

## CONVERGE Disaster Mental Health Annotated Bibliography

This annotated bibliography includes resources focused on disaster mental health. This bibliography is meant to support those interested in learning more about the mental health implications associated with hazards and disasters and to complement the CONVERGE Disaster Mental Health Training Module. These references were compiled through searching Web of Science and Google Scholar databases. If you identify missing references, please send them to [converge@colorado.edu](mailto:converge@colorado.edu) and we will add them to the list.

### Citation

Abramson, D., Stehling-Ariza, T., Garfield, R., & Redlener, I. (2008). Prevalence and predictors of mental health distress post-Katrina: Findings from the Gulf Coast Child and Family Health Study. *Disaster Medicine and Public Health Preparedness*, 2(2), 77-86. <http://dx.doi.org.colorado.idm.oclc.org/10.1097/DMP.0b013e318173a8e7>

### Abstract

Catastrophic disasters often are associated with massive structural, economic, and population devastation; less understood are the long-term mental health consequences. This study measures the prevalence and predictors of mental health distress and disability of hurricane survivors over an extended period of recovery in a postdisaster setting. A representative sample of 1077 displaced or greatly affected households was drawn in 2006 using a stratified cluster sampling of federally subsidized emergency housing settings in Louisiana and Mississippi, and of Mississippi census tracts designated as having experienced major damage from Hurricane Katrina in 2005. Two rounds of data collection were conducted: a baseline face-to-face interview at 6 to 12 months post-Katrina, and a telephone follow-up at 20 to 23 months after the disaster. Mental health disability was measured using the Medical Outcome Study Short Form 12, version 2 mental component summary score. Bivariate and multivariate analyses were conducted examining socioeconomic, demographic, situational, and attitudinal factors associated with mental health distress and disability. Results: More than half of the cohort at both baseline and follow-up reported significant mental health distress. Self-reported poor health and safety concerns were persistently associated with poorer mental health. Nearly 2 years after the disaster, the greatest predictors of poor mental health included situational characteristics such as greater numbers of children in a household and attitudinal characteristics such as fatalistic sentiments and poor self-efficacy. Informal social support networks were associated significantly with better mental health status. Housing and economic circumstances were not independently associated with poorer mental health. Conclusions: Mental health distress and disability are pervasive issues among the US Gulf Coast adults and children who experienced long-term displacement or other serious effects as a result of Hurricanes Katrina and Rita. As time progresses postdisaster, social and psychological factors may play greater roles in accelerating or impeding

recovery among affected populations. Efforts to expand disaster recovery and preparedness policies to include long-term social re-engagement efforts postdisaster should be considered as a means of reducing mental health sequelae.

### Citation

Adams, R. E., & Boscarino, J. A. (2006). Predictors of PTSD and delayed PTSD after disaster: The impact of exposure and psychosocial resources. *The Journal of Nervous and Mental Disease, 194*(7), 485-493. <https://dx.doi.org/10.1097%2F01.nmd.0000228503.95503.e9>

### Abstract

In the present study we sought to identify factors associated with posttraumatic stress disorder (PTSD) following the World Trade Center Disaster (WTCD) and examine changes in PTSD status over time. Our data come from a two-wave, prospective cohort study of New York City adults who were living in the city on September 11, 2001. We conducted a baseline survey 1 year after the attacks (year 1), followed by a survey 1 year later (year 2). Overall, 2368 individuals completed the year 1 survey, and 1681 were interviewed at year 2. Analyses for year 1 indicated that being younger, being female, experiencing more WTCD events, reporting more traumatic events other than the WTCD, experiencing more negative life events, having low social support, and having low self-esteem increased the likelihood of PTSD. For year 2, being middle-aged, being Latino, experiencing more negative life events and traumas since the WTCD, and having low self-esteem increased the likelihood of PTSD. Exposure to WTCD events was not related to year 2 PTSD once other factors were controlled. Following previous research, we divided study respondents into four categories: resilient cases (no PTSD years 1 or 2), remitted cases (PTSD year 1 but not year 2), delayed cases (no PTSD year 1 but PTSD year 2), and acute cases (PTSD both years 1 and 2). Factors predicting changes in PTSD between year 1 and year 2 suggested that delayed PTSD cases were more likely to have been Latino, to have experienced more negative life events, and to have had a decline in self-esteem. In contrast, remitted cases experienced fewer negative life events and had an increase in self-esteem. We discuss these findings in light of the psychosocial context associated with community disasters and traumatic stress exposures.

### Citation

Alexander, D. A., & Klein, S. (2001). Ambulance personnel and critical incidents: Impact of accident and emergency work on mental health and emotional well-being. *The British Journal of Psychiatry, 178*(1), 76-81. <https://doi.org/10.1192/bjp.178.1.76>

### Abstract

Background: The association between mental health and occupational factors among ambulance personnel has not been thoroughly investigated in the UK. Aims: To identify the prevalence of psychopathology among ambulance personnel and its relationship to personality and exposure to critical incidents. Method: Data were gathered from ambulance personnel by means of an anonymous questionnaire and standardised measures. Results: Approximately a third of the sample reported high levels of general psychopathology, burnout and posttraumatic symptoms. Burnout was associated with less job satisfaction, longer time in service, less recovery time between incidents, and more frequent exposure to incidents. Burnout and GHQ-28 caseness were more likely in those who had experienced a particularly disturbing incident in the previous 6 months.



Concerns about confidentiality and career prospects deter staff from seeking personal help. Conclusions: The mental health and emotional well-being of ambulance personnel appear to be compromised by accident and emergency work.

### Citation

Alexander, D. A., & Wells, A. (1991). Reactions of police officers to body-handling after a major disaster a before-and-after comparison. *The British Journal of Psychiatry*, 159(4), 547-555. <https://doi.org/10.1192/bjp.159.4.547>

### Abstract

This study reports the results of an unusual opportunity to follow up a group of police officers who were involved in body-handling duties following the Piper Alpha disaster, and for whom there were available data from pre-disaster assessments. In addition, after these duties, the officers were compared with a matched control group of officers who had not been involved in such work. The comparisons failed to demonstrate high levels of post-traumatic distress or psychiatric morbidity. The results are interpreted in terms of issues such as the officers' own coping strategies, and major organizational and managerial factors.

### Citation

Arble, E., & Arnetz, B. B. (2017). A model of first-responder coping: An approach/avoidance bifurcation. *Stress and Health*, 33(3), 223-232. <https://doi.org/10.1002/smi.2692>

### Abstract

The work of first responders is fraught with numerous stressors, ranging from potentially traumatic critical incidents to institutional strains. The severity and pervasiveness of these difficulties prompt a necessary consideration of the coping methods employed by first responders. The present study developed an empirical model of first-responder coping strategies, based upon a nationally representative survey sample of 6240 first responders. Participants were drawn from Swedish first responders in the following occupations: coast guard, customs control, military, emergency medical services, fire department and police services. In the final model, exposure to stress related to well-being through several indirect paths that in sum accounted for the original direct relationship between these constructs. These several indirect paths were classified theoretically as either approach or avoidance coping behaviours or subsequent health outcomes. In general, approach coping behaviours were related to better well-being; and avoidance was related to a decrease in the outcome. The size of the present sample, as well as the diverse nature of the included first responders, suggests that the resulting model may offer a unique insight into potentially adaptive pathways for first-responder coping.

### Citation

Aten, J. D., Topping, S., Denney, R. M., & Hosey, J. M. (2011). Helping African American clergy and churches address minority disaster mental health disparities: Training needs, model, and example. *Psychology of Religion and Spirituality*, 3(1), 15-23. <https://doi.org/10.1037/a0020497>



## Abstract

Using an action participatory research approach, the authors conducted qualitative interviews with 41 African American clergy 1 year after Hurricane Katrina in severely affected areas of south Mississippi. These interviews revealed how mental health professionals can work with African American clergy and their churches by providing training that targets minority disaster mental health disparities. A 3-tier training model for equipping African American clergy and churches to respond to disasters in hopes of reducing minority disaster mental health disparities is offered. Identified training needs and suggested training delivery formats are discussed. A sample outreach and educational training project designed to equip African American clergy and churches in their response to minority disaster mental health disparities is also highlighted.

## Citation

Azofeifa, A., Stroup, D. F., Lyerla, R., Largo, T., Gabella, B. A., Smith, C. K., Truman, B. I., Brewer, R. D., & Brener, N. D. (2018). Evaluating behavioral health surveillance systems. *Preventing Chronic Disease, 15*, E53-E53. <http://dx.doi.org/10.5888/pcd15.170459>

## Abstract

In 2015, more than 27 million people in the United States reported that they currently used illicit drugs or misused prescription drugs, and more than 66 million reported binge drinking during the previous month. Data from public health surveillance systems on drug and alcohol abuse are crucial for developing and evaluating interventions to prevent and control such behavior. However, public health surveillance for behavioral health in the United States has been hindered by organizational issues and other factors. For example, existing guidelines for surveillance evaluation do not distinguish between data systems that characterize behavioral health problems and those that assess other public health problems (e.g., infectious diseases). To address this gap in behavioral health surveillance, we present a revised framework for evaluating behavioral health surveillance systems. This system framework builds on published frameworks and incorporates additional attributes (informatics capabilities and population coverage) that we deemed necessary for evaluating behavioral health–related surveillance. This revised surveillance evaluation framework can support ongoing improvements to behavioral health surveillance systems and ensure their continued usefulness for detecting, preventing, and managing behavioral health problems.

## Citation

Baum, A., Fleming, R., & Davidson, L. M. (1983). Natural disaster and technological catastrophe. *Environment and Behavior, 15*(3), 333-354. <https://doi.org/10.1177/0013916583153004>

## Abstract

Against the backdrop of ever-expanding technological systems, the effects of accidents or breakdowns in human-made technology are examined and contrasted with those of natural disasters. A number of differences are identified, and research on these forms of cataclysmic events is reviewed. These data, as well as this analysis, suggest that technological catastrophes are more likely to have long-term effects, to affect people beyond the point of impact, and to pose different types of threat than are natural disasters.



## Citation

Baum, A., Gatchel, R. J., & Schaeffer, M. A. (1983). Emotional, behavioral, and physiological effects of chronic stress at Three Mile Island. *Journal of Consulting and Clinical Psychology, 51*(4), 565-572. <https://doi.org/10.1037/0022-006X.51.4.565>

## Abstract

38 Three Mile Island (TMI) residents (mean age 33.3 yrs) were compared with 32 people (mean age 35.8 yrs) living near an undamaged nuclear power plant, 24 people (mean age 34.1 yrs) living near a traditional coal-fired power plant, and 27 people (mean age 30.9 yrs) living in an area more than 20 miles from any power plant. A number of self-report measures of psychological stress were evaluated by administering the Symptom Checklist-90 and the Beck Depression Inventory more than 1 yr after the nuclear accident. Two behavioral measures of stress were obtained: performances on a proofreading task and an embedded-figures task. Urinary catecholamine levels were assayed to examine chronic stress-related sympathetic arousal. Results indicate that Ss in the TMI area exhibited more symptoms of stress more than 1 yr after the nuclear accident than did Ss living under different circumstances. Although the intensity of these problems appears to be subclinical, the persistence of stress may be cause for some concern.

## Citation

Başoğlu, M., Şalcıoğlu, E., Livanou, M., Kalender, D., & Acar, G. (2005). Single-session behavioral treatment of earthquake-related posttraumatic stress disorder: A randomized waiting list controlled trial. *Journal of Traumatic Stress, 18*(1), 1-11. <https://doi.org/10.1002/jts.20011>

## Abstract

In an attempt to develop a brief treatment for disaster survivors, the present study examined the effectiveness of a single session of modified behavioral treatment in earthquake-related posttraumatic stress disorder. Fifty-nine earthquake survivors in Turkey were randomized into either single-session modified behavioral treatment (SSBT) designed to enhance sense of control over earthquake-related fears or waiting list control condition (WL). The WL group received SSBT after a second baseline assessment. Follow-ups were at weeks 6, 12, 24, and at 1–2 years posttreatment. Significant treatment effects were found on all measures at posttreatment. The improvement rate was 49% at week 6; it rose to 80% by week 12, 85% by week 24, and 83% by the 1–2-year follow-up. Brief behavioral treatment has promise as a cost-effective intervention for disaster survivors.

## Citation

Beaglehole, B., Mulder, R. T., Frampton, C. M., Boden, J. M., Newton-Howes, G., & Bell, C. J. (2018). Psychological distress and psychiatric disorder after natural disasters: Systematic review and meta-analysis. *The British Journal of Psychiatry, 213*(6), 716-722. <https://doi.org/10.1192/bjp.2018.210>



## Abstract

**Background:** Natural disasters are increasing in frequency and severity. They cause widespread hardship and are associated with detrimental effects on mental health.

**Aims:** Our aim is to provide the best estimate of the effects of natural disasters on mental health through a systematic review and meta-analysis of the rates of psychological distress and psychiatric disorder after natural disasters.

**Method:** This systematic review and meta-analysis is limited to studies that met predetermined quality criteria. We required included studies to make comparisons with pre-disaster or non-disaster exposed controls, and sample representative populations. Key studies were identified through a comprehensive search of PubMed, EMBASE and PsycINFO from 1980 to 3 March 2017. Random effects meta-analyses were performed for studies that reported key outcomes with appropriate statistics.

**Results:** Forty-one studies were identified by the literature search, of which 27 contributed to the meta-analyses. Continuous measures of psychological distress were increased after natural disasters (combined standardised mean difference 0.63, 95% CI 0.27–0.98,  $P = 0.005$ ). Psychiatric disorders were also increased (combined odds ratio 1.84, 95% CI 1.43–2.38,  $P < 0.001$ ). Rates of post-traumatic stress disorder and depression were significantly increased after disasters. Findings for anxiety and alcohol misuse/dependence were not significant. High rates of heterogeneity suggest that disaster-specific factors and, to a lesser degree, methodological factors contribute to the variance between studies.

**Conclusions:** Increased rates of psychological distress and psychiatric disorders follow natural disasters. High levels of heterogeneity between studies suggest that disaster variables and post-disaster response have the potential to mitigate adverse effects.

## Citation

Bell, J.E., Herring, S.C., Jantarasami, L., Adrianopoli, C., Benedict, K., Conlon, K., Escobar, V., Hess, J., Luvall, J., Garcia-Pando, C. P., Quattrochi, D., Runkle, J., & Schreck, C.J. III (2016). Impacts of extreme events on human health. In A. Crimmins, J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, & L. Ziska (Eds.), *The impacts of climate change on human health in the United States: A scientific assessment* (pp. 99–128). U.S. Global Change Research Program Washington. <https://dx.doi.org/10.7930/J0BZ63ZV>

## Abstract

N/A

## Citation

Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour Research and Therapy*, 42(10), 1129-1148. <https://doi.org/10.1016/j.brat.2003.08.008>

## Abstract

The present article integrates findings from diverse studies on the generalized role of perceived coping self-efficacy in recovery from different types of traumatic experiences. They include natural disasters, technological catastrophes, terrorist attacks, military combat, and sexual and criminal assaults. The various





studies apply multiple controls for diverse sets of potential contributors to posttraumatic recovery. In these different multivariate analyses, perceived coping self-efficacy emerges as a focal mediator of posttraumatic recovery. Verification of its independent contribution to posttraumatic recovery across a wide range of traumas lends support to the centrality of the enabling and protective function of belief in one's capability to exercise some measure of control over traumatic adversity.

### Citation

Benight, C. C., McFarlane, A. C., & Norris, F. H. (2006). Formulating questions about post disaster mental health. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 62-77). Guilford Press.

### Abstract

Conducting scholarly research within the context of enormous humanitarian suffering is difficult, inspirational, and extremely complex. In this chapter, we focus on theories and models that may guide the formulation of useful and significant questions about the development and prevention of mental health problems in the aftermath of disaster. The chapter is divided into two sections. In the first and primary section, we describe how stress theories can guide research on postdisaster health and mental health. The theories reviewed here do not constitute an exhaustive set but are offered as an introduction to conceptual approaches. We also note the need for thinking temporally regardless of theoretical approach and briefly introduce selected analytic strategies that can help disaster researchers to test theoretical models. In the second section, we describe the potential for conducting theory-guided research on points of prevention and mitigation, focusing specifically on risk management.

### Citation

Berninger, A., Webber, M. P., Cohen, H. W., Gustave, J., Lee, R., Niles, J. K., Chiu, S., Zeig-Owens, R., Soo, J., Kelly, K., & Prezant, D. J. (2010). Trends of elevated PTSD risk in firefighters exposed to the World Trade Center disaster: 2001–2005. *Public Health Reports*, 125(4), 556-566. <https://doi.org/10.1177/003335491012500411>

### Abstract

*Objectives:* We identified trends in the prevalence of elevated posttraumatic stress disorder (PTSD) risk as determined by the Fire Department of the City of New York (FDNY)-modified PTSD Checklist in World Trade Center (WTC)-exposed firefighters. We also examined trends in relation to WTC exposure, social support, change in recreational activities, and functional health.

*Methods:* We analyzed 16,826 questionnaires from 10,074 firefighters in yearly intervals, from September 12, 2001, to September 11, 2005.

*Results:* The prevalence of elevated PTSD risk increased over time, from 9.8% in year 1 to 10.6% in year 4 ( $p < 0.0001$ ). Earliest arrival at the WTC site (odds ratio [OR] = 6.0; 95% confidence interval [CI] 4.4, 8.3), prolonged work at the site (OR=2.0; 95% CI 1.8, 2.3), providing supervision without previous supervisory experience (OR=4.1; 95% CI 2.8, 6.1), and retirement due to a WTC-related disability (OR=1.3; 95% CI 1.1, 1.5) were associated with ever having elevated PTSD risk. Difficulty functioning at home was strongly associated with elevated PTSD risk (ORs ranged from 17.0 [95% CI 14.5, 20.0] in year 1 to 26.7 [95% CI 20.3, 35.2] in year



3), as was difficulty functioning at work (ORs ranged from 12.1 [95% CI 10.2, 14.2] in year 1 to 23.0 [95% CI 14.6, 36.3] in year 2).

**Conclusions:** Elevated PTSD risk was associated with exposure to the WTC site as well as functional impairment, and remained largely unabated during the first four years of the study. Screening for elevated PTSD risk may be useful in identifying those who could benefit from interventions during long-term follow-up, as well as in the immediate aftermath of disasters.

### Citation

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & Greca, A. M. L. (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>

### Abstract

Disasters typically strike quickly and cause great harm. Unfortunately, because of the spontaneous and chaotic nature of disasters, the psychological consequences have proved exceedingly difficult to assess. Published reports have often overestimated a disaster's psychological cost to survivors, suggesting, for example, that many if not most survivors will develop posttraumatic stress disorder (PTSD); at the same time, these reports have underestimated the scope of the disaster's broader impact in other domains. We argue that such ambiguities can be attributed to methodological limitations. When we focus on only the most scientifically sound research—studies that use prospective designs or include multivariate analyses of predictor and outcome measures—relatively clear conclusions about the psychological parameters of disasters emerge. We summarize the major aspects of these conclusions in five key points and close with a brief review of possible implications these points suggest for disaster intervention.

### Citation

Bonanno GA, Galea S, Bucciarelli A, Vlahov D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology*, 75(5), 671-682. <https://doi.org/10.1037/0022-006X.75.5.671>

### Abstract

A growing body of evidence suggests that most adults exposed to potentially traumatic events are resilient. However, research on the factors that may promote or deter adult resilience has been limited. This study examined patterns of association between resilience and various sociocontextual factors. The authors used data from a random-digit-dial phone survey (N = 2,752) conducted in the New York City area after the September 11, 2001, terrorist attack. Resilience was defined as having 1 or 0 posttraumatic stress disorder symptoms and as being associated with low levels of depression and substance use. Multivariate analyses indicated that the prevalence of resilience was uniquely predicted by participant gender, age, race/ethnicity, education, level of trauma exposure, income change, social support, frequency of chronic disease, and recent and past life stressors. Implications for future research and intervention are discussed.





## Citation

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2006). Psychological resilience after disaster: New York City in the aftermath of the September 11th terrorist attack. *Psychological Science*, 17(3), 181-186. <https://doi.org/10.1111/j.1467-9280.2006.01682.x>

## Abstract

Research on adult reactions to potentially traumatic events has focused almost exclusively on post-traumatic stress disorder (PTSD). Although there has been relatively little research on the absence of trauma symptoms, the available evidence suggests that resilience following such events may be more prevalent than previously believed. This study examined the prevalence of resilience, defined as having either no PTSD symptoms or one symptom, among a large (n = 2,752) probability sample of New York area residents during the 6 months following the September 11th terrorist attack. Although many respondents met criteria for PTSD, particularly when exposure was high, resilience was observed in 65.1% of the sample. Resilience was less prevalent among more highly exposed individuals, but the frequency of resilience never fell below one third even among the exposure groups with the most dramatic elevations in PTSD.

## Citation

Bovin, M. J., & Marx, B. P. (2011). The importance of the peritraumatic experience in defining traumatic stress. *Psychological Bulletin*, 137(1), 47. <https://doi.org/10.1037/a0021353>

## Abstract

In the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev., DSM–IV–TR; American Psychiatric Association, 2000), posttraumatic stress disorder (PTSD) Criterion A2 stipulates that an individual must experience intense fear, helplessness, or horror during an event that threatened the life or physical integrity of oneself or others to be eligible for the PTSD diagnosis. In considering this criterion, we describe its origins, review studies that have examined its predictive validity, and reflect on the intended purpose of the criterion and how it complements the mission of the DSM. We then assert that the predictive validity of Criterion A2 may not be an appropriate metric for evaluating its worth. We also note that the current Criterion A2 may not fully capture all the salient aspects of the traumatic stress response. To support this claim, we review empirical research showing that individuals adapt to extreme environmental events by responding in a complex and coordinated manner. This complex response set involves an individual's appraisal regarding the degree to which the event taxes his or her resources, as well as a range of other cognitions (e.g., dissociation), felt emotions (e.g., fear), physiological reactions (e.g., heart rate increase), and behaviors (e.g., tonic immobility). We provide evidence that these response components may be associated with the subsequent development of PTSD. We then describe the challenges associated with accurately assessing an individual's traumatic stress response. We conclude with a discussion of the need to consider the individual's immediate response when defining a traumatic stressor.

## Citation

Bride, B. E. (2007). Prevalence of secondary traumatic stress among social workers. *Social Work*, 52(1), 63-70. <https://doi.org/10.1093/sw/52.1.63>



## Abstract

Social workers are increasingly being called on to assist survivors of childhood abuse, domestic violence, violent crime, disasters, and war and terrorism. It has become increasingly apparent that the psychological effects of traumatic events extend beyond those directly affected. Secondary traumatic stress (STS) is becoming viewed as an occupational hazard of providing direct services to traumatized populations. The purpose of the present study was to investigate the prevalence of STS in a sample of social workers by examining the frequency of individual symptoms; the frequency with which diagnostic criteria for posttraumatic stress disorder (PTSD) are met; and the severity of STS levels. Results indicate that social workers engaged in direct practice are highly likely to be secondarily exposed to traumatic events through their work with traumatized populations, many social workers are likely to experience at least some symptoms of STS, and a significant minority may meet the diagnostic criteria for PTSD.

## Citation

Browne, K. E. (2015). *Standing in the need: Culture, comfort, and coming home after Katrina* (1st ed.). University of Texas Press.

## Abstract

N/A

## Citation

Browne, K. E., & Peek, L. (2014). Beyond the IRB: An ethical toolkit for long-term disaster research. *International Journal of Mass Emergencies and Disasters*, 32(1), 82-120. <http://ijmed.org/articles/651/>

## Abstract

This article argues for expanding the ethical frame of concern in disaster research from the early phases of site access to longer-term issues that may arise in the field. Drawing on ethical theory, these arguments are developed in five sections. First, we identify the philosophical roots of ethical principles used in social science research. Second, we discuss how ethical concerns span the entire lifecycle of disaster-related research projects but are not fully addressed in the initial protocols for gaining Institutional Research Board (IRB) approval. Third, we introduce the idea of the philosophically informed “ethical toolkit,” established to help build awareness of moral obligations and to provide ways to navigate ethical confusion to reach sound research decisions. Specifically, we use the work of W. D. Ross to introduce a template of moral considerations that include fidelity, reparation, gratitude, justice, beneficence, self-improvement, and non-maleficence. We suggest that in the absence of a clear framework that researchers can use to think through ethical dilemmas as they arise, Ross’ pluralist approach to ethical problem solving offers flexibility and clarity and, at the same time, leaves space to apply our own understanding of the context in question. Fourth, we draw on six examples from our research studies conducted following Hurricane Katrina. Using these examples, we discuss how, in retrospect, we can apply Ross’ moral considerations to the ethical issues raised including: (1) shifting vulnerability among disaster survivors, (2) the expectations of participants, and (3) concerns about reciprocity in long-term fieldwork. Fifth, we consider how the ethical toolkit we are proposing may improve the quality of research and research relationships.



## Citation

Brymer M., Jacobs A., Layne C., Pynoos R., Ruzek J., Steinberg A., Vernberg E., & Watson P. (National Child Traumatic Stress Network and National Center for PTSD). (2006). *Psychological first aid: Field operations guide* (2nd ed.). National Child Traumatic Stress Network and National Center for Posttraumatic Stress Disorder. <https://www.nctsn.org/resources/psychological-first-aid-pfa-field-operations-guide-2nd-edition>

## Abstract

Gives guidance on responding to disaster or terrorism events using the Psychological First Aid intervention. This evidence-informed approach helps to assist children, adolescents, adults, and families in the aftermath of disaster and terrorism. The manual includes in-depth information about each of the eight core actions and accompanying handouts for adults, adolescents, parents and caregivers, and providers.

## Citation

Buttke, D., Vagi, S., Bayleyegn, T., Sircar, K., Strine, T., Morrison, M., Allen, M., & Wolkin, A. (2012). Mental health needs assessment after the Gulf Coast oil spill—Alabama and Mississippi, 2010. *Prehospital and Disaster Medicine*, 27(5), 401-408. <https://doi.org/10.1017/S1049023X12001100>

## Abstract

Introduction: Previous oil spills and disasters from other human-made events have shown that mental health effects to the affected population are widespread and can be significant. Hypothesis/Problem: There has been concern regarding the likelihood that existing public health surveillance was not capturing the mental health effects to the population affected by the Gulf Coast oil spill. The objectives of this study were to assess the mental health needs of coastal communities in the states of Alabama and Mississippi following the Deepwater Horizon oil spill. Methods: A cluster sampling methodology was used to assess the mental health status of coastal residents in three counties in Alabama four months following the 2010 Deepwater Horizon oil spill, and in the Gulf Coast counties in Mississippi 5.5 months after the oil spill. Results: A total of 469 residents of the selected areas were interviewed. Between 15.4 and 24.5% of the respondents reported depressive symptoms, with 21.4-31.5% reporting symptoms consistent with an anxiety disorder, and 16.3-22.8% reporting  $\geq 14$  mentally unhealthy days within the past 30 days. Overall, there were more negative quality of life indicators and negative social context outcomes than in the state's Behavioral Risk Factor Surveillance System (BRFSS) survey. Between 32.1% and 35.7% of all households reported decreased income since the oil spill, and 35.5-38.2% of all households reported having been exposed to oil. Conclusion: The proportion of respondents reporting negative mental health parameters in the affected Alabama and Mississippi coastal communities is higher than the proportion reported in the 2008 and 2009 BRFSS state reports, suggesting that the public health response to the Deepwater Horizon oil spill should focus on mental health services in these communities.



## Citation

Buttke, D., Vagi, S., Schnall, A., Bayleyegn, T., Morrison, M., Allen, M., & Wolkin, A. (2012). Community assessment for public health emergency response (CASPER) one year following the Gulf Coast oil spill: Alabama and Mississippi, 2011. *Prehospital and Disaster Medicine, 27*(6), 496-502. <https://doi.org/10.1017/S1049023X12001380>

## Abstract

**Background:** On April 20, 2010, the Deepwater Horizon drilling unit exploded off the coast of Louisiana, resulting in 11 deaths and the largest marine petroleum release in history. Previous oil spill disasters have been associated with negative mental health outcomes in affected communities. In response to requests from Mississippi and Alabama, potential mental health issues resulting from this event were identified by implementing a novel use of a Community Assessment for Public Health Emergency Response (CASPER) in the months immediately following the Gulf Coast oil spill. **Purpose:** This assessment was repeated one year later to determine long-term mental health needs and changes. **Methods:** A two-stage sampling method was used to select households, and a questionnaire including the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS) questions was administered. Weighted cluster analysis was conducted, and BRFSS questions were compared to the most recent BRFSS reports and the 2010 results. **Results:** In 2011, 8.8%-15.1% of individuals reported depressive symptoms compared to 15.4%–24.5% of individuals in 2010, with 13.2%-20.3% reporting symptoms consistent with an anxiety disorder compared to 21.4%-31.5% of individuals in 2010. Respondents reporting decreased income following the oil spill were more likely to report mental health symptoms compared to respondents reporting no change in income. **Conclusions:** Overall, mental health symptoms were higher in the three assessment areas compared to BRFSS reports, but lower than 2010 surveys. These results suggest that mental health services are still needed, particularly in households experiencing decreased income since the oil spill.

## Citation

Calhoun, L. G., & Tedeschi, R. G. (Eds.). (2014). *Handbook of posttraumatic growth: Research and practice*. Psychology Press. <https://doi.org/10.4324/9781315805597>

## Abstract

The *Handbook of Posttraumatic Growth: Research and Practice* provides both clinicians and researchers with a comprehensive and up-to-date view of what has been done so far. In addition, it uses the foundations of what has been done to provide suggestions for the next useful steps to take in understanding posttraumatic growth. The book offers contributions of important and influential scholars representing a wide array of perspectives of posttraumatic growth. This volume serves as an impetus for additional work, both in the academic aspects and in the possibilities for clinical applications of posttraumatic growth. This *Handbook* will appeal to students, practitioners, and researchers working in a broad array of disciplines and human services.



## Citation

Centers for Disease Control and Prevention. (2012). Lesson 3: Measures of risk. In U.S. Department of Health and Human Services, *Principles of epidemiology in public health practice* (3rd ed.). <https://www.cdc.gov/csels/dsepd/ss1978/lesson3/index.html>.

## Abstract

N/A

## Citation

Centers for Disease Control and Prevention (CDC). (2016). *A primer for understanding the principles and practices of disaster surveillance in the United States* (1st ed.). CDC. [https://www.cdc.gov/nceh/hsb/disaster/Disaster\\_Surveillance\\_508.pdf](https://www.cdc.gov/nceh/hsb/disaster/Disaster_Surveillance_508.pdf)

## Abstract

N/A

## Citation

Centers for Disease Control and Prevention. (2018, January 26). *Learn About Mental Health*. <https://www.cdc.gov/mentalhealth/learn/index.htm>.

## Abstract

N/A

## Citation

Chan, C. L. W., Wang, C. W., Qu, Z., Lu, B. Q., Ran, M. S., Ho, A. H. Y., Yuan, Y., Zhang, B. Q., Wang, X., & Zhang, X. (2011). Posttraumatic stress disorder symptoms among adult survivors of the 2008 Sichuan earthquake in China. *Journal of Traumatic Stress, 24*(3), 295-302. <https://doi.org/10.1002/jts.20645>

## Abstract

This study examined the estimated prevalence rate of posttraumatic stress disorder (PTSD) symptoms and associated risk factors among Chinese adult survivors 7 to 8 months after the 2008 Sichuan earthquake. The sample was recruited from 2 areas close to the epicenter but of different distances. The estimated rate of PTSD symptoms was 55.6% and 26.4% respectively in the two areas. Loss of a child was a strong predictive factor for PTSD symptoms for the parents. Other predictive factors included female gender, loss of a parent, loss of friends or neighbors, residential house damage or collapse, and proximity to the epicenter. Effective and sustainable mental health services are needed and should be directed particularly to bereaved survivors.



## Citation

Colpe, L. J., Freeman, E. J., Strine, T. W., Dhingra, S., McGuire, L. C., Elam-Evans, L. D., & Perry, G. S. (2010). Public health surveillance for mental health. *Preventing Chronic Disease, 7*(1) A17.

## Abstract

Public health systems have relied on public health surveillance to plan health programs, and extensive surveillance systems exist for health behaviors and chronic disease. Mental health has used a separate data collection system that emphasizes measurement of disease prevalence and health care use. In recent years, efforts to integrate these systems have included adding chronic disease measures to the Collaborative Psychiatric Epidemiology Surveys and depression measures to the Behavioral Risk Factor Surveillance System; other data collection systems have been similarly enhanced. Ongoing challenges to integration include variations in interview protocols, use of different measures of behavior and disease, different interval reference periods, inclusion of substance abuse disorders, dichotomous vs continuous variables, and approaches to data collection. Future directions can address linking surveillance efforts more closely to the needs of state programs, increasing child health measurements in surveys, and improving knowledge dissemination from survey analyses.

## Citation

Gould, D. (2014). *Disaster mental health surveillance at state health agencies: Results from a 2013 CSTE assessment*. Council of State and Territorial Epidemiologists (CSTE).  
<https://pdfs.semanticscholar.org/73e7/8db356ed6b2e5d00100ecc73a0fe02d65475.pdf>

## Abstract

N/A

## Citation

Creamer, M., Burgess, P., & McFarlane, A. C. (2001). Post-traumatic stress disorder: Findings from the Australian National Survey of Mental Health and Well-being. *Psychological Medicine, 31*(7), 1237-1247.  
<https://doi.org/10.1017/S0033291701004287>

## Abstract

**Background.** We report on the epidemiology of post-traumatic stress disorder (PTSD) in the Australian community, including information on lifetime exposure to trauma, 12-month prevalence of PTSD, sociodemographic correlates and co-morbidity. **Methods.** Data were obtained from a stratified sample of 10641 participants as part of the Australian National Survey of Mental Health and Well-being. A modified version of the Composite International Diagnostic Interview was used to determine the presence of PTSD, as well as other DSM-IV anxiety, affective and substance use disorders. **Results.** The estimated 12-month prevalence of PTSD was 1.33%, which is considerably lower than that found in comparable North American studies. Although females were at greater risk than males within the subsample of those who had experienced trauma, the large gender differences noted in some recent epidemiological research were not replicated.





Prevalence was elevated among the never married and previously married respondents, and was lower among those aged over 55. For both men and women, rape and sexual molestation were the traumatic events most likely to be associated with PTSD. A high level of Axis 1 co-morbidity was found among those persons with PTSD Conclusions. PTSD is a highly prevalent disorder in the Australian community and is routinely associated with high rates of anxiety, depression and substance disorders. Future research is needed to investigate rates among other populations outside the North American continent.

### Citation

Dash, N. (2013). Race and Ethnicity. In D. S. Thomas, B. D. Phillips, W. E. Lovekamp, & A. Fothergill (Eds.), *Social vulnerability to disasters* (2nd ed., pp. 113-138). CRC Press.

### Abstract

This chapter focuses on two key features of social vulnerability to disaster: race and ethnicity. The chapter explains the nature of race and ethnicity and the ways in which they impact vulnerability to disaster.

### Citation

De Soir, E., Zech, E., Versporten, A., Van Oyen, H., Kleber, R., Mylle, J., & van der Hart, O. (2015). Degree of exposure and peritraumatic dissociation as determinants of PTSD symptoms in the aftermath of the Ghislenghien gas explosion. *Archives of Public Health*, 73(1), 21. <https://doi.org/10.1186/s13690-015-0069-9>

### Abstract

**Background:** This paper investigates risk factors for the development of posttraumatic stress symptoms in the different survivor groups involved in a technological disaster in Ghislenghien (Belgium). A gas explosion instantly killed five firefighters, one police officer and 18 other people. Moreover, 132 people were wounded among which many suffered severe burn injuries.

**Methods:** In the framework of a large health survey of people potentially involved in the disaster, data were collected from 3,448 households, of which 7,148 persons aged 15 years and older, at 5 months (T1) and at 14 months (T2) after the explosion. Hierarchical regression was used to determine the significant predictors and to assess their proportion in variance accounted for.

**Results:** The degree of exposure to the disaster was a predictor of the severity of posttraumatic stress symptoms. Peritraumatic dissociation appeared to be the most important predictor of the development of posttraumatic stress symptoms at T1. But at T2, posttraumatic stress symptoms at T1 had become the most important predictor. Dissatisfaction with social support was positively linked to development of posttraumatic stress symptoms at T1 and to the maintenance of these symptoms at T2. Survivors who received psychological help reported significant benefits.

**Conclusions:** In harmony with the findings from studies on technological disasters, at T1 6,0% of the respondents showed sufficient symptoms to meet all criteria for a full PTSD. At T2, 6,6% still suffered from posttraumatic stress symptoms. The symptoms of the different victim categories clearly indicated the influence of the degree of exposure on the development of posttraumatic stress symptoms. Problems inherent to retrospective scientific research after a disaster are discussed.



## Citation

Dick, D. M. (2011). Gene-environment interaction in psychological traits and disorders. *Annual Review of Clinical Psychology*, 7(1), 383-409. <https://doi.org/10.1146/annurev-clinpsy-032210-104518>

## Abstract

There has been an explosion of interest in studying gene-environment interactions (GxE) as they relate to the development of psychopathology. In this article, I review different methodologies to study gene-environment interaction, providing an overview of methods from animal and human studies and illustrations of gene-environment interactions detected using these various methodologies. Gene-environment interaction studies that examine genetic influences as modeled latently (e.g., from family, twin, and adoption studies) are covered, as well as studies of measured genotypes. Importantly, the explosion of interest in gene-environment interactions has raised a number of challenges, including difficulties with differentiating various types of interactions, power, and the scaling of environmental measures, which have profound implications for detecting gene-environment interactions. Taking research on gene-environment interactions to the next level will necessitate close collaborations between psychologists and geneticists so that each field can take advantage of the knowledge base of the other.

## Citation

DiMaggio, C., Galea, S., & Abramson, D. (2008). Analyzing postdisaster surveillance data: The effect of the statistical method. *Disaster Medicine and Public Health Preparedness*, 2(2), 119-126. <https://doi.org/10.1097/DMP.0b013e31816c7475>

## Abstract

Data from existing administrative databases and ongoing surveys or surveillance methods may prove indispensable after mass traumas as a way of providing information that may be useful to emergency planners and practitioners. The analytic approach, however, may affect exposure prevalence estimates and measures of association. We compare Bayesian hierarchical modeling methods to standard survey analytic techniques for survey data collected in the aftermath of a terrorist attack. Estimates for the prevalence of exposure to the terrorist attacks of September 11, 2001, varied by the method chosen. Bayesian hierarchical modeling returned the lowest estimate for exposure prevalence with a credible interval spanning nearly 3 times the range of the confidence intervals (CIs) associated with both unadjusted and survey procedures. Bayesian hierarchical modeling also returned a smaller point estimate for measures of association, although in this instance the credible interval was tighter than that obtained through survey procedures. Bayesian approaches allow a consideration of preexisting assumptions about survey data, and may offer potential advantages, particularly in the uncertain environment of postterrorism and disaster settings. Additional comparative analyses of existing data are necessary to guide our ability to use these techniques in future incidents.

## Citation

Donner, W., & Diaz, W. (2018). Methodological issues in disaster research. In H. Rodríguez, W. Donner, & J. E. Trainor, (Eds.), *Handbook of disaster research* (2nd ed., pp. 289-309). Springer.



## Abstract

With regard to the design of research protocols, the field of disaster studies encounters challenges other fields of inquiry do not routinely face. Following a brief historical outline of the field, the chapter moves on to discuss these challenges, which often appear in the context of quick-response research and affect a range of planning and design issues, including, but not limited to, human subjects planning, sample design, measurement, and analysis. In addition to methodological issues in the field, the chapter also discusses advances in statistical analysis and Geographic Information Systems (GIS) that offer means to address common sampling and measurement issues in disaster research. Finally, a section on interdisciplinary research offers a description of multidisciplinary approaches to answering scientific questions, noting both the advantages and potential problems of collaboration across the disciplines. The chapter closes with a description of future trends and issues that may become relevant within the coming decades.

## Citation

Erikson, K. (1976). *Everything in its path: Destruction of community in the Buffalo Creek flood*. Simon and Schuster.

## Abstract

The 1977 Sorokin Award-winning story of Buffalo Creek in the aftermath of a devastating flood. On February 26, 1972, 132-million gallons of debris-filled muddy water burst through a makeshift mining-company dam and roared through Buffalo Creek, a narrow mountain hollow in West Virginia. Following the flood, survivors from a previously tightly knit community were crowded into trailer homes with no concern for former neighborhoods. The result was a collective trauma that lasted longer than the individual traumas caused by the original disaster. Making extensive use of the words of the people themselves, Erikson details the conflicting tensions of mountain life in general--the tensions between individualism and dependency, self-assertion and resignation, self-centeredness and group orientation--and examines the loss of connection, disorientation, declining morality, rise in crime, rise in out-migration, etc., that resulted from the sudden loss of neighborhood.

## Citation

Ferreira, R. J., Buttell, F., & Ferreira, S. (2015). Ethical considerations for conducting disaster research with vulnerable populations. *Journal of Social Work Values and Ethics*, 12(1), 29-40.

## Abstract

Worldwide there has been a significant increase in disasters the past decades, particularly in the United States. Due to the increased frequency of disasters, the field of disaster research has seen a corresponding increase in empirical studies involving human subjects. A large number of these studies include vulnerable populations. Study of these populations requires additional precautionary disaster research practices in order to align with ethical standards for research. This article has a dual purpose: Part I provides a better understanding of the vulnerability of populations associated with disaster research; Part II offers a framework for best practices in conducting disaster research with vulnerable populations.



## Citation

Fothergill, A. (2004). *Heads above water: Gender, class, and family in the Grand Forks flood*. SUNY Press.

## Abstract

An in-depth exploration of women's lives after a natural disaster. *Heads above Water* tells the stories of women and their families who survived the Grand Forks, North Dakota, flood of 1997, one of the worst natural disasters in U.S. history. This book describes the challenges women faced and explores the importance of class, race, gender, sexual orientation, and disability in their disaster recovery. The women found themselves face-to-face with social and familial upheaval, emotional and physical trauma, precarious economic and social status, and feelings of loss and violation. By exploring the experiences of these women, author Alice Fothergill contributes to broader sociological discussions about women's changing roles, the stigma of needing and receiving assistance, family relationships under stress, domestic violence, downward mobility, and the importance of "home" to one's identity and sense of self. *Heads above Water* offers poignant insight into women's everyday lives in an extraordinary time. Alice Fothergill is Assistant Professor of Sociology at the University of Vermont.

## Citation

Fothergill, A., & Peek, L. A. (2015). *Children of Katrina* (1st ed.). University of Texas Press.

## Abstract

*Children of Katrina* offers one of the only long-term, multiyear studies of young people following disaster. Sociologists Alice Fothergill and Lori Peek spent seven years after Hurricane Katrina interviewing and observing several hundred children and their family members, friends, neighbors, teachers, and other caregivers. In this book, they focus intimately on seven children between the ages of three and eighteen, selected because they exemplify the varied experiences of the larger group. They find that children followed three different post-disaster trajectories—declining, finding equilibrium, and fluctuating—as they tried to regain stability. The children's moving stories illuminate how a devastating disaster affects individual health and well-being, family situations, housing and neighborhood contexts, schooling, peer relationships, and extracurricular activities. This work also demonstrates how outcomes were often worse for children who were vulnerable and living in crisis before the storm. Fothergill and Peek clarify what kinds of assistance children need during emergency response and recovery periods, as well as the individual, familial, social, and structural factors that aid or hinder children in getting that support.

## Citation

Freedy, J. R., Resnick, H. S., & Kilpatrick, D. G. (1992). Conceptual framework for evaluating disaster impact: Implications for clinical intervention. In L. S. Austin (Ed.), *Responding to disaster: A guide for mental health professionals* (1st ed., pp. 3-23). American Psychiatric Press.



## Abstract

Natural disasters, technologic disasters, and mass violence impact millions of persons each year. The use of primary health care services typically increases for 12 or more months following major disasters. A conceptual framework for assisting disaster victims involves understanding the individual and environmental risk factors that influence post-disaster physical and mental health. Victims of disaster will typically present to family physicians with acute physical health problems such as gastroenteritis or viral syndromes. Chronic problems often require medications and ongoing primary care. Some victims may be at risk of acute or chronic mental health problems such as post-traumatic stress disorder, depression, or alcohol abuse. Risk factors for post-disaster mental health problems include previous mental health problems and high levels of exposure to disaster-related stresses (e.g., fear of death or serious injury, exposure to serious injury or death, separation from family, prolonged displacement). An action plan should involve adequate preparation for a disaster. Family physicians should educate themselves about disaster-related physical and mental health threats; cooperate with local and national organizations; and make sure clinics and offices are adequately supplied with medications and suture and casting material as appropriate. Physicians also should plan for the care and safety of their own families.

## Citation

Furr, J. M., Comer, J. S., Edmunds, J. M., & Kendall, P. C. (2010). Disasters and youth: A meta-analytic examination of posttraumatic stress. *Journal of Consulting and Clinical Psychology, 78*(6), 765.  
<https://doi.org/10.1037/a0021482>

## Abstract

**Objective:** Meta-analyze the literature on posttraumatic stress (PTS) symptoms in youths post-disaster.

**Method:** Meta-analytic synthesis of the literature ( $k = 96$  studies;  $N_{\text{total}} = 74,154$ ) summarizing the magnitude of associations between disasters and youth PTS, and key factors associated with variations in the magnitude of these associations. We included peer-reviewed studies published prior to 1/1/2009 that quantitatively examined youth PTS ( $\leq 18$  years at event) after a distinct and identifiable disaster.

**Results:** Despite variability across studies, disasters had a significant effect on youth PTS (small-to-medium magnitude;  $r_{\text{pooled}} = .19$ ,  $SEr = .03$ ;  $d = 0.4$ ). Female gender ( $r_{\text{pooled}} = .14$ ), higher death toll (disasters of death toll  $\leq 25$ :  $r_{\text{pooled}} = .09$ ; vs. disasters with  $\geq 1,000$  deaths:  $r_{\text{pooled}} = .22$ ), child proximity ( $r_{\text{pooled}} = .33$ ), personal loss ( $r_{\text{pooled}} = .16$ ), perceived threat ( $r_{\text{pooled}} = .34$ ), and distress ( $r_{\text{pooled}} = .38$ ) at time of event were each associated with increased PTS. Studies conducted within 1 year post-disaster, studies that used established measures, and studies that relied on child-report data identified a significant effect.

**Conclusion:** Youths are vulnerable to appreciable PTS after disaster, with pre-existing child characteristics, aspects of the disaster experience, and study methodology each associated with variations in the effect magnitude. Findings underscore the importance of measurement considerations in post-disaster research. Areas in need of research include the long-term impact of disasters, disaster-related media exposure, prior trauma and psychopathology, social support, ethnicity/race, prejudice, parental psychopathology, and the effects of disasters in developing regions of the world. Policy and clinical implications are discussed.



## Citation

Fussell, E., & Lowe, S. R. (2014). The impact of housing displacement on the mental health of low-income parents after Hurricane Katrina. *Social Science & Medicine*, 113, 137-144. <https://doi.org/10.1016/j.socscimed.2014.05.025>

## Abstract

Previous studies in the aftermath of natural disasters have demonstrated relationships between four dimensions of displacement – geographic distance from the predisaster community, type of postdisaster housing, number of postdisaster moves, and time spent in temporary housing – and adverse psychological outcomes. However, to date no study has explored how these dimensions operate in tandem. The literature is further limited by a reliance on postdisaster data. We addressed these limitations in a study of low-income parents, predominantly non-Hispanic Black single mothers, who survived Hurricane Katrina and who completed pre and postdisaster assessments ( $N = 392$ ). Using latent profile analysis, we demonstrated three profiles of displacement experiences within the sample: (1) returned, characterized by return to a predisaster community; (2) relocated, characterized by relocation to a new community, and (3) unstably housed, characterized by long periods in temporary housing and multiple moves. Using regression analyses, we assessed the relationship between displacement profiles and three mental health outcomes (general psychological distress, posttraumatic stress, and perceived stress), controlling for predisaster characteristics and mental health indices and hurricane-related experiences. Relative to participants in the returned profile, those in the relocated profile had significantly higher general psychological distress and perceived stress, and those in the unstably housed profile had significantly higher perceived stress. Based on these results, we suggest interventions and policies that reduce postdisaster housing instability and prioritize mental health services in communities receiving evacuees.

## Citation

Galea, S., Brewin, C. R., Gruber, M., Jones, R. T., King, D. W., King, L. A., McNally, R. J., Ursano, R. J., Petukhova, M., & Kessler, R. C. (2007). Exposure to hurricane-related stressors and mental illness after Hurricane Katrina. *Archives of General Psychiatry*, 64(12), 1427-1434. <https://doi.org/10.1001/archpsyc.64.12.1427>

## Abstract

**Context:** Uncertainty exists about the prevalence, severity, and correlates of mental disorders among people exposed to Hurricane Katrina.

**Objective:** To estimate the prevalence and associations between *DSM-IV* anxiety-mood disorders and hurricane-related stressors separately among prehurricane residents of the New Orleans metropolitan area and the remainder of the areas in Alabama, Louisiana, and Mississippi affected by Katrina.

**Design:** Community survey Setting and Participants: A probability sample of 1043 English-speaking prehurricane residents of the areas affected by Hurricane Katrina was administered via telephone survey between January 19 and March 31, 2006. The survey assessed hurricane-related stressors and screened for 30-day *DSM-IV* anxiety-mood disorders.

**Main Outcome Measures:** The K6 screening scale of anxiety-mood disorders and the Trauma Screening Questionnaire scale for posttraumatic stress disorder (PTSD), both calibrated against blinded structured clinical reappraisal interviews to approximate the 30-day prevalence of *DSM-IV* disorders.





*Results:* Prehurricane residents of the New Orleans metropolitan area were estimated to have a 49.1% 30-day prevalence of any *DSM-IV* anxiety-mood disorder (30.3% estimated prevalence of PTSD) compared with 26.4% (12.5% PTSD) in the remainder of the sample. The vast majority of respondents reported exposure to hurricane-related stressors. Extent of stressor exposure was more strongly related to the outcomes in the New Orleans metropolitan area subsample than the remainder of the sample. The stressors most strongly related to these outcomes were physical illness/injury and physical adversity in the New Orleans metropolitan area subsample and property loss in the remainder of the sample. Sociodemographic correlates were not explained either by differential exposure or reactivity to hurricane-related stressors.

*Conclusions:* The high prevalence of *DSM-IV* anxiety-mood disorders, the strong associations of hurricane-related stressors with these outcomes, and the independence of sociodemographics from stressors argue that the practical problems associated with ongoing stressors are widespread and must be addressed to reduce the prevalence of mental disorders in this population.

### Citation

Galea, S., & Norris, F. H. (2006). Public mental health surveillance and monitoring. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research*. Guilford Press.

### Abstract

N/A

### Citation

Gibson, L. E., Hamblen, J. L., Zvolensky, M. J., & Vujanovic, A. A. (2006). Evidence-based treatments for traumatic stress-An overview of the research literature with an emphasis on disaster settings. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 208–225). Guilford Press.

### Abstract

Major disasters have brought worldwide attention to the need for effective interventions for survivors of trauma. Left untreated, many individuals who have been directly exposed to disasters will suffer enduring psychological effects such as posttraumatic stress disorder (PTSD), panic disorder, and major depressive disorder. These conditions can result in substantial impairment across the lifespan, with 40-60% of individuals with anxiety and mood disorder diagnoses reporting moderate to severe occupational role dysfunction and disability. These data underscore the public health relevance of effectively assessing and intervening with psychological vulnerability factors following traumatic life events like disasters. In order to better understand the state of the science in disaster intervention research, we conducted a systematic review of the extant literature on evidence-based interventions for traumatic stress. Below, we summarize this literature under the major categories of early and later-stage interventions. Methodological strengths and weaknesses of this literature are described throughout, and attention is given to challenges that may be encountered when conducting intervention research in disaster settings. Interventions for both youths and adults are reviewed. Clinical trials conducted with mass violence or disaster survivors were included in the review whenever possible. Due to the dearth of methodologically sound randomized clinical trials with disaster survivors, strong



studies conducted with other groups of trauma-exposed individuals are included when the interventions under study were theoretically translatable to disasters.

## Citation

Goenjian, A. K., Molina, L., Steinberg, A. M., Fairbanks, L. A., Alvarez, M. L., Goenjian, H. A., & Pynoos, R. S. (2001). Posttraumatic stress and depressive reactions among Nicaraguan adolescents after Hurricane Mitch. *American Journal of Psychiatry*, 158(5), 788-794. <https://doi.org/10.1176/appi.ajp.158.5.788>

## Abstract

**Objective:** This study determined the severity of posttraumatic stress and depressive reactions among Nicaraguan adolescents after Hurricane Mitch and the relationship of these reactions to objective and subjective features of hurricane exposure, death of a family member, forced relocation, and thoughts of revenge.

**Method:** Six months after the hurricane, 158 adolescents from three differentially exposed cities were evaluated by using a hurricane exposure questionnaire, the Child Posttraumatic Stress Disorder Reaction Index, and the Depression Self-Rating Scale.

**Results:** Severe levels of posttraumatic stress and depressive reactions were found among adolescents in the two most heavily affected cities. Severity of posttraumatic stress and depressive reactions and features of objective hurricane-related experiences followed a “dose-of-exposure” pattern that was congruent with the rates of death and destruction across cities. Level of impact (city), objective and subjective features, and thoughts of revenge accounted for 68% of the variance in severity of posttraumatic stress reaction. Severity of posttraumatic stress reaction, death of a family member, and sex accounted for 59% of the variance in severity of depression.

**Conclusions:** After a category 5 hurricane, adolescents in heavily affected areas with extreme objective and subjective hurricane-related traumatic features of exposure experience severe and chronic posttraumatic stress and comorbid depressive reactions. The recovery of the severely affected Nicaraguan adolescents is vital to the social and economic recovery of a country ravaged by years of political violence and poverty. These findings strongly indicate the need to incorporate public mental health approaches, including systematic screening and trauma/grief-focused interventions, within a comprehensive disaster recovery program.

## Citation

Goenjian, A. K., Walling, D., Steinberg, A. M., Karayan, I., Najarian, L. M., & Pynoos, R. (2005). A prospective study of posttraumatic stress and depressive reactions among treated and untreated adolescents 5 years after a disaster. *The American Journal of Psychiatry*, 162(12), 1-7. <https://doi.org/10.1176/appi.ajp.162.12.2302>

## Abstract

**Objective:** This study evaluated 1) the natural course of posttraumatic stress and depressive reactions among untreated adolescents from two cities in an earthquake zone (Gumri and Spitak) and one at the periphery (Yerevan) who were differentially exposed to the 1988 Spitak earthquake in Armenia and 2) the effectiveness of brief trauma/grief-focused psychotherapy among adolescents from Gumri.

**Method:** One hundred twenty-five adolescents were assessed with the Child Posttraumatic Stress Disorder Reaction Index (CPTSD-RI) and the Depression Self-Rating Scale (DSRS) at 1.5 and 5 years postearthquake. At



1.5 years, trauma/grief-focused group and individual psychotherapy was provided over 6 weeks to a group of students in Gumri.

*Results:* CPTSD-RI scores among untreated adolescents from Gumri and Spitak subsided significantly but mildly at follow-up, with scores from Spitak, the city at the epicenter, remaining above the cutoff for a diagnosis of PTSD. DSRS scores increased mildly in both earthquake cities but only significantly in Gumri. Among treated adolescents in Gumri, improvement in CPTSD-RI scores was three times that of the untreated Gumri comparison group. The treated group also tended to improve on their DSRS scores, whereas these scores worsened significantly among untreated subjects.

*Conclusions:* Untreated adolescents exposed to severe trauma are at risk for chronic PTSD and depressive symptoms. Brief trauma/grief-focused psychotherapy is effective in reducing PTSD symptoms and halting the progression of depression. This study supports the implementation of mental health intervention programs in schools after disasters to reduce trauma-related psychopathology.

### Citation

Goldmann, E., & Galea, S. (2014). Mental health consequences of disasters. *Annual Review of Public Health*, 35(1), 169-183. <https://doi.org/10.1146/annurev-publhealth-032013-182435>

### Abstract

We present in this review the current state of disaster mental health research. In particular, we provide an overview of research on the presentation, burden, correlates, and treatment of mental disorders following disasters. We also describe challenges to studying the mental health consequences of disasters and discuss the limitations in current methodologies. Finally, we offer directions for future disaster mental health research.

### Citation

Heath, M. A., Nickerson, A. B., Annandale, N., Kemple, A., & Dean, B. (2009). Strengthening cultural sensitivity in children's disaster mental health services. *School Psychology International*, 30(4), 347-373. <https://doi.org/10.1177/0143034309106944>

### Abstract

During and following natural or man-made disasters, relief efforts have a long history of initially focusing on basic survival needs, then restoring community stability. Disaster mental health is a relatively new aspect of relief efforts, particularly in regard to children's needs. After reviewing objectives of major relief organizations and summarizing current research in light of practitioners' input, suggestions and resources are offered to strengthen cultural sensitivity in school-based disaster mental health services.

### Citation

Hobfoll, S. E. (1988). *The ecology of stress*. Taylor & Francis.



## Abstract

N/A

## Citation

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6(4), 307-324. <https://doi.org/10.1037/1089-2680.6.4.307>

## Abstract

Psychology has increasingly turned to the study of psychosocial resources in the examination of well-being. How resources are being studied and resource models that have been proffered are considered, and an attempt is made to examine elements that bridge across models. As resource models span health, community, cognitive, and clinical psychology, the question is raised of whether there is overuse of the resource metaphor or whether there exists some underlying principles that can be gleaned and incorporated to advance research. The contribution of resources for understanding multicultural and pan-historical adaptation in the face of challenge is considered. Psychological research has increasingly turned to an examination of the impact of people's resources on their stress resistance and well-being. Although the focus on resiliency that resource models incorporate is not new (Albee, 1977; Cowen, 1991; Jahoda, 1958), the dominance of deficit and pathology models is becoming more balanced by attention to the link between people's resources and their resiliency (Seligman & Csikszentmihalyi, 2000). This has broad implications not only for psychology as a field but for the potential contribution of psychology to public debate and public policy, because with rapid technological, social demographic, and global-political change occurring, there is a natural vying for resources. In this article, I examine how resource models have been conceptualized in the general domain of stress and coping and adaptation. Common emerging themes from this literature are highlighted, and an attempt is made to integrate central elements of the diverse areas that have utilized a resource perspective. A critical question addressed is that of whether resource models have provided guiding theories and predictions or offer only a common theme or backdrop to research. To guide the article, it is important at this juncture to provide a general definition of *resources*. Resources are those entities that either are centrally valued in their own right (e.g., self-esteem, close attachments, health, and inner peace) or act as a means to obtain centrally valued ends (e.g., money, social support, and credit). Such a broad definition is in line with a number of major theoretical perspectives that focus on psychosocial resources (P. B. Baltes, 1987, 1997; Diener, Diener, & Diener, 1995; Hobfoll, 1988, 1998; Holahan, Moos, Holahan, & Cronkite, 1999; Kaplan, 1983). Resources have also been divided between those that are distal and proximal to the self, internal and external, and biological and cultural, but these important distinctions emerge as I discuss the different theoretical perspectives that have been advanced. To avoid a definition of resources that is either circular or all-encompassing, what have been termed resources must be further delineated to include only those constructs that are held as resources for a wide range of people who share a set of cultural traditions. Thus, for example, although self-efficacy is not a resource for all persons or for any person in all situations, it has been found to be a resource for most people in a broad array of situations, at least in Western societies (Bandura, 1997).



## Citation

James, L. E., Welton-Mitchell, C., Noel, J. R., & James, A. S. (2019). Integrating mental health and disaster preparedness in intervention: a randomized controlled trial with earthquake and flood-affected communities in Haiti. *Psychological Medicine*, 50(2), 1-11.

## Abstract

**Background:** Given the frequency of natural hazards in Haiti, disaster risk reduction is crucial. However, evidence suggests that many people exposed to prior disasters do not engage in disaster preparedness, even when they receive training and have adequate resources. This may be partially explained by a link between mental health symptoms and preparedness; however, these components are typically not integrated in intervention. **Methods:** The current study assesses effectiveness of an integrated mental health and disaster preparedness intervention. This group-based model was tested in three earthquake-exposed and flood-prone communities ( $N = 480$ ), across three time points, using a randomized controlled trial design. The 3-day community-based intervention was culturally-adapted, facilitated by trained Haitian lay mental health workers, and focused on enhancing disaster preparedness, reducing mental health symptoms, and fostering community cohesion. **Results:** Consistent with hypotheses, the intervention increased disaster preparedness, reduced symptoms associated with depression, post-traumatic stress disorder, anxiety, and functional impairment, and increased peer-based help-giving and help-seeking. Mediation models indicated support for the underlying theoretical model, such that the effect of the intervention on preparedness was mediated by mental health, and that effects on mental health were likewise mediated by preparedness. **Conclusions:** The community-based mental health-integrated disaster preparedness intervention is effective in improving mental health and preparedness among community members in Haiti vulnerable to natural hazards. This brief intervention has the potential to be scaled up for use with other communities vulnerable to earthquakes, seasonal flooding, and other natural hazards.

## Citation

Jones, R. T., Hadder, J. M., Carvajal, F., Chapman, S., & Alexander, A. (2006). Conducting research in diverse, minority, and marginalized communities. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 265-277). Guilford Press.

## Abstract

There are several reasons why disaster research among racial/ethnically diverse and marginalized communities is needed. First, and most fundamentally, few postdisaster samples have included sufficient numbers of members of ethnic and marginalized communities, and thus few studies have been able to examine disaster effects across and within these groups. Second, there is reason to suspect that prevalence of exposure to predisaster trauma may be higher than average within economically disadvantaged urban environments, and, if so, these communities may have a greater prevalence of predisaster trauma-related psychopathology. Third, it can be hypothesized that minority and marginalized communities are at greater risk following disaster than other groups and therefore need greater research attention. Fourth, the question of whether the expression of certain psychiatric disorders is the same across ethnic/racial groups has yet to be adequately addressed. Fifth, treatment efficacy among these minority groups remains under-researched. Recognizing the importance of conducting research in these populations, we aimed in this chapter to identify



(1) barriers to research among minority/marginalized communities and (2) solutions to facilitate the conduct of research with these populations following disasters.

### Citation

Jones, E. C. & Murphy, A. D. (2008). A review of comparative disaster research concerning Latin American population. In F. Leal (Ed.), *Como Se Hacen Las Ciencias Sociales: Una antologia de ejemplos y preceptos en homenaje a Fernando Pozos Ponce/Fernando Leal Carretero* (1st ed., 318-345). Universidad de Guadalajara.

### Abstract

N/A

### Citation

Kaniasty, K. (2012). Predicting social psychological well-being following trauma: The role of post disaster social support. *Psychological Trauma, 4*(1), 22-33. <https://doi.org/10.1037/a0021412>

### Abstract

This longitudinal study assessed both the mobilization and deterioration dynamics of postdisaster social support and aid unfolding within the first 12 months after a natural disaster. These were the predictor variables hypothesized to influence various subsequent manifestations of survivors' social psychological well-being such as perceptions of social support and community cohesion, engagement in interpersonal contacts, and beliefs about mutual helpfulness and benevolence. Data came from a sample of 285 respondents who experienced a severe flood that devastated parts of southwestern Poland in 1997. A series of hierarchical regression analyses that controlled for the influence of sociodemographic factors and direct disaster exposure measures showed that a greater involvement in the instantaneous post disaster altruistic communities (mainly the amount of social support received) was associated with more favorable appraisals of interpersonal and community relationships assessed 20 months after the flood. Conversely, the indicators of post disaster social bitterness, operationalized as dissatisfaction with aid and interpersonal and community animosities and disagreements, were predictive of lower levels of subsequent social psychological well-being. Results underscore the relevance of both the social support mobilization and social support deterioration models for trauma theory. These findings also suggest that post disaster relief and intervention programs should consider helping survivors maintain, or even augment, their perceptions of being supported and their trust in benefits of belonging to a valued social group and community.

### Citation

La Greca, A. M., Silverman, W. K., Vernberg, E. M., & Roberts, M. C. (2002). *Helping children cope with disasters and terrorism*. American Psychological Association.

### Abstract

N/A





## Citation

Lai, B. S., Lewis, R., Livings, M. S., La Greca, A. M., & Esnard, A. M. (2017). Posttraumatic stress symptom trajectories among children after disaster exposure: A review. *Journal of Traumatic Stress, 30*(6), 571-582. <https://doi.org/10.1002/jts.22242>

## Abstract

Natural disasters, such as hurricanes and floods, are increasing in frequency and scope. Youth exposed to disasters are at risk for developing posttraumatic stress symptoms (PTSS). However, not all youth who report initially elevated PTSS report persistent PTSS that last beyond the first three to six months post disaster. Thus, it is crucial to understand how and why youth differ in their patterns of PTSS. This study reviewed the literature on children's postdisaster PTSS, evaluating the typical number and types of patterns for children's PTSS trajectories, as well as risk and protective factors predicting trajectory membership. This review identified eight empirical studies on youth PTSS trajectories following natural disasters; these studies included 8,306 children aged 3 to 18 years. All studies identified resilience, recovery, and chronic trajectories. Evidence for a delayed trajectory was mixed. Proportions of children falling into each trajectory varied widely across studies, but overall, resilience was the most prevalent trajectory. These findings were consistent across study factors (i.e., analytic strategy, assessment timing, and study selection criteria). Female gender, disaster exposure, negative coping, and lack of social support were significant risk factors for chronic trajectories across several studies. Future research should combine individual level participant data across studies of children's responses to disasters to better understand PTSS trajectories.

## Citation

Legerski, J. P., & Bunnell, S. L. (2010). The risks, benefits, and ethics of trauma-focused research participation. *Ethics & Behavior, 20*(6), 429-442. <https://doi.org/10.1080/10508422.2010.521443>

## Abstract

With the rising interest in the field of trauma research, many Institutional Review Boards, policymakers, parents, and others grapple with the impact of trauma-research participation on research participants' well-being. Do individuals who participate in trauma-focused research risk experiencing lasting negative effects from participation? What are the potential benefits that may be gleaned from participation in this work? How can trauma research studies be designed ethically, minimizing the risk to participants? The following review seeks to answer these questions. This review indicates that most studies in this area have found that only a minority of participants experience distress when participating in trauma-focused research. Furthermore, these negative feelings tend to dissipate quickly over time, with the majority of participants self-appraising their participation as positive, rewarding, and beneficial to society. Design characteristics that may serve to minimize participants' risk of experiencing distress are discussed, as well as implications for public policy and future research.



## Citation

McKinzie, A. E. (2018). In their own words: Disaster and emotion, suffering, and mental health. *International Journal of Qualitative Studies on Health and Well-Being*, 13(1), 1440108-11. <https://doi.org/10.1080/17482631.2018.1440108>

## Abstract

Purpose: In this article, I explore emotions, trauma, and mental health issues residents experienced after tornadoes in Tuscaloosa, Alabama and Joplin, Missouri in 2011. Methods: The research is based on 162 interviews and fieldwork from 2013-2015. I draw from literature on social suffering and trauma to ask how experiencing mental health and trauma changes how people make sense of their social worlds. Results: I discuss four common themes: 1. Emotions in immediate aftermath, 2. Relationship strain, 3. Mental health problems, and 4. Emotions in long-term recovery. Throughout the article, I pay attention to the bodily experiences of suffering and trauma. Conclusion: I argue experiencing mental health and suffering may be a critical perspective—one that can shed light on being in the world in ways that other perspectives may be less suitable to do.

## Citation

McMillen, J. C., Smith, E. M., & Fisher, R. H. (1997). Perceived benefit and mental health after three types of disaster. *Journal of Consulting and Clinical Psychology*, 65(5), 733-739. <https://doi.org/10.1037/0022-006X.65.5.733>

## Abstract

The study of growth and perceived benefit after traumatic events has been hailed as one of the most promising directions for stress research. This research, however, has been limited by several methodological limitations. These limitations are addressed in this prospective study, which examines perceived benefit and mental health adjustment after three different types of disaster. Survivors of a tornado in Madison, Florida, had the highest rates of perceived benefit, followed by survivors of a mass killing in Killeen, Texas, and survivors of a plane crash in Indianapolis, Indiana. Perceived benefit 4-6 weeks postdisaster predicted posttraumatic stress disorder three years later. Perceived benefit moderated the effect of severity of disaster exposure on mental health diagnosis change over time. Without perceived benefit, as exposure severity increased, the amount of recovery decreased. If benefit was perceived, as exposure severity increased, the amount of recovery increased. Implications for clinical interventions and future research are discussed.

## Citation

Miller, K. E., & Rasmussen, A. (2017). The mental health of civilians displaced by armed conflict: An ecological model of refugee distress. *Epidemiology and Psychiatric Sciences*, 26(2), 129-138. <https://doi.org/10.1017/S2045796016000172>



## Abstract

Early research on the mental health of civilians displaced by armed conflict focused primarily on the direct effects of exposure to war-related violence and loss. Largely overlooked in this *war exposure model* were the powerful effects of ongoing stressors related to the experience of displacement itself. An *ecological model* of refugee distress is proposed, drawing on research demonstrating that mental health among refugees and asylum seekers stems not only from prior war exposure, but also from a host of ongoing stressors in their social ecology, or displacement-related stressors. Implications of this model for addressing the mental health and psychosocial needs of refugees and other displaced populations are considered.

## Citation

Mohammad, L., & Peek, L. (2019). Exposure outliers: Children, mothers, and cumulative disaster exposure in Louisiana. *Journal of Family Strengths*, 19(1), Article 4.  
<https://digitalcommons.library.tmc.edu/jfs/vol19/iss1/4>

## Abstract

Only a limited number of studies have explored the effects of *cumulative disaster exposure*—defined here as multiple, acute onset, large-scale collective events that cause disruption for individuals, families, and entire communities. Research that is available indicates that children and adults who experience these potentially traumatic community-level events are at greater risk of a variety of negative health outcomes and ongoing secondary stressors throughout their life course. The present study draws on in-depth interviews with a qualitative subsample of nine mother-child pairs who were identified as both statistical and theoretical outliers in terms of their levels of disaster exposure through their participation in a larger, longitudinal Women and Their Children's Health (WaTCH) project that was conducted following the British Petroleum Deepwater Horizon Oil Spill. During Wave 2 of the WaTCH study, mothers and their children were asked survey questions about previous exposure to and the impacts of the oil spill, hurricanes, and other disasters. This article presents the qualitative interview data collected from the subsample of children and mothers who both endorsed that they had experienced three or more disasters that had a major impact on the child and the household. We refer to these children as *exposure outliers*. The in-depth narratives of the four mother-child pairs who told stories of multiple pre-disaster stressors emerging from structural inequalities and health and financial problems, protracted and unstable displacements, and high levels of material and social losses illustrate how problems can pile up to slow or completely hinder individual and family disaster recovery. These four mother-child pairs were especially likely to have experienced devastating losses in Hurricane Katrina in 2005, which then led to an accumulation of disadvantage and ongoing cycles of loss and disruption. The stories of the remaining five mother-child pairs underscore how pre-disaster resources, post-disaster support, and institutional stabilizing forces can accelerate recovery even after multiple disaster exposures. This study offers insights about how families can begin to prepare for a future that is likely to be increasingly punctuated by more frequent and intense extreme weather events and other types of disaster.

## Citation

Mohammadinia L, Ardalan A, Khorasani-Zavareh D, Ebadi A, Malekafzali H, Fazel M. (2018). Domains and indicators of resilient children in natural disasters: A systematic literature review. *International Journal of Preventive Medicine*, 9(54). [https://dx.doi.org/10.4103%2Fijpvm.IJPVM\\_1\\_18](https://dx.doi.org/10.4103%2Fijpvm.IJPVM_1_18)



## Abstract

Resilience has received increased attention among both practitioners and scholars in recent years. Child resilience has received notable attention in disaster risk reduction (DRR) during the creation of the Sendai Framework 2015–2030 to improve child protection in the event of disasters. As resilience is a subjective concept with a variety of definitions, this study evaluates its different factors and determinates in the existing research to clarify the path for the near future and objective research. A systematic literature review was conducted by searching and selecting the peer-reviewed papers published in four main international electronic databases including PubMed, SCOPUS, WEB OF SCIENCE, and PsycINFO to answer the research question: “What are the criteria, factors or indicators for child resilience in the context of a natural disaster?” The process was based on PRISMA guidelines. In total, 28 papers out of 1838 were selected and evaluated using thematic analysis. The results are shown in two separate tables: one descriptive and the other analytical. Two main themes and five subthemes for criteria for child resilience in a disaster have been found. The factors found cover the following areas: mental health, spiritual health, physical, social behavior, and ecological, and as well as environmental. The majority of the included studies mentioned the scattered criteria about children resilience without any organized category. Although this concept is multifactorial, additional research is needed to develop this study and also observe other kinds of disasters such as human-made disasters.

## Citation

Neria, Y., DiGrande, L., & Adams, B. G. (2011). Posttraumatic stress disorder following the September 11, 2001, terrorist attacks: A review of the literature among highly exposed populations. *American Psychologist*, 66(6), 429. <https://doi.org/10.1037/a0024791>

## Abstract

The September 11, 2001 (9/11), terrorist attacks were unprecedented in their magnitude and aftermath. In the wake of the attacks, researchers reported a wide range of mental and physical health outcomes, with posttraumatic stress disorder (PTSD) the one most commonly studied. In this review, we aim to assess the evidence about PTSD among highly exposed populations in the first 10 years after the 9/11 attacks. We performed a systematic review. Eligible studies included original reports based on the full Diagnostic and Statistical Manual of Mental Disorders (4th ed., rev.; American Psychiatric Association, 2000) criteria of PTSD among highly exposed populations such as those living or working within close proximity to the World Trade Center (WTC) and the Pentagon in New York City and Washington, DC, respectively, and first responders, including rescue, cleaning, and recovery workers. The large body of research conducted after the 9/11 attacks in the past decade suggests that the burden of PTSD among persons with high exposure to 9/11 was substantial. PTSD that was 9/11-related was associated with a wide range of correlates, including sociodemographic and background factors, event exposure characteristics, loss of life of significant others, and social support factors. Few studies used longitudinal study design or clinical assessments, and no studies reported findings beyond six years post-9/11, thus hindering documentation of the long-term course of confirmed PTSD. Future directions for research are discussed.



## Citation

Norris, F. H., & Elrod, C. L. (2006). Psychosocial consequences of disaster-A review of past research. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 20-42). Guilford Press.

## Abstract

The question of whether disasters influence mental health has been studied extensively. In this chapter, we provide a general overview of this body of research. We describe the various psychosocial consequences of disasters, the overall magnitude and duration of effects, and risk factors for adverse outcomes. We also summarize the methods that have been used in these studies and draw tentative conclusions about methodological trends. Our hope is that, by having better access to what is already known, future investigators will plan methodologically and conceptually stronger studies than have many investigators in the past.

## Citation

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: Interpersonal and Biological Processes*, 65(3), 207-239. <https://doi.org/10.1521/psyc.65.3.207.20173>

## Abstract

Results for 160 samples of disaster victims were coded as to sample type, disaster type, disaster location, outcomes and risk factors observed, and overall severity of impairment. In order of frequency, outcomes included specific psychological problems, nonspecific distress, health problems, chronic problems in living, resource loss, and problems specific to youth. Regression analyses showed that samples were more likely to be impaired if they were composed of youth rather than adults, were from developing rather than developed countries, or experienced mass violence (e.g., terrorism, shooting sprees) rather than natural or technological disasters. Most samples of rescue and recovery workers showed remarkable resilience. Within adult samples, more severe exposure, female gender, middle age, ethnic minority status, secondary stressors, prior psychiatric problems, and weak or deteriorating psychosocial resources most consistently increased the likelihood of adverse outcomes. Among youth, family factors were primary. Implications of the research for clinical practice and community intervention are discussed in a companion article.

## Citation

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: Interpersonal and Biological Processes*, 65(3), 240-260. <https://doi.org/10.1521/psyc.65.3.240.20169>

## Abstract

On the basis of the literature reviewed in Part I of a two-part series, Norris et al recommend early intervention following disasters, especially when the disaster is associated with extreme and widespread damage to



property, ongoing financial problems for the stricken community, violence that resulted from human intent, and a high prevalence of trauma in the form of injuries, threat to life, and loss of life. Meeting the mental health needs of children, women, and survivors in developing countries is particularly critical. The family context is central to understanding and meeting those needs. Because of the complexity of disasters and responses to them, interagency cooperation and coordination are extremely important elements of the mental health response. Altogether, the research demands that people think ecologically and design and test societal- and community-level interventions for the population at large and conserve scarce clinical resources for those most in need.

### Citation

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>

### Abstract

Worldwide, disasters are increasing in frequency and severity. Mental health consequences of disasters are extensive, and knowledge of anticipated mental health effects is needed for effective disaster response. Difficulties inherent in conducting disaster research have limited the understanding of research findings. This article presents and interprets disaster mental health research findings in the context of research methods. A brief history of the disaster mental health research field is provided, and the presentation of findings is ordered into topical areas of disaster mental health consequences and timing and prediction of mental health outcomes. Results of different studies varied greatly by several main characteristics of research methods, especially methods of psychiatric assessment, sampling and exposure group determination, and consideration of confounding variables. In conclusion, many complexities in conducting disaster mental health research have limited the understanding and interpretation of available knowledge needed to inform efforts to plan and carry out effective mental health responses to disasters. Thoughtful interpretation of findings in the context of research design and methods is vital to accurate understanding of the types, prevalence, and predictors of anticipated mental health effects of disasters. A wealth of knowledge from disaster mental health research has accumulated in recent decades, but more research is still needed to resolve inconsistent findings through methodological refinements.

### Citation

Norris, F. H., Perilla, J. L., Riad, J. K., Kaniasty, K., & Lavizzo, E. A. (1999). Stability and change in stress, resources, and psychological distress following natural disaster: Findings from Hurricane Andrew. *Anxiety, Stress & Coping*, 12(4), 363-396. <https://doi.org/10.1080/10615809908249317>

### Abstract

The stress, resource, and symptom levels of 241 residents of southern Dade County, Florida were assessed 6 and 30 months after Hurricane Andrew. Percentages meeting study criteria for depression and PTSD did not change over time. Whereas mean levels of intrusion and arousal decreased, depressive symptoms remained stable, and avoidance/numbing symptoms actually increased. Intrusion and arousal were associated more strongly with pre-disaster factors (gender, ethnicity) and within-disaster factors (injury, property loss) than with post-disaster factors (stress, resources), but the reverse was true for depression and avoidance. Changes





over time in symptoms were largely explained by changes over time in stress and resources. The findings indicate that ongoing services are needed to supplement the crisis-oriented assistance typically offered to disaster victims.

### Citation

North, C. S., Mendoza, S., Simic, Z., & Pfefferbaum, B. (2018). Parent-reported behavioral and emotional responses of children to disaster and parental psychopathology. *Journal of Loss and Trauma, 23*(4), 303-316. <https://doi.org/10.1080/15325024.2018.1443710>

### Abstract

Child disaster mental health research has been largely limited by investigation of one disaster at a time and inconsistent methods across different studies. This study assessed 160 survivors of 3 disasters with structured diagnostic interviews, asking about the behavioral and emotional disaster reactions of their 266 children, ages 3–17. Most children had  $\geq 1$  postdisaster behavior change or disaster-related posttraumatic stress symptom. The children's postdisaster behavioral and emotional problems were associated with parental postdisaster psychopathology. The results underscore the importance of asking disaster survivors about their children's disaster reactions and considering parental disaster experiences and reactions in addressing their children's reactions.

### Citation

North, C. S., & Norris, F. H. (2006). Choosing research methods to match research goals in studies of disaster or terrorism. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 45-61). Guilford Press.

### Abstract

Ten different researchers investigating the same disaster might come up with 10 very different studies with important, nonoverlapping findings. This chapter is concerned with choosing the design and methods that can best answer the researcher's questions. If the methods are not appropriate for the research questions, the researcher might learn some interesting things, but what is learned might be very different from what he or she is trying to study. To organize the challenging process of designing a study, investigators can begin by asking themselves five questions relating to the why, who, what, when, and how of the research. In some ways, the "why" is both the beginning and end of the process because it shapes the questions that are asked and the interpretation of data that are collected. The "who" entails deciding what group of people should be studied, such as patients in a clinic, the general population, or rescue workers. The "what" is the construct or constructs to be measured, including posttraumatic stress disorder (PTSD) and other psychiatric disorders, distress, stress, and social support or other resources. The "when" refers to the time frame, the point or points in time at which the constructs should be assessed. The "how" pertains to logistical considerations and to the methods used to collect the data. In the remainder of this chapter, we discuss each of these questions--why, who, what, when, and how--sequentially. In some ways, this chapter provides a "roadmap" to the rest of this book, and the reader is often referred to other chapters for details on questions, methods, ethical considerations, and special challenges.



## Citation

North C.S., & Pfefferbaum B. (2002). Research on the mental health effects of terrorism. *JAMA*, 288(5), 633–636. <https://doi.org/10.1001/jama.288.5.633>

## Abstract

The terrorist attacks of September 11, 2001, established a backdrop against which mental health effects of disasters, especially large-scale intentionally created disasters, assumed central stage in US public health. Methodologically sound data are required to understand the mental health effects of terrorism and must guide all postdisaster mental health activities from clinical interventions to administrative policy. However, conducting methodologically solid epidemiologic investigations of mental health is extraordinarily difficult in the chaotic and complex settings of disasters, particularly those associated with terrorism.<sup>1-4</sup> The study by Schlenger and colleagues<sup>5</sup> reported in this issue of THE JOURNAL assessed postdisaster mental health in one of the most complex and challenging disaster settings in US history.

## Citation

O'Fallon, L. R., & Dearry, A. (2002). Community-based participatory research as a tool to advance environmental health sciences. *Environmental Health Perspectives*, 110(suppl 2), 155-159. <https://doi.org/10.1289/ehp.02110s2155>

## Abstract

The past two decades have witnessed a rapid proliferation of community-based participatory research (CBPR) projects. CBPR methodology presents an alternative to traditional population-based biomedical research practices by encouraging active and equal partnerships between community members and academic investigators. The National Institute of Environmental Health Sciences (NIEHS), the premier biomedical research facility for environmental health, is a leader in promoting the use of CBPR in instances where community-university partnerships serve to advance our understanding of environmentally related disease. In this article, the authors highlight six key principles of CBPR and describe how these principles are met within specific NIEHS-supported research investigations. These projects demonstrate that community-based participatory research can be an effective tool to enhance our knowledge of the causes and mechanisms of disorders having an environmental etiology, reduce adverse health outcomes through innovative intervention strategies and policy change, and address the environmental health concerns of community residents.

## Citation

Ong AD, Bergeman CS, Bisconti TL, Wallace KA. (2003). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology*, 91(4), 730-749. <https://doi.org/10.1037/0022-3514.91.4.730>

## Abstract

In 3 studies, the authors investigated the functional role of psychological resilience and positive emotions in the stress process. Studies 1a and 1b explored naturally occurring daily stressors. Study 2 examined data from



a sample of recently bereaved widows. Across studies, multilevel random coefficient modeling analyses revealed that the occurrence of daily positive emotions serves to moderate stress reactivity and mediate stress recovery. Findings also indicated that differences in psychological resilience accounted for meaningful variation in daily emotional responses to stress. Higher levels of trait resilience predicted a weaker association between positive and negative emotions, particularly on days characterized by heightened stress. Finally, findings indicated that over time, the experience of positive emotions functions to assist high-resilient individuals in their ability to recover effectively from daily stress. Implications for research into protective factors that serve to inhibit the scope, severity, and diffusion of daily stressors in later adulthood are discussed.

## Citation

Orengo-Aguayo, R., Stewart, R. W., de Arellano, M. A., Suárez-Kindy, J. L., & Young, J. (2019). Disaster exposure and mental health among Puerto Rican youths after Hurricane Maria. *JAMA Network Open*, 2(4), e192619-e192619. <https://doi.org/10.1001/jamanetworkopen.2019.2619>

## Abstract

**Importance:** Quantifying the magnitude of disaster exposure and trauma-related symptoms among youths is critical for deployment of psychological services in under resourced settings. Hurricane Maria made landfall in Puerto Rico on September 20, 2017, resulting in massive destruction and unprecedented mortality.

**Objective:** To determine the magnitude of disaster exposure and mental health outcomes among Puerto Rican youths after Hurricane Maria.

**Design, Setting, and Participants:** Survey study in which a school-based survey was administered to each public school student at all schools in Puerto Rico between February 1 and June 29, 2018 (5-9 months after Hurricane Maria). Of the 226 808 students eligible to participate, 96 108 students completed the survey.

**Main Outcomes and Measures:** Participants were assessed for exposure to hurricane-related stressors, posttraumatic stress disorder (PTSD), and depressive symptoms, using standardized self-report measures administered in Spanish. Descriptive statistics were compiled for all outcome variables, as was the frequency of individuals reporting clinically elevated symptoms of PTSD or depression. Differences in these statistics across sexes were also examined via *t* tests. Correlations between demographic, geographic, and main outcome variables were also calculated, and regressions were conducted to examine their association with symptoms of PTSD.

**Results:** A total of 96 108 students participated in the study (42.4% response rate; 50.3% female), representative of grades 3 to 12 across all 7 educational regions of Puerto Rico. As a result of the hurricane, 83.9% of youths saw houses damaged, 57.8% had a friend or family member leave the island, 45.7% reported damage to their own homes, 32.3% experienced shortages of food or water, 29.9% perceived their lives to be at risk, and 16.7% still had no electricity 5 to 9 months after the hurricane. Overall, 7.2% of youths (*n* = 6900) reported clinically significant symptoms of PTSD; comparison of the frequency of reporting clinically elevated symptoms of PTSD across sex yielded a significant difference (*t* = 12.77; 95% CI of the difference, 0.018-0.025; *P* < .001), with girls (8.2%) exceeding the clinical cutoff score more often than boys (6.1%). Finally, similar analysis of differences in depression between sexes was also significant (*t* = 17.56; 95% CI of the difference, 0.31-0.39; *P* < .001), with girls displaying higher mean (SD) scores (2.72 [3.14]) than boys (2.37 [2.93]). Demographic and risk variables accounted for approximately 20% of variance in symptoms of PTSD (*r*<sup>2</sup> = 0.195; 95% CI, 0.190-0.200).



*Conclusions and Relevance:* Survey results indicate that Hurricane Maria exposed Puerto Rican youths to high levels of disaster-related stressors, and youths reported high levels of PTSD and depressive symptoms. Results are currently being used by the Puerto Rico Department of Education to inform targeted and sustainable evidence-based practices aimed at improving mental health outcomes for Puerto Rico's youths.

### Citation

Palinkas, L. A. (2006). Qualitative Approaches to Studying the Effects of Disasters. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 158-173). Guilford Press.

### Abstract

Disaster research is often viewed as a largely quantitative enterprise in which the effects on individuals, communities, and societies are enumerated in terms such as rates of morbidity and mortality or financial losses and costs of reconstruction. However, there is another research tradition, rooted primarily within the disciplines of sociology and anthropology, that has employed qualitative methods to examine the effects of disasters on the behavior of individuals, groups, and organizations. Moreover, when used in an integrated fashion through mixed method designs, the quantitative and qualitative research traditions each possess enormous potential to complement each other, providing a more comprehensive level of insight and understanding through combinations of breadth and depth, exploration, and confirmation. This chapter describes the use of qualitative methods in research on the mental health effects of disasters and terrorism, examines the rationale for using such methods, outlines the types of methods that have been used in the past and might have potential for use in the future, and offers recommendations for their use in disaster research.

### Citation

Palinkas, L.A., Prussing, E., Reznik, V.M., & Landsverk, J.A. (2004). The San Diego East County school shootings: A qualitative study of community level posttraumatic stress. *Prehospital and Disaster Medicine, 19*(1),113–121. <https://doi.org/10.1017/S1049023X00001564>

### Abstract

*Introduction:* Within one month (March 2001), two separate incidents of school shootings occurred at two different high schools within the same school district in San Diego's East County.

*Objective:* To examine community-wide expressions of post-traumatic distress resulting from the shootings that may or may not fulfill DSM-IV criteria for post-traumatic stress disorder (PTSD), but which might interfere with treatment and the prevention of youth violence.

*Methods:* A qualitative study was undertaken using Rapid Assessment Procedures (RAP) in four East San Diego County communities over a six-month period following the two events. Semi-structured interviews were conducted with 85 community residents identified through a maximum variation sampling technique. Interview transcripts were analyzed by coding consensus, co-occurrence, and comparison, using text analysis software.

*Results:* Three community-wide patterns of response to the two events were identified: (1) 52.9% of respondents reported intrusive reminders of the trauma associated with intense media coverage and subsequent rumors, hoaxes, and threats of additional acts of school violence; (2) 44.7% reported efforts to avoid thoughts, feelings, conversations, or places (i.e., schools) associated with the events; negative



assessment of media coverage; and belief that such events in general cannot be prevented; and (3) 30.6% reported anger, hyper-vigilance, and other forms of increased arousal. Twenty-three (27.1%) respondents reported symptoms of fear, anxiety, depression, drug use, and psychosomatic symptoms in themselves or others.

*Conclusions:* School shootings can precipitate symptoms of post-traumatic stress disorder at the community level. Such symptoms hinder the treatment of individuals with PTSD and the implementation of effective prevention strategies and programs.

### Citation

Pan American Health Organization (PAHO). (2018, June 13). CDB and PAHO sign agreement to support mental health in aftermath of natural disasters. *PAHO Caribbean Subregional Program Coordination*.

[https://www.paho.org/spc-crb/index.php?option=com\\_content&view=article&id=522:cdb-and-paho-sign-agreement-to-support-mental-health-in-aftermath-of-natural-disasters&Itemid=1540](https://www.paho.org/spc-crb/index.php?option=com_content&view=article&id=522:cdb-and-paho-sign-agreement-to-support-mental-health-in-aftermath-of-natural-disasters&Itemid=1540).

### Abstract

N/A

### Citation

Paton, D., Smith, L., & Violanti, J. (2000). Disaster response: risk, vulnerability and resilience. *Disaster Prevention and Management: An International Journal*, 9(3), 173-180.

<https://doi.org/10.1108/09653560010335068>

### Abstract

The assumption of an automatic link between disaster exposure and pathological outcomes is increasingly being questioned. Recognition of the possibility of positive reactions and growth outcomes in this context necessitates the development of alternative models and, in particular, the accommodation of the resilience construct in research and intervention agenda. Reviews possible vulnerability and resilience factors and adopts a risk management framework to outline its potential for modelling the complex relationships between these variables and both growth and distress outcomes. Resilience and vulnerability is discussed at dispositional, cognitive and organisational levels. The paradigm developed here focuses attention on facilitating recovery and growth in professionals for whom disaster work and its consequences is an occupational reality.

### Citation

Paxson, C., Fussell, E., Rhodes, J., & Waters, M. (2012). Five years later: Recovery from post traumatic stress and psychological distress among low-income mothers affected by hurricane Katrina. *Social Science & Medicine* (1982), 74(2), 150-157. <https://doi.org/10.1016/j.socscimed.2011.10.004>



## Abstract

Hurricane Katrina, which struck the Gulf Coast of the United States in August 2005, exposed area residents to trauma and extensive property loss. However, little is known about the long-run effects of the hurricane on the mental health of those who were exposed. This study documents long-run changes in mental health among a particularly vulnerable group—low income mothers—from before to after the hurricane, and identifies factors that are associated with different recovery trajectories. Longitudinal surveys of 532 low-income mothers from New Orleans were conducted approximately one year before, 7–19 months after, and 43–54 months after Hurricane Katrina. The surveys collected information on mental health, social support, earnings and hurricane experiences. We document changes in post-traumatic stress symptoms (PTSS), as measured by the Impact of Event Scale-Revised, and symptoms of psychological distress (PD), as measured by the K6 scale. We find that although PTSS has declined over time after the hurricane, it remained high 43–54 months later. PD also declined, but did not return to pre-hurricane levels. At both time periods, psychological distress before the hurricane, hurricane-related home damage, and exposure to traumatic events were associated with PTSS that co-occurred with PD. Hurricane-related home damage and traumatic events were associated with PTSS without PD. Home damage was an especially important predictor of chronic PTSS, with and without PD. Most hurricane stressors did not have strong associations with PD alone over the short or long run. Over the long run, higher earnings were protective against PD, and greater social support was protective against PTSS. These results indicate that mental health problems, particularly PTSS alone or in co-occurrence with PD, among Hurricane Katrina survivors remain a concern, especially for those who experienced hurricane-related trauma and had poor mental health or low socioeconomic status before the hurricane.

## Citation

Peek, L. (2013). Age. In D. S. K. Thomas, B. D. Phillips, W. E. Lovekamp, & A. Fothergill (Eds.), *Social vulnerability to disasters* (2nd ed., 167-98). CRC Press.

## Abstract

The length of time that someone has lived can significantly affect that person's ability to prepare for, respond to, and recover from disaster. Indeed, age is correlated with a number of factors associated with one's likelihood of withstanding a disaster event. For example, age in many ways influences cognitive development, physical ability and mobility, socioeconomic status, access to resources, assumed responsibility for disaster preparedness and response activities, and levels of social integration or isolation. Thus, it is clear that age alone does not make a person vulnerable. Instead, age interacts with many other factors to result in the increased vulnerability of some population groups, particularly the very young and the old. As such, this chapter focuses specifically on the vulnerabilities of children and the elderly in disaster.

## Citation

Peek, L. (2008). Children and disasters: Understanding vulnerability, developing capacities, and promoting resilience—An introduction. *Children Youth and Environments*, 18(1), 1-29.





## Abstract

This comprehensive overview of the literature on children and disasters argues that scholars and practitioners should more carefully consider the experiences of children themselves. As the frequency and intensity of disaster events increase around the globe, children are among those most at risk for the negative effects of disaster. Children are psychologically vulnerable and may develop post-traumatic stress disorder or related symptoms; are physically vulnerable to death, injury, illness, and abuse; and often experience disruptions or delays in their educational progress as a result of disasters. Children have special needs and may require different forms of physical, social, mental, and emotional support than adults. However, children also have the capacity to contribute to disaster preparedness, response, and recovery activities. In order to promote children's resilience to disasters, we must improve their access to resources, empower them by encouraging their participation, offer support, and ensure equitable treatment.

## Citation

Peek, L., Abramson, D. M., Cox, R. S., Fothergill, A., & Tobin, J. (2018). Children and disasters. In H. Rodriguez, W. Donner, & J. E. Trainor (Eds.), *Handbook of disaster research* (2nd ed., pp 243-262). Springer.  
[https://doi.org/10.1007/978-3-319-63254-4\\_13](https://doi.org/10.1007/978-3-319-63254-4_13)

## Abstract

This chapter reviews available literature on children and disasters, with an emphasis on the recent dramatic expansion in this area of study. The overarching goal is to provide an overview of the substantive contributions of scholarship on children and disasters. Through this process, our specific objective is to identify major empirical, theoretical, and methodological trends and patterns. After reading the chapter, our hope is that others will understand the major contributions of this area of study—both for the field of disaster research and practice, and for the social sciences more generally—while also recognizing the need for new lines of inquiry and approaches. We begin by defining key concepts that frame this chapter and by describing our approach to reviewing the literature. Next, we offer a summary of publication patterns associated with children and disasters; here we underscore the growth in this subfield and highlight how a relatively limited number of large-scale catastrophic events have served to spur research in this area. We then turn to six major waves of research that have been most prevalent over time. These include contributions to enhanced understanding of (1) the effects of disaster on children's mental health and behavioral reactions; (2) disaster exposure as it relates to physical health and well-being; (3) social vulnerability and sociodemographic characteristics; (4) the role of institutions and socio-ecological context in shaping children's pre- and post-disaster outcomes; (5) resiliency, strengths, and capacities; and (6) children's voices, perspectives, and actions across the disaster lifecycle. We also emphasize advancements in methods, theory, policy, and practice, and offer suggestions for future directions in research.

## Citation

Picou, J. S., Gill, D. A., Dyer, C. L., & Curry, E. W. (1992). Disruption and stress in an Alaskan fishing community: Initial and continuing impacts of the Exxon Valdez oil spill. *Industrial Crisis Quarterly*, 6(3), 235-257.  
<https://doi.org/10.1177/108602669200600305>



## Abstract

The study of technological disasters has been characterized by conceptual ambiguity and non-ecological considerations of community vulnerability. This research employs an ecological-symbolic theoretical approach that identifies natural resource communities as particularly vulnerable to disasters that contaminate biophysical resources. A longitudinal panel study, including a control community, provides data on disruption and stress experienced by residents of a small fishing community in Prince William Sound, Alaska. The analysis reveals a continuing pattern of stress and disruptions some 18 months following the spill. The report concludes with a discussion of the specific long-term patterns observed.

## Citation

Powell, T. (2011). *The journey of hope curricula: Building resilience after a natural disaster*. Save the Children.

## Abstract

N/A

## Citation

Prati, G., & Pietrantonio, L. (2010). The relation of perceived and received social support to mental health among first responders: A meta-analytic review. *Journal of Community Psychology*, 38(3), 403-417. <https://doi.org/10.1002/jcop.20371>

## Abstract

There are plenty of theories that may support the protective role of social support in the aftermath of potentially traumatic events. This meta-analytic review examined the role of received and perceived social support in promoting mental health among first responders (e.g., firefighters, police officers, and paramedics or emergency medical services personnel). Results showed that the effect sizes derived from 37 empirical studies ranged from 0 to 0.46. The overall weighted mean effect size was of medium magnitude ( $r=0.27$ ). Moreover, moderator analysis showed that the effect size of perceived social support ( $r=0.31$ ) was significantly higher than the effect size of received social support ( $r=0.22$ ). Participants' age and gender or research design did not exert an influence on the relationship between social support and mental health. Theoretical implications and limitations are discussed. © 2010 Wiley Periodicals, Inc.

## Citation

Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5183 U.S.C. §§ 416 (2016).

## Abstract

N/A



## Citation

Schlenger, W. E., & Silver, R. C. (2006). Web-based methods in disaster research. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 129-140). Guilford Press.

## Abstract

N/A

## Citation

Shultz, J. M., & Forbes, D. (2014). Psychological first aid: Rapid proliferation and the search for evidence. *Disaster Health, 2*(1), 3-12. <https://doi.org/10.4161/dish.26006>

## Abstract

Psychological first aid (PFA) has become the flagship early intervention for disaster survivors, with recent adaptations for disaster responders, in the post-9/11 era. PFA is broadly endorsed by expert consensus and integrated into guidelines for mental health and psychosocial support in disasters and extreme events. PFA frameworks are proliferating, with increasing numbers of models developed for delivery by a range of providers for use with an expanding array of target populations. Despite popularity and promotion there remains a dearth of evidence for effectiveness and recent independent reviews of PFA have highlighted this important gap. This commentary juxtaposes the current propagation of PFA against the compelling need to produce evidence for effectiveness and suggests a series of actions to prioritize and expedite real-time, real-event field evaluation of PFA.

## Citation

Silver, R. C., Holman, E. A., Andersen, J. P., Poulin, M., McIntosh, D. N., & Gil-Rivas, V. (2013). Mental-and physical-health effects of acute exposure to media images of the September 11, 2001, attacks and the Iraq War. *Psychological Science, 24*(9), 1623-1634. <https://doi.org/10.1177/0956797612460406>

## Abstract

Millions of people witnessed early, repeated television coverage of the September 11 (9/11), 2001, terrorist attacks and were subsequently exposed to graphic media images of the Iraq War. In the present study, we examined psychological- and physical-health impacts of exposure to these collective traumas. A U.S. national sample ( $N = 2,189$ ) completed Web-based surveys 1 to 3 weeks after 9/11; a subsample ( $n = 1,322$ ) also completed surveys at the initiation of the Iraq War. These surveys measured media exposure and acute stress responses. Posttraumatic stress symptoms related to 9/11 and physician-diagnosed health ailments were assessed annually for 3 years. Early 9/11- and Iraq War-related television exposure and frequency of exposure to war images predicted increased posttraumatic stress symptoms 2 to 3 years after 9/11. Exposure to 4 or more hr daily of early 9/11-related television and cumulative acute stress predicted increased incidence of health ailments 2 to 3 years later. These findings suggest that exposure to graphic media images may result in physical and psychological effects previously assumed to require direct trauma exposure.



## Citation

Springgate, B. F., Wennerstrom, A., Meyers, D., Allen III, C. E., Vannoy, S. D., Bentham, W., & Wells, K. B. (2011). Building community resilience through mental health infrastructure and training in post-Katrina New Orleans. *Ethnicity & Disease, 21*(301), S1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3731130/>

## Abstract

To describe a disaster recovery model focused on developing mental health services and capacity-building within a disparities-focused, community-academic participatory partnership framework. Community-based participatory, partnered training and services delivery intervention in a post-disaster setting. Post-Katrina Greater New Orleans community. More than 400 community providers from more than 70 health and social services agencies participated in the trainings. Partnered development of a training and services delivery program involving physicians, therapists, community health workers, and other clinical and non-clinical personnel to improve access and quality of care for mental health services in a post-disaster setting. Services delivery (outreach, education, screening, referral, direct treatment); training delivery; satisfaction and feedback related to training; partnered development of training products. Clinical services in the form of outreach, education, screening, referral and treatment were provided in excess of 110,000 service units. More than 400 trainees participated in training, and provided feedback that led to evolution of training curricula and training products, to meet evolving community needs over time. Participant satisfaction with training generally scored very highly. This paper describes a participatory, health-focused model of community recovery that began with addressing emerging, unmet mental health needs using a disparities-conscious partnership framework as one of the principle mechanisms for intervention. Population mental health needs were addressed by investment in infrastructure and services capacity among small and medium sized non-profit organizations working in disaster-impacted, low resource settings.

## Citation

Steinberg, A. M., Brymer, M. J., Steinberg, J. R., & Pfefferbaum, B. (2006). Conducting research on children and adolescents after disaster. In F. H. Norris, S. Galea, M. J. Friedman, & P. J. Watson (Eds.), *Methods for disaster mental health research* (pp. 243–253). The Guilford Press.

## Abstract

Studies of the biological, psychological, and behavioral impact of natural disasters on children and adolescents have been growing steadily over the past two decades, with earthquakes and hurricanes being the most widely investigated disasters. More recently, there has been a growing body of scientific literature concerning the adverse effects of political violence and terrorism. This chapter provides a selected review of issues that have been prominent in our national and international research with children, adolescents, and families after disasters and terrorism. These include methodological issues in research design and selection of instruments, coordination of research efforts among research groups, a variety of ethical issues, and special considerations in regard to intervention outcome studies. The last section of the chapter focuses on recommendations for important areas of future research, including the evaluation of early interventions that can be provided to children, adolescents, and families in the acute aftermath of catastrophic events.



## Citation

Tang, B., Deng, Q., Glik, D., Dong, J., & Zhang, L. (2017). A meta-analysis of risk factors for post-traumatic stress disorder (PTSD) in adults and children after earthquakes. *International Journal of Environmental Research and Public Health*, 14(12), 1537. <https://doi.org/10.3390/ijerph14121537>

## Abstract

PTSD is considered the most common negative psychological reactions among survivors following an earthquake. The present study sought to find out the determinants of PTSD in earthquake survivors using a systematic meta-analysis. Four electronic databases (PubMed, Embase, Web of Science, and PsycInfo) were used to search for observational studies about PTSD following earthquakes. The literature search, study selection, and data extraction were conducted independently by two authors. 52 articles were included in the study. Summary estimates, subgroup analysis, and publication bias tests were performed on the data. The prevalence of PTSD after earthquakes ranged from 4.10% to 67.07% in adults and from 2.50% to 60.00% in children. For adults, the significant predictors were being female, low education level or socio-economic status, prior trauma; being trapped, experiencing fear, injury, or bereavement during the disaster. For children, the significant predictors were being older age, high education level; being trapped, experiencing fear, injury, or bereavement, witnessing injury/death during the earthquakes. Our study provides implications for the understanding of risk factors for PTSD among earthquake survivors. Post-disaster mental health recovery programs that include early identification, on-going monitoring, and sustained psychosocial support are needed for earthquake survivors.

## Citation

Tang, B., Liu, X., Liu, Y., Xue, C., & Zhang, L. (2014). A meta-analysis of risk factors for depression in adults and children after natural disasters. *BMC Public Health*, 14(1), 623. <https://doi.org/10.1186/1471-2458-14-623>

## Abstract

**Background:** A number of studies have shown a range of negative psychological symptoms (e.g. depression) after exposure to natural disasters. The aim of this study was to determine risk factors for depression in both children and adults who have survived natural disasters.

**Methods:** Four electronic databases (PubMed, Embase, Web of Science, and PsychInfo) were used to search for observational studies (case–control, cross-sectional, and cohort studies) about depression following natural disasters. The literature search, study selection, and data extraction were conducted independently by two authors. Thirty-one articles were included in the study, of which twenty included adult participants and eleven included child participants. Summary estimates were obtained using random-effects models. Subgroup analysis, sensitivity analysis, and publication bias tests were performed on the data.

**Results:** The prevalence of depression after natural disasters ranged from 5.8% to 54.0% in adults and from 7.5% to 44.8% in children. We found a number of risk factors for depression after exposure to natural disasters. For adults, the significant predictors were being female ;not married;holding religious beliefs; having poor education; prior trauma; experiencing fear, injury, or bereavement during the disaster; or losing employment or property, suffering house damage as a result of the disaster. For children, the significant predictors were prior trauma; being trapped during the disaster; experiencing injury, fear, or bereavement during the disaster; witnessing injury/death during the disaster; or having poor social support.



*Conclusions:* The current analysis provides evidence of risk factors for depression in survivors of natural disasters. Further research is necessary to design interventions to improve the mental health of survivors of natural disasters.

### Citation

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455-471. <https://doi.org/10.1007/BF02103658>

### Abstract

The development of the Posttraumatic Growth Inventory, an instrument for assessing positive outcomes reported by persons who have experienced traumatic events, is described. This 21-item scale includes factors of New Possibilities, Relating to Others, Personal Strength, Spiritual Change, and Appreciation of Life. Women tend to report more benefits than do men, and persons who have experienced traumatic events report more positive change than do persons who have not experienced extraordinary events. The Posttraumatic Growth Inventory is modestly related to optimism and extraversion. The scale appears to have utility in determining how successful individuals, coping with the aftermath of trauma, are in reconstructing or strengthening their perceptions of self, others, and the meaning of events.

### Citation

Tol, W. A., Barbui, C., Galappatti, A., Silove, D., Betancourt, T. S., Souza, R., Golaz, A., MD, & Van Ommeren, M. (2011). Mental health and psychosocial support in humanitarian settings: Linking practice and research. *The Lancet, 378*(9802), 1581-1591. [https://doi.org/10.1016/S0140-6736\(11\)61094-5](https://doi.org/10.1016/S0140-6736(11)61094-5)

### Abstract

This review links practice, funding, and evidence for interventions for mental health and psychosocial wellbeing in humanitarian settings. We studied practice by reviewing reports of mental health and psychosocial support activities (2007–10); funding by analysis of the financial tracking service and the creditor reporting system (2007–09); and interventions by systematic review and meta-analysis. In 160 reports, the five most commonly reported activities were basic counselling for individuals (39%); facilitation of community support of vulnerable individuals (23%); provision of child-friendly spaces (21%); support of community-initiated social support (21%); and basic counselling for groups and families (20%). Most interventions took place and were funded outside national mental health and protection systems. 32 controlled studies of interventions were identified, 13 of which were randomised controlled trials (RCTs) that met the criteria for meta-analysis. Two studies showed promising effects for strengthening community and family supports. Psychosocial wellbeing was not included as an outcome in the meta-analysis, because its definition varied across studies. In adults with symptoms of post-traumatic stress disorder (PTSD), meta-analysis of seven RCTs showed beneficial effects for several interventions (psychotherapy and psychosocial supports) compared with usual care or waiting list (standardised mean difference [SMD] -0.38, 95% CI -0.55 to -0.20). In children, meta-analysis of four RCTs failed to show an effect for symptoms of PTSD (-0.36, -0.83 to 0.10), but showed a beneficial effect of interventions (group psychotherapy, school-based support, and other psychosocial support) for internalising symptoms (six RCTs; SMD -0.24, -0.40 to -0.09). Overall, research and evidence





focuses on interventions that are infrequently implemented, whereas the most commonly used interventions have had little rigorous scrutiny.

### Citation

Tol, W. A., Patel, V., Tomlinson, M., Baingana, F., Galappatti, A., Silove, D., Sondorp, E., van Ommeren, M., Wessells, M. G., & Panter-Brick, C. (2012). Relevance or excellence? Setting research priorities for mental health and psychosocial support in humanitarian settings. *Harvard Review of Psychiatry*, 20(1), 25-36. <https://doi.org/10.3109/10673229.2012.649113>

### Abstract

There has been a great need to develop a research agenda to strengthen mental health and psychosocial support in humanitarian settings; prior research in this area has had limited inputs from practitioners. We developed a consensus-based research agenda for the next ten years through inputs from an interdisciplinary group of academics, policy makers, and practitioners (n=82) representing regions where humanitarian crises occur. Participants reached a high level of agreement on the ten most highly prioritized research questions, which consisted of questions related to: problem analysis (four questions on identifying stressors, problems, and protective factors from the perspective of affected populations), mental health and psychosocial support interventions (three questions on sociocultural adaptation and on effectiveness of family- and school-based prevention), research and information management (two questions on assessment methods and indicators for monitoring and evaluation), and mental health and psychosocial support context (one question on whether interventions address locally perceived needs). This research agenda emphasizes the generation of practical knowledge that could translate to immediate tangible benefits for programming in humanitarian settings, rather than addressing the key debates that have dominated the academic literature. Addressing this research agenda requires a better alignment between researchers and practitioners, attention to perspectives of populations affected by humanitarian crises, and sensitivity to sociocultural context.

### Citation

Toyokawa, S., Uddin, M., Koenen, K. C., & Galea, S. (2012). How does the social environment 'get into the mind'? Epigenetics at the intersection of social and psychiatric epidemiology. *Social Science & Medicine*, 74(1), 67-74. <https://doi.org/10.1016/j.socscimed.2011.09.036>

### Abstract

The social environment plays a considerable role in determining major psychiatric disorders. Emerging evidence suggests that features of the social environment modify gene expression independently of the primary DNA sequence through epigenetic processes. Accordingly, dysfunction of epigenetic mechanisms offers a plausible mechanism by which an adverse social environment gets "into the mind" and results in poor mental health. The purpose of this review is to provide an overview of the studies suggesting that epigenetic changes introduced by the social environment then manifest as psychological consequences. Our goal is to build a platform to discuss the ways in which future epidemiologic studies may benefit from including epigenetic measures. We focus on schizophrenia, major depressive disorder, post-traumatic stress disorder, anorexia nervosa, and substance dependence as examples that highlight the ways in which social environmental exposures, mediated through epigenetic processes, affect mental health.



## Citation

Wang, C. W., Chan, C. L., & Ho, R. T. (2013). Prevalence and trajectory of psychopathology among child and adolescent survivors of disasters: A systematic review of epidemiological studies across 1987–2011. *Social Psychiatry and Psychiatric Epidemiology*, 48(11), 1697-1720. <https://doi.org/10.1007/s00127-013-0731-x>

## Abstract

**Aims:** The goal of this paper was to systematically review evidence on (1) the potential magnitude of the psychopathological impacts of community-wide disasters on child and adolescent survivors, and (2) the long-term course or trajectory of disaster-induced psychopathology among children and adolescents.

**Methods:** The PubMed/MEDLINE and PsycINFO databases were searched from their respective inception through December 2011. All of the resulting epidemiological studies of child and adolescent survivors following community-wide disasters were examined.

**Results:** Sixty cross-sectional studies and 25 longitudinal or long-term follow-up studies were identified. The estimated rates of posttraumatic stress disorder (PTSD) and depression among child and adolescent survivors varied greatly across the included studies, ranging from 1.0 to 95 % and 1.6 to 81 %, respectively, while the reported rates of diagnosable PTSD according to the DSM-IV criteria and diagnosable depression ranged from 1.0 to 60 % and 1.6 to 33 %, respectively. The long-term courses of psychopathology among youthful survivors were summarized. Methodological issues with those studies were discussed.

**Conclusions:** The empirical findings summarized in this review highlight the importance of psychosocial intervention at early post disaster stages for child and adolescent survivors. The methodological flaws revealed by this review indicate the need for continued attempts to better understand the epidemiology and trajectory of psychopathological problems among youthful survivors.

## Citation

Waters, M. C. (2016). Life after Hurricane Katrina: The resilience in survivors of Katrina (RISK) project. *Sociological Forum*, 31(S1), 750-769. <https://doi.org/10.1111/socf.12271>

## Abstract

This article presents an overview of the findings to date of the Resilience in Survivors of Katrina (RISK) Project, a longitudinal study of 1,019 young, predominantly female and African American community college students who were surveyed a year before Hurricane Katrina in New Orleans and then two to three times afterward. This study combines a multidisciplinary, multimethod approach to understanding the immediate and long-term effects of the Katrina disaster on physical and mental health, economic and social functioning, and neighborhood attainment. I discuss what we can learn from the rare inclusion of predisaster data and our unusual ability to follow participants for years after the disaster. I argue that it is important to follow the recovery of individuals and communities as well as the recovery of the city, as these are often not the same, especially in Katrina where a large proportion of the city never returned.

## Citation

Watson, P. J., Brymer, M. J., & Bonanno, G. A. (2011). Post disaster psychological intervention since 9/11. *American Psychologist*, 66(6), 482-494. <https://doi.org/10.1037/a0024806>



## Abstract

A wealth of research and experience after 9/11 has led to the development of evidence-based and evidence-informed guidelines and strategies to support the design and implementation of public mental health programs after terrorism and disaster. This article reviews advances that have been made in a variety of areas, including development of improved metrics and methodologies for conducting needs assessment, screening, surveillance, and program evaluation; clarification of risk and resilience factors as these relate to varying outcome trajectories for survivors and inform interventions; development and implementation of evidence-based and evidence-informed early, midterm, and late interventions for children, adults, and families; adaptation of interventions for cultural, ethnic, and minority groups; improvement in strategies to expand access to post disaster mental health services; and enhancement of training methods and platforms for workforce development among psychologists, paraprofessionals, and other disaster responders. Continuing improvement of psychologists' national capacity to respond to catastrophic events will require more systematic research to strengthen the evidence base for postdisaster screening and interventions and effective methods and platforms for training. Policy decisions are clearly needed that enhance federal funding to increase availability and access to services, especially for longer term care. Traumatic bereavement represents a critical area for future research, as much needs to be done to clarify issues related to reactions and adaptation to a traumatic death.

## Citation

Weisæth, L. (1989). The stressors and the post-traumatic stress syndrome after an industrial disaster. *Acta Psychiatrica Scandinavica*, 80, 25-37. <https://doi.org/10.1111/j.1600-0447.1989.tb05251.x>

## Abstract

Acute and subacute post-traumatic stress reactions are reported among 246 employees of an industrial factory which was severely damaged by an explosion and fire. Sixty-six A-subjects had narrow escape experiences (high stress exposure group), while 59 B-subjects were less severely exposed (medium stress exposure group). The 121 C-subjects were not present at work when the explosion occurred (low stress exposure group). A response rate of 97.6% was achieved at the primary examination, and a 100% response at the 7 months follow-up. The frequency and intensity of post-traumatic stress reactions were linked to the severity (A,B,C) of the stress exposure; specific post-traumatic anxiety reactions reported by more than 80% of A-subjects. The reactions appeared immediately or within hours, only 5% of A had delays of a few weeks. While 24.3% of A had State Anxiety Inventory scores 1 week post-disaster higher than 60, 8.5% of B and 2.5% of C had similar scores. Depressive reactions, social withdrawal, guilt, shame and irritability were less frequent, and appeared nearly always concomittant with anxiety symptoms. While the anxiety symptoms made up a tight knit syndrome, the less frequent non-anxiety symptoms were linked to the post-traumatic anxiety syndrome. The subjects' fears reflected the trauma, they feared inanimate objects, and there were hardly any paranoid ideations. The disaster exposure of the A and B but not of the C group members constituted a stressor which fulfilled the PTSD stressor criterion of the DSM III R. A minority of the C group developed a post-traumatic stress syndrome. After 7 months, all 30 post-traumatic stress reactions were more frequent and severe in the A than B group which again differed from the C group. Irritability was the only post-traumatic stress reaction that increased in frequency and intensity during the 7 months observation period. The findings represent evidence that supports the face validity, descriptive and construct validity of the PTSD diagnosis.



## Citation

Welton-Mitchell, C., James, L. E., Khanal, S. N., & James, A. S. (2018). An integrated approach to mental health and disaster preparedness: A cluster comparison with earthquake affected communities in Nepal. *BMC Psychiatry*, 18(1), 296. <https://doi.org/10.1186/s12888-018-1863-z>

## Abstract

**Background:** On 25th April 2015, Nepal experienced a 7.8 magnitude earthquake, followed by countless aftershocks. Nearly 9000 people were killed and over 600,000 homes destroyed. Given the high frequency of earthquake and other natural hazards in Nepal, disaster preparedness is crucial. However, evidence suggests that some people exposed to prior disasters do not engage in risk reduction, even when they receive training and have adequate resources. Mental health symptoms, including those associated with prior disaster exposure, may influence engagement in preparedness. Perceived preparedness for future disasters may in turn influence mental health. Social cohesion may influence both mental health and preparedness.

**Methods:** We developed and tested a hybrid mental health and disaster preparedness intervention in two earthquake-affected communities in Nepal ( $N = 240$ ), about 2.5 months after the April 25th, 2015 earthquake. The 3-day intervention was culturally adapted, facilitated by trained Nepalese clinicians and focused on enhancing disaster preparedness, mental health, and community cohesion. Communities were selected based on earthquake impacts and matched on demographic variables. The intervention was administered initially to one community, followed by the other receiving the intervention shortly thereafter. Survey data was collected across three time points. Focus groups were also conducted to examine intervention impact.

**Results:** At pre-intervention baseline, greater depression symptoms and lower social cohesion were associated with less disaster preparedness. Depression and PTSD were associated with lower social cohesion.

Participation in the intervention increased disaster preparedness, decreased depression- and PTSD-related symptoms, and increased social cohesion. Mediation models indicated that the effect of intervention on depression was partially explained by preparedness. The effect of the intervention on disaster preparedness was partially explained by social cohesion, and the effect of intervention on depression and on PTSD was also partially explained by social cohesion. Data from focus groups illuminate participant perspectives on components of the intervention associated with preparedness, mental health and social cohesion.

**Conclusions:** This mental health integrated disaster preparedness intervention is effective in enhancing resilience among earthquake-affected communities in Nepal. This brief, cost-effective group intervention has the potential to be scaled up for use with other communities vulnerable to earthquakes and other natural hazards.

## Citation

Wind, T. R., Fordham, M., & H. Komproe, I. (2011). Social capital and post-disaster mental health. *Global Health Action*, 4(1), 6351-9. <https://doi.org/10.3402/gha.v4i0.6351>

## Abstract

**Background:** Despite national and international policies to develop social capital in disaster-affected communities, empiric evidence on the association between social capital and disaster mental health is limited and ambiguous.



*Objective:* The study explores the relationship between social capital and disaster mental health outcomes (PTSD, anxiety, and depression) in combination with individual factors (appraisal, coping behavior, and social support).

*Design:* This is a community-based cross-sectional study in a flood-affected town in northern England. The study is part of the MICRODIS multi-country research project that examines the impact of natural disasters. It included 232 flood-affected respondents.

*Results:* The findings showed that a considerable part of the association between cognitive and structural social capital and mental health is exerted through individual appraisal processes (i.e. property loss, primary and secondary appraisal), social support, and coping behavior. These individual factors were contingent on social capital. After the inclusion of individual characteristics, cognitive social capital was negatively related to lower mental health problems and structural social capital was positively associated to experiencing anxiety but not to PTSD or depression. Depression and anxiety showed a different pattern of association with both components of social capital.

*Conclusions:* Individual oriented stress reducing interventions that use appraisal processes, social support, and coping as starting points could be more effective by taking into account the subjective experience of the social context in terms of trust and feelings of mutual support and reciprocity in a community. Findings indicate that affected people may especially benefit from a combination of individual stress reducing interventions and psychosocial interventions that foster cognitive social capital.

### **Citation**

World Health Organization. (2014). Mental health: A state of well-being. *World Health Organization*. <https://www.who.int/news-room/facts-in-pictures/detail/mental-health>

### **Abstract**

N/A

### **Citation**

World Health Organization. (2011) Psychological first aid: Guide for field workers. *World Health Organization*. [https://www.who.int/mental\\_health/publications/guide\\_field\\_workers/en/](https://www.who.int/mental_health/publications/guide_field_workers/en/)

### **Abstract**

N/A

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