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Relationship Between Posttraumatic Stress Disorder, Resilience, and Religious Orientation and Practices Among University Student Earthquake Survivors in Haiti

Harvey J. Burnett Jr.
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Abstract: This study examined the prevalence of PTSD symptoms; the relationship between PTSD and resilience, religious orientation and religious practices; and how gender is associated with these variables among a volunteer sample of 140 students attending a Christian university in Haiti approximately four months after the January 2010 earthquake. Using the PTSD Checklist-Civilian (PCL-C), the Resilience Scale (RS), and the Religious Orientation Scale (ROS) found no significant relationship between PTSD, resilience, religious orientation and religious practices. Results did indicate that 34% of the sample had PCL-C scores indicative of PTSD; female participants had higher PTSD symptoms than males; higher levels of intrinsic religious orientation were associated with more religious practices than extrinsic religious orientation; and males with higher PTSD symptoms were associated with lower levels of attending church-sponsored social events, while females with higher levels of resilience were more associated with church attendance and attending church social events. Mental health providers should develop more comprehensive disaster mental health services that build trust and are culturally sensitive to the post-trauma needs of the Haitian people. [International Journal of Emergency Mental Health and Human Resilience, 2013, 15(2), pp. 97-104].

Key words: posttraumatic stress disorder, resilience, religious orientation, gender

On January 12, 2010, the southern region of Haiti experienced a magnitude 7.0 earthquake that killed an estimated 316,000 people, caused massive property damage, and displaced thousands (USAID, 2011). It is not uncommon for children and adults to exhibit Posttraumatic Stress Disorder (PTSD) symptoms after experiencing a traumatic event (Bal & Jensen, 2007; Breslau, 2002; Norris, Friedman, Watson, Byrne, Diaz, & Kaniasty, 2002).

PTSD is classified as an anxiety disorder which has an original traumatic event and is followed by the symptoms of re-experiencing, avoidance/numbing, and hyperarousal/hypervigilance. The symptoms need to be of sufficient severity to interfere with the person’s life. For PTSD to be diagnosed, at least one aspect of re-experiencing must occur, of which flashbacks is the most common. Three or more aspects of avoidance/numbing need to be present and two or more aspects of hyperarousal/hypervigilance. PTSD also has considerable overlap with various mood disorders (Vieweg, Julius, Fernandez, Beatty-Brooks, Hettema, & Pandurangi, 2002).
cated both as an outcome and means of coping to a traumatic event is what contributes to resilience (the ability to remain stable and function psychologically and physically) after exposure to a traumatic event (Ozer et al., 2003). This is in the middle of the range that the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (1994) has for lifetime prevalence of PTSD, ranging from 1% to 14%. Tolin and Foa (2006) reviewed 25 years of research in sex differences with PTSD. In general, they found that regardless of the type of study, females were more likely to meet the diagnostic criteria for PTSD than were males. Giaconia, Reinhertz, Silverman, Pakiz, Frost, and Cohen (1995) specifically looked at older adolescents and found that, by age 18, more than two-fifths had experienced a trauma, with 14.5% of those developing PTSD (6.3% of the total sample). Females in their sample were six times more likely to develop PTSD.

While on one hand, people can experience distress from disturbing events, Bonanno (2008) noted that large numbers of people are able to manage loss or potentially traumatic events in their lives with no real noticeable affect to their relationships or work. Similarly, it is noted that the way in which people process their stressors is critical in determining the experience of trauma (Peres, Moreira-Almeida, Nasello, & Koenig, 2007). The data by Boals and Schuettler (2009) suggested that the symptoms of PTSD are associated with an individual’s response to the event and not the nature of the event. Furthermore, literature makes a distinction between recovery and resilience. In recovery you have normal functioning which gives way to some type of psychopathology, perceived life threat during the trauma, posttrauma social support, peritraumatic emotional responses, and peritraumatic dissociation.

A meta-analysis of the prevalence of PTSD in adults puts it at roughly 7%, this despite an over 50% lifetime prevalence of exposure to a traumatic event (Ozer et al., 2003). This is in the middle of the range that the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (1994) has for lifetime prevalence of PTSD, ranging from 1% to 14%. Tolin and Foa (2006) reviewed 25 years of research in sex differences with PTSD. In general, they found that regardless of the type of study, females were more likely to meet the diagnostic criteria for PTSD than were males. Giaconia, Reinhertz, Silverman, Pakiz, Frost, and Cohen (1995) specifically looked at older adolescents and found that, by age 18, more than two-fifths had experienced a trauma, with 14.5% of those developing PTSD (6.3% of the total sample). Females in their sample were six times more likely to develop PTSD.

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Religion is an area of functioning which has been implicated both as an outcome and means of coping to a traumatic event (Harris, Erbes, Engdahl, Olsen, Winshowski, & McMahon, 2008). For example, Schuster, Stein, Jaycox, Collins, Marshall, Elliot, Zhou, Kanouse, Morrison and Berry (2001) found that, after the September 11, 2001 terrorist attacks, most Americans turned to religion and social support as a way of response. Chen and Koenig (2006) did a review of studies that had looked at the relationship between PTSD and religion/spirituality and concluded that:

“Despite of the close conceptual link between religion and traumatic stress, empirical studies investigating the potentially bi-directional relationship only began to emerge in the last decade, with an increasing number of studies within the last three years. Although this growing literature is yet to form a trend in any one direction, all but one of the studies reviewed in this paper reported significant associations between religion and PTSD. The mixed findings among these studies may be reflective of diversity in measurement and sampling, and are encouraging in identifying an association between religion and trauma” (p. 378).

In looking at religion/spirituality and posttraumatic growth, Shaw, Joseph, and Linley (2005) noted that a clear distinction between religion and spirituality in this topic has not been defined and that it may be an important distinction. Harris and colleagues (2008) felt that the more appropriate question was not whether religion’s relationship to mental health is positive or negative, but which aspects of religion have a positive or negative relationship with which components of mental health.

Little has been done on PTSD and the Caribbean. Generally, people residing in the Caribbean lack acceptance of mental health professionals and psychotherapy. This may be due to the lack of exposure to the field of mental health, or that they have an internal approach to solving problems. The view that only “crazy” people need psychotherapy, gives it a social stigma. The outsiders who may be permitted in are ministers or priests. The church may give emotional support, or reaffirm that God will work things out at the right time (Gopaul-McNicol, 1998). In the Caribbean, physical complaints are not only more acceptable than psychological ones, but they may also elicit more compassion. For men in particular, psychological complaints may be sensed as failure or weakness (Friedman, 1997).

At present, there are no studies that provide data on how the 2010 earthquake in Haiti has affected the surviving...
population. This study investigated the prevalence of PTSD in a sample of students attending a Christian university approximately four months after the earthquake. Specifically, this study: (a) examined the prevalence of PTSD symptoms; (b) explored the relationship between PTSD, resilience, and religious orientation and behaviors; and (c) explored how gendered is associated with these variables.

METHOD

Participants

Participants consisted of 140 students from a Christian university in Haiti who had experienced the January 11, 2010 earthquake in Haiti. The subjects who volunteered to participate in the study completed a questionnaire packet immediately after attending one of several one hour educational forums on critical incident stress between May 16, 2010 and June 6, 2010. The study was granted approval for research involving human subjects by the Andrews University Institutional Review Board prior to conducting the study.

Of the 140 participants, 55% were female and 45% were male. The mean age was 23.7 years (SD = 5.05). Approximately 93% were students; 7% were classified as either faculty or “other.” Seventy-six percent were Seventh-day Adventist; 18% were Protestant; 2% were Catholic; 1% was Muslim; 2% were classified as “other;” and 1% provided no information regarding their religious affiliation.

Measures

The measures used in this study included the PTSD Checklist-Civilian (PLC-C), the Resilience Scale (RS), and the Religious Orientation Scale (ROS).

The PLC-C developed by Weathers, Litz, Herman, Huska, and Keane (1993) is a 17-item self-report measure that assesses 17 PTSD symptoms on a five-point Likert scale. Participants were asked to rate on a scale from 1 (not at all) to 5 (extremely) the degree to which they had been bothered by a particular traumatic event (Criterion A) during the past month. Each of the 17 items corresponds to one of the three PTSD diagnostic criterion cluster of symptoms. For example, Criterion B is related to re-experiencing symptoms (i.e., intrusive recollections of the event, flashbacks, and recurrent distressing dreams of the event); Criterion C is related to avoidant/numbing symptoms (i.e., physical reactions to reminders of the event, avoiding thoughts and reminders to the event, psychogenic amnesia, anhedonia, estrangement from others, psychic numbing, and a sense of a foreshortened future); and Criterion D is related to hyperarousal symptoms (i.e., sleep difficulty, irritability and anger, impaired concentration, hypervigilance, and exaggerated startle response) as established by the DSM-IV. A score of 44 or higher is indicative of probable PTSD. Internal consistency coefficient alphas are reported to be .90 for Criterion B symptoms, .89 for Criterion C symptoms, .91 for Criterion D symptoms, and .97 for the overall scale. Item total correlations ranged from .62 to .80. Test-retest reliability was good (r = .96). The PCL correlates strongly with other measures of PTSD such as the Mississippi Scale, the PK scale of the MMPI-2, and the Impact of Event Scale.

The Resilience Scale (RS) was originally developed by Wagnild & Young (1993) as a 25-item self-report questionnaire that measures five resilience themes using a 7-point Likert scale ranging from 1 (agree) to 7 (disagree). However, for the purposes of this study, the 15-item version of the RS as researched by Neill and Dias (2001) was used. Based on the findings of their exploratory factor analysis on the original scale, they found the 15-item RS a shorter and more reliable measure of global resilience. Cronbach’s alpha was reported to be .91. Higher scores on the RS represent higher resilience. Wagnild and Young (1993) indicated that concurrent validity has been supported by significant correlations between RS scores and measures of morale, life satisfaction, and depression.

The Religious Orientation Scale (ROS) was originally developed by Allport and Ross (1967) as a 20-item self-report instrument that measures intrinsic/extrinsic religious orientation using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). However, for the purposes of this study, the 15-item version of the ROS as researched by Leong and Zachar (1990) was used. Based on the findings of their factor analysis on the original scale, the 15-item ROS was found to be more reliable psychometrically. Cronbach’s alpha for the scales was .87 in the American sample and .90 in the Australian sample.

Data Analysis

Chi-square tests analysis was used to explore the differences between PTSD cluster symptoms and gender. The relationship between PTSD, resilience, religious orientation and practices were analyzed using the Spearman correlation.
Relationships were considered statistically significant below a $p$ value of .05.

**RESULTS**

An analysis to examine the prevalence of probable PTSD among participants was conducted. PCL scores ranged from 18 to 79 with a mean of 39.4 ($SD = 13.9$), with males having a mean of 35.7 ($SD = 13.2$) and females having a mean of 42.9 ($SD = 13.7$). An independent-samples $t$-test was conducted to compare the PCL scores for males and females. There was a significant difference in scores for males and females; $t(108) = -2.75, p = .00$ (two-tailed). The magnitude of the differences in the means (mean difference = -7.07, 95% CI: -12.2 to -1.98) was moderate (eta squared = .065). Research conducted by Blanchard, Jones-Alexander, Buckley, and Forneris (1996) suggested that for diagnostic efficiency (in the screening mode) PCL scores of 44 or higher are indicative of probable PTSD. Twenty-one percent of the 140 subjects had missing data in this section and could not be analyzed. Of those with completed data in this section, 34.5% had scores high enough to consider a diagnosis.

A Chi-square test for independence (with Yates Continuity Correlation) indicated a significant association between PTSD symptom criterions B (reexperiencing symptoms) and gender, $\chi^2(1, n = 140) = 4.35, p = .04 \phi = .19$. This would suggest that PTSD re-experiencing symptoms were more associated with women earthquake survivors than male survivors. The same statistical procedure further indicated a significant association between PTSD symptom criterion D (hyperarousal symptoms) and gender, $\chi^2(1, n = 140) = 4.35, p = .04, \phi = .19$. Based on this result, PTSD hyperarousal symptoms were more associated with women earthquake survivors than male survivors. There was no significant association between PTSD symptom criteria C (avoidant/numbing symptoms) and gender, $\chi^2(2, n = 140) = 3.08, p = .25, \phi = .13$.

Individual RS scores ranged from 21 to 105 with a mean score of 80.9 ($SD = 16.6$), with males having a mean of 80.3 ($SD = 15.6$) and females having a mean of 81.6 ($SD = 17.7$). There was no significant difference for males and females on these scores. Higher RS scores suggest a better ability to respond to adverse events with resilience. While these scores are slightly higher than the reported mean of 72.9 for ages 18-29, they are still within the first standard deviation for this age group, $SD = 14.2$ (Wagnild, 2010)

Individual ROS scores ranged from 17 to 34 for the extrinsic items with a mean score of 27.4 ($SD = 3.87$). There was no statistically significant difference between genders, with males having a mean of 27.2 ($SD = 3.96$) and females having a mean of 27.6 ($SD = 3.81$). For the intrinsic items the scores ranged from 23 to 45 with a mean score of 37.5 ($SD = 3.78$). Again there was no statistically significant difference between genders, with males having a mean of 37.6 ($SD = 3.67$) and females having a mean of 37.5 ($SD = 3.91$).

The relationship between PTSD (as measured by the PCL) and resilience (as measured by the RS) and intrinsic and extrinsic religious orientations (as measured by the ROS) was investigated using Spearman’s rho correlation coefficient. The results indicated that there was no correlation, or significance, between PTSD and resilience ($r_s = -.02, n = 80, p = .88$). The results were still non-significant when viewed by gender (males: $r_s = -.03, n = 41, p = .84$; females: $r_s = .00, n = 39, p = .99$).

The relationship between PTSD and religious orientation (intrinsic and extrinsic) was non-significant for both intrinsic ($r_i = -.04, n = 95, p = .70$) and extrinsic ($r_i = .01, n = 94, p = .91$). The results were still non-significant when viewed by gender (males: intrinsic: $r_i = .06, n = 48, p = .69$; females: intrinsic: $r_i = -.11, n = 47, p = .45$; males: extrinsic: $r_i = .24, n = 48, p = .10$; females: extrinsic: $r_i = -.23, n = 46, p = .12$).

The relationship between resilience and religious orientation (intrinsic and extrinsic) was non-significant for intrinsic ($r_i = .18, n = 79, p = .10$), but significant for extrinsic ($r_i = .25, n = 83, p = .03$). When viewed by gender, resilience was significant for males on both the intrinsic and extrinsic scales (males: intrinsic: $r_i = .34, n = 41, p = .03$; males: extrinsic: $r_i = .34, n = 43, p = .03$). Females were non-significant for both the intrinsic and extrinsic scales (females, intrinsic: $r_i = -.03, n = 38, p = .85$; females, extrinsic: $r_i = .10, n = 40, p = .54$).

The relationship between PTSD, resilience, intrinsic and extrinsic religious orientation, and seven religious practice behaviors were analyzed. The seven religious practices included: attend church services, personal prayer, read the Bible, family worship, attend Sabbath School, read Seventh-day Adventist literature, and attend church-sponsored social events. PTSD was not significantly related to any of the religious practice variable. It did come close to significance with “attend church services” ($r_i = -.19, n = 103, p = .06$). Resilience was only statistically significantly related to “attend church services” ($r_s = .29, n = 95, p = .01$). Intrinsic re-
Religious orientation was statistically significant with “personal prayer” ($r_s = .21$, $n = 112$, $p = .02$), “read the Bible” ($r_s = .38$, $n = 113$, $p = .001$), “attend Sabbath School” ($r_s = .27$, $n = 110$, $p = .005$), and “read Seventh-day Adventist literature” ($r_s = .19$, $n = 110$, $p = .051$). Extrinsic religious orientation was statistically significant with “read the Bible” ($r_s = .21$, $n = 115$, $p = .03$), see Table 1.

The study attempted to examine the prevalence of PTSD among its participants. The results indicated that approximately 34% of participants met the screening criteria for a possible diagnosis of PTSD. Unfortunately, there are no present studies that provide comparable data in helping researchers and clinicians understand the prevalence of PTSD among the Haitian population following a traumatic event. However, as mentioned earlier, a meta-analysis by Ozer et al. (2003) suggests that 7% of adults exposed to a traumatic event meet the diagnostic criteria for PTSD despite having a 50% lifetime prevalence of exposure. Gopaul-McNicol (1993, 1998) has indicated that anxiety disorders and mood disorders are more prevalent and accepted in the Caribbean. More research is needed in this area in order to provide a more consistent PTSD prevalence rate for the Haitian population.

The study also examined the relationship between gender and PTSD. The results would suggest that the females who participated in this study had higher PTSD symptoms on the PCL than male participants. This data tends to support research conducted by Fairbank, Schlenger, Saigh, and Davidson (1995) on pre-traumatic risk factors which suggested that women are twice as likely as men to develop PTSD at some point in their lifetime. An important implication that

<table>
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<tr>
<th>Religious Practices</th>
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<th>Resilience</th>
<th>Intrinsic</th>
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<tr>
<td>Attended church services</td>
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<td>Personal prayer</td>
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<td>Read the Bible</td>
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<td>Family worship</td>
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<td>Attended Sabbath School</td>
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<td>Read Seventh-day Adventist literature</td>
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<tr>
<td>Attended church-sponsored social events</td>
<td>M</td>
<td>T, F</td>
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Note. T= statistically significant for total sample, M= statistically significant for males, F= statistically significant for females.

DISCUSSION

The current study attempted to examine the relationship between PTSD, resilience, religious orientation and practices, and gender among a sample of subjects who survived the 2010 earthquake in Haiti. The results of this study were varied.
can be drawn from this data is that the PTSD screening process should consider gender as a major factor as it progresses toward treatment modalities.

When the study examined the issue of resilience and PTSD symptoms, no relationship was found between these two variables. These results are contrary to Bonanno’s (2008) study which suggested that resilience may be a factor that lowers PTSD symptoms among individuals exposed to such events. However, the present study did find that, for females, high levels of resilience are associated with high levels of behaviors involving attending church services and church-sponsored social events. A possible implication from this finding is that, for women, involvement in religious services and religious social activities may be a protective factor that is related to their ability to function and remain stable after exposure to a traumatic event.

The study then explored the issue of religiosity and PTSD. We found that there was no significant relationship between PTSD and any religious practice behaviors. However, as expected, the study did find that higher levels of intrinsic religious orientation were associated with more religious behaviors than an external religious orientation. When specifically looking at males, the study found that higher levels of PTSD symptoms were associated with lower levels of attending church-sponsored social events.

Chatters, Taylor, Jackson, and Lincoln (2008) cited several sources in literature that suggest that religious practices and behaviors are important ways to cope with problematic life events and situations. In comparison to resilience, which is considered more of a personality characteristic that helps moderate negative stress and promote adaptation (Wagnild & Young, 1993), religious coping refers to various cognitions and behaviors used to manage reactions to an undesirable or threatening situation (Taylor, Chatters, & Levin, 2004). Hence, religious coping may tend to be more common in dealing with negative life events than resilience (Pargment, 1997).

Spirituality and religiosity are key aspects of Caribbean culture, with most of the population identifying themselves as Christian, practicing their Christianity alongside traditional beliefs from Vodoun, especially in Haiti (Dudley-Grant, & Etheridge, 2008). Gopaul-McNicol and Brice-Baker (1997) have noted that among Caribbean culture, religion is the preferred method of coping with mental health issues. This is supported by an interview with a Haitian licensed Master’s level social worker (P. Y. Fausner, personnel communication, October 9, 2011) who indicated that Haitian people will turn to a Vodoun leader or a church pastor for psychological health concerns before seeking assistance from a trained mental health professional. In fact, research by Chatters and colleagues (2008) found that Black Caribbean women were more likely to utilize religious coping than men. This finding is similar to our finding in that Haitian women had a higher association between their level of resilience and church attendance and attending church social events. However, for the males in this study, higher levels of PTSD symptoms were associated with lower levels of church social events, suggesting that gender differences do exist as it pertains to how people deal with traumatic events.

P.Y. Fausner (personal communication, October 9, 2011) shared that Haitians are a strong people but have numerous problems as they pertain to living in extreme poverty. As a result of living in such arduous economic conditions and not knowing what the future may bring, Haitians have developed, over time, a high level of resilience to cope with their life circumstances. Fausner indicated that Haitians tend to internalize the problems they encounter and rely mostly on themselves and their immediate family to bring resolution before seeking any form of professional support. This may explain why the present study was unable to find a relationship between PTSD and resilience.

Fausner went on to state that after the earthquake, many Haitians were affected and did exhibit posttraumatic stress reactions but there were no resources available to help provide treatment. However, Haitian culture tends to mistrust outsiders (Dudley-Grant, & Etheridge, 2008) which may have, to some degree, contributed to the varied results found in this study. A major implication is that the ability to provide disaster mental health services to many of the Haitian people may be a challenge. On a more positive note to this challenge is the fact that education is valued throughout Caribbean society (Dudley-Grant, & Etheridge, 2008). Education is a key component for providing a comprehensive disaster mental health intervention system (Myers, & Wee, 2005). It is hoped that study will encourage further PTSD research among the Haitian people, as well as, encourage the development and implementation of disaster mental health services that build trust and are cultural sensitive to their present and future post-trauma needs.
REFERENCES


