

Spirituality, Humor, and Resilience After Natural and Technological Disasters

Katie E. Cherry, PhD¹, Laura Sampson, BA², Sandro Galea, MD, DrPH³, Loren D. Marks, PhD⁴,
Katie E. Stanko, MA⁵, Pamela F. Nezat, MHS-RC⁶, & Kayla H. Baudoin, LMSW⁷

1 Professor, Department of Psychology, Louisiana State University, Baton Rouge, LA, USA

2 Statistical Analyst and Doctoral Student, School of Public Health, Boston University, Boston, MA, USA

3 Dean, School of Public Health, Boston University, Boston, MA, USA

4 Professor, School of Family Life, Brigham Young University, Provo, UT, USA

5 Doctoral Student, Department of Psychology, Louisiana State University, Baton Rouge, LA, USA

6 Research Assistant, Department of Psychology, Louisiana State University, Baton Rouge, LA, USA

7 Research Assistant, Department of Psychology, Louisiana State University, Baton Rouge, LA, USA

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Correspondence

Katie E. Cherry, Department of Psychology,
Louisiana State University, 236 Audubon Hall,
Baton Rouge, LA 70803-5501.

E-mail: pskatie@lsu.edu

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Abstract

Purpose: Multiple exposures to disaster are associated with high levels of stress and with long-term consequences for survivors. However, little is known about coping and resilience in multiple disaster contexts. In this study, we focused on spiritual and secular coping resources and the roles they may play in postdisaster resilience.

Methods: Participants were noncoastal and coastal residents exposed to the 2005 Hurricanes Katrina and Rita and the 2010 Deepwater Horizon oil spill. Psychosocial predictors of central interest were (a) spiritual support and (b) use of coping through humor, and both were hypothesized to be associated with resilience. Covariates included group, gender, education, income, social engagement, charitable work done for others, and lifetime trauma.

Findings: Logistic regression analyses confirmed that spiritual support (odds ratio [OR] = 1.11, $p \leq .01$) and use of coping through humor (OR = 1.17, $p \leq .01$) were independently and positively associated with resilience. Disruption in charitable work done for others in a typical year before the hurricanes (OR = 0.49, $p \leq .05$) and income of less than \$2,000 per month were negatively associated with resilience (OR = 0.47, $p \leq .05$).

Conclusions: These data show that spirituality, humor, disruptions in charitable work, and low income were all independently associated with resilience in the years after consecutive disasters.

Clinical Relevance: Experiencing one or more disasters can create chronic psychosocial stress in an individual, which is associated with long-term health effects such as inflammation and weakened immune function. Recognizing which coping resources bolster resilience rather than harm is important for improving quality of life in disaster victims.

Multiple exposures to disasters are associated with high levels of stress and with long-term consequences for survivors across the world. For instance, in 2011 in Fukushima, Japan, a 9.0 magnitude earthquake triggered a tsunami, which then, in turn, led to a nuclear disaster when the tsunami destroyed the nuclear power plant. Survivors experienced chronic anxiety and guilt,

ambiguous loss due to missing loved ones, and even stigmatization due to possible radiation contamination (Maeda & Oe, 2015). Globally, natural and technological or manmade disaster occurs continuously; recently, both the United States and China were devastated by Hurricane Harvey (Cook, 2017) and Typhoon Hato and consequent monsoons (Lui, 2017), respectively. Industrial accidents

also occur in developing nations, such as the 2013 Rana Plaza clothing factory collapse in Dhaka, Bangladesh, and in societies with greater technological resources (e.g., the 2013 Lac-Mégantic, Quebec, oil train derailment and subsequent fire; Goodyear, 2015).

Residents of the U. S. Gulf Coast region endured a decade of disasters with the catastrophic Hurricanes Katrina and Rita in 2005 and the Deepwater Horizon oil spill in 2010. Relatively few studies have addressed the impact of these back-to-back disasters on health and psychosocial well-being in the years after these events (Cherry et al., 2015; Osofsky, Osofsky, Weems, Hansel, & King, 2014).

Cherry, Sampson, Nezat, et al. (2017) have shown that Katrina-related stressors and prior lifetime traumatic events were associated with different styles of coping with oil spill stress for commercial fishers, although only avoidant coping was associated with increased risk for depression and posttraumatic stress. Cherry and colleagues' first findings showed that multiple exposures to disasters were linked to different styles of coping among commercial fishers who were economically impacted by the oil spill and had experienced displacement from home after Hurricane Katrina. However, their findings were limited due to a focus on commercial fishers coping with oil spill stress. They did not address other coping resources, nor did they examine resilience as a long-term outcome after natural and technological disaster, so further research is necessary.

Resilience, defined as the ability to "bounce back" or respond positively to adversity, implies successful adaptation when challenged by stressful life events (Bonanno, 2004, 2005; Bonanno & Gupta, 2009; Cherry & Galea, 2015). Many studies have examined resilience within a framework relating indices of emotional health (symptoms of posttraumatic stress, depression) to disasters and other potentially traumatic events (PTEs). For example, Bonanno, Galea, Bucciarelli and Vlahov (2007) operationalized resilience in terms of resistance to posttraumatic stress symptoms in a sample of respondents exposed to a range of PTEs including disaster exposure. They found that this index of resilience was sensitive to demographic variables, including age, gender, education, and income (see also Galea, Tracy, Norris, & Coffey, 2008; Lowe, Sampson, Gruebner, & Galea, 2015; Norris et al., 2002). After a disaster, a portion of affected individuals may experience increased posttraumatic stress symptoms and effects of chronic stress and dysfunction, while others may project a trajectory of recovery or resilience (Bonanno, Brewin, Kaniasty, & La Greca, 2010).

Given its potential advantages for long-term disaster recovery (cf. Shenese & Langhinrichsen-Rohling, 2015), we focused on resilience as an outcome using the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003), a standardized measure with demonstrated psychometric qualities. The purpose of the present research was to examine protective factors that may be associated with resilience in the years after multiple disasters.

Our primary objective in this study was to examine the role of spiritual support as a potentially protective factor for postdisaster resilience. Ai, Tice, Peterson, and Huang (2005) define spiritual support as "a form of perceived support that derives from a deep connection with a higher power or a spiritual relationship in a faith, which encompasses intimacy, emotional, cognitive, and resource aspects of this relation" (p. 767). These resources are invested within an individual's consciousness-related faith experience. That is, spiritual support is meant to be comprehensive and inclusive of those with different beliefs; spiritual support is not synonymous with social support provided by organized religion or denominational affiliation. They also point out that spiritual support encompasses spiritual and psychological dimensions that cannot be adequately captured with global indices composed of one or few questions. We hypothesized that spiritual support in the years after Katrina and the Deepwater Horizon oil spill would act as a coping resource to promote adaptation and that spiritual support would therefore have a protective effect on postdisaster resilience. In qualitative studies examining religious coping after Hurricanes Katrina and Rita, participants identified spiritual beliefs as integral to personal growth and adjustment in the postdisaster period beyond organized religion (Henderson, Roberto, & Kamo, 2010; Tausch et al., 2011).

A second objective in the present study was to examine the role that humor may play in postdisaster resilience. Humor is a complex social behavior that can serve many different purposes in the daily life of individuals, including but not limited to social, emotional, and cognitive functions (Martin, 2007). In this study, we conceptualize humor as a secular coping resource hypothesized to promote resilience in the wake of multiple disasters.

There are several reasons to suspect that humor might be important to postdisaster resilience. First, there is a small but growing body of literature that documents the salutary effects of humor across a wide range of settings (Lefcourt, 2001). During stress, people cope in maladaptive or adaptive ways, and use of humor and

laughter is associated with positive health outcomes during chronic stress. In a sample of firefighters, use of coping through humor at baseline was found to be inversely associated with burnout and posttraumatic stress disorder symptoms 3 months later (Sliter, Kale, & Yuan, 2014). Using a prospective design with a sample of college students, coping with humor was found to mitigate the effects of life stress on a number of depressive symptoms; those with low humor coping were found to report more depressive symptoms than those with high humor coping at high levels of stress (Nezu, Nezu, & Blissett, 1988). Second, we suspect that humor, as an emotion-focused coping resource, may be helpful in releasing tension or frustrations driven by disaster stressors and losses (Martin, 2007). In patients afflicted with chronic obstructive pulmonary disorder, coping with humor was found to positively relate to mental health and negatively relate to depression and anxiety symptomatology (Lebowitz, Suh, Diaz, & Emery, 2011). Lastly, humor may help survivors by reducing the negative impact of disaster stressors through laughter. Laughter has shown to decrease levels of cortisol, dopamine, epinephrine, and growth hormone, all biomolecules related to stress hormone response. By decreasing levels of cortisol produced during chronic stress, there are fewer physiological consequences such as damaging inflammation and weakened immune function (Berk et al., 1989). The potential negative impact of disaster stressors may become less overwhelming and more manageable both physiologically and psychologically when one can laugh at and humorize them, helping survivors navigate the complexities of postdisaster living.

To summarize, the goals of this study were to (a) document the extent of resilience among adults exposed to natural and technological disaster, and (b) examine spiritual support and humor as coping resources that may be positively predictive of postdisaster resilience. Evidence showing that spiritual support and humor emerge as significant predictors, accounting for unique and independent variance in CD-RISC scores, would be a novel finding indicating that these variables matter in the years after natural and technological disaster exposure. Such a pattern of findings may also have noteworthy implications for the development of person-centered interventions to lessen distress among survivors after multiple disasters.

Methods

Participants

In all, 219 people participated in this study (mean age = 58.21 years, *SD* = 16.44 years, age range 18–91 years; *n* = 95 males, *n* = 124 females). Most of the

sample (86%) were lifelong residents of coastal parishes in south Louisiana who had lost homes and property in the 2005 Hurricanes Katrina and Rita and had returned to their home communities or relocated permanently to noncoastal parishes. The remainder of the sample (14%) was living at least 85 miles away from Katrina’s extremely destructive path in 2005 and did not experience catastrophic loss of homes or property. In previous reports, we have shown that the 30 noncoastal residents (14% of the sample) were no different from the former coastal residents across the psychosocial variables of central interest (Cherry, Sampson, Galea, Marks, Baudoin, et al., 2017; Cherry, Sampson, Galea, Marks, Nezat, et al., 2017). Consequently, these individuals were included in the sample and analyses reported here. However, we statistically controlled for whether

Table 1. Individual Difference and Sociodemographic Characteristics of the Sample

	M (SD)	N (%)
Spiritual support score ^a	40.02 (8.42)	
Humor score ^b	18.81 (3.38)	
Lifetime trauma total score ^c	2.43 (1.78)	
Social engagement score ^d	7.52 (1.76)	
Age, years	58.21 (16.44)	
Group		
Noncoastal residents		30 (13.70)
Former coastal residents		62 (28.31)
Current coastal residents		63 (28.77)
Current coastal fishers		64 (29.22)
Gender		
Male		95 (43.38)
Female		124 (56.62)
Education		
High school or less		61 (27.85)
More than high school		158 (72.15)
Income		
< \$2,000/month		63 (28.77)
\$2,000/month or more		156 (71.23)
Charitable work before vs. after the storms		
Decline since the storms		87 (39.73)
No change or increase		132 (60.27)
Resilience score (CD-RISC) ^e		
81+		109 (49.77)
80 or less		110 (50.23)

Note. CD-RISC = Connor-Davidson Resilience Scale.

^aSpiritual Support Scale (Ai, Tice, Peterson, & Huang, 2005).

^bCoping with Humor Scale (Lefcourt & Martin, 1986).

^cLifetime trauma with fear (Cherry et al., 2015).

^dSocial Engagement Scale (Morgan, Dallosso, & Ebrahim, 1985).

^eCD-RISC (Connor & Davidson, 2003).

respondents were part of this group in our final model as a precaution and to improve interpretation. Sampling, recruitment, and testing are reported in greater detail elsewhere (Cherry et al., 2015). Sociodemographic characteristics of the sample appear in Table 1.

Independent Measures

The Spiritual Support Scale (Ai et al., 2005) is a 12-item measure that we administered to estimate the extent of support received from a spiritual relationship. Items included statements such as “Encouragement from higher power helps to withstand adverse conditions”; “Spirituality or religion has been an inspiration during adversity”; and “Spiritual or religious beliefs assist with coping.” Statements were rated on a 4-point rating scale, where 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*. Responses were summed to yield a composite index of spiritual support. Prior research with a U.S. sample of Alzheimer’s disease caregivers replicated Ai et al.’s (2005) factor analysis of the Spiritual Support Scale and provided new evidence of convergent and discriminant validity (Wilks, Ketchum, Chen, & Bowman, 2013). Cronbach’s alpha reliability coefficient in this sample was excellent (0.978).

The Coping with Humor Scale (CHS; Lefcourt & Martin, 1986) was chosen as a measure of participants’ use of humor for coping with stressful situations with demonstrated psychometric qualities including test-retest reliability (Chen & Martin, 2007; Overholser, 1992) and construct validity (Martin, 1996; see Oguz-Duran & Yüksel, 2010 with a Turkish sample). The original CHS contains 7 items, such as “I can usually find something to laugh or joke about even in trying situations” and “I usually look for something comical to say when I am in tense situations,” with responses that range from 1 = *strongly disagree* to 4 = *strongly agree*. Martin (1996) has since recommended using a 6-item version to improve internal consistency. Thus, scores range from 4 to 24, with higher scores indicating greater use of humor for coping with stress. Nezlek and Derks (2001) have shown improved internal consistency reliability using a 6-item version of the CHS (see also Lebowitz et al., 2011). Cronbach’s alpha reliability coefficient for the 6-item version used here was acceptable (.741) and remarkably comparable to Nezlek and Derks’ alpha value (.75).

Covariates

Social engagement, referring broadly to involvement with one’s community outside of the immediate home, may be important to postdisaster adjustment (see

Kaniasty & Norris, 2009, for related discussion). We included social engagement as a covariate in an effort to account for variation in the frequency of social contact among participants, given that humor is embedded in a social context, and individuals with less social engagement may be less likely to participate in humor to relieve stress and foster resilience. The Social Engagement Scale (Morgan, Dallosso, & Ebrahim, 1985) is a 10-item measure that includes activities outside of the immediate household such as telephoning, letter writing, attending meetings, vacationing, and belonging to social organizations. Responses to items are either yes or no, with 1 point awarded for each positive response. Scores are summed across items to yield a composite measure where higher scores reflect greater social engagement. The Social Engagement Scale was validated in earlier work (Morgan et al., 1985) and has more recently been used in research on cardiovascular health and mortality risk in older adults (Ramsay et al., 2008). The Cronbach’s alpha reliability coefficient in this study (.536) was somewhat lower than Harwood, Pound, and Ebrahim’s (2000) alpha value (.61) and the original alpha value (.67) reported in Morgan et al. (1985), possibly due to low item total correlations among some of the rated activities.

Katrina-related disruptions in charitable work done for others and prior lifetime trauma variables, two other potential confounders that we included here based on our earlier findings, were adapted from Cherry et al. (2015). Charitable works (e.g., volunteer work at your church or synagogue, or in the community; neighborly assistance to people that are in need) done before and after the storm were independently assessed, with responses ranging from *none of the time* (0) to *all the time* (3). For disruptions in charitable work, we recoded original data in a binary manner for the logistic regressions, where 0 = *either no difference in or more charitable work after the 2005 hurricanes relative to a typical year before*, and 1 = *less charitable work after the 2005 hurricanes relative to a typical year before*.

For the prior lifetime trauma variable, we calculated the sum of five events (other natural disaster, serious accident, attacked with a gun, knife, other weapon, attacked without weapon but with intent to kill or injure, and experienced military combat or war zone), where each event was scored as 0 (*no*), 1 (*yes, but with no fear reported*), or 2 (*yes, with fear of injury or death during trauma*).

Outcome Variable

The CD-RISC (Connor & Davidson, 2003) has 25 items such as “Even when things look hopeless, I

don't give up"; "I am not easily discouraged by failure"; and "I like challenges," each rated on a 5-point scale (0 = *not true at all* to 4 = *true nearly all of the time*). Scores range from 0 to 100, with higher scores indicating greater perceived resilience. We selected the CD-RISC for use in this study based on established psychometric properties and prior work that documents excellent internal consistency reliability in a large sample of older women (Lamond et al., 2009). In addition, a methodological review of 19 resilience measurement scales found the CD-RISC to be one of the three strongest resilience measures due to high criterion and construct validity (Windle, Bennett, & Noyes, 2011). We dichotomized CD-RISC scores at the sample median for the logistic regressions reported here.

Statistical Analyses

All statistical analyses were carried out using SAS version 9.4 statistical software system (SAS Institute Inc, Cary, NC, U.S.A.). Logistic regression analyses were deemed preferable to multiple regressions to permit inferences on above-average versus below-average responses and to facilitate comparisons with our earlier reports (Cherry et al., 2015; Cherry, Sampson, Galea, Marks, Baudoin, et al., 2017; Cherry, Sampson, Galea, Marks, Nezat, et al., 2017). Bivariate logistic regression analyses were run on all variables hypothesized to be predictive of resilience (not shown). Based on the outcomes of the bivariate analyses and prior literature, group, gender, education, income, social engagement, disruption in charitable work done for others, and lifetime prior trauma were selected for inclusion as covariates in multivariate regression models to permit clearer inferences on spirituality and humor as coping resources hypothesized to impact postdisaster resilience. Education and income were assessed with categorical responses, and dichotomized at the lower third versus the upper third of the sample; education was modeled as high school or less versus more; and income was modeled as less than \$2,000 per month versus \$2,000 or more per month.

Results

Sociodemographic and other individual difference characteristics of the sample appear in Table 1. As can be seen in Table 1, the majority of the sample was female (56.6%) with a high school education or more (72.2%) and an income that exceeded \$2,000 per month (71.2%). Social engagement after the storm averaged 7.52 (*SD* = 1.76) out of 10, and 39.7% of

Table 2. Logistic Regressions Predicting Resilience With Spiritual Support and Humor as Predictors

Predictor	Odds ratio	CD-RISC score 81+	
		95% lower limit	95% upper limit
Group (ref = noncoastal residents)			
Former coastal residents	1.58	0.56	4.45
Current coastal residents	1.52	0.54	4.26
Current coastal fishers	1.32	0.47	3.72
Male (ref = female)			
High school or less education (ref = more)	1.09	0.57	2.07
Income < \$2,000/month (ref = more)	1.54	0.67	3.56
Lifetime trauma total (with fear) ^a	0.47*	0.23	0.98
Social engagement ^b	1.17	0.97	1.41
Decline in charitable work	1.01	0.81	1.25
Spiritual support ^c	0.49*	0.26	0.94
Coping with humor ^d	1.11**	1.06	1.16
	1.17**	1.07	1.29

Note. CD-RISC = Connor-Davidson Resilience Scale.
^aLifetime trauma with fear (Cherry et al., 2015).
^bSocial Engagement Scale (Morgan, Dallosso, & Ebrahim, 1985).
^cSpiritual Support Scale (Ai, Tice, Peterson, & Huang, 2005).
^dCoping with Humor Scale (Lefcourt & Martin, 1986).
 p* ≤ .05; *p* ≤ .01.

sample experienced a decline in charitable works done for others since the storms. The median CD-RISC resilience score was 81 out of 100.

Logistic Regression Analyses

Adjusted ORs appear in Table 2 for the two coping resource variables, spiritual support and humor. Inspection of Table 2 indicates that spiritual support was positively predictive of resilience (OR = 1.11; 95% confidence interval [CI] 1.06–1.16), confirming our hypothesis. Importantly, this result indicates an 11% increased odds of above-average resilience for each 1-point increase on the Spiritual Support Scale score. Further, coping with humor was also positively predictive of resilience (OR = 1.17; 95% CI 1.07–1.29), indicating a 17% increased odds of above-average resilience per 1-point increase on the Coping with Humor Scale. On the contrary, a drop in charitable work done for others after the 2005 storms relative to a typical year before the storms was significantly and inversely associated with resilience (OR = 0.49;

95% CI 0.26–0.94). To be precise, this finding can be interpreted to indicate that experiencing a decline in charitable work done for others was associated with 51% lower odds of resilience (i.e., $1.00 - 0.49 = 0.51$). Among the other covariates, only low income (<\$2,000 per month) was significantly (inversely) associated with resilience (OR = 0.47; 95% CI 0.23–0.98).

Discussion

Our primary objective in this study was to examine spiritual support as a coping resource hypothesized to be associated with resilience after a decade of disasters. Consistent with expectations, we found that spiritual support was positively and independently associated with resilience after controlling for the known influences of gender, education, income, prior lifetime trauma, social engagement, and charitable work done for others. Our findings are in line with those of Ai et al. (2013), who have made the point that perceived spiritual support and altruism are character traits associated with resilience, which they inferred based on low levels of depression symptoms. Our findings are generally compatible with this view using a quantitative index of resilience with established psychometric qualities.

One explanation for why spiritual support may uniquely contribute to resilience has to do with the physical environment in which survivors reside in the years after disaster. To be precise, many churches and formal places of worship were destroyed and never rebuilt after the 2005 hurricanes. With limited opportunities for participation in services held at formal places of worship, disaster survivors may turn to spirituality to find a greater sense of meaning (Park, 2016) or to counter disaster-related distress (Cherry et al., 2015). Alternatively, disappointment or disillusionment with traditional denominations' disaster response may have driven survivors away from institutionally bounded religions after the 2005 storm (Marks, Hatch, Lu, & Cherry, 2015). The present findings imply that perceived spiritual support may facilitate disaster survivors' adaptation to adversities in the years after multiple disasters leading to resilient outcomes, although further research is necessary before firm conclusions would be warranted.

Our second objective in this study was to address the role of humor as a coping resource hypothesized to affect adjustment to loss in the years after natural and technological disaster. The present findings indicated that coping with humor was positively and independently associated with resilience. To our knowledge, the present study is the first to show that coping

with humor is associated with resilience after multiple disasters, confirming the benefit of humor for adaptive coping in the years after these events.

This aspect of these data is compatible with earlier reports where humor was linked to lower levels of depressive symptoms (Kuiper & Borowicz-Sibenik, 2005; Nezelek & Derks, 2001) and rumination (Olsen, Hugelshofer, Kwon, & Reff, 2005). The present results also join others in the literature where humor has been associated with effective coping in other stressful situations, such as the workplace (Mesmer-Magnus, Glew, & Viswesvaran, 2012). Humor is a complex social behavior, and a rigorous assessment of the different dimensions of humor on postdisaster adjustment and recovery after multiple disasters is clearly beyond the scope of the present research. Nonetheless, our findings imply that humor has a role to play in adjustment after stressful life events, a potentially important direction for future research.

On a broader note, several sociodemographic and person-centered variables were treated as covariates here to allow a clearer assessment of the role that spiritual support and humor may play in postdisaster resilience. The inclusion of disruptions in charitable work done for others in a typical year before Katrina is a noteworthy strength of the study that deserves further comment. To be precise, we found that low income and disruption in charitable work after the 2005 hurricanes relative to a typical year before the storms were independently and negatively predictive of resilience. The finding for low income was expected based on similar findings in the disaster science literature (Bonanno et al., 2007; Galea et al., 2008; Norris et al., 2002).

Of greater interest was the finding showing that disruption in charitable work done for others (before Katrina versus after) was associated with below-average resilience. This result can be interpreted to indicate that involvement in productive activities for the benefit of others may play an imperative role in strengthening or expanding resilience capacity before disasters, while losing opportunities to consistently serve others seems to relate to lower resilience, a potentially important direction for further research. The present results indicate that the disruption of charitable activities in the years after extreme Katrina damage (relative to a typical year before the storm) disrupts resilience. There are many reasons why people engage in volunteer pursuits, both before and after natural disasters (Silva, Marks, & Cherry, 2009). Thus, future research to systematically examine relationships among pre-disaster charitable activities and postdisaster resilience seems warranted.

The present findings and their interpretation should be considered in light of at least three methodological limitations of this study. First, the sample size is small and therefore may not be representative, so broad generalizations based on the present findings are not warranted; however, other literature has documented the protective role of spirituality on resilience in international populations (see Boss & Ishii, 2015).

Second, we used self-report measures of spiritual support, coping with humor, and resilience, which are subject to potential response bias and unintentional distortions. With respect to the predictor variables of central interest, self-report may not capture how participants actually use spirituality or express humor (cf., Martin, 2003) in their daily lives after disaster; thus, interpretative caution should be exercised.

Third, a cross-sectional design was used, which precludes causal inferences. Styles of coping and resilience are dynamic and likely vary over time as people adapt to new life circumstances. A potentially important direction for future research would be to include longitudinal comparisons to examine how these constructs covary over time. Additionally, estimating trajectories of change with at least three points of reference (cf. Norris, Tracy, & Galea, 2009) would be desirable to permit a more thorough analysis of coping and resilience after multiple disasters. Even so, the “real world” laboratory created by multiple catastrophic disasters in the same decade does provide a unique opportunity to examine human resilience in an essential context (see Osofsky & Osofsky [2013] for related discussion).

Conclusions

In closing, the present findings add to a growing body of literature on the human impacts of natural and technological disasters. More specifically, the findings extend the literature on long-term consequences of multiple disasters, allowing inferences that span spiritual and secular dimensions of coping in the years after these events. This study extends the literature by illuminating the protective effect of both spiritual support and humor in postdisaster resilience. Experiencing chronic stress, such as living through multiple natural and technological disasters, can increase the likelihood of poor mental and physical health, leading to physiological effects such as heightened inflammation (Hänsel, Hong, Cámara, & von Känel, 2010) and weakened immune function (Segerstrom & Miller, 2004). Thus, discovering and promoting physiologically and psychologically adaptive coping mechanisms to survivors of disaster should be a goal of all researchers and practitioners.

McCombs (2010) has made the point that distinguishing between spiritual and psychological coping responses is an important challenge for counselors, among other disaster relief personnel and mental health practitioners. From a conceptual vantage point, our findings attest to spiritual support and humor as coping responses independently associated with resilience in the years after multiple exposure to disasters.

With respect to disaster preparedness, our findings imply that these person-centered, coping resource characteristics may shape resilience after multiple exposure to disasters, although future research is necessary (see Brenner, Bush, & Moses [2010] for related discussion). Establishing the reliability and generality of the present findings cross-culturally as well as across different types of disasters and traumatic events is an important challenge that awaits future research.

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Clinical Resources

- Centers for Disease Control and Prevention. Helping patients cope with a traumatic event. https://www.cdc.gov/masstrauma/factsheets/professionals/coping_professional.pdf
- U.S. Department of Homeland Security. Coping with disaster. <https://www.ready.gov/coping-with-disaster>

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