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# Associations Between Religious Coping and Long-Term Mental Health in Survivors of Hurricane Katrina

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Weather-related disasters are increasing in both frequency and severity, which in turn increases the likelihood for the development of adverse mental health outcomes (Augustinavicius et al., 2021; CRED & UNDRR, 2015; NOAA National Centers for Environmental Information, 2020). Religion and spirituality are an accessible form of coping that many people turn to during and after weather-related disasters and may be especially valuable to survivors who face barriers to accessing mental health treatment or may not feel served by formal mental health institutions (Abu-Raiya & Pargament, 2015; Bryant-Davis & Wong, 2013). Researchers have drawn distinctions between positive religious coping (PRC) and negative religious coping (NRC), both conceptually and in their relation to mental health outcomes (Pargament et al., 2011). This study utilized data from the Resilience in Survivors of Katrina project, an ongoing longitudinal study of low-income, female, primarily Black Hurricane Katrina survivors, and drew on four waves of data from before the hurricane in 2005 through 2018 to explore the longitudinal relationship between religious coping and mental health outcomes. Multiple linear regression analyses revealed that NRC was a significant predictor of posttraumatic stress,  $b = .14, p < .05$ , whereas PRC was a significant predictor of posttraumatic growth,  $b = .22, p < .01$ . Future research should further examine associations between religious coping styles and later well-being as well as strategies for beneficial outcomes.

*Keywords:* religious coping, climate change, disaster, spirituality, posttraumatic growth

Weather-related disasters, including hurricanes, floods, and earthquakes, are challenging experiences that can place people under considerable stress. Some of the many stressors associated with weather-related disasters are losing loved ones, experiencing injuries, witnessing traumatic events, losing resources, and forced relocation. As a result, survivors of weather-related disasters are at risk for developing a range of mental health problems (Cook et al., 2008; Rhodes et al., 2010). Marginalized groups, including women, racial and ethnic minorities, and people of low socioeconomic status (SES), are especially vulnerable to negative outcomes following weather-related disasters (Enarson, 2012; Goldmann & Galea, 2014; Mohammad & Peek, 2019; Norris et al., 2002). As such, it is critically important to identify factors that shape risk and resilience among disaster-exposed vulnerable populations. This study will investigate how religious coping after a weather-related disaster


affects later mental health outcomes in a sample of low-income, female survivors of Hurricane Katrina (HK).

## The Role of Religious Coping

People around the world turn to religion when confronted with adversity (Bryant-Davis & Wong, 2013; Davis et al., 2019). Pargament (1997) defines the multifaceted and dynamic process in which people draw upon sacred and spiritual beliefs in order to search for meaning and reduce distress as “religious coping,” which can be further divided into the dichotomy of positive religious coping (PRC) and negative religious coping (NRC). PRC is characterized by a secure relationship with God(s), from which one can draw strength and comfort. NRC consists of spiritual struggles, such as questioning the power of God(s), or feeling that one has been punished or abandoned by God(s) (Pargament et al., 2011). In the face of adversity, PRC is generally protective, predicting fewer mental health symptoms, whereas NRC is a risk factor linked to more mental health symptoms (Pargament et al., 2011). Not only is PRC associated with fewer negative outcomes, but it has been shown to be associated with the positive posttrauma outcome known as posttraumatic growth (PTG; García et al., 2017; Gerber et al., 2011; Prati & Pietrantoni, 2009; Schaefer et al., 2008; Shaw et al., 2005). The construct of PTG encapsulates the subjective positive psychological changes that one may experience following a traumatic event, such as perceived changes in self, interpersonal relationships, outlook on life, spiritual growth, and new possibilities (Tedeschi & Calhoun, 1996).

Research within weather-related disaster contexts also generally indicates that PRC is associated with positive outcomes postdisaster whereas NRC is associated with negative outcomes postdisaster. For

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example, Chan and Rhodes (2013) found that, among low-income female survivors of HK, PRC was associated with PTG and NRC was associated with general psychological distress (GPD). Their study measured religious coping and mental health outcomes 4 years after the hurricane, drawing upon predisaster data to control for baseline mental health. Other weather disaster studies have similarly found associations between components of NRC and negative psychological outcomes (e.g., Feder et al., 2013; Rosellini et al., 2014; Shannonhouse et al., 2019; Smith et al., 2000) and between components of PRC and positive psychological outcomes or resilience (e.g., Shannonhouse et al., 2019; Smith et al., 2000). Notably, these studies all measured postdisaster religious coping and mental health functioning at the same point in time. While these findings are informative, cross-sectional analyses limit our ability to infer directionality in these relationships. For example, it is possible that survivors' mental health influences their religious coping styles, rather than vice versa.

Further, extant studies on the role of religious coping after weather-related disasters typically focus on short-term outcomes and rarely have access to predisaster data. According to a recent review that included 10 studies on religious coping and/or meaning-making after weather-related disaster (Kucharska, 2020), only one study controlled for predisaster baseline data (i.e., Chan & Rhodes, 2013). Predisaster data on constructs related to psychiatric vulnerability and psychosocial resources can help elucidate whether postdisaster outcomes may be influenced by predisaster factors, or whether they have emerged above and beyond predisaster risk. Additionally, studies that begin before the disaster may include participants who later relocate—a phenomenon not uncommon after disasters (Fussell, 2015). It is important to capture these experiences in research as well, yet studies that begin postdisaster may not include participants who have relocated.

As both the frequency and severity of weather-related disasters are increasing (CRED & UNDRR, 2015; NOAA National Centers for Environmental Information, 2020), there is a growing need to identify how religious coping at one timepoint may predict psychological well-being later on. This will help identify groups at risk of postdisaster psychopathology and may provide insight into how interventions could promote positive mental health outcomes.

## The Present Study

The present study was designed to redress some of the limitations described above. This study drew on data from the Resilience in Survivors of Katrina (RISK) project, an ongoing longitudinal study of low-income, female, primarily Black Hurricane Katrina survivors that began in 2003—2 years before HK made landfall in August 2005. HK and the subsequent flooding, which primarily affected northern Gulf coast communities in Louisiana and Mississippi, was one of the most destructive weather-related disasters in United States history. In its immediate aftermath, the disaster contributed to nearly 2,000 deaths (Knabb et al., 2006). New Orleans suffered extensive damage as a failed levee system led to catastrophic flooding in the below-sea-level city. As a result, 70% of the housing units were flooded; low-income residents, particularly women and racial and ethnic minorities, were especially impacted by property loss and displacement (Fussell, 2015). The RISK data set offers a holistic view into the lives of low-income women who resided in

New Orleans at the time of HK, capturing data across several timepoints, including predisaster.

In 2014, Louisiana was ranked as the fourth-most religious state in the United States, a ranking that took into account residents' religious service attendance, frequency of prayer, belief in God, and perceived importance of religion in life. Seventy-one percent of Louisiana residents reported that religion is "very important" in their lives, compared to the national average of 53% (Pew Research Center, 2015). Among Black New Orleans residents, spiritual practice often draws from Christianity and African diasporic religions. The resulting traditions, such as second-line street parades and jazz funeral processions, greatly contribute to local culture (Turner, 2017). Given the importance of religion for many Louisiana residents, and its role in New Orleans culture, religious coping may be a valued resource for survivors of HK. Using the same dataset as the 2013 article by Chan and Rhodes, the present study will draw on the most recent wave of data to investigate how religious coping methods utilized in reference to distress caused by HK at one timepoint is associated with later mental health, controlling for predisaster psychiatric vulnerability, predisaster religiosity, as well as predisaster levels of social support and optimism—two constructs associated with religious involvement that may also contribute to well-being (Ai et al., 2007; Krause et al., 2001; Smith et al., 2000).

## Method

### Participants and Procedure

This investigation makes use of data from the RISK project, an ongoing longitudinal study of low-income, female, primarily Black Hurricane Katrina survivors. The project began as a prospective study of low-income parents enrolled in a community college educational support program at sites throughout the United States, including two community colleges in New Orleans (Brock & Richburg-Hayes, 2006). After HK made landfall in August 2005, the New Orleans participants were dropped from the larger study and followed instead in a new project focused on postdisaster coping. The RISK project includes five waves of data, but the present study draws from the four most recent waves. The initial wave of data (baseline) was collected before HK between November 2003 and February 2005 via hard-copy surveys. The following wave of pre-Katrina data (PK) was collected in the months preceding the hurricane. PK was cut short when the storm began, and as a result only approximately half of the original sample responded ( $N = 492$ ). For the purposes of this study, PK was used as the pre-Katrina comparison rather than the baseline wave, as variables required for the proposed analyses (i.e., optimism and religiosity) were not included until PK. The following three waves of data, which were collected after Katrina, include surveys conducted over telephone. The first post-Katrina, follow-up wave (F1) was gathered approximately 1 year after the storm, between March 2006 and March 2007. The second follow-up wave (F2) was gathered approximately 4 years post-Katrina, between March 2009 and April 2010. The third follow-up (F3), the most recent wave, was gathered approximately 12 years post-Katrina, between November 2016 and December 2018.

At baseline, parents between the ages of 18 and 34 whose household incomes were below 200% of the federal poverty level

were recruited to participate. For reference, at the time that data collection began in 2003, 31% of people in the United States were living below 200% of the federal poverty level (in other words, earning less than two times the poverty line; Census Bureau, 2003). See Brock et al. (2005), for full details about recruitment at baseline. This yielded an original sample size of 1,019 at baseline. The sample size was 492 at PK, 711 at F1 (including 402 participants surveyed during PK), 752 at F2 (including 405 participants surveyed during PK), and 716 at F3 (including 373 participants surveyed during PK). Men and women completed the first four waves of data, but due to a small sample of men, only women were recruited to participate in F3 data collection.

## Measures

### *Religious Coping*

Religious coping was measured using the Brief-RCOPE, the most commonly used measure of religious coping (Pargament et al., 2011). Respondents were prompted to answer each item about their experience coping with HK: "Think about how you try to understand and deal with HK and its aftermath. To what extent is each of the following involved in the way you coped?" The Brief-RCOPE has demonstrated good internal consistency across several study samples, including with African American women.

PRC was measured using the positive RCOPE subscale of the Brief-RCOPE (Pargament et al., 2011). The subscale contains seven items for which the respondent selected an option from a Likert scale ranging from 1 (*a great deal*) to 4 (*not at all*). An example item is, "Looked for a stronger connection with God." A higher score indicates a higher level of PRC. This scale was administered during F2. Cronbach's  $\alpha$  for this scale was .95 in the study sample.

NRC was measured using the negative RCOPE subscale of the Brief-RCOPE. Like the positive RCOPE subscale, this subscale contains seven items for which the respondent selected an option from a Likert scale ranging from 1 (*a great deal*) to 4 (*not at all*). An example item is, "Felt punished by God for my lack of devotion." A higher score on this subscale indicates a lower level of NRC. This scale was administered during F2. Cronbach's  $\alpha$  for this scale was .90 in the study sample.

### *Mental Health*

General psychological distress was measured using the K6 scale (Kessler et al., 2002). This scale contains six items assessing nonspecific psychological distress, for which the respondent selected an option from a Likert scale ranging from 1 (*all the time*) to 5 (*none of the time*). An example item is, "During the past 30 days, about how often did you feel nervous?" Previous validation studies have identified scores of 12 and above as indicating probable serious mental illness (Kessler et al., 2010). This scale was administered during PK, F2, and F3. Cronbach's  $\alpha$  for this scale was .69 at PK, .83 at F2, and .83 at F3.

PTG was measured using the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996). This scale contains 21 items, for which the respondent selected an option from a Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). The 21 items are divided into five subscales: new possibilities, relating to others, personal strength,

appreciation of life, and spiritual change. For this study, the two items consisting of the spiritual change subscale were removed in analyses in order to avoid confounding with religious coping. An example item from the new possibilities subscale (five items) is, "Since Katrina, I developed new interests." An example item from the relating to others subscale (five items) is, "Since Katrina, I have more compassion for others." An example item from the personal strength subscale (four items) is, "Since Katrina, I discovered that I'm stronger than I thought I was." An example item from the appreciation of life subscale (three items) is, "I changed my priorities about what is important in life." This scale was administered during F2 and F3. Cronbach's  $\alpha$  for this revised scale after removing the spiritual change subscale items was .93 at F2 and .95 at F3.

Post-traumatic stress (PTS) was measured using the Impact of Event Scale-Revised (Weiss & Marmar, 1997). This scale contains 22 items, for which the respondent selected an option from a Likert scale ranging from 0 (*not at all*) to 4 (*extremely*) about their reactions after HK. The 22 items are divided into subscales for intrusion, hyperarousal, and avoidance reactions. An example item is, "I was jumpy and easily startled." This scale was administered during F2 and F3. Cronbach's  $\alpha$  for this scale was .95 at F2 and .97 at F3.

### *Covariates*

Pre-Katrina demographics included race and ethnicity (binary variable with response options of Black and non-Black), age in years, number of benefits received by the individual or other members of their household (unemployment/dislocated worker benefits, supplemental security income or disability income, cash assistance or welfare, and/or food stamps), and number of children before HK. This information was collected during PK.

Pre-Katrina religiosity was measured with two ordinal items about the frequency of religious service attendance (1 = *never* to 5 = *several times per week*) and the importance of religion in one's life (1 = *not at all important* to 5 = *very important*) before HK. This information was collected during PK.

Perceived social support was measured with an abbreviated version of the Social Provisions Scale (Cutrona & Russell, 1987). Participants responded to eight items with response options ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). An example item is, "I have people in my life who value me." This scale was administered during PK for pre-Katrina social support and F3 for current social support. Cronbach's  $\alpha$  for this scale was .82 at PK and .85 at F3 in this sample.

Optimism was measured using the Life Orientation Test-Revised (Scheier et al., 1994). This measure consists of six items for which the respondent selected an option from a Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Half of the items are framed negatively (e.g., "If something can go wrong for me, it will"), and half of the items are framed positively (e.g., "I am always optimistic about my future"). This information was collected during PK. Cronbach's  $\alpha$  was .55 in the study sample. Although Cronbach's  $\alpha$  for this measure is low, it was included in the analyses as it has been used in previous research examining religious coping (Chan & Rhodes, 2013).

Hurricane exposure was measured using a survey designed by the Washington Post, the Kaiser Family Foundation, and the Harvard School of Public Health (Brodie et al., 2006). The survey asked



participants whether they had any of the following 12 experiences as a result of HK: went without fresh water, went without food, felt their life was in danger, lacked necessary medicine, lacked necessary medical care, had a family member who lacked necessary medical care, lacked knowledge of safety of their children, lacked knowledge of safety of other family members, death of family or friends, lost a house, lost a vehicle, lost a pet. All items were dichotomous and summed to create a composite score, with a higher score indicating more exposure to the hurricane (possible range = 0–12). This scale was administered during F1, approximately 1 year post-Katrina.

## Data Analyses

Data were analyzed with SPSS Version 27. After creating the final analytical sample with list-wise deletion, a series of preliminary analyses was conducted. First, demographic differences between participants in the analytic sample and those dropped due to missing data were examined using independent samples *t* tests for continuous variables and chi-square analysis for dichotomous and categorical variables. Second, descriptive statistics and a correlation matrix were computed.

Subsequently, to determine associations between postdisaster religious coping patterns and long-term mental health outcomes, the authors conducted three multiple linear regressions measuring associations between both PRC and NRC and each of the three outcome variables (GPD, PTG, and PTS). Several PK covariates were entered: demographics (race, ethnicity, age, number of benefits received, and number of children), religiosity, social support, optimism, and GPD (to control for predisaster psychiatric vulnerability). From F1, exposure to the hurricane was entered. From F2, mental health covariates were entered to correspond with the mental health outcome in each regression. For example, the regression equation predicting F3 PTS includes F2 PTS. This decision to include prior levels of predictor variables, which were measured in the same wave as the religious coping predictors, is informed by VanderWeele (2021), who provides guidance for maximizing evidence for causal inferences in observational studies. From F3, current social support was entered. Concurrent social support was included in addition to PK social support, since it is possible that perceived social support may have shifted after the hurricane, especially if participants were displaced from their communities (Tuason et al., 2012). In cases of nonnormality, dependent variables were transformed and models replicated to assess for divergences in the pattern of results.

## Results

### Preliminary Analyses

List-wise deletion excluded participants who provided incomplete data on the variables needed for subsequent analyses. Among the 284 participants who completed the PK survey and all three follow-up surveys, 53 (18.7%) were removed for missingness, yielding an analytic sample of 231. Comparisons between retained and dropped participants indicated no significant demographic differences.

Table 1 shows descriptive statistics for all variables in the analysis. The final sample was comprised of women who ranged

**Table 1**

*Descriptive Statistics and Frequencies for Demographic and Key Study Variables*

Variable	<i>M (SD)</i>	Range
Age at HK	26.47 (4.49)	19.00–35.00
Number of benefits received (PK)	.86 (.72)	0.00–3.00
Number of children (PK)	1.95 (1.04)	1.00–7.00
Traumatic experiences during HK	3.01 (2.61)	0.00–9.00
General psychological distress (PK)	5.50 (4.00)	0.00–22.00
Religious coping <sup>a</sup>		
Positive religious coping (F2)	16.39 (5.87)	0.00–21.00
Negative religious coping (F2)	1.94 (4.06)	0.00–21.00
Mental health variables		
General psychological distress (F3)	5.88 (4.94)	0.00–24.00
Posttraumatic growth (F3)	53.97 (17.91)	0.00–76.00
Posttraumatic stress (F3)	15.21 (20.14)	0.00–88.00
	Frequency (%)	
Race is non-Hispanic Black	195 (84.4)	
Household income in previous year (F3)		
<\$10,000	21 (9.1)	
\$10,000–\$19,999	27 (11.7)	
\$20,000–\$34,999	52 (22.5)	
\$35,000–\$49,999	39 (16.9)	
>\$50,000	84 (36.4)	
PK frequency of attendance at religious services		
Never	24 (10.4)	
Several times a year	39 (16.9)	
Once/twice a month	65 (28.1)	
Once a week	50 (21.6)	
Several times a week	53 (22.9)	
PK self-reported importance of religion in life		
Not at all important	3 (1.3)	
Not too important	2 (.9)	
Somewhat important	28 (12.1)	
Pretty important	29 (12.6)	
Very important	169 (73.2)	

*Note.* *N* = 231. HK = Hurricane Katrina; PK = pre-Katrina; F2 = follow-up 2; F3 = follow-up 3.

<sup>a</sup> Higher score indicates more frequent use of religious coping style.

in age from 19 to 35 at the time of HK in 2005 ( $M = 26.47$ ,  $SD = 4.49$ ). A majority of the participants identified their race and ethnicity as Non-Hispanic Black (84.4%); the remaining participants identified as Non-Hispanic White (11.3%), Hispanic (3.0%), and Other (1.3%). Participants reported more PRC methods than NRC methods; among scores ranging from 0 to 21, the mean score on the PRC subscale was 16.39 ( $SD = 5.87$ ) and the mean score on the NRC subscale was 1.94 ( $SD = 4.06$ ). All three continuous outcome variables—GPD, PTS, and PTG—yielded significant scores on the Shapiro–Wilk test and therefore were not normally distributed. General psychological distress and PTS were skewed low, whereas PTG was skewed high.

Table 2 presents a correlation matrix of religious coping and the outcome variables of interest. As shown, PRC was significantly associated with PTG, whereas NRC was significantly associated with GPD and PTS.

### Multiple Regression Analyses

Table 3 shows the results of multiple regression analyses. The regression model used to predict PTS based on religious coping (PRC and NRC) produced  $R^2 = .35$ ,  $F(14, 216) = 8.31$ ,  $p < .001$ .

**Table 2**  
*Correlation Matrix for Independent and Dependent Variables*

Variable	1	2	3	4	5
1. PRC (F2)	—				
2. NRC (F2)	.12	—			
3. General psychological distress (F3)	-.06	.18**	—		
4. PTS (F3)	.07	.23***	.38***	—	
5. PTG (F3)	.38***	.04	-.11	.07	—

*Note.*  $N = 231$ . HK = Hurricane Katrina; PK = pre-Katrina; F2 = follow-up 2; F3 = follow-up 3. PRC = positive religious coping; NRC = negative religious coping; PTS = posttraumatic stress; PTG = posttraumatic growth. \*\*  $p < .01$ . \*\*\*  $p < .001$ .

NRC had a significant positive regression weight,  $\beta = .14$ ,  $p < .05$ , indicating that higher use of NRC was significantly associated with higher PTS, after controlling for the other variables in the model. Nonnormality of PTS was not resolved via transformation; therefore, the outcome variable was dichotomized into scores less than 1.5 versus scores greater than and equal to 1.5 to prepare for a binary logistic regression, as has been done in prior research (Raker et al., 2019). Although the parameters were reduced to nonsignificance, the regression on the dichotomized PTS variable yielded associations in the same direction as the regression on the original, untransformed PTS variable,  $\beta = .06$ ,  $SE = .04$ , Wald = 1.55,  $p = .21$  (full results available upon request).

The regression model used to predict GPD based on religious coping (PRC and NRC) produced  $R^2 = .36$ ,  $F(14, 216) = 8.84$ ,  $p < .001$ . Neither PRC nor NRC was a significant unique predictor of generalized psychological distress.

The regression model used to predict PTG based on religious coping (PRC and NRC) produced  $R^2 = .24$ ,  $F(14, 216) = 4.96$ ,  $p < .001$ . PRC had a significant positive regression weight,  $\beta = .22$ ,  $p < .01$ , indicating that higher use of PRC was significantly associated

with higher PTG, after controlling for the other variables in the model. After transforming the outcome variable into a more normal distribution by taking the square root of reflected values, the association was significant in the same direction:  $\beta = -.21$ ,  $p < .01$ ;  $F(14, 216) = 4.78$ ,  $p < .001$ ;  $R^2 = .24$ . Despite PRC's negative  $\beta$  weight in this model, it still provides evidence for the positive relationship between PRC and PTG as the transformed PTG variable was reflected. As such, lower scores on the transformed PTG variable actually indicate higher levels of PTG (full results available upon request).

## Discussion

The current investigation drew on a longitudinal data set of low-income, female, primarily Black women who survived HK to investigate the associations between postdisaster religious coping strategies 4 years post-Katrina and mental health outcomes 12 years post-Katrina. Controlling for predisaster psychological distress, PRC 4 years post-Katrina was associated with PTG 12 years post-Katrina. Likewise, controlling for predisaster psychological distress, NRC 4 years post-Katrina was associated with PTS 12 years post-Katrina.

The association between PRC and PTG is in line with previous research, which has found that PRC is typically associated with PTG in various contexts of trauma (García et al., 2017; Gerber et al., 2011; Kucharska, 2020; Prati & Pietrantonio, 2009; Schaefer et al., 2008; Shaw et al., 2005). This is also consistent with findings from Chan and Rhodes (2013), which found a positive association between PRC and PTG in a cross-sectional measurement 4 years after HK. Findings from the present study indicate that this relationship is maintained 8 years later, such that PRC 4 years post-Katrina is associated with PTG 12 years post-Katrina.

Chan and Rhodes (2013) also found positive, concurrent associations between NRC and GPD, but did not find associations between NRC and PTS. In contrast, the current longitudinal study

**Table 3**  
*Regression Analyses Predicting Mental Health Outcomes From Religious Coping*

Predictor	PTG		PTS		GPD	
	$\beta$	$SE_B$	$\beta$	$SE_B$	$\beta$	$SE_B$
Race/ethnicity	.15*	3.46	.05	3.60	-.09	.87
Age	-.11	.26	.04	.27	.04	.06
Number of benefits	-.01	1.58	.05	1.64	.04	.40
Number of kids	.11	1.09	.11	1.13	.01	.28
Frequency of religious services	<.01	.99	.08	1.03	-.09	.25
Importance of religion	.10	1.54	.04	1.61	.10	.39
Social support (PK)	-.01	2.53	.07	2.62	.08	.64
Optimism (PK)	.02	.41	.07	.42	.01	.10
Baseline GPD	.02	.30	.08	.31	.30***	.08
Prior mental health covariate <sup>a</sup> (F2)	.16*	.08	.38***	1.28	.24***	.06
Exposure to HK	.01	.44	.03	.47	-.05	.11
Social support (F3)	.14*	2.23	-.24***	2.33	-.30***	.59
PRC (F2)	.22**	.22	-.08	.22	-.03	.05
NRC (F2)	.02	.27	.14*	.29	.07	.07

*Note.* PTG = posttraumatic growth; PTS = posttraumatic stress; GPD = general psychological distress;  $SE$  = standard error; HK = Hurricane Katrina; PK = pre-Katrina; PRC = positive religious coping; NRC = negative religious coping.

<sup>a</sup> Prior mental health covariate refers to an earlier measurement of each mental health variable, measured concurrently to religious coping (for PTG model, F2 PTG; for PTS model, F2 PTS; for GPD model, F2 GPD).

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

found positive associations between NRC and PTS, but not GPD. Reasons for this change from the previous study to the current investigation may be due to methodological differences: the 2013 study utilized a measurement model and structural regression model whereas the present study relied on hierarchical linear regressions. Additionally, the RISK sample may have changed over time due to some participants being lost to follow-up.

Previous longitudinal studies examining associations between religious coping at one timepoint and PTS at another are scarce and cover shorter periods of time between measurements than the present study—ranging 6 months to 1 year. Nevertheless, the association between NRC and PTS found in this study is consistent with previous longitudinal research, which more frequently points to a positive association between NRC and PTS (e.g., Currier et al., 2015; García et al., 2017; Harris et al., 2012; Wortmann et al., 2011) than a null finding (e.g., Wadsworth et al., 2009). Further, the findings regarding the association between NRC and PTS in this study suggest that this relationship persists even longer than previously examined.

It is notable that PRC was exclusively associated with a positive aspect of mental health (PTG) whereas NRC was exclusively associated with a negative aspect of mental health (PTS). This suggests that, although both types of religious coping are likely to increase the likelihood of experiencing certain mental health outcomes, there is no evidence in these findings to suggest that PRC may mitigate negative mental health outcomes or that NRC may inhibit one's capacity to experience PTG.

That the style of religious coping one reports 4 years after a weather-related disaster is associated with mental health 12 years postdisaster suggests that religious coping has long-term effects. Yet, it is also possible that the coping style captured at one point remains constant, yielding similar short-term outcomes over time. Core beliefs on ontological matters such as God's intentions and the fairness of the world tend to remain consistent throughout one's lifetime (Padesky, 1994). Future research should seek to understand not just how long mental health effects persist after disaster, but also if and how religious coping styles are maintained over time.

## Implications

Given that PRC is associated with PTG, facilitating spiritual healing in the aftermath of disaster may be beneficial for those who are inclined to cope with faith. Houses of worship and religious organizations should be restored as quickly as possible and considered community resources for mental well-being. Additionally, trained chaplains play an important role in identifying NRC mechanisms that predict negative mental health outcomes. When providers recognize a heavy reliance on NRC, they may be able to refer clients to mental health services to ameliorate PTS and GPD.

Within formal mental health care settings, assessing for each client's relationship to religion and spirituality can help clinicians understand the ways in which religious coping may be a source of strength or vulnerability (Hodge, 2013; Shafranske, 2016). The findings of this study support previous work indicating that incorporating religion and spirituality into assessment, case conceptualization, and treatment can enhance therapy with clients who identify as Black or African American (Boyd-Franklin, 2010; Park et al., 2018). Further, the directionality between NRC and PTS is still unknown. Although NRC may influence mental health, it is also likely that the

relationship is bidirectional such that a persistently negative mental state could inspire NRC. In this case, clinicians should be aware of clients endorsing NRC and consider the possibility that it is a symptom, rather than a cause, of underlying mental health struggles.

There are also takeaways for faith leaders. Increasing awareness around the distinction between PRC and NRC, and their associated outcomes on mental health, can inform the strategies of faith leaders who work with others to bring about healing. Rather than encouraging religious coping in general, it would be more beneficial to foster components of PRC that have been shown to be protective against adverse mental health outcomes. Faith leaders who recognize elements of NRC in the views of those they serve may want to help reframe religious coping cognitions and behaviors to align more closely with those of PRC.

## Limitations

Although the longitudinal design of this study helps establish a temporal association between religious coping at one timepoint and mental health outcomes at a later timepoint, this does not necessarily imply causality. Relationships among stress, religious coping, and mental health may be multidirectional (Kucharska, 2020). For example, a disaster survivor in despair may adopt a pessimistic outlook, which may align more closely with NRC. Although these analyses controlled for disaster exposure via the number of hurricane-related stressors participants reported, this is a quantitative measure and does not fully capture the qualitative, subjective psychological impact these stressors had. It is possible then that associations between NRC and negative psychological outcomes simply reflect the severity of the trauma (Wadsworth et al., 2009). It is also plausible that NRC and PTS are both driven by variables not measured in this study, such as pessimism, cynicism, and previous religious experiences. Further research is needed on why some turn to PRC and some to NRC, and whether the amount of distress experienced during and after a disaster influences one's religious coping style.

Another limitation of the present study is lack of generalizability. The surveys that participants completed did not ask about religious affiliation, but demographic data from Pew Research Center suggest that a majority of Black Americans affiliate with monotheistic faith traditions, especially Protestant Christianity (Mohamed et al., 2021). The measure used to assess religious coping is also tailored to monotheistic believers. Therefore, the findings in this study are not generalizable to nonmonotheistic cultures, in which religious coping may function differently. The sample of the present study, primarily comprised of low-income Black women, is also not representative of all disaster survivors. These findings reflect the experiences of a particular population in the context of a specific weather-related disaster. Future research should seek to understand whether the associations found in this study are replicated with other diverse samples.

The current investigation faces some methodological limitations. First, all data included in these analyses relied on participant self-report on quantitative measures. Although the measures used to assess GPD and PTS have shown some reliability with clinical diagnoses, these measures are screening tools and are not substitutes for clinical diagnoses assigned by licensed mental health clinicians (Kessler et al., 2002; Weiss & Marmar, 1997). Additionally, given the long-term nature of this study and opportunities for losing

participants in follow-up, it is possible that there are attrition biases. Further, the long-term nature of this study introduces the possibility that religious coping was not necessarily used in response to disaster-related stressors alone. Although participants were asked to complete the religious coping measure in response to adversity encountered as a result of HK, this measure was administered 4 years after the disaster and as such participants may have knowingly or unknowingly reported their use of religious coping in response to other stressors. Finally, exclusive use of quantitative measures may not fully capture the complexity of the constructs studied. For example, the measure for exposure to HK (Brodie et al., 2006) assessed for adverse experiences during and in the immediate aftermath of the disaster. However, the predetermined set of stressors did not capture stressors that may have emerged in the long-term recovery phase.

### Future Directions

More long-term, longitudinal studies are needed to fully understand the role of religious coping on mental health after weather-related disaster (Aten et al., 2019; Pargament & Abu-Raiya, 2007). Continuing to measure outcomes several decades after disaster is important given that the recovery phase can last many years, especially for marginalized groups (Fussell, 2015). This information may also be helpful for policymakers in determining what types of services should be made available to communities affected by disaster, and how long members of these communities should be eligible for aid. In addition to repeated measurement of outcomes, repeated measurement of religious coping will provide a better understanding its role in recovery. One specific question to explore is whether PRC and NRC are consistent over time, or if individuals can vacillate from one to the other over time.

Future research should also aim to utilize a mixed-methods approach to capture both objective measures and subjective experiences related to religious coping. For example, if quantitative measures find that individuals may turn to PRC at one point in time and NRC at another point in time, it would be helpful to understand what influences this inconsistent religious coping style. Including participant voices in interviews could help researchers understand what influences religious coping style, such as religious affiliation and upbringing. The data may then be useful for mental health practitioners and faith leaders who want to inspire more PRC for their clients and community members.

### References

- Abu-Raiya, H., & Pargament, K. I. (2015). Religious coping among diverse religions: Commonalities and divergences. *Psychology of Religion and Spirituality, 7*(1), 24–33. <https://doi.org/10.1037/a0037652>
- Ai, A. L., Park, C. L., Huang, B., Rodgers, W., & Tice, T. N. (2007). Psychosocial mediation of religious coping styles: A study of short-term psychological distress following cardiac surgery. *Personality and Social Psychology Bulletin, 33*(6), 867–882. <https://doi.org/10.1177/0146167207301008>
- Aten, J. D., Smith, W. R., Davis, E. B., Van Tongeren, D. R., Hook, J. N., Davis, D. E., Shannonhouse, L., DeBlaere, C., Ranter, J., O'Grady, K., & Hill, P. C. (2019). The psychological study of religion and spirituality in a disaster context: A systematic review. *Psychological Trauma: Theory, Research, Practice, and Policy, 11*(6), 597–613. <https://doi.org/10.1037/tra0000431>
- Augustinavicius, J. L., Lowe, S. R., Massazza, A., Hayes, K., Denckla, C., White, R. G., Cabán-Alemán, C., Clayton, S., Verdelli, L., & Berry, H. (2021). *Global climate change and trauma: An international society for traumatic stress studies briefing paper*. <https://istss.org/public-resources/istss-briefing-papers/briefing-paper-global-climate-change-andtrauma>
- Boyd-Franklin, N. (2010). Incorporating spirituality and religion into the treatment of African American clients. *The Counseling Psychologist, 38*(7), 976–1000. <https://doi.org/10.1177/0011000010374881>
- Brock, T., LeBlanc, A., & MacGregor, C. (2005). *Promoting student success in community college and beyond: The opening doors demonstration*. [http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?\\_nfpb=true&\\_ERICExtSearch\\_SearchValue\\_0=ED485507&ERICExtSearch\\_SearchType\\_0=no&accno=ED485507](http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED485507&ERICExtSearch_SearchType_0=no&accno=ED485507)
- Brock, T., & Richburg-Hayes, L. (2006). *Paying for persistence. Early results of a Louisiana scholarship program for low-income parents attending community college* (Issue May). <http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED491719&site=ehost-live>
- Brodie, M., Weltzien, E., Altman, D., Blendon, R. J., & Benson, J. M. (2006). Experiences of hurricane Katrina evacuees in Houston shelters: Implications for future planning. *American Journal of Public Health, 96*(8), 1402–1408. <https://doi.org/10.2105/AJPH.2005.084475>
- Bryant-Davis, T., & Wong, E. C. (2013). Faith to move mountains: Religious coping, spirituality, and interpersonal trauma recovery. *American Psychologist, 68*(8), 675–684. <https://doi.org/10.1037/a0034380>
- Census Bureau. (2003). *Age and sex of all people, family members and unrelated individuals iterated by income-to-poverty ratio and race: 2003*. [https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pov/pov-01.2003.html#par\\_textimage\\_28](https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pov/pov-01.2003.html#par_textimage_28)
- Chan, C., & Rhodes, J. (2013). Religious coping, posttraumatic stress, psychological distress, and posttraumatic growth among female survivors four years after Hurricane Katrina. *Journal of Traumatic Stress, 20*(2), 257–265. <https://doi.org/10.1002/jts.21801>
- Cook, A., Watson, J., Buynder, P. V., Robertson, A., & Weinstein, P. (2008). 10th anniversary review: Natural disasters and their long-term impacts on the health of communities. *Journal of Environmental Monitoring, 10*(2), 167–175. <https://doi.org/10.1039/b713256p>
- CRED, & UNDRR. (2015). *The human cost of weather-related disasters: 1995–2015*. UNISDR.
- Currier, J. M., Holland, J. M., & Drescher, K. D. (2015). Spirituality factors in the prediction of outcomes of PTSD treatment for U.S. military veterans. *Journal of Traumatic Stress, 28*(1), 57–64. <https://doi.org/10.1002/jts.21978>
- Cutrona, C. E., & Russell, D. W. (1987). The provisions of social relationships and adaptation to stress. In W. H. Jones & D. Perlman (Eds.), *Advances in personal relationships* (Vol. 1, pp. 37–67). JAI Press.
- Davis, E. B., Kimball, C. N., Aten, J. D., Andrews, B., Van Tongeren, D. R., Hook, J. N., Davis, D. E., Granqvist, P., & Park, C. L. (2019). Religious meaning making and attachment in a disaster context: A longitudinal qualitative study of flood survivors. *The Journal of Positive Psychology, 14*(5), 659–671. <https://doi.org/10.1080/17439760.2018.1519592>
- Enarson, E. (2012). Women confronting natural disaster: From vulnerability to resilience. In H. Rodriguez, E. L. Quarantelli, & R. Dynes (Eds.), *Handbook of disaster research* (pp. 130–146). Springer. [https://doi.org/10.1007/978-0-387-32353-4\\_8](https://doi.org/10.1007/978-0-387-32353-4_8)
- Feder, A., Ahmad, S., Lee, E. J., Morgan, J. E., Singh, R., Smith, B. W., Southwick, S. M., & Charney, D. S. (2013). Coping and PTSD symptoms in Pakistani earthquake survivors: Purpose in life, religious coping and social support. *Journal of Affective Disorders, 147*(1–3), 156–163. <https://doi.org/10.1016/j.jad.2012.10.027>
- Fussell, E. (2015). The long term recovery of New Orleans' population after hurricane Katrina. *American Behavioral Scientist, 59*(10), 1231–1245. <https://doi.org/10.1177/0002764215591181>
- García, F. E., Páez, D., Reyes-Reyes, A., & Álvarez, R. (2017). Religious coping as moderator of psychological responses to stressful events: A



- longitudinal study. *Religions*, 8(4), Article 62. <https://doi.org/10.3390/re18040062>
- Gerber, M. M., Boals, A., & Schuettler, D. (2011). The unique contributions of positive and negative religious coping to posttraumatic growth and PTSD. *Psychology of Religion and Spirituality*, 3(4), 298–307. <https://doi.org/10.1037/a0023016>
- 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>
- Harris, J. I., Erbes, C. R., Engdahl, B. E., Ogden, H., Olson, R. H. A., Winkowski, A. M. M., Campion, K., & Mataas, S. (2012). Religious distress and coping with stressful life events: A longitudinal study. *Journal of Clinical Psychology*, 68(12), 1276–1286. <https://doi.org/10.1002/jclp.21900>
- Hodge, D. R. (2013). Assessing spirituality and religion in the context of counseling and psychotherapy. In K. I. Pargament, A. Mahoney, & E. P. Shafranske (Eds.), *APA handbook of psychology, religion, and spirituality (Vol. 2): An applied psychology of religion and spirituality* (Vol. 2, pp. 93–123). APA Handbooks in Psychology. <https://doi.org/10.1037/14046-005>
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L. T., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32(6), 959–976. <https://doi.org/10.1017/S0033291702006074>
- Kessler, R. C., Green, J. G., Gruber, M. J., Sampson, N. A., Bromet, E., Cuitan, M., Furukawa, T. A., Gureje, O., Hinkov, H., Hu, C. Y., Lara, C., Lee, S., Mneimneh, Z., Myer, L., Oakley-Browne, M., Posada-Villa, J., Sagar, R., Viana, M. C., & Zaslavsky, A. M. (2010). Screening for serious mental illness in the general population with the K6 screening scale: Results from the WHO World Mental Health (WMH) survey initiative. *International Journal of Methods in Psychiatric Research*, 19(Suppl. 1), 4–22. <https://doi.org/10.1002/mp.310>
- Knabb, R. D., Rhome, J. R., & Brown, D. P. (2006). Tropical cyclone report: Hurricane Katrina, August 23–30, 2005. *Fire Engineering*, 159(5), 32–40. [https://www.nhc.noaa.gov/data/tcr/AL122005\\_Katrina.pdf](https://www.nhc.noaa.gov/data/tcr/AL122005_Katrina.pdf)
- Krause, N., Ellison, C. G., Shaw, B. A., Marcum, J. P., & Boardman, J. D. (2001). Church-based social support and religious coping. *Journal for the Scientific Study of Religion*, 40(4), 637–656. <https://doi.org/10.1111/0021-8294.00082>
- Kucharska, J. (2020). Religiosity and the psychological outcomes of trauma: A systematic review of quantitative studies. *Journal of Clinical Psychology*, 76(1), 40–58. <https://doi.org/10.1002/jclp.22867>
- Mohamed, B., Cox, K., Diamant, J., & Gecewicz, C. (2021, February 16). *Faith and religion among Black Americans*. Pew Research Center. <https://www.pewforum.org/2021/02/16/faith-among-black-americans/>
- 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/>
- NOAA National Centers for Environmental Information. (2020). *U.S. billion-dollar weather and climate disasters*. <https://doi.org/10.25921/stkw-7w73>
- Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981–2001. *Psychiatry*, 65(3), 207–239. <https://doi.org/10.1521/psyc.65.3.207.20173>
- Padesky, C. A. (1994). The relationship of core belief challenge, rumination, disclosure, and sociocultural elements to posttraumatic growth. *Clinical Psychology and Psychotherapy*, 1(5), 267–278. <https://doi.org/10.1002/cpp.5640010502>
- Pargament, K. (1997). *The psychology of religion and coping: Theory, research, practice*. Guilford Press.
- Pargament, K., Feuille, M., & Burdzy, D. (2011). The Brief RCOPE: Current psychometric status of a short measure of religious coping. *Religions*, 2(1), 51–76. <https://doi.org/10.3390/re12010051>
- Pargament, K. I., & Abu-Raiya, H. (2007). A decade of research on the psychology of religion and coping: Things we assumed and lessons we learned. *Psyke and logos*, 28(2), 25. <https://psycnet.apa.org/record/2008-00007-001>
- Park, C. L., Holt, C. L., Le, D., Christie, J., & Williams, B. R. (2018). Positive and negative religious coping styles as prospective predictors of well-being in African Americans. *Psychology of Religion and Spirituality*, 10(4), 318–326. <https://doi.org/10.1037/re10000124>
- Pew Research Center. (2015). *U.S. public becoming less religious*. <https://www.pewforum.org/2015/11/03/u-s-public-becoming-less-religious/>
- Prati, G., & Pietrantonio, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma*, 14(5), 364–388. <https://doi.org/10.1080/15325020902724271>
- Raker, E. J., Lowe, S. R., Arcaya, M. C., Johnson, S. T., Rhodes, J., & Waters, M. C. (2019). Twelve years later: The long-term mental health consequences of Hurricane Katrina. *Social Science and Medicine*, 242, Article 112610. <https://doi.org/10.1016/j.socscimed.2019.112610>
- Rhodes, J., Chan, C., Paxson, C., Rouse, C. E., Waters, M., & Fussell, E. (2010). The impact of hurricane Katrina on the mental and physical health of low-income parents in New Orleans. *American Journal of Orthopsychiatry*, 80(2), 237–247. <https://doi.org/10.1111/j.1939-0025.2010.01027.x>
- Rosellini, A. J., Coffey, S. F., Tracy, M., & Galea, S. (2014). A person-centered analysis of posttraumatic stress disorder symptoms following a natural disaster: Predictors of latent class membership. *Journal of Anxiety Disorders*, 28(1), 16–24. <https://doi.org/10.1016/j.janxdis.2013.11.002>
- Schaefer, F. C., Blazer, D. G., & Koenig, H. (2008). Religious and spiritual factors and the consequences of trauma: A review and model of the interrelationship. *The International Journal of Psychiatry in Medicine*, 38(4), 507–524. <https://doi.org/10.2190/PM.38.4.i>
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063–1078. <https://doi.org/10.1037/0022-3514.67.6.1063>
- Shafranske, E. P. (2016). Finding a place for spirituality in psychology training: Use of competency-based clinical supervision. *Spirituality in Clinical Practice*, 3(1), 18–21. <https://doi.org/10.1037/scp0000098>
- Shannonhouse, L. R., Bialo, J. A., Majuta, A. R., Zeligman, M. R., Davis, D. E., McElroy-Heltzel, S. E., Aten, J. D., Davis, E. B., Van Tongeren, D. R., & Hook, J. N. (2019). Conserving resources during chronic disaster: Impacts of religious and meaning-focused coping on Botswana drought survivors. *Psychological Trauma: Theory, Research, Practice, and Policy*, 11(2), 137–146. <https://doi.org/10.1037/tra0000420>
- Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: A systematic review. *Mental Health, Religion and Culture*, 8(1), 1–11. <https://doi.org/10.1080/1367467032000157981>
- Smith, B. W., Pargament, K. I., Brant, C., & Oliver, J. M. (2000). Noah revisited: Religious coping by church members and the impact of the 1993 midwest flood. *Journal of Community Psychology*, 28(2), 169–186. [https://doi.org/10.1002/\(SICI\)1520-6629\(200003\)28:2<169::AID-JCOP5>3.0.CO;2-I](https://doi.org/10.1002/(SICI)1520-6629(200003)28:2<169::AID-JCOP5>3.0.CO;2-I)
- 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/10.1002/jts.2490090305>
- Tuason, M. T. G., Dominik Güss, C., & Carroll, L. (2012). The disaster continues: A qualitative study on the experiences of displaced Hurricane

- Katrina survivors. *Professional Psychology, Research and Practice*, 43(4), 288–297. <https://doi.org/10.1037/a0028054>
- Turner, R. R. (2017). *Jazz religion, the second line, and Black New Orleans, new edition: After Hurricane Katrina*. Indiana University Press. <https://doi.org/10.2307/j.ctt2005rqb>
- VanderWeele, T. J. (2021). Can sophisticated study designs with regression analyses of observational data provide causal inferences? *JAMA Psychiatry*, 78(3), 244–246. <https://doi.org/10.1001/jamapsychiatry.2020.2588>
- Wadsworth, M. E., Santiago, C. D., & Einhorn, L. (2009). Coping with displacement from Hurricane Katrina: Predictors of one-year post-traumatic stress and depression symptom trajectories. *Anxiety, Stress, and Coping*, 22(4), 413–432. <https://doi.org/10.1080/10615800902855781>
- Weiss, D. S., & Marmar, C. R. (1997). The impact of events scale-revised. In J. P. Wilson & T. M. Kean (Eds.), *Assessing psychological trauma and PTSD: A practitioner's handbook* (pp. 399–411). Guilford Press.
- Wortmann, J. H., Park, C. L., & Edmondson, D. (2011). Trauma and PTSD symptoms: Does spiritual struggle mediate the link? *Psychological Trauma: Theory, Research, Practice, and Policy*, 3(4), 442–452. <https://doi.org/10.1037/a0021413>

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