>
- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005, June). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 617–627. <https://doi.org/10.1001/archpsyc.62.6.617>
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, 52(12), 1048–1060.
- Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *Journal of Traumatic Stress*, 26(5), 537–547.
- Lowe, S. R., & Galea, S. (2015). The mental health consequences of mass shootings. *Trauma, Violence, & Abuse*, 18(1), 62–82. <https://doi.org/10.1177/1524838015591572>
- Maes, M., Mylle, J., Delmeire, L., & Altamura, C. (2000). Psychiatric morbidity and comorbidity following accidental man-made traumatic events: Incidence and risk factors. *European Archives of Psychiatry and Clinical Neuroscience*, 250, 156–162. <https://doi.org/10.1007/s004060070034>
- McCall-Hosenfeld, J. S., Mukherjee, S., & Lehman, E. B. (2014). The prevalence and correlates of lifetime psychiatric disorders and trauma exposures in urban and rural settings: Results from the National Comorbidity Survey Replication (NCS-R). *PLoS One*, 9(11), e112416. <https://doi.org/10.1371/journal.pone.0112416>
- McMurray, L., & Steiner, W. (2000, May). Natural disasters and service delivery to individuals with severe mental illness—ice storm 1998. *Canadian Journal of Psychiatry*, 45(4), 383–385. <https://doi.org/10.1177/070674370004500408>
- Morris, M. C., Evans, L. D., Rao, U., & Garber, J. (2014). Executive function moderates the relation between coping and depressive symptoms. *Anxiety, Stress, and Coping*, 28(1), 31–49. <https://doi.org/10.1080/10615806.2014.925545>
- National Academies of Sciences, Engineering, and Medicine. (2019). *Improving care to prevent suicide among people with serious mental illness: Proceedings of a workshop*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25318>
- National Oceanic and Atmospheric Administration, National Centers for Environmental Information. (2019). U.S. billion-dollar weather and climate disasters. Retrieved from <https://www.ncdc.noaa.gov/billions>
- Navarro-Mateu, F., Salmerón, D., Vilagut, G., Tormo, M. J., Ruíz-Merino, G., Escámez, T., . . . Kessler, R. C. (2017). Post-traumatic stress disorder and other mental disorders in the general population after Lorca's earthquakes, 2011 (Murcia, Spain): A cross-sectional study. *PLoS One*, 12(7), e0179690. <https://doi.org/10.1371/journal.pone.0179690>
- Norris, F. H., Friedman, M. J., & Watson, P. J. (2002). 60,000 disaster victims speak: Part II. Summary and implications of the disaster mental health research. *Psychiatry*, 65(3), 240–260.

- Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981–2001. *Psychiatry*, *65*(3), 207–239.
- North, C. S. (2016). Disaster mental health epidemiology: Methodological review and interpretation of research findings. *Psychiatry*, *79*(2), 130–146. <https://doi.org/10.1080/00332747.2016.1155926>
- North, C. S., Baron, D., & Chen, A. F. (2018). Prevalence and predictors of postdisaster major depression: Convergence of evidence from 11 disaster studies using consistent methods. *Journal of Psychiatric Research*, *102*, 96–101. <https://doi.org/10.1016/j.jpsychires.2017.12.013>
- North, C. S., Kawasaki, A., Spitznagel, E. L., & Hong, B. A. (2004, December). The course of PTSD, major depression, substance abuse, and somatization after a natural disaster. *The Journal of Nervous and Mental Disease*, *192*(12), 823–829.
- North, C. S., Oliver, J., & Pandya, A. (2012, October). Examining a comprehensive model of disaster-related posttraumatic stress disorder in systematically studied survivors of 10 disasters. *American Journal of Public Health*, *102*(10), e40–e48. <https://doi.org/10.2105/AJPH.2012.300689>
- North, C. S., Pfefferbaum, B., Kawasaki, A., Lee, S., & Spitznagel, E. L. (2011). Psychosocial adjustment of directly exposed survivors 7 years after the Oklahoma City bombing. *Comprehensive Psychiatry*, *52*(1), 1–8. <https://doi.org/10.1097/01.nmd.0000146911.52616.22>
- Office of the Assistant Secretary for Preparedness and Response. (2018, December 2). *Emergency preparedness requirements for Medicare and Medicaid participating providers and suppliers*. Retrieved from <https://asprtracie.hhs.gov/cmsrule>
- Olfson, M., Gerhard, T., Huang, C., Crystal, S., & Stroup, T. S. (2015). Premature mortality among adults with schizophrenia in the United States. *JAMA Psychiatry*, *72*(12), 1172–1181. <https://doi.org/10.1001/jamapsychiatry.2015.1737>
- Person, C., & Fuller, E. J. (2007). Disaster care for persons with psychiatric disabilities. *Journal of Disability Policy Studies*, *17*(4), 238–248.
- Petkova, E., Schlegelmilch, J., Sury, J., Chandler, T., Herrera, C., Bhaskar, S., . . . Redlener, I. (2016). *The American Preparedness Project: Where the US public stands in 2015* (Research Brief 2016_2). National Center for Disaster Preparedness at Columbia University's Earth Institute. <https://doi.org/10.7916/D84Q7TZN>
- Pollack, M. H., Simon, N. M., Fagiolini, A., Pitman, R., McNally, R. J., Nierenberg, A. A., . . . Otto, M. W. (2006). Persistent posttraumatic stress disorder following September 11 in patients with bipolar disorder. *Journal of Clinical Psychiatry*, *67*(3), 394–399.
- Prins, S. J. (2011). Does transinstitutionalization explain the overrepresentation of people with serious mental illnesses in the criminal justice system? *Community Mental Health Journal*, *47*, 716–722. <https://doi.org/10.1007/s10597-011-9420-y>
- Purgato, M., Gastaldon, C., Papola, D., van Ommeren, M., Barbui, C., & Tol, W. A. (2018). Psychological therapies for the treatment of mental disorders in low- and middle-income countries affected by humanitarian crises. *Cochrane Database of Systematic Reviews*, *7*, Art. No.: CD011849. <https://doi.org/10.1002/14651858.CD011849.pub2>
- Pynoos, R. S., Steinberg, A. M., & Brymer, M. J. (2007). Children and disasters: Public mental health approaches. In R. J. Ursano, C. S. Fullerton, L. Weisaeth, & B. Raphael (Eds.), *Textbook of disaster psychiatry* (pp. 48–68). Cambridge, MA: Cambridge University Press.
- Robertson, A. G., Easter, M. M., Lin, H., Frisman, L. K., Swanson, J. W., & Swartz, M. S. (2018). Medication-assisted treatment for alcohol-dependent adults with serious mental illness and criminal justice involvement: Effects on treatment utilization and outcomes. *The American Journal of Psychiatry*, *175*(7), 665–673. <https://doi.org/10.1176/appi.ajp.2018.17060688>
- Robins, L. N., Fishbach, R. L., Smith, E. M., Cottler, L. B., Solomon, S. D., & Goldring, E. (1986). Impact of disaster on previously assessed mental health. In J. H. Shore (Ed.), *Disaster stress studies: New methods and findings* (pp. 22–48). Washington, DC: American Psychiatric Association.
- Smith, E. M., Robins, L. N., Przybeck, T. R., Goldring, E., & Solomon, S. D. (1986). Psychosocial consequences of a disaster. In J. H. Shore (Ed.), *Disaster stress studies: New methods and findings* (pp. 49–76). Washington, DC: American Psychiatric Association.

- Strand, L. B., Mukamal, K. J., Halasz, J. Vatten, L. J., & Janszky, I. (2016, June). Short-term public health impact of the July 22, 2011, terrorist attacks in Norway: A nationwide register-based study. *Psychosomatic Medicine*, 78(5), 525–531. <https://doi.org/10.1097/PSY.0000000000000323>
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2018). *Key substance use and mental health indicators in the United States: Results from the 2017 National Survey on Drug Use and Health* (HHS Publication No. SMA 18-5068, NSDUH Series H-53). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/report/2017-nsduh-annual-national-report>
- SAMHSA, Center for Behavioral Health Statistics and Quality. (2018, September 7). *Results from the 2017 National Survey on Drug Use and Health: Detailed tables*. Retrieved from <https://www.samhsa.gov/data/report/2017-nsduh-detailed-tables>
- SAMHSA, Center for Mental Health Services. (1993, May 20). Final notice. *Federal Register*, 58(96), 29422. Retrieved from <https://www.govinfo.gov/app/collection/fr/1993/05/20>
- Tucker, P., Pfefferbaum, B., Jeon-Slaughter, H., Garton, T. S., & North, C. S. (2014, April). Extended mental health service utilization among survivors of the Oklahoma City bombing. *Psychiatric Services*, 65(4), 559–562. <https://doi.org/10.1176/appi.ps.201200579>
- Walker, E. R., McGee, R. E., & Druss, B. G. (2015). Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA Psychiatry*, 72, 334–341.
- Wang, P. S., Gruber, M. J., Powers, R. E., Schoenbaum, M., Speier, A. H., Wells, K. B., & Kessler, R. C. (2007, November). Mental health service use among Hurricane Katrina survivors in the eight months after the disaster. *Psychiatric Services*, 58(11), 1403–1411.
- Waters, J. A. (2002). Moving forward from September 11: A stress/crisis/trauma response model. *Brief Treatment and Crisis Intervention*, 2(1), 55–74.



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