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## **Christian Religious Affiliation Is Associated With Less Posttraumatic Stress Symptoms Through Forgiveness but Not Search for Meaning After Hurricane Irma and Maria**

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## BRIEF REPORT

## Christian Religious Affiliation Is Associated With Less Posttraumatic Stress Symptoms Through Forgiveness but Not Search for Meaning After Hurricane Irma and Maria

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This study examined the extent to which Christian religious affiliation promoted greater forgiveness and search for meaning and consequently may have mitigated posttraumatic stress disorder (PTSD) symptoms in the wake of the devastation and loss following two hurricanes in Puerto Rico in 2017. Participants included 511 surviving Puerto Ricans. Most were assigned “female” at birth, educated, Christian, and middle-aged. Participants completed measures of PTSD symptoms, search for meaning, forgiveness, and demographics. Path modeling showed that Christian religious affiliation was negatively associated with PTSD symptoms and was positively associated with forgiveness but not search for meaning. Forgiveness was negatively and search for meaning was positively associated with PTSD symptoms. Christian religious affiliation may stimulate forgiveness, which may be a crucial factor for coping with PTSD symptoms in a natural disaster context such as Hurricanes Irma and Maria in Puerto Rico.

*Keywords:* trauma, forgiveness, search for meaning, coping, hurricanes in Puerto Rico

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In 2017 Puerto Rico was consecutively hit by Hurricanes Irma (September 7) and Maria (September 20). Hurricane survivors face an increased risk of posttraumatic stress disorder (PTSD; Coleman, 2013). Not all survivors have PTSD so what protects some but not others?

### Faith and Postdisaster Trauma

Religious faith helps protect disaster survivors from PTSD (Ben-Ezra et al., 2010; Fontana & Rosenheck, 2004; Harris et al., 2008, 2012; Ter Kuile & Ehring, 2014). Puerto Rico is a predominantly Christian (89%) territory and the Christian faith offers a positive coping resource (Kalayjian et al., 2018). Positive religious coping has protective effects on mental health (Ano & Vasconcelles, 2005), and two key aspects of positive religious coping—forgiveness and search for meaning—are of interest in this study. People of religious faith (Horning et al., 2011) and people who believe in God (Cranney, 2013) show higher levels of meaning in life and

forgiveness (Toussaint & Williams, 2008). Christians in Puerto Rico might be prompted to engage in a search for meaning and forgiveness, and these aspects of the religious experience might help reduce PTSD symptoms following a natural disaster.


### Searching for Meaning and Postdisaster Trauma

Searching for meaning, as a key part of meaning-making, can be delineated from meaning that has already been made (Park, 2010). Searching for meaning involves searching for understanding or comprehending the significance of life events and can occur automatically or intentionally and may operate at both cognitive and emotional levels (Park, 2010). Searching for meaning can be associated with maladjustment and distress, especially immediately following a traumatic event (Park, 2010). However, searching for meaning is a process much akin to coping that unfolds across time. Early attempts to bring meaning from tragic events can act to heighten distress or be conflated with rumination, but eventually searching for and finding meaning can bring about positive mental health outcomes (Park, 2010). Given the immediacy of our work to the hurricanes, we focus on the search for meaning.

### Forgiveness and Postdisaster Trauma

Forgiveness can be defined as giving up negative (e.g., revenge, resentment, hostility) and replacing with positive (e.g., empathy, love, compassion) thoughts, feeling, and motivations directed toward an offender or offensive situation (Worthington et al.,

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2006). Forgiveness can apply to oneself, others, or a deity (Toussaint & Webb, 2005). Disaster survivors are faced with incredible loss and powerlessness, often prompting blame, hatred, and unforgiveness of oneself, spouses, family, friends, neighbors, governments, and even nature or God (Worthington et al., 2016). The stress-and-coping model of forgiveness suggests that forgiveness is an emotion-focused coping mechanism that helps individuals adjust to adversity and can promote better health (Worthington et al., 2016). Postdisaster forgiveness may positively influence the success of coping in trauma survivors (Toussaint et al., 2017; Worthington et al., 2016), and forgiveness has been associated with lower PTSD-related symptoms after human-made disasters such as maltreatment, terror attacks, and genocides (Kalayjian & Eugene, 2010; Toussaint et al., 2017; Worthington et al., 2016). Given the salience of multiple sources of offense in the postdisaster environment, we utilize a broad conceptualization and measurement of forgiveness that encompasses dimensions of forgiveness of oneself and others and feeling forgiven by God.

## The Present Study

Because Puerto Ricans are predominantly Christian, the present study sought to compare Christians to religiously unaffiliated individuals in examining the relationships between Christian affiliation, search for meaning, forgiveness, and PTSD symptoms. We hypothesized that, compared to religiously unaffiliated individuals, Christians would, indirectly through the search for meaning and forgiveness, show lower PTSD symptoms.

## Method

### Participants and Procedure

Puerto Rican residents ( $N = 511$ ) who were mostly assigned “female” at birth (75%), attending undergraduate or graduate school (79%), Christian (79%), and 17–99 years of age ( $Md = 41$ ) voluntarily participated (see Table S1). Participants arrived at psychosocial skills-building workshops offered on December 18–29 through Meaningful World (a nonprofit working in Puerto Rico), were provided with informed consent, and completed questionnaires before the training began.

### Measures

Religious affiliation, search for meaning, forgiveness, and PTSD symptoms were assessed. Religious affiliation was self-reported and coded into 1 = *Christian affiliation* and 0 = *no affiliation*. Participants rated symptoms of PTSD (e.g., “unable to feel emotions”) directly resulting from the hurricanes using the 16-item symptom subsection of the Harvard Trauma Questionnaire ( $\alpha = .94$ ; Mollica et al., 2004). Search for meaning was assessed with the five-item search for meaning subscale of the Meaning in Life Questionnaire ( $\alpha = .86$ ; Steger et al., 2006, e.g., “I am searching for meaning in my life”). Searching for meaning does not encompass the entirety of meaning-making, but it is a core component and highly relevant to a postdisaster context (Park, 2010). Forgiveness was assessed using the forgiveness subscale of the Brief Multidimensional Measure of Religiousness/Spirituality, which contains items assessing forgiveness of self and others and feeling forgiven by God (e.g., “I have forgiven those who hurt me”, Fetzer Institute/National Institute on

Aging Working Group, 1999). Each of these domains is highly relevant to forgiveness following a disaster, and these items can be combined to form an overall forgiveness scale score ( $\alpha = .76$ ). Control variables included age, sex, education, and trauma exposure. Seven trauma exposure checklist items were developed and used to index whether one or one’s family experienced dislocation, home damage, injury, or perceived victimhood by the hurricanes. Trauma exposure was not correlated with demographics, religious affiliation, or search for meaning ( $r_s < |.03-.09|$ ,  $p_s > .05$ ) but was correlated with forgiveness ( $r = -.11$ ,  $p = .011$ ) and PTSD symptoms ( $r = .25$ ,  $p < .001$ ). Measures were translated to Spanish and back translated to English according to Brislin (1986) guidelines (see Supplemental File A). Items were responded to Likert-type response options (e.g., 1 = *absolutely untrue*–7 = *absolutely true*).

## Analyses

Hypothesized mediation analyses were conducted using PROCESS for SPSS. Models adjusted confounding of age, sex, education, and trauma exposure in religious affiliation (predictor), forgiveness and search for meaning (mediators), and PTSD symptoms (outcome). Four percent of the data were missing and were imputed using hot-deck procedures. Data met assumptions of parametric tests and statistical significance were set at  $p < .05$ .

## Results

Results of our model tests are provided in Figure 1. Christian religious affiliation was not significantly associated with search for meaning ( $B = .28$ ,  $\beta = .06$ ,  $p = .162$ ) but was significantly associated with forgiveness ( $B = .21$ ,  $\beta = .16$ ,  $p < .001$ ). Search for meaning was significantly associated with more PTSD symptoms ( $B = .04$ ,  $\beta = .12$ ,  $p < .001$ ), and forgiveness was associated with less PTSD symptoms ( $B = -.15$ ,  $\beta = -.14$ ,  $p < .001$ ). A statistically significant direct effect between Christian religious affiliation and PTSD symptoms was present ( $B = -.12$ ,  $\beta = -.08$ ,  $p = .020$ ). However, a statistically significant indirect effect of Christian religious affiliation with PTSD symptoms through forgiveness ( $B = -.03$ ,  $\beta = -.05$ ,  $p < .05$ ) but not search for meaning ( $B = .01$ ,  $\beta = .02$ ,  $p > .05$ ) was observed. The indirect effect of Christian religious affiliation on PTSD symptoms through forgiveness was statistically stronger than through search for meaning ( $B = .04$ ,  $\beta = .07$ ,  $p < .05$ ).

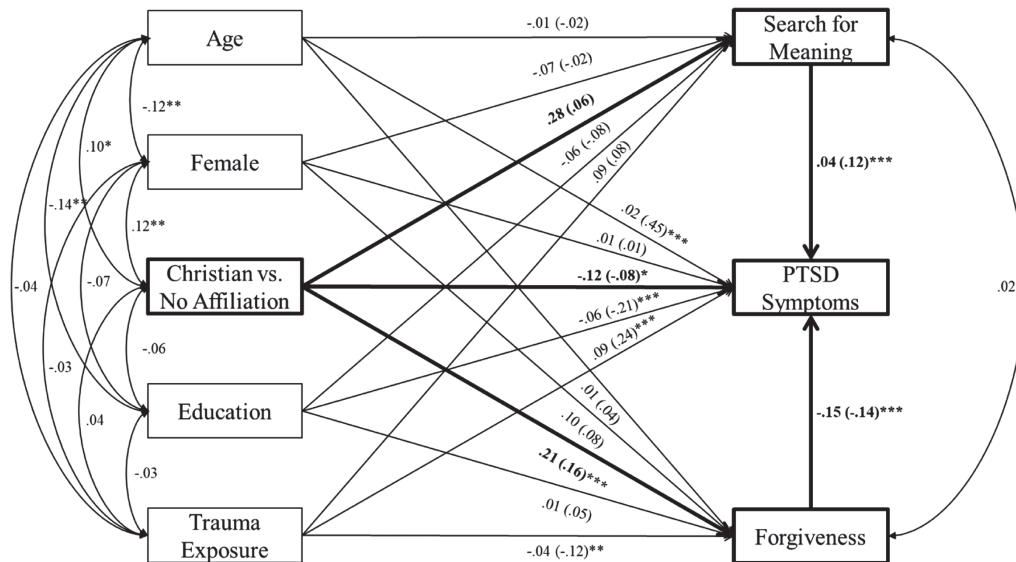
## Discussion

Our results support the hypothesized model showing that people who identify as having a Christian religious affiliation report lower PTSD symptoms, and their propensity to report higher forgiveness partially explains this association. Forgiveness is associated with fewer PTSD symptoms, and search for meaning is associated with more PTSD symptoms. Christian religious affiliation had both direct and indirect associations with PTSD symptoms. The indirect association was through forgiveness but not search for meaning, the former effect being statistically stronger than the latter.

### Christianity, Searching for Meaning, and Forgiveness

The present findings dovetail with previous research that has shown that Christian religious affiliation is associated with higher

**Figure 1**  
*Indirect Association of Christian Religious Affiliation With PTSD Symptoms Through Search for Meaning and Forgiveness*



*Note.* All regression coefficients are in unstandardized and standardized (in parentheses) form. Double-headed arrows between predictors and mediators represent bivariate correlations. Hypothesized variables, paths, and coefficients are bolded. PTSD = posttraumatic stress disorder.

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

forgiveness (e.g., Toussaint & Williams, 2008) and lower PTSD symptoms (Ben-Ezra et al., 2010; Fontana & Rosenheck, 2004; Harris et al., 2008, 2012; Ter Kuile & Ehring, 2014). Forgiving oneself for not being able to help others in times of need, forgiving others who were not helpful in times of one's own need, or feeling forgiven by God who victims may have perceived as the punisher may act as a catalyst for psychological resilience and reduce PTSD symptoms in the context of disasters (Worthington et al., 2016).

Our findings regarding the search for meaning are not as clear. Prior research has shown that strong believers in God have higher levels of meaning in life (e.g., Cranney, 2013). However, achieved meaning in life is not the same as attempting to make sense of life's events (Park, 2010). Puerto Ricans in our study having a Christian core belief system may have felt encouraged to create a narrative that restored the coherence of their situational meaning system regarding the hurricanes to their global meaning system and core beliefs about God (e.g., a hurricane is a test of faith or opportunity for spiritual growth). But these attempts at searching for meaning are likely to be protracted efforts. This study was conducted 3 months postdisaster. Access to electricity, food, clean water, and safe housing was still disrupted. So, it is not surprising that Christian religious affiliation had not yet stimulated the search for meaning efforts that should eventually produce better adjustment following hurricane Irma and Maria.

### Limitations and Future Research

This study possesses limitations. Causal inferences cannot be drawn from a cross-sectional study. Due to time constraints in this field study, religious affiliation was the only measure of

religiousness and other constructs (e.g., religious coping) were not assessed. This was a convenience sample of mostly middle-aged, highly educated individuals assigned "female" at birth, hence, generalizing broadly to other Puerto Ricans is limited.

### Conclusions and Implications

Despite these limitations, the present study raises the possibility of utilizing forgiveness in Christians as a means to cope with trauma from natural disasters such as Hurricane Irma and Maria. A longer term study may offer better insights on searching for meaning and its potential benefits to mental health. Given how the severity of hurricanes has amplified over the past recent decades within the United States and worldwide, it is important to replicate these findings in future research and extend our understanding of how faith, forgiveness, and searching for meaning may positively influence coping with natural disasters.

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