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Spirituality, Resilience, and Anger in Survivors of Violent Trauma: A Community Survey

Kathryn M. Connor,^{1,3} Jonathan R. T. Davidson,¹ and Li-Ching Lee²

This study evaluates the relationship between spirituality, resilience, anger and health status, and posttraumatic symptom severity in trauma survivors. A community sample ($N = 1,200$) completed an online survey that included measures of resilience, spirituality (general beliefs and reincarnation), anger, forgiveness, and hatred. In survivors of violent trauma ($n = 648$), these measures were evaluated with respect to their relationship to physical and mental health, trauma-related distress, and posttraumatic symptom severity. Using multivariate regression models, general spiritual beliefs and anger emerged in association with each outcome, whereas resilience was associated with health status and posttraumatic symptom severity only. Forgiveness, hatred, and beliefs in reincarnation were not associated with outcome. The importance of these findings to treating trauma survivors is discussed.

KEY WORDS: spirituality; resilience; trauma; community survey; posttraumatic stress disorder.

Spirituality refers to belief in a power apart from one's own existence and implies a connection with a universal force transcending everyday sense-bound reality. It also defines the search for purpose and meaning, within which ideas of transcendence and immanence form an integral part (Decker, 1993; King, Speck, & Thomas, 1999). Spirituality is the subject of a growing literature in relationship to coping after trauma and acute illness (e.g., Andrykowski, 1992; Khouzan & Kissmeyer, 1997; King et al., 1999; King, Speck, & Thomas, 1994; Park, Cohen, & Murch, 1996). Extrinsic aspects of spirituality, in the form of active religious participation, are associated with better outcome following battery and combat (Astin, Lawrence, & Foy, 1993; Ogland-Hand, 1992). Religious activity is also an important factor in recovery from de-

pression among the elderly (Koenig, George, & Peterson, 1998). Among a number of studies regarding spirituality, mental illness, and trauma, Tsuang, Williams, Simpson, and Lyons (2002) found that existential, but not religious well-being, correlated positively with a variety of personality variables, including stress reactivity, and negatively with alcohol abuse and personality disorder.

With reference to trauma, the survivor often has to come to terms with the fact that the world can be unsafe, unjust, unpredictable and without meaning. A spiritual approach can be helpful in restoring hope, and acquiring a more balanced view about justice and injustice, safety and danger, good and evil (Drescher & Foy, 1995). It has been observed that stronger religious beliefs can lead to greater sense of control, meaning, and deeper intimacy (Pargament et al., 1990; Tedeschi & Calhoun, 1996). In posttraumatic stress disorder (PTSD), the acceptance of a spiritual power may lead to a spiritual awakening which, in turn, can assuage survivor guilt (Khouzan & Kissmeyer, 1997). We would hypothesize that spiritual affirmation, whether formal-religious or personal-existential, may buffer the effect of violent trauma and, along with the work of others (e.g., Koenig et al., 1998; Larson & Milano, 1997), be associated with greater well-being.

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Included under the broad rubric of spirituality is the concept of reincarnation. Although widely accepted in many eastern cultures, belief in reincarnation is generally not considered deserving of serious scientific enquiry in contemporary western culture (Querido, 1997), although one notable exception is the work of Stevenson (e.g., Stevenson, 1977, 2000). As a belief endorsed by at least 12% of the U.S. population (Davidson, 2001), and agreeing with those who argue that spiritual belief is an important aspect of healthcare (e.g., Bergin & Jensen, 1990; Sheehan & Kroll, 1990; Sloan, Bagielli, & Powell, 1999), we considered it useful to include a panel of questions on the topic of reincarnation in our assessment of spiritual beliefs, expecting that endorsement of such a belief may facilitate a more adaptive response to trauma.

We have become increasingly interested in the concept of resilience, especially in regard to PTSD (Connor & Davidson, in press). The foundation of resilience is the possession of selective strengths or assets to help an individual survive adversity (Richardson, 2002) and, over the years, a variety of resilient qualities have been identified. In an effort to further assess and quantify resilience, we have developed and validated a 25-item self-rating scale, as well as a shorter 11-item version, which we used in this survey (scales available on request). The scale embraces concepts of control, commitment, challenge ("hardiness"), goal-orientation, self-esteem, adaptability, social skills, humor, strengthening through stress, and endurance of pain. Resilience is clearly relevant to trauma and PTSD, and it has been shown that a similar concept, hardiness for example, contributes to protection against developing chronic PTSD after combat (King, King, Fairbank, Keane, & Adams, 1998; Waysman, Schwarzwald, & Solomon, 2001). We expected to find that greater resilience would be associated with lower levels of distress and health impairment.

PTSD is also associated with impaired health status, as shown by a number of investigators (e.g., Boscarino, 1997; Hidalgo & Davidson, 2000; Solomon & Davidson, 1997). We thus wanted to include physical and mental health states as outcomes and to assess how these outcomes might be related to the variables under study here.

We are unaware of any large-scale population study which evaluates spirituality and resilience in regards of health status and posttraumatic symptom severity among survivors of violent trauma. We, therefore, undertook a population survey in the United States to assess spirituality and resilience in relationship to these outcomes in violent trauma survivors. We also included as potential outcome determinants whether or not the individual had forgiven the perpetrator, harbored feelings of hatred, or

retained significant anger, believing that persistent unresolved anger or related negative feelings might serve to promote posttrauma symptoms, whereas forgiveness may be accompanied by less severe symptoms.

Method

Participants and Procedure

The survey was fielded on October 10, 2001, by Knowledge Networks, Inc., a private company that administers research and commercial surveys using online computer technology. Knowledge Networks has used random digit dialing (RDD) sampling techniques to identify and recruit a sample of over 70,000 panelists who are representative of the U.S. population. Specifically, the source population of the RDD sampling was the entire United States telephone population, excluding disconnected and nonresidential telephone numbers. When a list of phone numbers was generated, recruitment interviews then were carried out. Approximately 56% of the contacted households agreed to participate as Knowledge Networks online panelists. The selected households were given a WebTV setup (a connection to the internet), free monthly internet access, and free hardware platform (Microsoft's WebTV) in return for completing surveys. A member of each household then became the online panelist.

Because Knowledge Networks provides selected households with free hardware and Internet access, the sample of online panelists was not limited to individuals who had previously been Web users or to households with computers. A total of 1,670 participants were selected by RDD sampling from the Knowledge Networks online panelist pool to participate in this study.

Panelists were informed via e-mail that a survey was available for their completion online. A follow-up e-mail was sent to those who did not respond to the survey; if a panelist did not respond to the e-mail reminder, a followup phone reminder would be initiated. Data were extracted on October 22, 2001. A total of 1,200 panelists completed the entire survey, rendering an overall response rate of 72%.

Though the sampling design used equal probability to select the panelists, poststratification weights were implemented to reduce sampling variation. Specifically, age, gender, ethnicity, region, and education were used to calculate weights so that the weighted sample would have a distribution of demographic characteristics similar to that of the U.S. Census. To reduce bias that is associated with nonresponse, an adjustment is implemented using demographic data of those initially selected but who did not complete the surveys ($n = 470$). The demographic variables included for the non-response adjustment are

Table 1. Demographic Characteristics of a Community Sample Participating in a Study of Violent Trauma

	Full sample (N = 1200)		Experienced trauma (n = 648)		Analyzed sample (n = 605)	
	N (%)	Number missing (%)	n (%)	Number missing (%)	n (%)	Number missing (%)
Gender		0		0		0
Male	578 (48)		300 (46)		277 (46)	
Female	622 (52)		348 (54)		327 (54)	
Race		57 (5)		31 (5)		26 (4)
White	918 (77)		476 (73)		443 (73)	
Black or other	225 (18)		141 (22)		135 (23)	
Marital status		15 (1)		10 (2)		10 (2)
Married	722 (60)		361 (56)		336 (56)	
Not married	463 (39)		276 (42)		259 (41)	
Education		4 (<1)		2 (<1)		1 (<1)
Elementary or high school education	181 (15)		112 (17)		100 (17)	
High school graduate	395 (33)		192 (30)		182 (30)	
College or professional education	620 (52)		343 (53)		323 (53)	
Employment status		20 (2)		12 (2)		11 (2)
Full-time	648 (54)		343 (53)		325 (54)	
Part-time; job, no benefits	119 (10)		68 (11)		63 (10)	
Unemployed, other	413 (34)		225 (35)		205 (34)	
	<i>M (SD)</i>	Number missing	<i>M (SD)</i>	Number missing	<i>M (SD)</i>	Number missing
Age	45.0 (16.5)	0	43.9 (15.4)	0	43.6 (15.2)	0
Number of traumas	1.0 (1.3)	0	1.9 (1.3)	0	1.9 (1.3)	0
Resilience ^a	33.7 (6.3)	30	33.4 (6.7)	12	33.4 (6.7)	0
Spirituality						
General belief ^b	18.6 (7.2)	44	18.3 (7.1)	16	18.2 (7.0)	0
Reincarnation belief ^c	29.0 (6.2)	53	28.7 (6.3)	17	28.6 (6.3)	0

Note. Because of weighting, the total number is not equal to the sum of all levels.

^aRange of score: 0–45.

^bRange of score: 6–36.

^cRange of score: 7–42.

age (18–19, 30–44, 45–59, 60+), race (Black/Hispanic, White/Other), and gender. The demographic characteristics of the study sample are presented in Table 1.

Measurement

Health Assessment

The initial series of questions inquired about current physical and mental (emotional) health status, whereby respondents rated each as excellent, moderately good, fair, or poor.

Resilience

Resilience was assessed using 11 items taken from the 25-item Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, in press). The CD-RISC is a fully validated and reliable scale, which was developed in over 1,000 participants. Normative general population scores and scores for different psychiatric populations exist. The scale embraces concepts of control, commitment, challenge (“hardiness”), goal-orientation, self-esteem, adaptability, social skills, humor, strengthening through

stress, and endurance of pain. Respondents rated how true each statement has been for the past month, with each item being rated on a 5-point scale from *not at all true* (0) to *true nearly all the time* (4). Higher scores correspond to greater resilience.

Spirituality

A series of 13 questions assessed beliefs in specific aspects of spirituality. Six questions concern general spiritual beliefs (spirituality, general) and seven questions refer to specific beliefs about repeated lives or reincarnation (spirituality, reincarnation). In this regard, our scale differs from others, for example, the 18-item Royal Free Interview (King, Speck, & Thomas, 2001), the 20-item Spiritual Wellbeing Scale (Paloutzian & Ellison, 1982), the 2-item Spiritual Change Scale (Tedeschi & Calhoun, 1996). The general spiritual belief items assessed agreement with beliefs in the following: (1) the existence of a spiritual being or God; (2) the importance of spiritual forces influencing earthly events; (3) the existence of a spiritual part of the self after death; (4) life having a purpose; (5) life having a destiny; and (6) the helpfulness of prayer. Reincarnation-related questions concerned

(1) belief in the influence of past lives, (2) belief in reincarnation as affecting personal decisions or actions, or (3) influencing what happens in this life, (4) having out of body experiences, (5) remembering past lives, (6) the impact of beneficent or harmful deeds in this life or a future life, and (7) reincarnation of the essential self in another body in the future. Respondents rated their level of agreement with each of the items, indicating whether they agreed completely (1), mostly (2), somewhat (3), or disagreed somewhat (4), mostly (5), or completely (6). Higher scores are consistent with rejection of the spiritual beliefs as articulated, whereas lower scores correspond to greater acceptance of spiritual beliefs. The items in this spirituality assessment were developed for this study and while they have not undergone rigorous psychometric testing, they demonstrated good internal consistency in the study population (general spiritual beliefs: Cronbach's $\alpha = .80$; reincarnation: Cronbach's $\alpha = .81$).

Violent Trauma and Trauma-Related Distress

Respondents were identified as having a history of a violent trauma if they endorsed at least one of the following events: a deliberate violent, nonsexual attack; accidental injury caused by another person; loss of a family member to a violent act; serious harm or physical injury of a nonsexual type to the respondent's child caused by another person; loss of property or employment because of cruelty or carelessness (e.g., terrorism, accident, industrial pollution, war); rape; incest; sexual assault to a child; and physical or emotional abuse by a partner or family member. Respondents were then asked to identify the most currently upsetting trauma and to rate the following: the degree of physical or emotional harm or damage it caused; whether the event was still bothersome (one of the outcome measures), as ascertained by the question, "Does that event still bother you?"; if the perpetrator had been forgiven; and whether feelings of hatred to that person, or feelings of anger, were still present. Rating options were *not at all* (0), *a little bit* (1), *moderately* (2), *quite a bit* (3), and *very much* (4).

PTSD Symptom Severity

PTSD symptom severity was measured using the severity subscale of the Davidson Trauma Scale (DTS; Davidson, 1996), assessing *DSM-IV* PTSD symptoms over the previous week relative to the worst trauma noted. The DTS has been widely used in PTSD research and has demonstrated good psychometric properties (Davidson, 1996). Symptoms are rated on a 5-point scale, with

higher scores corresponding to more severe symptoms. Frequency of symptoms, which forms part of the DTS, was not assessed in order to contain the length of the survey. However, separate analysis of the DTS ($N = 427$) has shown a high correlation between the frequency and severity components of the scale (Pearson $r = .96$). From this, we are confident that the results obtained are a good reflection of what would have been obtained with the full DTS.

Data Analysis

Although 1,200 respondents provided usable data, only 648 (54%) reported having ever experienced violent trauma, and it is this population which is the subject of the report. Outcomes of interest were physical health, mental health, subjective distress related to the trauma, and severity of PTSD symptoms. Of note, as only completed cases were included in the analysis, the sample used to assess the first three outcomes included 605 participants, while 572 participants were used to assess outcome based on the DTS score. Weighted data were used for all analyses.

The univariate distribution of each of the four outcome variables was examined to determine variable type (dichotomous vs. continuous). A distinctive dichotomous distribution was found for physical health status and mental health status, with responses divided into two categories of good (responses of *excellent* or *moderately good*) and poor (responses of *fair* or *poor*). As a result, dichotomous physical health status (good/poor) and dichotomous mental health status (good/poor) outcome measures were determined for the subsequent analysis. The frequencies for these outcomes were as follows: physical health, good ($n = 480$; 79%) versus poor ($n = 124$; 21%); and mental health, good ($n = 492$; 81%) versus poor ($n = 113$; 19%). For the continuous measures, mean (*SD*) scores were as follows: trauma-related distress, 2.76 (1.38); and DTS severity score, 11.5 (13.20).

Bivariate comparisons were performed using logistic or linear regression. Logistic regression was performed when the outcome variables were dichotomous, which was the case for physical health status and mental health status, whereas linear regression was the method of choice when the outcome variable was continuous, as was the case for being bothered by event and the DTS score. Backward selection was adopted in multivariate regression to select variables with the strongest association with outcome. Specifically, the following six variables were included in the selection process: resilience, general spiritual beliefs, reincarnation beliefs, forgiveness, hatred, and anger.

Results

Demographic characteristics of the full sample ($N = 1,200$), traumatized sample ($n = 648$) and of the traumatized sample with complete data ($n = 605$) are presented as weighted data in Table 1. Additionally, the mean number of traumatic events, population means for the CD-RISC, and spirituality measure are presented. In some cases, complete data on a particular scale was missing, therefore that participant was dropped from the analysis of that particular scale.

Using backward selection logistic regression, resilience, general spiritual belief, and anger were all associated with physical health status, with greater resilience associated with better health, and stronger spiritual belief and greater anger associated with poorer health. Hatred, forgiveness, and belief in reincarnation were not significantly associated with physical health.

Backward selection logistic regression again showed the same three variables to be significantly associated with mental health status, in a manner identical to the relationship found with physical health (Table 2).

With respect to level of distress from the traumatic event, backward selection multivariate linear regression revealed that two of the six measures were significantly associated with outcome. As shown in Table 3, a significant association was noted between general spiritual beliefs and anger, with the model accounting for 36% of the variance. General spiritual belief was unexpectedly associated with a poorer outcome in this regard, that is, having a greater level of spiritual belief was associated with greater degree of distress. Greater levels of anger were also associated with greater trauma-related distress.

When severity of PTSD symptoms was modeled with the six variables, resilience, general spiritual beliefs, and anger emerged as being significantly associated with PTSD severity (Table 3). The overall contribution of this model was meaningful (adjusted $R^2 = .29$), and the nature

of relationships was such that greater levels of resilience were associated with lower degrees of PTSD symptom severity. General spiritual beliefs acted in the opposite manner, whereby greater acceptance of spiritual beliefs was associated with greater severity of PTSD symptoms. Anger was also associated with increasing levels of PTSD symptoms.

Discussion

Our results show that, among individuals in the population who have been exposed to violent trauma, general spiritual belief and anger were associated with each of the four outcomes: physical health, mental health, trauma-related distress, and severity of PTSD symptoms. Resilience was associated with three outcomes, notably physical health, mental health, and PTSD symptom severity.

Resilience, as expected, showed a positive relationship, in that greater levels of personal resilience were associated with a more favorable outcome. On the other hand, the direction of the relationship with general spiritual beliefs was unexpected, with greater acceptance of spiritual beliefs in those who have the poorest outcome. While contrary to our hypothesis, this finding is consistent with some other reports (King et al., 1994, 1998). Spirituality may not so much serve as a protector against developing PTSD or poor health, but may emerge as a way of coping in those with high distress or poor health (Calhoun, Cann, Tedeschi, & McMillan, 2000; King et al., 1999; Lau & Grossman, 1997; Park et al., 1996; Tedeschi & Calhoun, 1996; Waysmann et al., 2001). The nature of the relationship between religious faith and negative life events can be complex: for some individuals, religious faith may enhance the ability to cope with negative life events; while for others, negative life events may result in greater religious faith. It is also possible that negative life events which

Table 2. Results of Stepwise Logistic Regression to Identify Correlates of Poor Physical and Mental Health ($n = 605$)

	Physical health		Mental health	
	<i>B</i> (<i>SE</i>)	<i>OR</i> (95% <i>CI</i>)	<i>B</i> (<i>SE</i>)	<i>OR</i> (95% <i>CI</i>)
Resilience	-.10 (.02)***	0.91 (0.88, 0.94)	-.23 (.02)***	0.80 (0.76, 0.84)
Spirituality				
General belief	-.04 (.02)*	0.96 (0.93, 1.00)	-.06 (.02)**	0.94 (0.90, 0.98)
Reincarnation belief				
Forgiveness				
Hatred				
Anger	.27 (.08)***	1.31 (1.12, 1.53)	.38 (.09)***	1.46 (1.22, 1.76)

Note. OR = odds ratio; CI = confidence interval.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Results of Stepwise Linear Regression to Identify Correlates of Trauma-Related Distress ($n = 605$) and PTSD Symptom Severity ($n = 572$)

	Trauma-related distress ^a		PTSD symptom severity ^b	
	<i>B</i> (<i>SE</i>)	β	<i>B</i> (<i>SE</i>)	β
Resilience			-.65 (.08)***	-.33
Spirituality				
General belief	-.02 (.01)**	-.10	-.29 (.08)***	-.16
Reincarnation belief				
Forgiveness				
Hatred				
Anger	.65 (.04)***	.61	3.71 (.37)***	.37

^aAdjusted $R^2 = .37$.

^bAdjusted $R^2 = .26$.

** $p < .01$. *** $p < .001$.

cause a decrease in well-being (i.e., increased distress) may result in a strengthening of spiritual beliefs, which in turn may help to restore well-being and reduce distress to pre-event levels (Baumeister, 1991). This compensating reciprocal causation would lead to an underestimate of correlations between variables in cross-sectional studies such as this (Kennedy, Davis, & Taylor, 1998) and may help to explain the result we observed.

Higher levels of anger were strongly associated with health status, emotional distress, and PTSD symptom severity. Of interest was the failure of feelings of hatred or forgiveness to demonstrate significant relationships to the outcomes in the multivariate models. Quite possibly feelings of hatred are subsumed by those of anger, but it certainly offers no independent contribution to well-being or health status in this sample. Forgiveness, which has been identified as a treatment goal among incest survivors (Friedman & Enright, 1996), failed to contribute significantly, as did belief in reincarnation.

Recognizing the potential influence of demographic characteristics, the relationships of age, gender, and ethnicity to outcome were examined, adding these variables to the multivariate models in a post hoc assessment. All of the relationships noted earlier continued to hold true. Of note was the emergence of an association of reincarnation with posttraumatic stress symptom severity, which was in the same direction as that for general spiritual beliefs. Additional associations which were observed and which have been reported previously included female gender with higher levels of distress and posttraumatic symptom severity (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Stein, Walker, Hazen, & Forde, 1997); younger age with poor mental health (Narrow, Rae, Robins, & Regier, 2002) and greater posttraumatic stress symptoms, which may be related to higher rates of trauma observed in younger age groups (Breslau et al., 1998); and non-white ethnicity and poor mental health, an inconsistent finding across studies (Schulz et al., 2000).

We have found that successful treatment of PTSD can bring about greater degrees of resilience in two separate cohorts of PTSD patients (Connor et al., 1999; Connor & Davidson, in press). We take our finding in this survey to signal that resilience should indeed be an important focus of attention during treatment of trauma survivors in general, and PTSD in particular, as it can respond to drug therapy. Khouzan and Kissmeyer (1977) have also noted spiritual strengthening to take place following antidepressant treatment. The possibility that psychotherapy could help to build greater resilience also needs to be considered.

Potential limitations of our survey need to be acknowledged. Firstly, it provided cross-sectional and not longitudinal data and does not inform as to the directionality of relationship between the variables and outcomes of interest. In other words, were individuals with low resilience before trauma less likely to do well, or is the low level of resilience an outcome of trauma? Similarly, for spirituality the same considerations hold true. In regard to anger, we have already acknowledged that it may confound outcome (i.e., those with PTSD are likely to be angry or irritable by definition), but its inclusion in the model serves to help identify if resilience and spirituality continue to be associated with outcome in the face of negative affect.

An additional limitation might be considered to be the nature of the sample, which only included survivors of violent trauma. These findings may not generalize to other trauma populations. However, it was our intention to limit this survey to those who had been injured by a deliberate violent act or a destructive act caused by negligence or disregard of the law.

Lastly, our respondents were surveyed by means of online technology, and the validity of our instruments has not been tested in an online format. Direct interview would also have been desirable, but constraints of cost made a more substantive study impractical. We thus view this project more as a pilot study. It is possible that some

one-item constructs (e.g., forgiveness, hatred) are psychometrically weak. Although their psychometrics were not tested, a 1-item measure of depression has been shown to perform as well as a longer scale (McKenzie & Marks, 1999) and this in itself is not automatically a major flaw. A variety of spirituality scales exist, some of which are extremely brief, with content varying according to purpose of the scale and, to our knowledge, no single scale has established primacy. Our scale was constructed with specific purposes in mind, but it has not received psychometric testing and its content/structure may certainly have a bearing on the unexpected relationships we observed. Other scales might have yielded different findings. Nonetheless, we view these results as being of interest in a field of emerging importance to the effects of trauma.

Conclusion

We have found that following violent trauma, survivors who exhibit better health or less distress from the trauma, are less angry, less accepting of spiritual belief, and more resilient. We suggest that greater belief in spiritual power may often arise as a way of coping with violent trauma, but larger studies are needed to address this question.

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