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Mental health and general wellness in the aftermath of Hurricane Ike

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ABSTRACT

Exposure to natural disasters has been linked to a range of adverse outcomes, including mental health problems (e.g., posttraumatic stress symptoms [PTSS], depression), declines in role functioning (e.g., occupational difficulties), and physical health problems (e.g., somatic complaints). However, prior research and theory suggest that the modal postdisaster response in each of these domains is *resilience*, defined as low levels of symptoms or problems in a given outcome over time, with minimal elevations that are limited to the time period during the disaster and its immediate aftermath. However, the extent to which disaster survivors exhibit *mental health wellness* (resilience across multiple mental health conditions) or *general wellness* (resilience across mental health, physical health, and role functioning domains) remains unexplored. The purpose of this study was to quantify mental health and general wellness, and to examine predictors of each form of wellness, in a three-wave population-based study of Hurricane Ike survivors ($N = 658$). Latent class growth analysis was used to determine the frequency of resilience on four outcomes (PTSS: 74.9%; depression: 57.9%; functional impairment: 45.1%; days of poor health: 52.6%), and cross-tabulations were used to determine the frequency of mental health wellness (51.2%) and general wellness (26.1%). Significant predictors of both mental health and general wellness included lower peri-event emotional reactions and higher community-level collective efficacy; loss of sentimental possessions or pets and disaster-related financial loss were negative predictors of mental health wellness, and loss of personal property was a negative predictor of general wellness. The results suggest that studies focusing on a single postdisaster outcome may have overestimated the prevalence of mental health and general wellness, and that peri-event responses, personal property loss and collective efficacy have a cross-cutting influence across multiple domains of postdisaster functioning.

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It has been amply demonstrated that disasters are accompanied by increased rates of psychopathology and disability (Galea et al., 2005; Norris et al., 2002). The range of adverse outcomes experienced by disaster survivors extends across multiple domains of functioning, including *mental health*, such as posttraumatic stress symptoms (PTSS) and depression; *role functioning*, such as *functional impairment*, including difficulties in social, educational, and occupational roles; and *physical health*, such as somatic complaints and impaired immune function (Norris et al., 2002). Although overall rates of adverse outcomes in these three domains tend to increase in the aftermath of disaster, the modal response to disaster exposure is thought to be *resilience*, defined as a trajectory of low

levels of symptoms or problems in a given outcome over time, with minimal elevations that are limited to the time period during the disaster and its immediate aftermath (Bonanno, 2004; Bonanno and Diminich, 2013). Aligning with this expectation, several longitudinal studies of mental health in the aftermath of disasters have shown that the largest proportion of participants exhibits a trajectory of stably low symptoms (e.g., Lowe and Rhodes, 2013; Nandi et al., 2009; Norris et al., 2009). The broader concept of *wellness* has been defined as resilience across domains, that is, low levels of mental health problems, functional impairment, and physical health problems over time in the aftermath of a traumatic event (Norris et al., 2008b). In the current study, we differentiate between this general definition of wellness, which we label *general wellness*, and *mental health wellness*, which we define as resilience across various conditions within the mental health domain (e.g., PTSS and depression) specifically.

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Research to date has provided limited evidence on the rates of mental health and general wellness in the aftermath of disasters. First, studies on postdisaster mental health have generally focused on resilience, documenting rates of a stably low trajectory of symptoms of a single disorder, such as PTSD (e.g., Norris et al., 2009). No study in a disaster context to our knowledge has attempted to identify individuals who experienced resilience across multiple mental health conditions, which would determine rates of mental health wellness. A study of traumatic injury survivors recruited from a large medical center examined mental health wellness in a non-disaster context, however, and suggested it may be a prevalent response to traumatic events: 57.7% of participants exhibited consistently low levels of both PTSS and depression following exposure to a traumatic injury (deRoos-Cassiniet al., 2010).

Second, extant disaster studies generally have focused solely on mental health outcomes, and have inadequately integrated other domains of general wellness, including role functioning and physical health. The limited research to date has provided evidence that outcomes in different domains tend to be related; for example, postdisaster declines in physical health have been found to be associated with declines in mental health (e.g., Lowe et al., 2013). Although such findings suggest that resilience in one domain might be related to resilience in another, rates of resilience across domains – that is, rates of general wellness – have not been quantified. Without an estimation of postdisaster mental health and general wellness, it remains unknown how many disaster survivors do not experience mental health and general wellness (i.e., experience a non-resilient trajectory of symptoms of one or more mental health conditions, or a non-resilient trajectory in one or more broader domains of mental health, role functioning, or physical health, respectively). This information would provide important information on the proportion of survivors who might be in need of postdisaster services.

An improved understanding of the predictors of mental health and general wellness could likewise help identify targets for population recovery after disasters or other mass traumatic events. A large body of literature has explored predictors of resilience on single indicators of mental health (e.g., PTSS, depression). This body of work has shown that lower exposure to disaster-related traumatic events and stressors, lower peri-event emotional reactions, and higher community resources (e.g., collective efficacy and social support) are consistently predictive of improved mental health (e.g. Galea et al., 2002; Galea et al., 2008; Norris et al., 2002). The limited research on postdisaster physical health suggests that these factors are also predictive of physical health resilience (Boscarino and Adams, 2009; Dirkzwager et al., 2006; Lu, 2011). Yet, in the absence of studies that explore multiple indicators of mental health or multiple domains of functioning simultaneously, it remains unknown whether these factors truly promote mental health and general wellness, respectively.

In this study, we aimed to quantify both mental health wellness (resilience across multiple mental health conditions), and general wellness (resilience across mental health, role functioning, and physical health domains) in a population-based sample in the aftermath of a major natural disaster, Hurricane Ike. We also aimed to examine predictors of both forms of wellness, including factors previously associated with resilience in the individual domains (i.e. disaster-related trauma and stressor exposure, peri-event emotional reactions, and postdisaster social and community resources).

Table 1Descriptive statistics for study variables ($N = 658$).

Variable	<i>M</i> (SD) or <i>N</i> (%)
<i>Demographics</i>	
<i>Age</i>	
<35 years	161 (24.4%)
35–54 years	299 (34.8%)
>55 years	268 (40.7%)
<i>Sex</i>	
Female	394 (59.9%)
Male	264 (40.1%)
<i>Race/ethnicity</i>	
Non-Hispanic white	399 (60.6%)
Non-Hispanic black	102 (15.5%)
Hispanic	123 (18.7%)
Other race/ethnicity	34 (5.2%)
<i>Education</i>	
<High school	89 (13.5%)
High school or equivalent	151 (23.0%)
>High school	418 (63.5%)
<i>Marital status</i>	
Married	311 (47.3%)
Living with a partner	33 (5.0%)
Separated	35 (5.3%)
Divorced	84 (12.8%)
Widowed	75 (11.4%)
Never been married	120 (18.2%)
<i>Predisaster psychopathology</i>	
<i>Predisaster probable PTSD</i>	
Yes	77 (11.7%)
No	507 (77.1%)
<i>Predisaster probable major depression</i>	
Yes	114 (17.3%)
No	514 (78.1%)
<i>Predisaster traumatic events</i>	
0–1 events	191 (29.0%)
2–3 events	259 (39.4%)
4 or more events	208 (31.6%)
<i>Hurricane-related trauma</i>	
No hurricane-related trauma	581 (88.3%)
1 or more hurricane-related trauma	77 (11.7%)
<i>Hurricane-related stressors</i>	
Without any resource for >1 week	374 (56.8%)
Any personal property loss	564 (85.7%)
Loss of sentimental possessions or pets	202 (30.7%)
Self or household member had health problems as result of hurricane	153 (23.3%)
Financial loss as a result of hurricane	227 (34.5%)
Increased demands or relationship problems	203 (30.9%)
Displaced from home as a result of hurricane	302 (45.9%)
<i>Peri-event emotional reactions</i>	
Low tertile	378 (57.5%)
Medium tertile	144 (21.9%)
High tertile	136 (20.7%)
<i>Community-level social assets</i>	
Social support	2.48 (12.48)
Collective efficacy	3.89 (8.41)
<i>Outcomes - wave 1</i>	
Posttraumatic stress symptoms	26.44 (243.74)
Depression	1.98 (77.49)
Functional impairment	3.06 (89.19)
Days of poor health	4.26 (146.27)
<i>Outcomes - wave 2</i>	
Posttraumatic stress symptoms	22.57 (165.34)
Depression	1.51 (57.71)
Functional impairment	2.92 (119.63)
Days of poor health	2.06 (62.34)
<i>Outcomes - wave 3</i>	
Posttraumatic stress symptoms	24.48 (208.89)
Depression	2.24 (81.17)
Functional impairment	4.84 (144.68)
Days of poor health	2.36 (73.15)

Note. *M* = Mean, *SD* = Standard deviation. Percentages, means, and standard deviations are weighted values.

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