DOES TRAUMA LEAD TO RELIGIOUSNESS? A LONGITUDINAL STUDY OF THE
EFFECTS OF TRAUMATIC EVENTS ON RELIGIOUSNESS AND SPIRITUALITY
DURING THE FIRST THREE YEARS AT UNIVERSITY

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ABSTRACT

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Abstract. This study was undertaken with two objectives in mind: to better understand the effects of traumatic events on specific aspects of religiousness and spirituality (R/S), and to determine the veridicality of religious and spiritual changes subsequent to such events. This longitudinal investigation of emerging adults' experiences of adversity, religiousness, and spirituality followed eighty five students from their first month at a state university to the start of their fourth year of study. The relevance of religiousness and spirituality to emerging adults was reflected in the finding that approximately half of all participants reported at least some level of negative spiritual appraisals (desecration and sacred loss) of events that had occurred to them during their university career to date. In partial support of hypotheses in the first line of inquiry, trauma was a significant factor in predicting greater spiritual struggles, decreased salience, and lower apostasy at Time 2 after controlling for Time 1 R/S. Trauma at Time 1 was significant in directions suggestive of posttraumatic growth for five of eight factors of religiousness and spirituality. Negative spiritual appraisals provided stronger, but partial, support for the role of desecration and sacred loss in predicting six of eight aspects of R/S change. Desecration appraisals predicted positive R/S changes, whereas appraisals of sacred loss predicted negative R/S changes. Results regarding the second set of hypotheses supported the veridicality of reports of posttraumatic R/S change among those with high levels of trauma.

Keywords: trauma, adversity, religiousness, spirituality, posttraumatic growth, posttraumatic change, emerging adulthood, childhood

This work is lovingly dedicated to my mother, Ruth Frances Scheider Gear. Your generosity of

spirit, love, and belief in me are never-ending sources of gratitude, joy and inspiration for me.

You *really are* the best.

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CHAPTER ONE

INTRODUCTION

Although theologians and philosophers have provided accounts of change as a result of adversity for centuries, it is only within the past twenty five years that the field of psychology has begun to systematically examine the sequellae of traumatic events. Triggered by pressure from Vietnam-era veterans to establish recognition of their combat-related psychological difficulties, the psychological community established the term posttraumatic stress disorder (PTSD) to capture and reflect negative symptoms of trauma. Subsequent research focused on these symptoms, and as such detailed aspects and components of dysfunction that occur with PTSD.

More recently this focus has shifted to also include positive changes that can ensue from trauma and adversity. This research has been labeled by various researchers as "posttraumatic growth" (Tedeschi & Calhoun, 1995, 2004), "stress-related growth" (Park, Cohen, & Murch, 1996), "finding benefits" (Affleck & Tennen, 1996), "adversarial growth" (Linley & Joseph, 2004), and "thriving" (O'Leary, Alday, & Ickovics, 1998). Calhoun, Cann, Tedeschi, and McMillan (2000) defined this phenomenon as "the experience of significant positive change arising from the struggle with a major life crisis" (p. 521). As this body of literature has grown, empirical support for positive outcomes across several domains, i.e. increased personal strength, greater appreciation of life, positive spiritual change, more intimate relationships with others, and identification of new possibilities, has gained credibility (see Helgeson, Reynolds, & Tomich, 2006, for meta-analytic review). Researchers are now delving into closer analyses of both theoretical and methodological issues in efforts to better understand the nature and process of transformations, positive and negative, that have been reported as ensuing from adversity.

There is also a growing body of evidence within this literature suggesting that those who have experienced traumatic or very stressful events report significant and lasting changes in spirituality and religiousness. Because these findings often emerge from studies aimed at understanding the broader range of changes that occur following adverse events, there is much to be discovered about specific aspects and elements of these religious and spiritual changes, their course over time, and about the veridicality of such change. Shaw, Joseph, and Linley (2005), in their systematic review of published links between religion, spirituality, and posttraumatic growth, concluded that "religious and spiritual beliefs and behaviors can develop through the experience of traumatic events" (p.6). They also noted that extant literature at the time "leaves important questions unanswered about which specific aspects of religion may be important" (p.6). These authors made several recommendations for future research, including increased sophistication in the measurement of religious and spiritual variables, evaluating the validity of reported PTG particularly as it relates to religious and spiritual change, inclusion of both positive and negative religious and spiritual change following trauma, and the use of longitudinal designs to begin to understand the causal relationships between trauma, PTG and religious and spiritual change. Few studies to date have identified specific aspects of spirituality and religiousness that ensue from adverse events (Morris, Shakespeare-Finch, Rieck, & Newberry, 2005), included both positive and negative religious and spiritual change, and examined the veridicality of religiousness and spirituality change over time.

This project was designed to add to the literature on religious and spiritual change following traumatic experiences among college students by specifying aspects of religiousness and/or spirituality that change after such events and by determining the degree to which reports of such change correspond to actual change over time. Specifically, this project was a

longitudinal study of undergraduates that followed them from the start of their university career to the start of their fourth year of study. The goals were to identify discrete aspects of religiousness and spirituality, both positive and negative, that were responsive to traumatic events and to assess the veridicality of such change. Through the first phase of this project, information on participants' cumulative lifetime traumatic experiences was collected, baseline measures of religiousness and spirituality were established, and relationships between these aspects of R/S and trauma prior to entry into university were investigated.

The second phase of this project, my doctoral dissertation, followed up on this sample and investigated changes in religiousness and spirituality across time for these individuals, and compared retrospective reports of spiritual or religious change at Time 2 to actual changes that unfolded from Time 1 to Time 2. This longitudinal approach allowed for an assessment of the degree to which such reports corresponded to actual change in this time period and to commonly used measures of posttraumatic change. It also allowed for examination of the trajectory of religiousness and spirituality during the college years as it relates to adversity.

The Many Faces of Religiousness and Spirituality amidst Stress and Trauma: Background and Literature Review

Paloutzian and Park, in their introductory chapter of <u>The Handbook of the Psychology of Religion and Spirituality</u> (2005), observe that "religion, in its vast range of forms and expressions, is shown again and again to relate to positive and negative ways to the whole range of human behaviors, experiences, and emotions" (p. 3). Religion and spirituality (R/S) are particularly salient in the United States, where 94% of Americans confess belief in God, 69% consider themselves religious, 56% report at least monthly attendance at religious services, and 83% report that religion is at least somewhat important in their daily lives (Galllup Organization,

2007). According to a national study of adolescents in the United States (Smith & Denton, 2005), the majority (51%) report that their faith is very important in their lives, and 84% believe in God. According to Astin and Astin (2004), in their study of over 110,000 students in attendance at 236 American colleges and universities, today's entering college students report high levels of interest and involvement in their spiritual and religious lives. Approximately 80% of these students reported attendance at religious services in the prior year, 79% profess belief in God, and 69% acknowledge that their spiritual and religious beliefs provide them with "strength, support, and guidance" (p. 4). As such, any field that would purport to understand the complexity of human behavior without including an influence of such magnitude could be thought of as incomplete. It is with this perspective of including what is a significant force in many college students' lives that this study is undertaken.

In addition, late adolescence and emerging adulthood is a time of elevated exposure to trauma (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998; Frazier, Anders, Perera, Tomich, Tennen, Park, & Tashiro, 2009), underscoring the need to better understand the effects of these experiences on religiousness and spirituality. The significance of adverse childhood and adolescent experiences is becoming more evident, as highlighted by the Adverse Childhood Experiences (ACE) Study, an ongoing examination of the social and health effects of such experiences in later life conducted by the United States Government's Centers for Disease Control and Prevention (CDC) and Kaiser's Department of Preventive Medicine (2009). Due to the continuing discussion and lack of consensus regarding the definition of trauma (Long, Elhai, Schweinle, Gray, Grubaugh, & Frueh, 2008; Gold, Marx, Soler-Baillo, & Sloan, 2005) this study includes events that satisfy the current definition of PTSD, so called "Criterion A events", as well as adverse life events that do not fulfill this criterion but are potentially traumatic for

children, adolescents, and emerging adults. This study also collected data on all adverse experiences, from childhood to the start of fourth year at university, in recognition of the increasing research attention being paid to the importance of multiple traumas on outcomes and recovery (Green, Goodman, Krupnick, Corcoran, Petty, Stockton, & Stern, 2000; Macdonald, Danielson, Resnick, Saunders, & Kilpatrick, 2010).

Traumatologists and other researchers are paying greater attention to religious and spiritual variables, as reflected in a review of articles in the *Journal of Traumatic Stress* (Weaver, Flannelly, Barbarino, Figley, & Flannelly, 2003). This review indicated that, between 1990 and 1999, researchers included religion and spirituality more frequently in their investigations of people's responses to distressing events. These studies encompassed survivors of genocide, emergency medical workers, battered women, bereaved parents, victims of childhood sexual abuse, and those who had undergone bone marrow transplant, among others of note. Other researchers in such diverse areas as existential psychology (Frankl, 1963), violence and terrorism (Ai & Park, 2005), gerontology (Golsworthy & Coyle, 1999, Reker & Wong, 1988), stress and coping (Park & Folkman, 1997; Linley & Joseph, 2004; Tedeschi & Calhoun, 1995; Park, Cohen, & Murch, 1996), bereavement and loss (Davis & Nolen-Hoeksema, 2001), and the psychology of religion (Pargament, Ensing, Falgout, Olsen, Reilly, Van Haitsma & Warren, 1990) have also started to explore relationships between religiousness, spirituality and adverse life events. Throughout the progression of this research, authors (Spilka, Hood, & Gorsuch, 1985, Pargament, 1997, Paloutzian & Park, 2005) have highlighted the need to recognize the multidimensionality of religiousness and spirituality and called for more finely grained research in this area. This need may be particularly relevant in the study of trauma due to the possibility of diverse responses of various aspects of R/S in the face of adversity.

This empirical interest in trauma has generated a burgeoning area of research, Posttraumatic Growth (PTG). It is included here because this construct has been linked to religiosity, has contributed to the refinement of the theoretical processes involved in coping with adversity, and because this research has highlighted the issue of veridicality as it relates to reported changes following hardship. Shaw, Joseph and Linley (2005), in their review of empirical studies of religion, spirituality, and posttraumatic growth, identified elements of religion and spirituality that had been correlated with posttraumatic growth. This review, which included 7 quantitative and 4 qualitative studies, cited intrinsic religiosity, importance of religion to the individual, participation in religious practices, i.e., church attendance and private religious activities, and openness to religious and existential change as significant correlates of posttraumatic growth, as measured by either the Posttraumatic Growth Inventory (PTGI) or the Stress-related Growth Scale (SRGS).

Although this research has most often focused on religion and spirituality as predictors of adjustment to trauma, some researchers have looked at the ways religiousness and spirituality have been shaped by trauma, including belief in God, religious beliefs and practices, and religious or spiritual support. Because this empirical literature often combines measures of religiosity and spirituality, a fine grained parsing of the overlapping domains of religiousness and spirituality is not feasible for this discussion. For the purposes of this literature review below, I have identified empirical studies of the effects of trauma on religiousness and spirituality and discuss them below as they relate to dimensions of R/S I have chosen for their potential significance and distinctness. I have also summarized findings from the first phase of this project where they are relevant. I first, however, outline religiousness and spirituality as it

relates to the phase of life of most college students -- the time of transition to adulthood, that is, emerging adulthood.

Religiousness and spirituality in emerging adulthood. There has been an increase in research interest in religiosity and spirituality during contemporary emerging adulthood in the past ten years. While this research has not included the impact of trauma on R/S, I believe it is important to understand the baseline experiences of this age cohort in regards to their religiousness and spirituality, and therefore provide a brief summary of key findings here.

As a result of research in the 1970s and 80s (Roof & Hadaway, 1977, 1979; Roof &McKinney, 1987) indicating a profound decline in and disaffection for religion among young Americans, it has been assumed until recently that religiousness and spirituality declined during the transition to adulthood among Americans. Research in the past ten years has shown a different, more complex, picture. It appears that religious practices and affiliation decrease, while American religious and spiritual beliefs and commitment tend to be stable, if not to increase over the course of emerging adulthood (Astin, Astin, & Lindholm, 2011; Astin & Astin, 2003; Lefkowitz, 2005). To quote Smith and Snell (2009) "whether emerging adults are less religious than older adults depends, therefore, on the religious measure in question" (p. 90). Findings from recent studies of R/S during emerging adulthood follow.

Lee (2002), using a national cohort of American college freshman, found that 37.9% of students strengthened their religious convictions and beliefs, 48.3% remained stable during their university tenure, and 13.7% weakened over time. In a qualitative study of students from a large public American university, Lefkowitz (2005) found similar results: students generally reported stronger religious beliefs since beginning college. Among a sample of 21- to 28-year-old Americans, Arnett and Jensen (2002) found that religious beliefs tend to be stable or to increase.

They also found that 71% are certain about their religious beliefs, despite asserting that their beliefs often are individualistic and do not exclusively reflect a single dogma. Astin, Astin, and Lindholm (2011), using Higher Education Research Institute (HERI) data from 2000 to 2003 indicated that the level of religious commitment remained stable, at approximately 66%, through the first three years of college. In a comparison of the current generation to previous generations' religiousness and spirituality, Smith and Snell (2009) reported similarity across cohorts, in terms of frequency of daily prayer (40%), belief that Bible is the word of God (80%), and strong affiliation (28%). Thus, a significant number of current American emerging adults experience stability or increases in religious and spiritual beliefs.

In contrast to the relative stability or slight increase in religious commitment during emerging adulthood, research indicates that religious practices and affiliation decline in this group. According to HERI data from 2000-2003, the percentage of undergraduates at 46 American colleges and universities who attended religious service frequently declined drastically from 52% to 29% from the year before college to their junior year. These researchers identified religious and spiritual practices a key factor in determining the course of religious commitment during the college years. Smith and Snell (2009), in their nation-wide longitudinal study of American youth, observed that compared to youth in 1972-76, current emerging adults are more likely to disavow religious affiliation (14% in 1972-6 to 26% in 2004) and less likely to attend religious services weekly (19% in 1972-6 to 15% in 2004). The role that adversity plays in the dynamics of religiousness and spirituality during emerging adulthood is unclear, and requires further investigation.

The longitudinal design of this project enabled evaluation of the trajectories of change in aspects of R/S over the first three years of university study. In addition, inclusion of these R/S

variables as they were at the start of the study in the prediction of R/S at the end of the study gave us data about the course of these constructs over time.

Theoretical frameworks of posttraumatic change.

Lazarus and Folkman's model of stress and coping. The transactional model of stress and coping developed by Lazarus and Folkman (1984) has become the classic framework for understanding the process of dealing with stress. This theory proposes that a given event and an individual interact in an iterative, dynamic, and individual process of encounter that determines efforts that individual will take to cope and outcomes that will ensue. It is bound by characteristics of the individual, the event, and the environment that have both immediate and global aspects. For example, individuals have cognitive abilities, physical and psychological resources and constraints, relationships of support and difficulty, social skills and deficits, existential beliefs, commitments, and values, cultural influences, and a host of behavioral habits that may be called upon in the face of a potentially stressful event. These interact with characteristics of a given situation in a specific environment (i.e., time and space parameters), and determine the ways in which individuals interpret circumstances that occur in their lives. Lazarus and Folkman highlight the significance of these interpretations, or appraisals, of events, as key in the determination of subsequent processes to cope.

According to this theory, there are two levels of cognitive appraisals that occur when encountering a potentially stressful event, situation, or circumstance: primary and secondary. Primary appraisal occurs first and evaluates the question "Am I in trouble or being benefitted, now or in the future, and in what way?" (p. 31); secondary appraisal then occurs and centers on "What if anything can be done about it?" (p. 31). A primary appraisal becomes stressful when it is seen as neither irrelevant nor benign and positive, and is categorized into harm or loss, threat,

or challenge. The nature of these stress appraisals guides subsequent efforts to cope and eventual outcomes.

Lazarus and Folkman acknowledged that religiousness and spirituality can be significant aspects of the coping process as described above. For example, they cite ways in which assumptions and beliefs about God can be either a resource or an impediment in efforts to cope. Belief in a punitive, distant, controlling God, for example, could result in acceptance of an event as a punishment or retribution, and truncate efforts to manage the demands of the event. There is evidence that shattered assumptions with imbued sacredness are particularly traumatic (Pargament & Mahoney, 2005). Recent research has highlighted that appraising an event as a sacred loss or desecration seems to intensify the perceived threat and the subsequent impact of the event. In addition, the extent to which one's belief in [a beneficent, supportive] God permeates a person's life will determine the level of sacred appraisals and influence coping activity in both direction and strength. These aspects of the Lazarus and Folkman model guided the selection of R/S variables included in this study, as discussed below.

This theory of stress and coping distinguishes between coping efforts and coping outcomes. This distinction is relevant to the second area of inquiry in this study, namely, the veridicality of posttraumatic reports of change. Lazarus and Folkman define coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). These efforts to cope can be effective or ineffective, and are gauged by how helpful or harmful they are to the individual, in terms of their "adaptational outcome" (p. 181). This theory identifies three areas in which outcome effectiveness is determined: in work and social arenas, life satisfaction and esteem, and physical health and well-being. It cautions against confusing coping functions

with coping outcomes, and claims that these are independent, although interconnected, aspects of the coping process, saying "a coping function refers to the purpose a strategy serves; outcome refers to the effect a strategy has" (p. 149). As discussed below, a key point of disagreement among researchers in posttraumatic growth is whether changes reported by those who have experienced trauma are actual outcomes, which are veridical, or perceptions of change (i.e., the perception that the individual has grown or declined as a result of the experience with the stressors), which can be understood as one type of coping effort and are non-veridical. Lazarus and Folkman's model appears to enable a broadening of the discussion, from an exclusive focus on whether reports of change are veridical or not, to an alternative possibility of a dynamic process of recovery from traumatic events that encompasses coping efforts and outcomes over the course of time.

  Pargament's model of the search for significance. In his book entitled <u>The Psychology of Religion and Coping</u>, Pargament (1997) describes the many ways in which religion and coping can interact and affect the process and outcomes of dealing with life's most difficult situations. Pargament's analysis of the religion and coping literature to 1997 reveals a complex interplay of factors in this dynamic. Of particular relevance here are his conceptualization of changes in religiousness and spirituality in response to stressors, and the context within which he places responses to such events. Pargament describes what he calls an "orienting system", which embodies an individual's values, beliefs, habits, personality, relationships, and other resources that are tapped in response to stressors. To the extent that religion and spirituality are a part of individuals' fundamental beliefs, values, assumptions, and other aspects of the orienting system, they can be both resources and liabilities in dealing with the challenges of adverse life events.

This framework developed by Pargament is based on the assumption that people are proactive, goal-direction beings, engaged in a search for significance in life. According to this model, the search for significance can be secular or religious, and occurs across two dimensions, what he calls pathways to and destinations of significance. Using Piaget's concepts of accommodation and assimilation as a foundation, Pargament postulates that in efforts to deal with stressful events, individuals first attempt to conserve (i.e., assimilate) what is of ultimate significance to them. In Pargament's view, this conservation of significance can occur along pathways, or means to significance, as well as towards destinations, or ends of significance. It is only when these efforts fail that transformation (i.e., accommodation) occurs. As with conservation, according to this view, transformation can take place in pathways to and/or destinations of significance. Changes that occur in one's religious and spiritual beliefs, practices, values, and assumptions as a result of life's difficulties and challenges can thereby reflect efforts to conserve or transform the means and ends of significance. This distinction is relevant in this discussion insofar as it highlights the many and diverse ways in which one's spirituality and religiousness can change in response to very stressful events. It also underscores the importance of clarifying the meaning of spiritual or religious change, as it can indicate very different things for different people, particularly amidst the challenges presented by adversity.

Domains of religiousness and spirituality. Variables chosen for this study were informed by the theoretical frameworks described above and the desire to encompass discrete domains of religiousness and spirituality as they apply to adverse events. It is important to note that R/S variables in this study represented psychospiritual rather than theological constructs. Although their content is clearly spiritual or religious, the focus here was on psychological

processes, i.e., people's perceptions and observations of their own R/S, and was studied using social scientific methods.

This study focused on four broad domains of religiousness and spirituality: the sacred, religious and spiritual integration, religious and spiritual practices, and religious affiliation. One over-arching indicator of religiousness and spirituality, salience, was also included. With respect to the first domain, Pargament and Mahoney (2002) note that the search for the sacred encompasses ways that people discover, maintain, and transform what is holy and worthy of veneration. The sacred is defined as those entities that are cloaked in divine significance for the individual. Because the sacred can be a significant part of individuals' belief systems in both positive and negative ways, I assessed two distinct aspects of the sacred: God image and spiritual struggles.

The second broad domain involves the degree to which individuals integrate religion and spirituality in their lives. Empirical studies indicate that the extent to which religiousness and spirituality infuse a person's life is relevant to the process of coping with stressful events. I have focused on three elements of religious and spirituality integration: permeation, belief-behavior congruence, and R/S community engagement.

The third broad domain encompasses the behavioral element of R/S in practices, which specifies the frequency with which people engage in such R/S rituals and customs as attendance of worship services, prayer, and grace at meals.

The final domain of religion and spirituality involves religious affiliation (and apostasy). This domain is included as a potential cultural or familial factor that may be significant to emerging adults amidst the challenges and difficulties of adversity.

A broad indicator of religiousness and spirituality in individual's lives was included as salience. Conceptually, this factor was seen as a gauge of one's overarching religiousness and spirituality.

I also included two types of negative spiritual appraisals (desecration and sacred loss) of adverse events experienced by respondents, to investigate the potential importance of trauma-specific spiritual appraisals.

To summarize the four broad domains and eight specific elements of religiousness and spirituality that are included in this study, I am assessing the sacred (God image, spiritual struggles), integration (permeation, belief-behavior congruence, community), practices, religious affiliation/apostasy, and salience. In addition, desecration and sacred loss appraisals are included as aspects of adverse events of interest. Each of these is discussed in detail below, with applicable literature, including results from Time 1 data of this study.

The sacred. Individuals sometimes revisit and alter their fundamental beliefs and values in their attempts to resolve traumatic or very stressful events (Janoff-Bulman, 1992; Zoellner & Maercker, 2006). Janoff-Bulman (Janoff-Bulman, 2006; Janoff-Bulman & Frantz, 1997; Janoff-Bulman & Yopyk, 2004) reports changes in trauma survivors' perception of significance that appear closely related to transformations of the sacred:

> "Survivors are thus shaken from the complacency that often defines daily routines and instead become exquisitely sensitive to living… The focus of their attention shifts from a concern with the meaning *of* life to meaning *in* life…Life's value, appreciated through the painful realization that it is essentially fleeting and fragile, becomes the basis for creating newfound significance through goals and choices." (2004, p. 90)

According to this researcher, three aspects of fundamental assumptions are subject to change following adverse events: feelings of benevolence, control, and self-worth. For many Americans beliefs in God or the divine are intimately linked to these basic assumptions. Thus,

perceptions of God and the sacred can also be understood as central parts of individuals'

assumptive worlds. As such, it is possible that conceptualizations of the divine change in the

wake of adverse events.

God image. The work of Lawrence (1991, 1997) is relevant to a discussion of God image

in the wake of traumatic events. Lawrence distinguished between God concept, which he

describes as the accumulation of one's intellectual beliefs and a reflection of cultural and

religious education, and God image, which he describes as an intuitive sense and affectively

laden experience of God. Elaborating on the latter construct, Rizzuto (1979) suggested that the

God image originates, changes, and is maintained through and by our relationships with

significant others and with the self. Also according to this formulation of God image, general

life experiences form the basis for one's beliefs about God. This image, may, in turn, evolve

over time as assumptions and beliefs about the self and others change as a result of traumatic

events.

Lawrence (1997) identified three aspects of an individual's God image: belonging (also

called presence), control (also called challenge), and benevolence (also called acceptance). The

first dimension, belonging/presence, is seen by Lawrence as "the first building block available

for the construction of the God image", p. 215. According to Lawrence this element captures

one's feelings in response to the questions "Is God there for me?", and parallels the first stage of

infant relationship development with the primary caregiver. This aspect is similar to the role of

Bowlby's (1969) attachment figures as "safe haven" and "secure base." Trauma survivors who

have looked for God amidst their struggle may have perceived a variety of responses to these and

other questions around the issue of being a "child of God" or belonging to God. These perceived

responses from God may leave the victim with a range of feelings, from those of comfort and

security in the presence of God, to feelings of abandonment or punishment from God in the aftermath of trauma. Survivors of trauma have also reported a range of changes in their existential beliefs and assumptions, from those who have given up on God because he allowed a terrible event to occur, to those who come to the believe there is a divine purpose in the event, however little they are able to perceive it (Parapully, Rosenbaum, Van den Daele, & Nzewi, 2002).

The second dimension, control/challenge, represents what Lawrence sees as the second stage in development of God image, i.e. separation/individuation. This aspect targets beliefs about whether God wants the individual to grow, in terms of interacting with others outside the God/individual sphere. Although no empirical studies directly related to this construct were located, the perception of strength and new possibilities in the posttraumatic growth literature (Calhoun & Tedeschi, 2006) may approach it.

The third dimension of God image, benevolence/acceptance, reflects the degree to which individuals feel worthy to be loved by God and envision God as a loving, compassionate being. Trauma has been demonstrated to influence one sense of worth, described as changes in self-schema in the social cognitive psychology literature (Janoff-Bulman, 2006). Because this formulation of God image is partially based on one's self-image, changes in perceptions of the self may be reflected in perceptions of the divine as well.

Two studies shed light on the effects of childhood sexual abuse on relationship with God. Using a sample of 1810 primarily Catholics engaged in ministries in the Catholic church, Rossetti (1995) compared those who had been sexually abused as children (24% of sample) with those who had not, in terms of their relationship to God, trust in priests, commitment and evaluation of the Catholic church, and assessment of the Catholic church's response to child

sexual abuse. He further distinguished those who had been abused between priest perpetrators (2.2% of sample) and other (non-priest) perpetrators (17% of total sample). Among his findings (and for female respondents only) was progressive deterioration in a positive relationship with God, from those who had not been abused, to those abused by non-priests, to those abused by priests, respectively. Although those who were abused by non-clergy members showed a decline in relationship to God as compared to those who were not abused, the only statistical significant difference among these groups was between non-victims and victims of childhood clergy sexual abuse.

McLaughlin (1994) examined the impact of clergy sexual abuse on respondents' relationship with God and church involvement among participants at a conference for victims of clergy abuse. Among this adult sample, all Protestants (19% of total sample) had been abused as adults, while 65% of Catholics (81% of total sample) had been abused as children. The majority (75%) reported statistically significant decrements in their relationship to God and church involvement, with the greater impact on attitude toward God. Profound alienation from God and their church was reported by nearly 12% of respondents, all of whom had been abused as children. From these studies we can see the positive correlation between sexual abuse, particularly during childhood, and distancing from God.

One study, by Frazier, Conlon, and Glaser (2001), assessed posttraumatic changes over time and in several domains, including spirituality, among survivors of adult sexual assault. Their measure of spirituality included two items of relevance here: sense of closeness to God and spiritual well-being (SWB), as well as two items less directly relevant regarding appreciation of life and a sense of purpose in life. Respondents reported positive and negative changes for these items at 4 time periods (i.e., 2 weeks, 2 months, 6 months, and 1 year) from their initial

counseling appointments subsequent to presentation at the Emergency Room. The trend pattern is similar for those reporting negative changes for both items, in that a higher percentage of survivors report negative changes in spirituality initially (51% for SWB and 34% for closeness to God), drop sharply at 2 months (30% and 16% respectively) and then even out over the remainder of the year (ending at 32% and 17% respectively). These findings corroborate those of the two studies above: a significant number of those who experience sexual assault feel alienation from God and a decrement in their sense of spiritual well-being.

Frazier et. al. (2001) reported a different pattern for survivors with positive spiritual changes. For these survivors, increases in closeness to God remain relatively constant at 40%, whereas the trend in positive changes of SWB starts at 25% and closes at 40%. These increases in the two dimensions of spirituality stabilize after 1 year at 40% of respondents, with varying patterns during the year. Taken together, findings of this study indicate that a significant number of survivors of sexual assault report changes, both positive and negative, in their SWB and closeness to God consequent to this experience. It also highlights the variable course of these changes over time and the complexity of the relationship between trauma and aspects of R/S. These researchers also examined the association between changes in spirituality and distress, and found that spirituality is one factor (of two studied) most consistently related to distress; specifically they reported that positive changes in spirituality were related to less distress and negative spiritual changes to more distress.

Findings from Time 1 of the present study indicated that highly traumatic childhood and adolescent events and appraisals of sacred loss of these events were significantly correlated with a more positive God image ($r = .242$; $p = .025$; $r = .231$; $p = .034$, respectively). The results of hierarchical multiple regressions of God image at Time 1 using trauma and negative spiritual

appraisals of these events as predictor variables showed that these factors were non-significant after controlling for the effects of gender, which was a significant predictor of God image $(R^2 \Delta = .088$, $p = .006$; $\beta = -.244$, $p = .025$). This indicated the tendency of females to have a higher positive God image upon entry into college. Regarding measures of perceived R/S change as a result of events at Time 1, God image was significantly correlated with the Posttraumatic Growth Inventory – Spiritual Change Subscale ($r = .617$; $p = .000$), the Spiritual Transformation Scale – Spiritual Growth Subscale ($r = .528$; $p = .000$), the Total Religious Outcomes Scale ($r = .547$; $p = .000$), and Spiritual Effect Scale ($r = .408$; $p = .000$).

Spiritual struggles. There is a growing body of research that suggests the potentially unique and powerful contribution that negative religious coping can have in the aftermath of traumatic events. These religious doubts, conflicts, and tensions are researched under the rubric of spiritual struggles, defined by Pargament, Murray-Swank, Magyar, and Ano (2005) as "efforts to conserve or transform a spirituality that has been threatened or harmed", (p. 247). Spiritual struggles have been linked to increased depression and Post-Traumatic Stress Disorder. As such, they can be considered indicators of the kinds of profound shattered assumptions that may accompany traumatic events. Pargament (2007) envisions spiritual struggles as a "fork in the road" that can lead to spiritual decline or growth (Pargament, Desai, & McConnell, 2006).

Pargament identifies three types of spiritual struggles: those with others (interpersonal), those within the person (intrapsychic), and those with the divine. Interpersonal struggles are religious strains and conflicts with family members, friends, and communities. Intrapsychic struggles refer to doubts and questions about fundamental spiritual and religious beliefs and assumptions. People can also struggle spiritually with the divine; the aspect of spiritual struggles included in this study. For those struggling to recover from a traumatic event, these questions

may relate to the afterlife, ultimate purposes of life, and reconciling their religious beliefs with the event. In their interviews with parents of children who had died of cancer, Cook and Wimberley (1983) reported the feelings of guilt and struggle that some parents experienced in believing their child died as punishment for wrongs committed by the parent. This same study also described parents who expressed the third type of spiritual struggle following the death of their child, namely a struggle with the divine. When people experience this type of struggle in response to a traumatic event, they may feel angry at God, or abandoned or punished by God.

In a longitudinal study of post-divorce coping and adjustment, Krumrei (2009) assessed negative spiritual appraisals (addressed below) and spiritual struggles among divorcees within six months of their divorce and one year later, in terms of their association with depression and dysfunctional conflict tactics with their ex-spouse. In terms of spiritual struggles, this author found that spiritual struggles significantly predicted change in the participants' depression over the first post-divorce year, after controlling for global religiousness and secular struggles. In addition, mediation analyses indicated that spiritual struggles fully mediated the relationship between negative spiritual appraisals (sacred loss and desecration combined) at the time of the divorce and depression one year later. Significant results were not found between spiritual struggles and dysfunctional conflict tactics.

Of direct relevance to this project, a national study (Johnson & Hayes, 2003) of over 5,000 undergraduates at 39 public and private colleges found that 44% of participants reported at least some distress related to religious or spiritual concerns, with 26% reporting moderate to extreme distress. Their investigation of reasons for this distress revealed five predominant factors: the breakup of a significant relationship, confusion about beliefs, sexual assault, being homesick, and suicidality.

A hierarchical multiple regression model of spiritual struggles at Time 1 of this study using event-related predictors (i.e., criterion A traumatic events, adverse life events, and negative spiritual appraisals of these events) found that negative spiritual appraisals (combined due to multicollinearity) were significant *($R^2 \Delta = .065, p = .018; \beta = .280, p = .018$)*. Among R/S domains studied at Time 1, spiritual struggles was significantly correlated with a quest orientation to religion (*r* = .430; *p* = .000) and to positive religious coping (*r* = .254; *p* = .022). In terms of reports of perceived R/S change as a result of events at Time 1, spiritual struggles was significantly correlated only with the Spiritual Transformation Scale – Spiritual Decline Subscale (*r* = .578; *p* = .000).

From these studies, we can surmise that spiritual struggles, doubt, and uncertainty are not uncommon while dealing with adverse or traumatic events, and appear to represent a distinct aspect of religiousness and spirituality for emerging adults as they cope with life's difficulties.

Integration. Pargament (1997) describes religious or spiritual integration as a significant aspect of the religious orienting system described above. Spiritual integration, according to Pargament, refers to the ability of an individual to make a coherent gestalt from the "bits and pieces" of religion and spirituality (p. 347). His description of this aspect of religiousness includes three dimensions: the degree to which religion is integrated into multiple domains of a person's life, the amount of consistency between one's religious beliefs and behavior, and the extent to which the individual is involved with others in his/her religious or spiritual community. Each of these is discussed below, with corresponding empirical literature.

Permeation. The first aspect of Pargament's conceptualization of spiritual integration refers to the degree to which one's religion and spirituality infuse different life dimensions. At one end of this spectrum is permeation, where God and religion are recognized at church or

synagogue but have no relevance to work, relationships, nature, or the self. The other end of the spectrum on this dimension of integration is permeation of religion and spirituality into all areas of one's life and identity; what Allport (1950) called the "integral nature of the mature religious sentiment", and described as the weaving of multiple and diverse threads into an intricately patterned tapestry.

Although not identified as "spiritual permeation", several studies have examined aspects of religiosity or spirituality that fit within the description of this domain. These studies, however, generally have not examined this aspect of R/S as an outcome of the experience of trauma, and so are only briefly outlined here. Park, Cohen, and Murch (1996) reported that stress-related growth was correlated with intrinsic religiousness and with (positive) religious coping among university students who had experienced a stressful event in the previous 12 months. The commonly used measure of intrinsic religiousness was designed to tap the degree to which individuals think of their religion as an overarching framework for their lives (Gorsuch & McPherson, 1989), although it includes items related to practices, integration of beliefs and behavior, and salience of religion to the individual. More recently Park (2005) investigated relationships between intrinsic religiousness, coping, and adjustment following bereavement among first year college students. Overall, Park found that intrinsic religiousness was significantly correlated with positive reappraisal coping, well-being, and SRG. However, in comparing those in earlier and later stages of bereavement, this author found that higher intrinsic religiousness correlated with higher distress and more incongruence between their R/S beliefs and the death for those earlier in the bereavement process. This pattern was reversed for those later in this process, such that intrinsic religiousness and well-being were positively correlated.

One study that investigated changes in permeation after trauma was done by Kennedy, Davis, and Taylor (1998). These researchers examined changes in spirituality among survivors of sexual assault, using an urban, predominantly minority sample of women, ranging in age from 19 to 46. Racially, the sample consisted of 66% African American, 16% Hispanic, 12% Caucasian, and 6% "other racial group". Spirituality was assessed using a measure developed for this study, and included items that gauge the degree to which spirituality is a framework within which respondents' lives can be understood and lived. Sixty percentage of this sample reported an increased role of spirituality, 20% reported a decrease, and the remainder indicated no change in their lives since the assault, which occurred from 9 to 24 months prior. Seventy one percent of African Americans, fifty four percent of Hispanics, and thirty eight percent of Caucasians reported increased spirituality. A statistically significant inverse association with well-being was found for those with a decreased or static spirituality.

Results of Time 1 data of this study indicated that negative spiritual appraisals of events that had occurred in childhood and adolescence were a significant predictor ($R^2 \Delta = .055$, $p = .031$; $\beta = .257$, $p = .031$) of permeation at the start of college. As would be expected, permeation was highly and positively correlated to three of the seven other R/S domains and negatively correlated to an additional three R/S domains. These correlations ranged from $r = -.325$, $p = .003$ for Religious Cognitive Complexity to $r = -.399$, $p = .000$ for Quest religious orientation and from $r = .487$, $p = .000$ for God image to $r = .732$, $p = .000$ for R/S practices. In addition permeation was significantly correlated to reports of posttraumatic change on five of six measures: the Posttraumatic Growth Inventory – Spiritual Change Subscale ($r = .514$; $p = .000$), the Spiritual Transformation Scale – Spiritual Growth Subscale ($r = .342$; $p = .002$), the Spiritual

Transformation Scale – Spiritual Decline Subscale ($r = -.362$; $p = .001$),the Total Religious Outcomes Scale ($r = .507$; $p = .000$), and Spiritual Effect Scale ($r = .447$; $p = .000$).

Belief-behavior congruence. The second dimension of religious or spiritual integration is the degree to which one's behavior is consistent with one's religious and spiritual beliefs and values. People with an inconsistent religiousness, for example, fail to incorporate spiritual values such as honesty, integrity, reliability, fairness, and forgiveness into their business dealings or interpersonal relationships. Those on the opposite end of the spectrum strive to live all dimensions of their lives in accordance with their religious and spiritual beliefs.

Qualitative interviews with respondents of the Overcash, Calhoun, Cann, and Tedeschi (1996) study described above shed light on the effects of their adversity on religious beliefs and practices. The majority (68%) of trauma survivors discussed impacts of their identified trauma on their religious beliefs and/or behaviors. Of these, 35% reported no change in their beliefs, but a change in their importance or meaning to the individual (to being more important or more strongly held); 12% reported no change in religious beliefs but changes in behavior or lifestyle to be more consistent with those beliefs; 24% reported an increase in questioning of their religious beliefs (with all but one individual ultimately reporting a strengthening of their religious beliefs), and 6% reported development of their spiritual beliefs (from having none previously). The remaining 24% discussed the impact of their trauma on their religious beliefs, but said they did not significantly change as a result. Although this study failed to find differences between trauma and non-trauma respondents in their fundamental secular, religious, or spiritual assumptions, the study did point to aspects of religiousness and spirituality that were identified by respondents as responsive to stressful events: the importance of religion and spirituality to the

individual, religious behaviors and practices, and the consistency between religious practices and religious beliefs.

At Time 1 of this study, belief-behavior congruence was positively correlated with highly traumatic "Criterion A" events ($r = .269$, $p = .013$), and desecration and sacred loss appraisals of these events ($r = .227$; $p = .037$; $r = .239$; $p = .028$, respectively). The regression of belief-behavior congruence produced a significant R^2 change for Criterion A traumatic events ($R^2 \Delta = .072$, $p = .046$) but not significant beta weights for this variable ($r = .213$, $p = .069$). Regarding measures of perceived R/S change as a result of events collected at Time 1, belief-behavior congruence was significantly correlated with the Posttraumatic Growth Inventory – Spiritual Change Subscale ($r = .595$; $p = .000$), the Spiritual Transformation Scale – Spiritual Growth Subscale ($r = .510$; $p = .000$), the Total Religious Outcomes Scale ($r = .585$; $p = .000$), and Spiritual Effect Scale ($r = .490$; $p = .000$).

Community. The third dimension of spiritual or religious integration reflects individuals' engagement with their spiritual or religious community, for spiritual as well as material, psychological, and physical support, companionship, and assistance. Support received from those in one's religious community in times of need or crisis, or the lack of it, can affect the sense of fit one has within a spiritual or religious community, thereby influencing this aspect of integration. For example, those who receive such support can feel a stronger sense of fit with and commitment to their community, whereas those who feel rejected, ignored, or abandoned by their community may further distance themselves from this potential resource.

Watlington and Murphy's (2008) study of the role of R/S among African American women survivors of domestic violence is relevant to this aspect of spirituality. These researchers recruited women at five domestic violence agencies in the Washington, DC/Baltimore, MD area

who had experienced domestic violence within the previous 12 months, explaining that they were interested in "women's responses to domestic violence" (p. 840). Among the areas of religious or spiritual assessment were religious involvement and spirituality (see discussion of this in the next section). In terms of degree of trauma, the majority (84.6%) of respondents reported at least one incident of severe physical abuse, 53.2% reported severe physical injury, and 49.3% severe sexual violence. Unfortunately these authors did not report religious involvement as a function of trauma, although they did find that religious involvement was inversely and significantly correlated to symptoms of PTSD and depression, and positively and significantly correlated to social support. However, after controlling for abuse characteristics and income level, religious involvement was eliminated as a significant contributor to depressive and PTSD symptoms.

Of relevance to several aspects of this domain, Washington, Moxley, Garriott, and Weinberger (2009), in their qualitative examination of interviews with African American women transitioning out of homelessness, found that religious identity and beliefs, affiliation and involvement in a spiritual or religious community, and expressions of faith, in terms of translating their beliefs into action were identified as significant factors that were considered sources of strength, resilience, and support for these women who had experienced often intractable economic, health, housing, and social problems.

Results of the first phase of this study indicated that highly traumatic (Criterion A) events during childhood and adolescence predicted increased R/S community engagement upon entry into college $(R^2 \Delta = .077, p = .037; \beta = .262, p = .028)$. This model, however, did not produce significant results for this variable after controlling for gender, which was significant $(R^2 \Delta = .053, p = .034; \beta = .170, p = .123, ns)$. Negative spiritual appraisals were not significantly

correlated to R/S community at Time 1. This R/S domain was significantly correlated to reports of posttraumatic change on four of the six measures of perceived R/S change: the Posttraumatic Growth Inventory – Spiritual Change Subscale ($r = .486$; $p = .000$), the Spiritual Transformation Scale – Spiritual Growth Subscale ($r = .464$; $p = .000$), the Total Religious Outcomes Scale ($r = .494$; $p = .000$), and Spiritual Effect Scale ($r = .491$; $p = .000$).

Practices. Participation in religious and spiritual practices differs from the other components included in this study in that it reflects explicit behavior. Religious and spiritual practices can be organizational or personal expressions of faith. Organizational practices include attendance at religious services and participation in church or synagogue rituals and activities, whereas personal religious and spiritual practices include prayer, observation of dietary, sexual, or other religious laws, and reading of scriptures. These many activities are an aspect of what Pargament (1997) describes as distinctive religious pathways to significance. For many, religious and spiritual practices provide comfort, familiarity, and predictability, particularly in the face of adversity. This can be true even for those who, prior to their experience of trauma, participated in such activities only occasionally.

As outlined above, R/S practices tend to decline during emerging adulthood. Looking at frequency of attendance at religious services, for example, from the year before college to their junior year, respondents of the HERI (2000–2003) study declined drastically from 52% to 29%. Another national study, the National Longitudinal Study of Adolescent Health (Uecker, Regnerus, & Vaaler, 2007) examined changes in R/S among teens and emerging adults, looking specifically at attendance at religious services, R/S salience, and apostasy. Of direct relevance to a discussion of R/S practices, an average of 69% of emerging adults in this study reported a decline (from adolescence) in attendance at religious services. What these authors described as

"mainline Protestants" (not endorsing "evangelical Protestant" or "black Protestant") and Catholics demonstrated the highest decline in frequency of attendance at religious services, 74% and 77%, respectively. Stoppa and Lefkowitz (2010), in their longitudinal study of college students over the first three semesters, found that 46% of their oversampled minority sample declined and 10% increased in religious service attendance over their first three semesters of university. No studies that examined the effect of trauma on these practices were found.

Data from Time 1 of this study revealed that highly traumatic Criterion A events predicted R/S practices upon entry into university ($R^2 \Delta = .049$, $p = .041$; $\beta = .234$, $p = .053$, ns). Reports of posttraumatic change were significantly correlated to practices at Time 1 for four of the six measures used: the Posttraumatic Growth Inventory – Spiritual Change Subscale ($r = .564$; $p = .000$), the Spiritual Transformation Scale – Spiritual Growth Subscale ($r = .505$; $p = .000$), the Total Religious Outcomes Scale ($r = .582$; $p = .000$), and Spiritual Effect Scale ($r = .462$; $p = .000$).

Religious affiliation and apostasy. In some respects, religious affiliation can be viewed as a cultural or familial aspect of R/S, particularly for emerging adults. In the period of transition between childhood and adulthood, many explore and expand their identities, values, and affiliations. A review of the trauma literature identified no studies of the effects of trauma on religious affiliation and disaffiliation; however, findings from the first phase of this project are relevant and will be reviewed. In addition, two studies showing that apostasy has increased among emerging adults in recent years will be discussed.

In the first part of this study the number of respondents who endorsed no religious affiliation upon entry into college was nearly 24%. This group differed from those with a religious affiliation in terms of having significantly fewer traumatic Criterion A events and lower

average negative spiritual appraisals. Although the group of religion non-affiliates at Time 1 in the current study significantly differed from those who professed a religious affiliation in terms of the degree of their belief in God, they were not predominantly atheists. In fact, 80% of the "no religious affiliation" group at Time 1 indicated some belief in God. Analyses were done to determine whether the non-affiliation group represented a group for whom religion was never important or whether their non-affiliation might be apostasy that resulted from their experience of adversity. For this comparison, non-affiliators and affiliators were evaluated in terms of changes in faith they reported as a result of events they experienced during childhood. These results indicated that those without a religious affiliation generally reported a lessening of faith, whereas those with a religious affiliation generally reported a strengthening of faith as a result of all events that occurred during childhood. These results suggest that the accumulation of childhood non-traumatic adversity contributed to their turning away from organized religion.

In his discussion of the orienting system, Pargament (1997) describes two factors that influence the role religion takes in people's coping with adversity and life events: how compelling religion is to the individual and the availability of religion relative to other resources in the person's life. Major life events trigger attempts to make sense of what has occurred. The orienting system comprises beliefs, values, assumptions, and strivings, both secular and spiritual, and influences the way events are appraised and understood, conceptions about oneself and its worthiness, as well as the world. People whose faith does not provide compelling answers to events they are facing may turn away from religion as a resource for them. It could be argued that some children, who by nature are still developing their beliefs, assumptions, practices, feelings, sense of identity, and relationships, have not yet sufficiently formulated this aspect of their orienting system for it to be a compelling resource during difficulties posed by adversity.

Atrophy may accumulate for unused resources as it does for unused muscles, perhaps leading to ever further distancing from religion.

Uecker, et. al. (2007) examined changes in R/S, including apostasy, among teens and emerging adults. Their findings, from the National Longitudinal Study of Adolescent Health, reported apostasy among 17% of emerging adults. Another study of American adolescents from age 13 to emerging adulthood, the National Study of Youth and Religion, (Smith and Snell, 2009), revealed that apostasy nearly doubled, from 14% in 1972-6 to 26% in 2004.

Salience. The importance of religion or spirituality reflects a macro-level aspect of religiousness that speaks to the strength of one's commitment. As such it can be viewed as an aspect of R/S that could be seen as motivational in nature, to the extent that the degree of importance of R/S compels engagement or disengagement with other aspects of R/S. Several studies have looked at the trajectory of salience during emerging adulthood and in relation to trauma at this time of life.

As mentioned above, the National Longitudinal Study of Adolescent Health (Uecker, et. al., 2007) examined changes in R/S among teens and emerging adults, looking specifically at attendance at religious services, R/S salience, and apostasy. Their findings regarding salience of religion indicate that one in five participants reported a decline in personal importance of religion, with the largest declines among Catholics (22.3%) and mainline Protestants (22.2%). Jewish and Black Protestants demonstrated the least amount of decline, with 13.3% and 13.6% respectively. Stoppa and Lefkowitz (2010), in their study at a large northeastern college, found general stability in importance of religious beliefs over the first three semesters of college. Their individual-level analysis, however, showed a different pattern. While approximately half of their

sample remained stable during this time period, approximately one third declined and one quarter increased in the importance of R/S.

Vandecreek and Mottram (2009) studied changes in religious beliefs following trauma. They conducted a qualitative study of adult survivors of family suicide, to examine three aspects of religious and spiritual life during this type of bereavement. Two of these, i.e., support from congregations and clergy and religious support from friends and family, relate to the role of religious support in the survivors' functioning after the suicide rather than to changes in these areas as a result of the suicide; however the third area, impact on religious beliefs, is of direct relevance to this study. The majority of participants reported an intensification or strengthening of their religious beliefs and convictions without a corresponding change in the content of those beliefs. They also included a strengthening of their closeness to God as an important aspect of their increased spiritual perspective on life. These authors did not describe the experiences of those who reported no change or a decrease in their religious beliefs as a result of the suicide.

Qualitative interviews in the Overcash, Calhoun, Cann, and Tedeschi (1996) study discussed above revealed that 68% of trauma survivors discussed impacts of their identified trauma on their religious beliefs and/or behaviors. Of these, 35% reported a change in salience, to being more important or more strongly held as a result of their adversity, and 6% reported development of their spiritual beliefs (from having none previously).

The enduring effects of trauma on religiousness is demonstrated in Carmil and Breznitz' (1991) study of holocaust survivors and their children. Nearly five decades after their experience of the holocaust, survivors as well as their children more frequently identified themselves as "religious", as compared to a control group. Specifically, 13.7% of survivors and 18.5% second generation survivors identified themselves as religious, compared to 7.09% and 8.8% among the

control groups respectively. These authors used an Israeli sample and defined religiousness as "belief in God and practice of a certain way of life" (p. 397) for the purposes of this study. Other possible responses to this item were "traditional", indicating an ethnic Jewish identity, and "secular". This study is relevant to this aspect of R/S to the extent that their identification as religious reflected the importance of religion to these individuals.

Regarding Time 1 results of this study, among event-related predictors, highly traumatic Criterion A events that had occurred prior to the start of university predicted increased salience (R^2 = .066, p = .017; β = .244, p = .042) upon entry into university. In addition, salience at Time 1 of this study was significantly correlated to four of the six reported R/S change measures: the Posttraumatic Growth Inventory – Spiritual Change Subscale (r = .551; p = .000), the Spiritual Transformation Scale – Spiritual Growth Subscale (r = .545; p = .000), the Total Religious Outcomes Scale (r = .423; p = .000), and Spiritual Effect Scale (r = .368; p = .001).

Negative spiritual appraisals. When events are perceived as a desecration or loss of something sacred, individuals' responses to these events take on added dimensions of negative feelings, thoughts, and outcomes. Assessment of these negative spiritual appraisals, then, would appear to be important in understanding more fully the religious and spiritual impact of traumatic events.

Prior research has shown that perceptions of events as violations of the sacred (i.e., desecrations) and sacred losses have distinctive implications for health and well-being. In a study of community members' most upsetting event in the prior two years, Pargament, Magyar, Benore, and Mahoney (2005) examined the ways in which perceptions of desecration and sacred loss contribute to the outcomes of negative events. Regarding the most significant negative event in the previous two years, 38% of participants in this study indicated that they perceived

the event as a sacred loss and 24% indicated that they perceived it as a desecration. Those who identified the event as a desecration reported greater trauma-related intrusive thoughts and anger, whereas those identifying the event as a sacred loss experienced more depression. Interestingly, this study also showed differential effects of desecration and sacred loss on reports of post-traumatic growth. In contrast to desecration, sacred loss was more highly associated with spiritual growth. Pargament et al. (2005) found that community members' ratings of a wide variety of negative events as a sacred loss or desecration were linked with higher levels of intrusive, trauma-related thoughts, avoidance, anxiety and depression.

The longitudinal study of post-divorce coping and adjustment outlined above (Krumrei, 2009) also examined negative spiritual appraisals among divorcees within six months of their divorce and one year later, in terms of their association with depression and dysfunctional conflict tactics with the ex-spouse. This author found that higher levels of negative spiritual appraisals of one's divorce predicted higher levels of depression and higher levels of dysfunctional conflict with the ex-spouse between the time of the divorce and one year later. In addition, higher levels of appraisals of sacred loss and desecration were related to more spiritual struggles.

Negative spiritual appraisals of events reported at Time 1 in this study were significantly correlated to both types of traumatic events (i.e. Criterion A and adverse life events), approximately half of the R/S variables studied at Time 1, and to two of six measures of reported R/S change. Both desecration and sacred losses were significantly correlated with all of these variables with one exception: God image, where sacred loss appraisals were significantly correlated ($r = .231$; $p = .034$) but desecration was not. Specifically, appraisals of desecration and sacred loss were significantly correlated to Criterion A traumatic events ($r = .370$; $p = .000$; r

= .351; *p* = .001, respectively) and traumatic adverse life events (*r* = .304; *p* = .005; *r* = .282; *p* = .009, respectively). In addition desecration and sacred loss appraisals were significantly correlated to R/S variables spiritual struggles (*r* = .293; *p* = .006; *r* = .284; *p* = .008, respectively), permeation (*r* = .232; *p* = .033; *r* = .292, *p* = .007, respectively), belief-behavior congruence (*r* = .227; *p* = .037; *r* = .239; *p* = .028, respectively), apostasy (*r* = -.345; *p* = .001; *r* = -.306; *p* = .004, respectively), and Positive Religious Coping (*r* = .240; *p* = .030; (*r* = .327; *p* = .003, respectively). Among measures of reports of posttraumatic R/S change, desecrations and sacred losses were significantly correlated to the Posttraumatic Growth Inventory – Spiritual Change Subscale (*r* = .372; *p* = .001; *r* = .393; *p* = .000, respectively) and the Spiritual Transformation Scale – Spiritual Growth Subscale (*r* = .389; *p* = .000; *r* = .419; *p* = .000, respectively).

Inclusion of desecration and sacred loss as spiritual appraisals of traumatic events at Time 2 was expected to provide a more directly event-related R/S aspect of participants' experiences of adversity and consequent effects on other aspects of religiousness and spirituality included in this study.

Taken as a group, these studies highlight the diversity of religious and spiritual outcomes in the aftermath of traumatic events, and underscore the lack of consensus regarding measurement of R/S and the consequent lack of uniformity of results. Among these studies, there is indication that several aspects of religiousness and spirituality are related to trauma for at least some survivors, including behavior and practices, closeness to the sacred, consistency between beliefs and identity. Due to the lack of consensus regarding measurement and the frequent collapsing of elements of R/S into a single construct, our ability to clearly delineate and understand the differential effects of adversity and trauma on R/S remains limited. In addition,

there is evidence that appraisals of events as desecrations or sacred losses may be potent factors in more fully understanding the impact of trauma on religiousness and spirituality. However, the scarcity of longitudinally designed studies makes it difficult to form any definitive inferences regarding causality at this point.

Results from Time 1 of this study indicated that events currently considered as satisfaction of Criterion A of Posttraumatic Stress Disorder, and not adverse life events, were significant in hierarchical multiple regressions of four of eight R/S domains studied, after controlling for demographic variables: Belief-behavior congruence, R/S practices, apostasy, and salience, in directions consistent with posttraumatic growth. Results for R/S community engagement indicated that traumatic events were significantly predictors only prior to the inclusion of gender. In addition, negative spiritual appraisals were a significant predictor in three of eight R/S domains: spiritual struggles, permeation, and apostasy.

Veridicality of Posttraumatic Change

As posttraumatic research has developed in complexity and depth, several areas for future progress have been proposed by a number of researchers (Linely & Joseph, 2004; Park, 2004; Tomich & Helgeson, 2004; Wortman, 2004). Prominent among these is the question as to whether change that is reported in the aftermath of traumatic events is veridical or perceived; a question that applies not just to PTG but to sequellae of trauma more generally. At issue is whether changes reported under the rubric of post-traumatic change reflect actual alterations in significant areas of life, i.e., in relationships with others, perception of new possibilities in life, personal strength, spirituality or religiousness, and appreciation of life, or are coping efforts to counteract, reduce, or defend against the distress triggered by the traumatic event. In their focus on posttraumatic growth, Tedeschi and Calhoun (2004) believe such change to be actual positive

psychological change, whereas other researchers including Taylor (1983; Taylor & Armor, 1996; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000), Wortman (2004), and McFarland and Alvaro (2000) view the reports of positive change following adversity as cognitive illusions, i.e., self-enhancing or self-derogating efforts to inflate perceptions of current functioning or attenuate feelings of distress. This perspective generally views reports of posttraumatic growth as a coping mechanism rather than a verifiable outcome of the coping process. Because current empirical research has focused on posttraumatic growth rather than posttraumatic change, studies of the veridicality of posttraumatic change have been done under the rubric of posttraumatic growth. This research is outlined below.

Posttraumatic growth as veridical. Tedeschi and Calhoun (1995, 2004) have proposed a model of posttraumatic growth that views change following traumatic events as veridical. According to this model, posttraumatic growth occurs as a result of processing of events that challenge fundamental beliefs, goals, and assumptions about the self and the world. Because R/S often is a part of this worldview, changes in R/S can occur as a result of this process well as secular aspects of one's worldview. Positive change is thought to evolve as a result of the struggle with trauma and its aftermath, not just by virtue of having the experience of trauma, but as one grapples with this experience and its implications for life going forward (Calhoun & Tedeschi, 2006). According to this view, those facing traumatic events attempt to make sense of the event(s) and integrate the trauma and its aftermath in a manner consistent with prior beliefs, goals, and assumptions. When this attempt fails, subsequent distress and individuals' efforts to reconcile their pre- and post-trauma realities can lead to constructive cognitive processing of trauma, or productive rumination. This ruminative process in turn, can result in changes in fundamental beliefs, goals, and assumptions about the self, others, and the larger worldview.

Such positive change is seen by these researchers as an outcome of this process, in contrast to others who see reports of growth as coping mechanisms by which survivors seek to understand, regain a sense of mastery, or reinforce their self-esteem, to the extent that it was tattered by the traumatic event. In response to such assertions, Tedeschi and Calhoun (2004) acknowledged four ways (i.e., social desirability, errors in cognitive reconstruction, downward comparisons, and the effects of emotional coping) that bias may enter reports of PTG, saying:

> We have long argued that these concerns need to be considered. For example, prior to coining the term posttraumatic growth, we stated that "we should consider whether the construal of benefits and the self-perception of growth simply represent another cognitive bias, or is real". (p. 94)

While they addressed each of these suggested challenges to the veridicality of PTG, they also urged continued clarification regarding the validity of PTG. Regarding social desirability, they cite research done as part of their development of the Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996) in which there is no correlation between PTG and social desirability. They position errors in cognitive reconstruction within the context of self-report bias, and as such are dismissed as potentially problematic but not one that is unique to PTG. Research that demonstrates corroboration of PTG by close associates of survivors is cited to counter the argument that reports of growth simply reflect downward comparisons. In discussing the role of emotional coping, Tedeschi and Calhoun (2004) suggest that bias in reports of PTG may be a function of underlying pretrauma level of psychological adjustment and functioning, as well as the accessibility of psychological resources. Specifically, they propose that those with fewer psychological resources prior to the trauma may be more prone to biases in their reports of posttraumatic growth.

Several studies have indicated veridicality through corroboration of reported PTG of those experiencing trauma and known others. For example, Park, Cohen, and Murch (1996)

found that reports of "stress-related" growth among college students were correlated with reports of such growth by friends or family members. This correlation was significant but low among all informants, and increased when "extremely close" informants were used as the basis for comparison. In another study, Weiss (2002) compared spousal report of PTG, using both open ended questions and the Posttraumatic Growth Inventory (PTGI: Tedeschi & Calhoun, 1995, 1996), a commonly used, validated measure of PTG as operationalized by these authors. Data were collected for both the survivors of breast cancer and their husbands, and were compared to their spouses' observation of posttraumatic growth. Spouses reports were significantly intercorrelated on all subscales of the PTGI, with correlations, ranging from $r=.28$, ($p<.05$) for husbands' corroborations of wives' scores for increases in personal strength, to $r=.65$, ($p<.01$) for husbands' corroboration of wives' scores of spiritual change.

Shakespeare-Finch and Enders (2008) compared reports of PTG between college students who had experienced a traumatic event within the previous five years to those of corroborating partners, family members, or close friends, all of whom had known respondents prior to that event. This study included only those whose trauma met diagnostic criteria for posttraumatic stress disorder. Results demonstrated significant correlations between reports of PTG for trauma survivors and corroborators' reports, for total scores, as well as all factors, specifically appreciation of life, personal strength, relating to other, new possibilities, and spiritual change. It is interesting to note that the intercorrelations between factors were higher for corroborators than the survivors in this study; a finding the authors suggest may "be indicative of posttrauma complexity that is not as evident to an onlooker as it is to the person who has experienced the event" (p. 423).

In a series of three studies that assessed the validity of stress-related growth, Frazier and Kaler (2006), reported little support for veridicality overall, with R/S change being the exception. Spirituality was the one domain in which significant corroboration occurred in two of these studies. Using a randomized national study of non-institutionalized English-speaking adults aged 25 to 74, the first study compared breast cancer survivors with matched controls for each of five categories included in their measure of stress-related growth: life appreciation, relationship quality, life priorities, spirituality and religiousness, and self-concept. Of these categories, only the religiousness-spirituality domain was significantly different between breast cancer survivors and matched controls (n=70). Here cancer survivors reported greater spirituality than their matched controls $(F(4,120) = 2.57, p < .05$, partial $\eta^2 = .08)$, supporting the veridicality of self-reports of post-cancer R/S growth. Within this domain, R/S salience and prayer were factors that primarily accounted for these results.

The third study included in Frazier and Kaler's article examined perceived growth and well-being among college students who had reported a "major stressful event", controlling for positive affect. Again using the five domains outlined above, Frazier and Kaler compared reported stress-related growth to assessments of each of these domains six to eight weeks later (with and without priming of the event). Religiousness-spirituality was the only category that was significantly related to itself and to no other category, indicating discriminative validity through the unique correspondence between reports of stress-related R/S growth and a subsequent measure of spirituality and religiousness.

One study has used a prospective design to evaluate the veridicality of PTG among college students (Frazier, Tennen, Gavian, Park, Tomich, & Tashiro, 2009). These authors compared reported changes in posttraumatic growth with actual changes in domains measured by

the PTGI over a period of eight weeks. Among their findings was that religiousness was the only domain in which reported change significantly corresponded to actual change. Because these significant correlations between actual and perceived change in R/S were also positively correlated to distress, these authors interpreted these findings as support for the view that increased R/S was a way of coping with trauma rather than an indication of actual positive change.

Perceived posttraumatic growth. Two main models provide the basis of support of reports of PTG as coping efforts rather than outcomes of coping with trauma: Albert's (1977) temporal comparison theory (TCT) and Taylor's (1983) cognitive adaptation theory. Each of these is discussed below.

According to an assumption derived from TCT, when victims of adversity are not able to construe self-consistency in the face of their loss and threat, they have a tendency to evaluate perceived changes in a positive manner. Several studies have examined this perspective and provide support for this interpretation of posttraumatic change. McFarland and Alvaro (2000), in a series of studies, found that those who had experienced traumatic events reported greater personal growth, as compared to their acquaintances, by derogating their pre-trauma attributes. White and Lehman (2005) demonstrated that people who were motivated by self-enhancement generated more downward counterfactual thoughts in response to an experimentally manipulated negative event, and that this tendency increased as event severity increased. Wilson and Ross (2001) examined people's appraisals of their earlier and present selves for a number of personal characteristics. Among their findings was that individuals maintain a current positive self-regard by denigrating their previous self, particularly for personal attributes that are closely held. Although this study did not recruit respondents who had experienced traumatic events or

examine the effects of trauma, it highlights efforts that people make to maintain self-regard, a process that may come into play when dealing with adversity.

Taylor (1983) has conceptualized changes following traumatic events as cognitive adaptations to threatening events. She regards posttraumatic growth as "positive illusions" that serve to maintain or enhance the self through difficult times. She views these misapprehensions as an adaptive aspect of the process of coping with trauma, in contrast to Tedesci and Calhoun's view that posttraumatic growth is an outcome of the coping process. According to this theory, individuals struggling with adversity attempt to make sense of it or to understand why it occurred though a cognitive process of attempting to "regain mastery over the event in particular and over one's life more generally, and an effort to restore self-esteem through self-enhancing evaluations" (p. 1161). In other words, those who have experienced trauma may, as part of this process, believe that something good has come out of their experience. According to this theory, these positive illusions are "highly prevalent in normal thought and predictive of criteria traditionally associated with mental health" (Taylor and Brown, 1988, p 21). In her study of women with breast cancer, Taylor observed cognitive patterns consistent with this theory among cancer survivors' adaptation to their illness in three specific ways: a search for meaning, the attempt to (re)gain a sense of mastery, and efforts to restore positive self-regard.

One related study was found that included the domain of religiousness/spirituality. Based on their categorization of interpretation of positive change following serious illness as denial or repression, distortion or reframing, or actual existential growth, Sodergren, Hyland, Crawford, and Partridge (2004) investigated the relationship between neuroticism, defensiveness, religiousness and spirituality, and extraversion, in terms of their associations with reports of positive consequences of lung-related physical illnesses. Among the personality dimensions of

psychoticism, neuroticism, extraversion, and lies, only extraversion was significantly related to their measure of positivity, thereby disaffirming the negative interpretations of cognitive adaptation following trauma. Further, combining extraversion with a general indicator of religiousness/spirituality predicted 8.5% of the variance in positivity. No other published empirical investigations of cognitive adaptations to trauma in the religious/spiritual domains were found.

An integrated view of posttraumatic change. Zoellner and Maercker (2006) have proposed a "Janus Face" model, which incorporates both of these aspects as part of the process of recovering from trauma. According to this view, individuals respond to traumatic events in a myriad of ways, and comprise some combination of actual constructive changes in some domains of their lives as well as mechanisms of accommodation, including those mentioned above, to preserve their sense of self in the face of difficulty. These two aspects of PTG, according to Zoellner and Maercker, are thought to have different time courses and be related differentially to psychological adjustment. Constructive change is seen in the long run as adaptive and psychologically healthy. Perceived, or illusory, change may be an adaptive, short-term palliative strategy that allows for consolidation of the self or a long term approach of avoidance or denial, with concomitant harmful psychological effects. Other researchers (Affleck and Tennen, 1996; Calhoun and Tedeschi, 2006) have acknowledged that PTG can be both a method or process of coping and an outcome of the coping process, but have not proposed a model that incorporates these elements. As mentioned in the Theoretical Framework section above, a perspective that encompasses coping efforts and evaluations of the outcomes of those efforts would appear to be most consistent with Lazarus and Folkman's model of stress and coping.

Current Study

As detailed above, research that directly addresses changes in spirituality and religiousness as a result of adverse and traumatic events has indicated a range of results, including negative, positive and no change. Some of these studies use measures of specific aspects of R/S but generalize their findings to "religiosity" or "spirituality", and others use composite measures, which makes parsing of dimensions R/S and their relationship to adversity obscured. While the multidimensionality of religiousness and spirituality is increasingly acknowledged, few studies are designed to capture this complexity, particularly as it relates to adversity. In addition, the lack of distinction between events that satisfy diagnosis of PTSD and otherwise adverse life events may add to the divergence of research outcomes in this literature.

The general goals of this study are twofold: To better understand the effects of traumatic and adverse life events on aspects of religiousness and spirituality, and to identify the degree to which retrospective reports of changes in these domains correlate with actual changes over time. It is not apparent, based on extant research, how different aspects of R/S are affected by adversity. This study implemented a finely grained examination of R/S subsequent to adversity through the collection of data for several domains of R/S. Moreover, the longitudinal design permitted examination of how adversity and R/S are linked over time. The collection of all adversity that participants experienced during childhood and adolescence at Time 1 and then during college at Time 2 enabled a more thorough parsing of any differential effects of these events on R/S. In addition, I expected to better predict R/S using a model of posttraumatic change that not only evaluates the effect of trauma and adversity on R/S, but also includes R/S appraisals of these events. Specifically, I expected that the inclusion of negative spiritual appraisals would add significant variance in the prediction of R/S elements at Time 2.

To summarize hypotheses regarding the first general research question as to the nature of R/S as it relates to traumatic events:

1. I expected to see that traumatic events would predict significant changes in R/S domains from Time 1 to Time 2. Both Time 1 and Time 2 traumatic events were considered in this analysis.

2. To underscore the relevance of spiritual appraisals in the stress and coping process, I predicted that negative spiritual appraisals would add significantly to the prediction of R/S variables at Time 2, beyond that provided by trauma. Time 1 and Time 2 negative spiritual appraisals were included in this analysis.

Regarding the veridicality of R/S change, I asked respondents at Time 2 about the degree to which they have grown, declined, or stayed the same for each R/S element, and compared this to actual change scores between Time 1 and Time 2 to determine the degree of correspondence between actual reports of R/S change with retrospective perceptions of R/S change. In accordance with the limited empirical research to date cited above (Frazier & Kaler, 2006; Frazier, et. al., 2009), I anticipated one main result: higher veridicality in R/S among those with high trauma as compared to those without such experiences. Specifically, I expected to see significant differences for some aspects of R/S between those with high and low trauma.

To recap the hypothesis related to veridicality of PT change:

1. I expected that correlations between reported and actual changes in R/S i.e., veridicality in R/S variables, would be demonstrated for more aspects of R/S and have higher correlations for those with high trauma at Time 2, as compared to those with low trauma at Time 2.

CHAPTER TWO

METHOD

Participants

Incoming undergraduate students were chosen as the sample in this study for several reasons. In her initial studies of secular assumptions and beliefs that change as a result of trauma, Janoff-Bulman used a college-aged student sample (Janoff-Bulman, 1989, Schwartzberg & Janoff-Bulman, 1991), as have subsequent researchers in this area. These students reported a range of traumatic and adverse events, corresponding in level of trauma to events experienced by older adults. Because this study is among the first of its kind to examine specific religious and spiritual changes that occur as a result of trauma, use of the same type of sample makes sense as a starting point.

Subjects were recruited for Time 2 data from among undergraduate students who had completed Time 1 data. Of the 248 students initially emailed, 99 started the survey, and 85 completed it, for a 34.3% response rate overall and an 86% completion rate. Table 1 presents socio-demographic characteristics of this sample and Time 1 respondents. As presented in this table, 64 (75%) of the 85 total participants were female and the majority of the sample (86%) identified themselves as Caucasian, while 8% of the participants were African-American, and the remaining participants identified themselves as Hispanic, Asian, or other. Multivariate Analyses of Variance (MANOVA) tests were performed between Time 1 and Time 2 participants, to determine whether there were significant differences in these samples for demographic variables, (i.e., gender, age, ethnicity, and marital status), trauma variables (i.e., number of adverse experiences, the traumatic burden of these experiences, desecration burden, and sacred loss burden), and R/S domains, i.e., God image, spiritual struggles, permeation, belief-behavior

congruence, community, practices, religious affiliation/apostasy, and salience. Results indicated that there were no significant differences between these groups for any demographic or event-related variables. Among R/S domain variables, Time 2 participants' scores for permeation were significantly higher than those who participated only at Time 1 and spiritual struggles were significantly higher for those who only completed the survey for Time 1. Other R/S domain variables showed no significant differences.

Procedure

Data were collected through an on-line survey. Trauma-related information collected on-line has been demonstrated to be as valid and reliable as data collected using traditional paper-and-pencil methods among college-aged students (Fortson, Scotti, Del Ben, & Chen, 2006). Participants were solicited via email at the start of fall 2010 semester, using email addresses used for data collection in Time 1. This email briefly described the study, asked for their participation, and included links to go to the study website directly or to opt out of the study. Incentive for participation was entry in a $200 raffle.

As part of the informed consent process, respondents were informed that they would be asked about events in their life, their beliefs, values, and views on several topics, as well as some of their behaviors. Participants were asked to report extremely stressful, upsetting, or traumatic events they had experienced since the start of their university careers. Within the survey participants first recorded their responses to demographic, religious, and spiritual items, and then reported traumatic and life events that occurred since the start of their freshman or first year at Bowling Green State University, i.e., the Time 1 data collection period. All respondents were then asked to complete items on the Religious Outcomes measure, the Spiritual Transformation Scale, and the Posttraumatic Growth Inventory, with respect to the reported event(s). Those who

reported not having experienced any adverse events were asked to respond to these items, thinking about how they were at the start of college as compared to how they are now.

Measures

Instruments used to collect Time 1 data were used in this study, with modifications to reflect the different time reference, and to require a shorter time commitment for participants. All corresponding Time 1 measures (for those modified at Time 2) were rescored to correspond to Time 2 measures. All scales as they were utilized in this study are in the appendices. Because data were collected on-line, rewording was necessary for some items to reflect this method of input (e.g., rather than "circle the response" as is used for paper-and-pencil data collection, "select the response" was used).

Demographic variables. Participants were matched with their Time 1 data using their BGSU email id, which is used as a key in the database. They reported their current age, gender, marital status, and race/ethnicity at Time 2, however, to track any changes in these data. Appendix A contains all demographic variables as they were collected in the survey.

Event-related variables. Information about both traumatic and stressful life events were gathered in an effort to tap into a wide range of adverse experiences, from stressful to traumatic, and to gather a complete compendium of exposure to adversity. Because of the ongoing controversy regarding specification of events that satisfy criterion A of the current PTSD diagnosis (Long, Elhai, Schweinle, Gray, Grubaugh, & Frueh, 2008; Gold, Marx, Soler-Baillo, & Sloan, 2005) participants were queried about both events that satisfy PTSD diagnosis, so called "Criterion A" events, and adverse life events. Consistent with the literature indicating the importance of the appraisal of events as a basis for determining potential impact of trauma rather than objective measures of events (Antonovsky, 1979; Lazarus & Folkman, 1984), this survey

collected respondents' appraisals of events, in terms of the degree of traumatization for each event reported. High trauma was established as those with the highest perceived levels of trauma (i.e., rated very traumatic or extremely traumatic) and the remainder comprised the Low trauma group. These high and low trauma groups were further categorized by whether they corresponded to Criterion A events or adverse life events, to enable analysis based on event type. The average values for each type of appraisal was used in analyses, calculated as the total amount of desecration and sacred loss divided by the number of events experienced. For each event, participants also assessed their current level of distress (or resolution) related to each event reported.

Event typology. Event-related data were collected using a modified version of the Traumatic Events Questionnaire (TEQ) (Vrana & Lauterbach, 1994), and Turner and Lloyd's (1995) list of childhood traumas (See Appendix B for complete measure). Respondents also used this combined measure at Time 1 to report all events that had occurred prior to the start of their college career, that is, their cumulative experience of adversity during childhood and adolescence.

The TEQ is a 13 item self-report questionnaire comprised of questions relating to 11 types of specific trauma and two other questions for those who have experienced other traumatic events. These events were considered by the authors to have the potential to elicit posttraumatic symptoms and thus satisfy "criterion A" of the diagnosis of Post Traumatic Stress Disorder (PTSD). Specifically, this would be an event in which a person experienced or witnessed actual or threatened death, serious injury, or disruption of one's own or someone else's physical integrity, in combination with a response of intense fear, helplessness, or horror. Events included in the TEQ are serious accident, fire or explosion, natural disaster, violent crime,

unwanted completed or attempted sexual intercourse, witness of serious injury or death, inappropriate sexual touching, death in immediate family, and danger of losing one's life. Wording for the items regarding unwanted sexual contact were changed to be more behaviorally specific. An additional item gathered information for any other type of traumatic event experienced by the participant, and the last TEQ item related to a traumatic event that the respondent did not want to specify. Respondents' ratings of the severity of the event on a scale from 0 (not at all traumatic) to 7 (extremely traumatic) was used to indicate the degree to which each event was felt to be traumatic at the time that it occurred. Data on the reliability of the TEQ have not been published; however many published studies have used this instrument. In a study of 440 non-clinically referred college students (Vrana & Lauterbach, 1994), 84% of the sample reported at least 1 traumatic event on the TEQ and approximately one third of the sample indicated they had experienced 4 or more such events.

Other events specific to childhood and emerging adulthood were gathered based on the protocol developed by Turner and Lloyd (1995). These items are typically not used in the diagnosis of PTSD, but can be extremely stressful or traumatic for children and adolescents. Specific items included regular parental physical abuse, parental divorce, parental substance abuse, long periods of parental unemployment while desiring work, death in extended family, major change in closeness among family members, partner infidelity, romantic relationship dissolution, and extremely stressful mocking, bullying, or ridicule. Respondents' ratings of the severity of the event on a scale from 0 (not at all traumatic) to 7 (extremely traumatic) were used to indicate the degree to which each event was felt to be traumatic at the time that it occurred.

The literature on adverse events has not reached consensus on the measurement and evaluation of trauma and stressful life experiences. To be consistent with the majority of extant

research, high trauma for this study was determined as those with a rating of 6 to 7 (very to extremely traumatic) for any reported event. Because recent research within the stress and coping literature continues to cast doubt on the event criteria of PTSD diagnosis, criterion A and non-criterion A events were tabulated separately for high and low trauma. These data were calculated for each data collection point (i.e., Time 1 and Time 2).

Negative spiritual appraisals. Two negative spiritual appraisals, perceptions of sacred loss and desecration, were included in this study in order to determine their contribution to the relationship between trauma and religious and spiritual variables. Desecration and sacred loss was measured using eleven items from the Sacred Loss and Desecration Scale (Pargament, Magyar, Benore, and Mahoney, 2005). This measure was used to gather appraisal-related data for each event reported by respondents (see Appendix C for complete measure). This questionnaire was designed to assess theistic and non-theistic perceptions of desecration and sacred loss. Items on this scale were endorsed on a Likert-modified scale, from 0 (Not at all) to 7 (Extremely). Items that assess theistic appraisals pertain to and explicitly reference God (e.g., "A part of my life in which I experienced God's love is now absent" reflecting theistic sacred loss; "Something sacred that came from God was dishonored" reflecting theistic desecration) whereas non-theistic items assess sacred loss or desecration of something sacred, e.g., Was something central to your spirituality lost", "This event is a transgression of something sacred", respectively. The original validity study for this measure was based on a sample of 125 adults, randomly selected from the community, who reported on the most negative life event they had experienced in the previous 2 years. Factor analysis of this measure reflected two basic dimensions, sacred loss and desecration, together accounting for 57.2% of the variance. Based on 13 items, internal reliability for sacred loss was acceptable, at .93 and .92 for desecration,

which was based on 10 items. Validity was demonstrated by significant correlations between these two factors and emotional distress and symptoms of trauma. Specifically, sacred loss was positively correlated to the Intrusive Thoughts ($r = .476$, $p < .001$) and Avoidant Behavior ($r = .415$, $p < .001$) subscales of the Impact of Events Scale (IES; Horowitz, Wilner, and Alvarez, 1979), a scale commonly used to assess symptomatology of traumatic events. Sacred loss was also positively correlated with depression ($r = .384$, $p < .001$), as measured by the Center for Epidemiological Studies – Depression Scale (CES-D).   Desecration was also significantly correlated with higher scores on the IES Intrusive Thoughts ($r = .398$, $p < .001$) and Avoidant Behavior ($r = .558$, $p < .001$) subscales, the CES-D depression scale ($r = .266$, $p < .01$). Unlike sacred loss, however, it was significantly correlated to State Anger ($r = .480$, $p < .001$), as measured by the State-Trait Anger Expression Inventory (Spielberger, 1991).

Because desecration and sacred loss were anticipated to differ in their effect on dependent variables, these variables at Time 2 were calculated and analyzed separately. Specifically, average level of desecration and sacred loss was calculated for all reported events, by tallying values for each event and dividing that total "desecration burden" and "sacred loss burden" by the number of events reported. Desecration and sacred loss were assessed at Time 1 using a single item each and were highly correlated, so they were combined into one variable named Time 1 negative spiritual appraisals.

Religiousness and spirituality outcome variables.

The sacred. As conceptualized in this study, perceptions of the sacred were understood to be potentially central to individuals' assumptive worlds, and to both influence and be influenced by adverse events. Because individuals' experience of the divine can have benevolent and malevolent power, two corresponding variables were used to capture these aspects of the

sacred. God image was used to assess positive, supportive, encouraging aspects of the divine and spiritual struggles was included to encapsulate negative, punishing, distancing beliefs about God.

God image. A measure of God image was used to evaluate perceptions of the divine (see Appendix D for complete measure). Respondent's image of God was measured using Lawrence's (1997) God Image Scale (GIS). The GIS was derived from the God Image Inventory (GII), a 156-item measure developed primarily for individual clinical and pastoral use. Lawrence made several changes to the GII in an effort to create a psychometrically sound and administratively straightforward measure. These changes included elimination of supplementary scales used primarily for individual diagnostic purposes and of items to decrease correlations among subscales. The GIS has six subscales: presence, challenge, acceptance, benevolence, influence, and providence. Lawrence found coefficient alpha estimates of reliability ranging from .81 for Challenge items to .95 for Presence items. Correlations among the Presence, Influence and Providence subscales and between the Acceptance and Benevolence subscales were reported by Lawrence to be "uncomfortably high," leading him to suggest that researchers use only the Presence, Challenge, and Acceptance subscale items. Therefore, only these three subscales were used in this study.

The Presence dimension was designed to capture individuals' sense of whether God is available to them and present to them on an intimate level. Items on this subscale include "I can feel God deep inside of me" and "God nurtures me." Challenge represents the belief that God wants the individual to grow and develop as a person in the world. Relevant items for this subscale include "God asks me to keep growing as a person" and "God wants me to achieve all I can in life." The Acceptance subscale was designed to reflect responses to the question "Am I

good enough for God to love?", and includes items "God's love for me is unconditional" and "I know I'm not perfect, but God loves me anyway." Each subscale has 12 items, equally balanced between positively and negatively worded items. Respondents indicate the degree to which they agree or disagree with each item, using a Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree). Lawrence's tests of convergent validity indicated that the Presence scale was highly correlated with both intrinsic religious motivation (.82) and church attendance (.54). Correlations between the Challenge and Acceptance scales with intrinsic motivation were .61 and .60 respectively and .36 and .39 with church attendance respectively.

Spiritual struggles. Spiritual struggles was measured using six items from the Brief RCOPE, (Pargament, Koenig, and Perez, 2000), based on a factor analysis of Time 1 Brief RCOPE responses (see Appendix E for complete measure). Five of the original seven negative subscales (Spiritual Discontent, Interpersonal Religious Discontent, Punishing God Reappraisals, Demonic Reappraisals, and Reappraisal of God's Powers) were used for this study. Items on the eliminated subscales, i.e., Pleading for Direct Intercession and Passive Religious Deferral, had the weakest contributions in the factor analysis and were therefore removed. Each subscale on the original measure includes between four and six items; the version used for this study had one factorially-derived item for each subscale, except Punishing God Reappraisal, which had two items. For each item, respondents were asked "how much or how frequently" each strategy is used on a seven point scale, with answers ranging from "not at all" to "extremely". Each of the full measure subscales has been demonstrated to have moderate to strong internal consistencies, ranging from .78 for Reappraisal of God's Powers, to .92, for Punishing God Reappraisal. Pargament, et. al. (2000) reported that endorsement of negative coping strategies among college students who had experienced an adverse event within the prior three years was indicative of

more religious struggles. Significant positive correlations were also found between five of the subscales and current distress and poorer mental health, and negative correlations were found between four of the subscales and physical health symptomotology. Also in this study, the short form of the RCOPE was validated using a sample of elderly hospitalized patients. Internal consistency of this measure was acceptable, with alphas of .80 or greater.

Integration. Spiritual or religious integration, as conceptualized in this study, has three distinct aspects: the degree to which spirituality or religion permeates multiple domains of a person's life, the amount of consistency between the individual's religious beliefs and behavior, and the extent to which the individual is involved with others in his/her religious or spiritual community. Each of these components was assessed separately, to determine the degree to which they make up distinct aspects of R/S Integration. Multiple measures were therefore used to evaluate these aspects of religiousness. The Compartmentalized Religion Scale (Weinborn, 1999) was used to measure the first dimension, called "permeation" (see Appendix F for complete measure). The Religious Involvement subscale of Sethi and Seligman's Religiousness Measure (Sethi & Seligman, 1993) assessed the second dimension (see Appendix G for complete measure), and is named "belief-behavior congruence". Items from the Dimensions of Religious Commitment scale were used to measure the third aspect of religious integration (see Appendix H for complete measure), and was named "community". These two latter dimensions are discussed in separate sections, below.

Permeation. The Compartmentalized Religion Scale originally consisted of two items (e.g., "religion is only one part of my life") which had low internal consistency, Cronbach's alpha = 0.43 (Weinborn, 1999). Weinborn added three items to this scale, which increased its reliability (Cronbach's alpha =0.77). Respondents indicated the degree to which they agree or

disagree to each statement using a Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Higher scores indicate greater permeation and less compartmentalization. Among church members from three Christian congregations, greater permeation was related to higher competence, life satisfaction, and religious well-being (Weinborn, 1999).

Belief-behavior congruence. The second aspect of religious integration involves the amount of consistency between an individual's behaviors and beliefs. The Religious Involvement subscale of the Religiousness Measure (Sethi & Seligman, 1993) consists of six items that query respondents about the degree to which their religious beliefs influence everyday decisions (i.e., what one eats, drinks, wears, with whom one associates, involvement in social activities, as well as important life decisions and marriage). Respondents indicated how much influence their spiritual or religious beliefs had on each item, using a Likert scale from 1 (None) to 5 (Extremely). This scale was originally devised to study the relationship between religious influence in daily life, religious involvement, and religious hope, optimism and attributional style. No reliability or validity data are available for this measure. In Sethi and Seligman's (1993) study of religious groups in the United States, significant differences were found between fundamentalist, moderate, and liberal religious affiliates on these aspects of religiosity. No other attempts to validate this instrument have been reported in the literature. Scores from this measure were calculated so higher scores reflect higher congruence between beliefs and behaviors.

Community. The third element of religious integration reflects the extent to which individuals are involved with others in their religious or spiritual community. Seven items from the Dimensions of Religious Commitment scale (Glock & Stark, 1966) were used, including number of evenings spent with others in church activities, length of association with one's

congregation, perceived degree of fit with others in the congregation, and number of friends with whom respondents share their faith. These items are part of a 48-item instrument designed to capture significant aspects of religiousness in the United States. The original authors and subsequent researchers used these items as a pool from which to draw items of particular interest, although this approach has not been validated. Glock and Stark produced inter- and intra-scale correlations, which ranged from .40 to .77, but did not publish results from other validity testing. No reliability data have been published to date. Higher scores of belief-behavior congruence indicate greater involvement and engagement in R/S community.

Practices. Participation in religious and spiritual practices encompasses organizational and individual practices. The Religious Practices subscale of DeJong, Faulkner, and Warland's Cross-Cultural Dimensions of Religiosity (1976) scale is one of six factor-analytically derived dimensions of religiosity identified by the authors as applicable to college students cross-culturally (see Appendix I for measure). This subscale assesses individuals' frequency of religious and spiritual practices, including attendance at religious services and religious or spiritual activities, prayer, meditation, and reading of Holy Scriptures. Reliability and validity data for this subscale have not been published. In addition, one item was added to include frequency of prayer at meals. Responses for these items were added together to obtain a total score of "religious/spiritual practices." Higher scores on this measure indicate higher frequency and more expressions of religious and spiritual practices.

Religious affiliation and apostasy. Participants were asked their religious affiliation in one item, "To what faith do you belong?", which had seven available responses: Protestantism, Catholicism, Judaism, Islam, Buddhism or Hinduism, Other, which was specified by respondents, and none. Because apostasy is an R/S variable of interest in this study, these

categories of religious affiliation were recoded into the dichotomous apostasy variable, with the value of "1" for those with no stated religious affiliation and "0" otherwise. All analyses were done using the variable apostasy. This item is included in Appendix K.

Salience. The importance of religion and spirituality to the individual was measured by one item "How important would you say religion or spirituality is in your life?". Respondents rated their response using a 7-point scale from "Not at all important" to "Extremely Important". This item was scored so that higher scores reflect greater importance. It is included in Appendix J.

Measures of retrospectively reported changes in religiousness and spirituality. Respondents indicated changes that occurred as a result of reported events using the Religious Outcomes Scale (ROS), the Posttraumatic Growth Inventory (PTGI), the Spiritual Transformation Scale (STS), and a measure of the overall spiritual effect of each reported adversity. These are discussed in turn below.

Religious Outcomes Scale. A thirteen-item measure of Religious Outcomes was used to tap perceived changes in religiousness and spirituality as a result of the negative events described by respondents. Three of these items have been used in a study that examined religious contributions to coping with negative events (Pargament, Ensing, Falgout, Olsen, Reilly, Van Haitsma, & Warren, 1990) among congregants from mid-western Christian churches who indicated that religion was involved in dealing with the event. Of particular relevance to this study, the Religious Outcome measure included perceived changes in closeness to God, to the church, and in spirituality/religiousness in response to the event. People responded to the items on a 7 point Likert scale ranging from "Extremely less" to "Extremely more". All items were coded to capture positive and negative responses, ranging from -3 ("Extremely less") to +3

("Extremely more"). This measure demonstrated good internal consistency, with an alpha of .87.

Religious variables of religious disposition, appraisals, coping, and purposes were significant

predictors of Religious Outcome (R^2 = .37, p < .001) after the effects of demographic and other

control variables were removed. For the purpose of this study, additional items were added to

correspond to additional aspects of religiousness and spirituality being investigated in this study;

in sum, a total of three items each were used for God image and spiritual struggles, two each for

community and practices, and one item each for belief-behavior congruence, permeation, and

salience. See Appendix L for the complete measure as it was used in this study.

   Spiritual Transformation Scale. The Spiritual Transformation Scale (STS) was developed

to assess spiritual growth and decline following a cancer diagnosis (Cole, Hopkins, Tisak, Steel,

& Carr, 2008) (see Appendix M for complete measure). This measure was validated in a sample

of cancer survivors two years beyond their diagnosis. Preliminary validity results indicate good

internal reliability for two factors, (i.e., spiritual growth and spiritual decline (alphas = .98 and

.86, respectively)), and adequate test-retest reliability (r = .85 and .73, respectively). Validity

was demonstrated by significant correlations between the two factors in expected directions.

Specifically, spiritual growth was correlated with the Positive Affect Scale of the Positive and

Negative Affect Scale (PANAS) (r = .23, p < .001), the Daily Spiritual Experiences (DSE) Scale

(Underwood & Teresi, 2002) (r = .57, p < .001), and the Post-traumatic Growth Inventory (r =

.68, p < .001). Spiritual decline, on the other hand, was significantly correlated with higher

scores on the CES-D depression scale (r = .38, p < .001), the Negative Affect Scale of the

PANAS (r =. 40, p < .001), and the DSE (r = -.30, p < .001). Results indicated that this measure

predicted adjustment beyond variables of intrinsic religiousness, spiritual coping, and post-

traumatic growth. Thirty of the original forty items on this scale were used for this study,

derived from a factor analysis of Time 1 responses. Items were endorsed in response to instructions that asked respondents to "indicate the extent to which these statements are true for you as a result of the event(s) you described above" on a 5 point Likert-modified scale, from 1 "Not at all" to "A great deal". Higher scores indicate higher levels of each subscale construct, (i.e., spiritual growth and spiritual decline).

Posttraumatic Growth Inventory. The Posttraumatic Growth Inventory (PTGI) is a measure that is widely used to determine the form and degree of growth reported following negative events (Tedeschi & Calhoun, 1996). In their factor analysis of the Posttraumatic Growth Inventory, Tedeschi & Calhoun (1996) identified a five factor model, consisting of changes in relationships with others, perception of new possibilities in life, personal strength, spiritual change and appreciation of life. The Spiritual Change Subscale was used for this study. Items assessing spiritual change are "I have a better understanding of spiritual matters" and "I have a stronger religious faith." Participants endorsed these two items, which comprise the Spiritual Change subscale, according to the degree to which each item occurred as a result of the cumulative effects of all the events they reported, using a Likert-modified scale, from 0 (Not at all) to 5 (To a very great degree). For those who did not report any events in this survey, they were asked to "think about how you were when you first started at BGSU and how you are now" in responding to these items. The Spiritual Change Subscale of the Posttraumatic Growth Inventory is included in Appendix N.

Spiritual effect. One item was used to assess the overall spiritual effect that each reported event had on participants. The question (What effect, if any, would you say this event has had on your spirituality?) was intended to enable individuals to make an immediate assessment of events as they were recalling them and reporting them in the study. Participants were instructed

to "rate the following item separately in your mind from the others, keeping in mind the [event you just endorsed]". Responses were designed to capture positive, negative, and neutral effects, ranging from -3 (I have rejected my beliefs and practices) to +3 (It was a conversion experience for me). This item is included as it was used in the study in Appendix O.

CHAPTER THREE

RESULTS

The current study was designed to better understand the effects of emerging adults' (EA) traumatic and adverse life experiences on religiousness and spirituality, from initial enrollment in university to the start of their fourth year of study. This research targeted two areas of interest: how adversity affects religiousness and spirituality over time, and veridicality of responses about the effects of traumatic events on religiousness and spirituality. Data analyses were conducted for these two areas separately, and are discussed in turn, below, following a discussion of overall descriptive statistics and preliminary analyses. Results from analyses performed at Time 1 are presented only in summary here. Detailed findings for each R/S domain at Time 1 can be found in the review of pertinent literature for each R/S element above.

Overview of Statistical Approach

Descriptive statistics were first generated for all demographic, event-related, and R/S variables. Then, preliminary correlation analyses were conducted between demographic variables and R/S outcome variables to identify potential confounding variables to be controlled in subsequent analyses, and between predictor variables to determine intercorrelations among R/S variables. To test the hypotheses related to the first area of inquiry, the effects of trauma on R/S, hierarchical multiple regressions were used. Logistic regressions were used to test the hypotheses with respect to apostasy, since it was coded as a binary variable.

To test hypotheses related to the second line of inquiry regarding the veridicality of R/S, correlations between reported and actual R/S were calculated for those with high levels of trauma at Time 2 and those with lower levels of trauma at Time 2. Fisher's z transformations were then performed, to convert the Pearson's r's of the correlation matrices to the normally distributed

variable z. Z Scores of the differences in veridicality correlations between the high and low trauma groups were calculated and evaluated using Cohen and Cohen's (1983) methodology, to identify whether there were significant differences in the magnitude of the correlations between trauma groups.

Descriptive Statistics

Descriptive statistics and Cronbach's alphas for each R/S measure at Time 1 and Time 2 were produced and are presented in Tables 2 and 3. The mean, standard deviation, possible and actual score ranges, and the reliability for Time 2 R/S variables and measures of retrospectively reported changes in R/S are included there. Findings indicated that the scales used in this study demonstrated acceptable reliability (α ranging from .71 to .98).

Tables 4 and 5 provide details regarding the nature of participants' adverse events at Time 2 and Time 1, respectively. Table 4 lists the type and number of events reported at Time 2 and the corresponding mean rating of perceived trauma, desecration, and sacred loss, as well as the number of events at Time 1 reported by those who participated at Time 2. This sample reported a total of 176 events that occurred to them during their college years to date, with an average of 2.07 events per participant. The average level of trauma perceived was 4.1, slightly above an endorsed "moderate" level. The most traumatic event reported was death of an immediate family member, followed by being the victim of violent crime, and "other" events which respondents chose not to describe. The most common adverse life event reported was death of an extended family member (n=33), followed by romantic relationship breakup (n=23). Time 1 events for the Time 2 sample are also included on this table, to show cumulative childhood trauma exposure for this specific sample.

Traumatic and adverse life events for the entire Time 1 sample are also included, for comparison purposes. At the time of entry into college (Time 1), virtually all participants had experienced a traumatic or adverse life event at some point in their lives. For these 248 individuals, a total of 933 events were reported; an average of 3.72 events per person. The average number of events reported at Time 1 by the Time 2 sample was 3.76. Of the total events reported at Time 1, 786 (85%) were evaluated as at least "a little" traumatic at the time of the event. Like the Time 2 sample, death of an immediate family member was reported to be the most traumatic for this sample. In fact, the two samples share five out of six of the most traumatic events, i.e., undescribed trauma, unfaithfulness of romantic partner, described trauma, and romantic relationship breakup. The only difference among these was being the victim of a violent crime, which was rated the second most traumatic among the Time 2 sample and second least traumatic among Time 1 respondents. A comparison of these samples in terms of their mean level of trauma, desecration, and sacred loss shows similarity in average trauma level across all events (4.7 at Time 1 and 4.6 at Time 2; $t(84) = -0.49$, $p = .96$) and dissimilarities in average desecration ($\overline{x} = 1.81$ at Time 1 and $\overline{x} = 0.85$ at Time 2; $t(84) = -4.62$, $p = .000$) and sacred loss ($\overline{x} = 1.59$ at Time 1 and $\overline{x} = 0.81$ at Time 2; $t(84) = -4.35$, $p = .000$). More detail regarding these negative spiritual appraisals is provided below.

The relevance of R/S to emerging adults and their experiences of trauma was examined from several perspectives. The degree to which respondents used negative religious appraisals, i.e., sacred loss and desecration, was categorized into three levels (i.e., none, some, and moderate to high) of desecration and sacred loss. As Table 6 shows, approximately half of this sample made negative spiritual appraisals of events that occurred to them during college, with one-fifth having moderate to high levels of such appraisals. Specifically, 23% reported some and 19%

reported moderate to high levels of appraisals of desecration, whereas these rates were 34% and 19% for sacred loss, respectively. Regarding spiritual struggles, approximately 40% of respondents reported some level of struggle, with 23% experiencing a low level of spiritual struggles and 16% a moderate to high level. The degree of spiritual struggles varied by event, as shown in Table 7.

When asked directly about their perception of overall R/S change as a result of each traumatic event on their spirituality, respondents' reports differed by event type, as summarized in Table 8. Overall, 13% said their experience had a negative effect, 24% reported positive effects, and the remainder stated it had no effect. A t test was also done to determine whether significant amounts of R/S change occurred over the time of this study, regardless of trauma. As Table 9 shows, participants showed significant changes in three of the eight aspects of R/S, both types of negative spiritual appraisals, and three of six reported R/S change measures. All of these results were declinations in R/S from Time 1 to Time 2.

Preliminary Analyses

Correlational analyses were conducted between demographic variables and all outcome variables, to assess whether demographic characteristics should be controlled in further analyses. Gender had significant correlations at Time 1 with God image ($r = -.296$, $p = .006$) and community ($r = -.230$, $p = .034$). These results indicated that females tended to have higher positive God image and community engagement at Time 1. Correlational analyses were also performed between demographic variables and all predictor variables, to identify and control any problems of multicollinearity. Among demographic variables, only gender was significantly correlated with four event-related variables: Time 1 Criterion A events ($r = -.245$ $p = .024$), Time 2 adverse life events ($r = -.215$ $p = .048$), Time 2 average desecration burden ($r = -.252$ $p =$

.020), and Time 2 average sacred loss burden ($r = -.225$; $p = .039$). These correlations indicated the increased tendency for females to experience more traumatic events during childhood and adolescence, more adverse life events during college, and to appraise these events as greater desecrations and sacred losses.

Inter-correlations among Time 2 R/S variables were also examined to identify variables that would produce multicollinearity problems in regression analyses. Overall, the correlation analyses indicate varying degrees of overlap among R/S variables, with all but spiritual struggles showing significant inter-correlations. Salience, permeation, belief-behavior congruence, and practices had the highest amount of inter-correlation (r values greater than .7). Due to the high level of these correlations, Time 2 R/S variables were not used in regressions predicting other Time 2 R/S. (See Table 10 for correlations among all Time 2 variables as well as correlations between Time 2 R/S variables and negative spiritual appraisals).

Data assumptions were tested, to reduce likelihood of Type I and Type II errors. I used the Shapiro-Wilk statistic to test for normality, the Levene test of homogeneity of variance, and the Durbin-Watson statistic (using a value of 2 as criterion) to test assumptions of independent errors. Five variables showed skew, and were transformed. Test results before and after the transformations were minimally different, so untransformed values were used to simplify interpretation of results.

Analyses of Major Hypotheses

Statistical analyses conducted for each hypothesis are discussed in turn, below. The first set of analyses is relevant to the first research question, i.e., the nature of R/S as it relates to traumatic events. These are followed by tests of the hypothesis related to the second area of investigation, namely, the veridicality of posttraumatic R/S change.

Regressions of posttraumatic religiousness and spirituality. Multiple hierarchical regressions were used to test the hypotheses related to the prediction of change in R/S variables over the period of the study. Because the influences of traumatic events and negative spiritual appraisals were associated with separate hypotheses, these were entered into regression equations separately. Specifically, the models used for these analyses controlled for Time 1 R/S in step 1, examined the effects of Time 1 traumatic events and negative spiritual appraisals in steps 2 and 3 respectively, and examined the effects of Time 2 trauma and negative spiritual appraisals (desecration, and sacred loss) in steps 4 and 5. Results of these regressions are included in Table 11.

With respect to the hypothesis that trauma would predict changes in R/S, limited support was obtained. Overall, trauma was a significant factor in the prediction of three of the eight R/S domains, after controlling for the effects of Time 1 R/S. Looking at Time 2 trauma, spiritual struggles ($R^2 \Delta = .071$, $p = .035$; $\beta = .229$, $p = .031$), salience ($R^2 \Delta = .050$, $p = .018$; $\beta = -.242$, $p = .003$), and apostasy, for which logistic regression was utilized produced significant results. The beta weight for the effect of Time 2 trauma on salience was negative; the beta weight for the effect of Time 2 trauma on spiritual struggles was positive. Thus, higher trauma at Time 2 was predictive of declines in religious salience, whereas Time 2 trauma predicted increases in spiritual struggles. Results for apostasy indicated that more Criterion A traumatic events at Time 2 was predictive of lower apostasy. Time 1 trauma significantly contributed to the prediction of salience change over the period of the study ($R^2 \Delta = .009$, $p = .490$; $\beta = .171$, $p = .043$). This result indicated that increased trauma at Time 1, i.e., during childhood or adolescence, was associated with more positive change in salience at Time 2. It is noteworthy that only adverse life event trauma, and not PTSD Criterion A event trauma, was significant in these regressions

with one exception, apostasy. For apostasy, it was PTSD Criterion A event trauma, and not adverse life event trauma that was significant.

The second hypothesis regarding negative religious appraisals as predictors of Time 2 R/S was partially confirmed. At Time 2, negative spiritual appraisals were significant predictors of change for six of the eight R/S domains. More specifically, desecration and sacred loss appraisals at Time 2 together added significantly to the prediction of spiritual struggles ($R^2 \Delta =$ .082, $p = .016$), belief-behavior congruence ($R^2 \Delta = .051$, $p = .006$), community ($R^2 \Delta = .068$, $p =$ .016), and salience ($R^2 \Delta = .052$, $p = .011$). Although desecration was a significant contributor to the prediction of permeation, this R/S domain did not obtain a significant increment in R^2 for Time 2 negative spiritual appraisals overall. In addition, Time 1 negative spiritual appraisals significantly predicted God image at Time 2 *($R^2 \Delta = .049$, $p = .005$; $\beta = .204$, $p = .030$)*. The positive beta weight of negative spiritual appraisals at Time 1 in predicting Time 2 God image indicated that appraisals of desecration and sacred loss for events that occurred during childhood and adolescence were predictive of a more positive God image in the subsequent several years.

Desecration and sacred loss had differing patterns of significant results. Desecration appraisals of Time 2 events were a significant predictor of three of eight R/S domains and sacred loss was a significant predictor of change in two of eight R/S domains. These beta weights indicated that higher desecration scores of events that occurred during college were linked with higher Time 2 permeation ($\beta = .233$, $p = .047$), belief-behavior congruence ($\beta = .277$, $p = .003$), and salience ($\beta = .297$, $p = .003$), after controlling for the other variables in the model. The beta weight for community ($\beta = .209$, $p = .080$) was not significant although combined desecration and sacred loss appraisals were associated with a significant change in R^2.

Sacred loss at Time 2 contributed significantly to the prediction of spiritual struggles (β = .347, p = .013) and belief-behavior congruence (β = -.277, p = .005) at Time 2. Beta weights for these two domains were opposite: Spiritual struggles was positive, while belief-behavior congruence was negative. These results indicated that higher sacred loss scores of events that occurred during college were predictive of higher spiritual struggles and lower belief-behavior congruence at Time 2, after controlling for other variables in this model.

Unexpectedly, results for Time 2 analyses contrasted with those obtained for Time 1 of this study. Analyses of contributions of childhood and adolescent trauma to Time 1 R/S indicated that trauma contributed significantly in the prediction of six of eight R/S domains: Belief-behavior congruence ($R^2\Delta$ = .072, p = .046; β = .213, p = .069; ns), practices ($R^2\Delta$ = .049, p = .041; β = .234, p = .053; ns), salience ($R^2\Delta$ = .066, p = .017; β = .244, p = .042), and apostasy ($R^2\Delta$ = .127, p = .001; β = -.271, p = .016). Trauma at Time 1 was also significant in predicting God image ($R^2\Delta$ = .073, p = .045; β = .167, p = .155; ns) and community ($R^2\Delta$ = .077, p = .037; β = .262, p = .028). This effect, however, were reduced to non-significance once gender was entered as a control variable ($R^2\Delta$ = .044, p = .135; ns; β = .112, p = .336; ns and $R^2\Delta$ = .052, p = .100; β = .223, p = .063; ns, respectively). Gender was significant only in the prediction of God image ($R^2\Delta$ = .088, p = .006; β = -.244, p = .025), indicating the tendency of females to have more positive God images at the start of college. Overall, beta weights for regressions of Time 1 R/S were consistent with posttraumatic growth. Thus, higher trauma during childhood and adolescence, i.e., at Time 1, was predictive of increases in belief-behavior congruence, practices, and salience, and of less apostasy upon entry into college. This is in contrast with Time 2 results, which indicated that increased trauma during college led to increased spiritual struggles and declines in religious salience. In addition, at Time 1 it was

PTSD Criterion A traumatic events that accounted for these results, whereas adverse life event-related trauma was significant in the predictions for the majority of R/S at Time 2.

Because negative spiritual appraisals at Time 1 were combined, comparisons of desecration and sacred loss at the two data collection points of this study could not be performed. Results of Time 1 analyses are nevertheless presented here. Negative spiritual appraisals (which combined appraisals of desecration and sacred loss because they were highly intercorrelated) were significant in predicting three of eight R/S domains, after controlling for demographic variables: Spiritual struggles ($R^2 \Delta = .065$, $p = .018$; $\beta = .280$, $p = .018$), permeation ($R^2 \Delta = .055$, $p = .031$; $\beta = .257$, $p = .031$), and apostasy ($R^2 \Delta = .050$, $p = .030$; $\beta = -.246$, $p = .030$). The beta weights indicated that higher combined negative spiritual appraisals were linked with higher Time 1 spiritual struggles and permeation and lower apostasy.

Veridicality of posttraumatic religiousness and spirituality. Focusing on the veridicality of posttraumatic religiousness and spirituality, it was hypothesized that significant correlations between reported and actual changes in R/S (i.e., veridicality in R/S variables), would be demonstrated for more aspects of R/S and would be of greater magnitude for those with high trauma at Time 2, as compared to those with low trauma at Time 2. To test this hypothesis, actual change scores were derived by subtracting Time 1 scores from Time 2 scores for each R/S domain: God image, spiritual struggles, permeation, belief-behavior congruence, community, practices, and salience. Change scores for apostasy were coded to range from -1 (lost apostasy/gained religious affiliation) to +1 (gained apostasy/lost religious affiliation). These change scores were then correlated with retrospective changes in R/S reported at Time2, as reflected by the Religious Outcomes (RO) scale in total and for each R/S domain (except apostasy), spiritual growth and spiritual decline (measured by the Spiritual Transformation Scale

(STS)), spiritual change (measured by the Posttraumatic Growth Inventory (PTGI)), and the overall perceived spiritual effect assessed for each event reported (measured by the Spiritual Effect Scale).

As a prelude to testing the hypothesis of differences in the magnitude of correlations between high and low trauma groups, the correlations between actual and retrospective reports of R/S change were calculated for the entire sample. As shown in Tables 12 and 13, results of this analysis indicated varying levels of veridicality across R/S domains. Three of the eight R/S variables showed veridicality (i.e., significant correlations between actual and retrospective reports of R/S change) for at least half of the measures of retrospectively reported R/S change. Actual changes in permeation and salience had significant correlations with retrospective reports of change on all such measures. Actual change in practices was significantly correlated with all retrospective R/S change measures, with the exception of the STS – Spiritual Decline measure. On the other end of the veridicality spectrum, two actual change indicators of R/S domains – community and apostasy -- were not significantly correlated with retrospective reports of change on any of these R/S measures.

The significance of differences in veridicality between those with high trauma and those with low trauma was assessed in two steps: first Pearson *r* correlations between actual R/S change (calculated as Time 2 score minus Time 1 score for each R/S domain) and retrospective reports of R/S change (using 6 measures of retrospectively reported R/S change) were calculated for the high and low trauma groups. Differences between the veridicality of the two groups were evaluated initially by visually scanning and comparing the Pearson *r* correlations between actual and reported R/S domains of interest for high and low trauma groups. Then, to test the significance of the differences between the correlations of the two groups more formally, in the

second step, a Fisher's r to Z transformation, using Cohen and Cohen's (1983) formula, was

conducted. The minimal standard of significance ($p < .05$) used was a z score in excess of 1.96.

Results of the visual examination of the correlation matrices of the two trauma groups

separately in step 1 showed veridicality (i.e., significant correlations between actual R/S and

retrospective reports of R/S change) for those with high trauma for six of the eight R/S domains,

and veridicality for those in the low trauma group for four of these eight R/S domains.

Significant correlations for the low trauma groups were far fewer (7 versus 23) and of lower

magnitude, as compared to the high trauma group. These findings are in Tables 14 through 17.

Significant results for spiritual struggles are noteworthy for both high and low trauma groups.

For the high trauma group, actual change in spiritual struggles from Time 1 to Time 2 were

positively correlated with retrospective reports of the spiritual effects of experienced traumatic

events ($r = .438$, $p= .008$). Thus, for those with high trauma during college, increased spiritual

struggles were associated with more positive assessments of spiritual change as a result of these

events. The low trauma group had a significant negative correlation between actual change in

spiritual struggles from Time 1 to Time 2 and perceived change in spiritual decline ($r = -.36$, $p=

.016$). This finding indicated that decrements in spiritual struggles during college were

associated with a perception of increased spiritual decline among those with lower levels of

trauma during the college years.

Support for the veridicality hypothesis also emerged from the more stringent test used in

step 2. Looking at the results of the Fisher's r to Z transformations (shown on Tables 18 and 19),

significant differences in z scores between high and low trauma groups were found for six of the

eight R/S domains: God image, permeation, community, practices, salience, and apostasy (see

Tables 18 and 19). Results for each R/S domain with significant findings are discussed in more detail below.

The six domains of R/S with findings of veridicality varied with respect to the number of measures of retrospectively reported R/S change that were significant. Results are presented in order, from the R/S domains with findings of veridicality with the most measures of reported R/S change to the least. Trauma group differences were found in z scores between actual salience change and retrospective reports of change on four measures of reported R/S change: the Total Score for the Religious Outcomes Scale ($z = 2.79$, $p = .005$), the Salience Subscale of the Religious Outcomes Scale ($z = 2.54$, $p = .011$), the Spiritual Transformation Scale – Spiritual Growth Subscale ($z = 2.08$, $p = .038$), and the Spiritual Effect Scale ($z = 2.71$, $p = .007$). For all of these comparisons, those with high trauma had significantly higher correlations between actual and perceived R/S change than those with no or low trauma.

Correlations between actual God image change and community change and retrospective reports of R/S change in these domains were significantly different between the high and low trauma groups using three of the six retrospective R/S change measures. Specifically, for God image, z scores of the differences in correlations between actual change in God image from Time 1 to Time 2 and retrospective reports of R/S change comparing the high and low trauma groups ranged from $z = -3.40$, $p = .000$, using the Spiritual Transformation Scale– Spiritual Decline (SD) Subscale, to $z = 3.21$, $p = .001$ using the Religious Outcomes (RO) Scale– God Image Subscale. For these three comparisons, those with high trauma had significantly higher correlations between actual and perceived R/S change than those with no or low trauma.

Z scores of the differences in correlations between actual change in community from Time 1 to Time 2 and retrospective reports of R/S community change comparing the high and low trauma

groups ranged from $z = $ -2.25, $p = $ .024, using the Spiritual Transformation Scale– Spiritual Decline (SD) Subscale, to $z = $ 2.80, $p = $ .005 using the Religious Outcomes (RO) Scale– Community Subscale. These comparisons were notable because significant correlations between actual and reported change in community were present only in the low trauma group; however, these results indicated that those with low trauma perceived the opposite of the actual change that occurred. That is, those with more actual positive change in R/S community reported lower scores on the Religious Outcomes (RO) Scale and Religious Outcomes (RO) Scale– Community Subscale, as compared to those with high trauma, whose correlations between actual and reported change in community were not significantly correlated but were in expected directions. Z scores of the differences in correlations between actual change scores in two other R/S domains – permeation and practices – and retrospective reports of change were significantly different for high and low trauma groups with respect to two measures of retrospectively reported R/S change. Significant group differences were found in z scores between actual permeation change and retrospective reports of change in the Spiritual Transformation Scale – Spiritual Growth Subscale ($z = $ 2.13, $p = $ .033) and the Posttraumatic Growth Inventory – Spiritual Change Subscale ($z = $ 1.97, $p = $ .049). Significant group differences were also found in z scores between actual reports of change in practices and retrospective reports of change in the Posttraumatic Growth Inventory – Spiritual Change Subscale ($z = $ 2.70, $p = $ .007) and the Religious Outcomes (RO) Scale– Practices Subscale ($z = $ 2.21, $p = $ .027). For these two R/S domains, veridicality for the high trauma group was significantly higher than for the low trauma group.

Findings of group differences in veridicality for apostasy emerged for one measure of retrospectively reported R/S change. Significant group differences in veridicality were found for

actual change in apostasy and retrospective reports of change on the Spiritual Transformation

Scale – Spiritual Decline Subscale (z score = 2.92, *p* = .003). As was the case for other R/S

domains, veridicality for the high trauma group was significantly higher than for the low trauma

group for this R/S domain as well.

CHAPTER FOUR

DISCUSSION

This study was undertaken with two objectives in mind: to better understand the effects of traumatic events on specific aspects of religiousness and spirituality (R/S), and to determine the veridicality of religious and spiritual changes subsequent to such events. This longitudinal investigation of emerging adults' experiences of adversity, religiousness, and spirituality followed eighty five students from their first month at a state university to the start of their fourth year of study. The relevance of religiousness and spirituality to the life experiences of emerging adults in attendance at a university was reflected in the finding that, as of the start of their academic fourth year, approximately half of all participants reported at least some level of negative spiritual appraisals (desecration and sacred loss) of events that had occurred to them during their university career to date.

The first area of investigation in this study focused on the effects of trauma on religiousness and spirituality. The hypotheses were tested through modeling of posttraumatic religiousness and spirituality using actual Time 1 R/S, in addition to trauma and R/S appraisals of events that occurred during college, as well as trauma and R/S appraisals of events that occurred prior to entry into college. These factors in combination made measurable and significant contributions to the prediction of five of eight R/S domains at Time 2 and seven of eight at Time 1. Trauma and spiritual appraisals, however, differed in their predictive power in these models.

In limited support of the hypotheses related to the effects of trauma on religiousness and spirituality, trauma was a significant factor in predicting three of eight R/S domains at Time 2, after controlling for these domains at Time 1, and five of eight R/S domains at Time 1. With

respect to negative spiritual appraisals, partial support was also obtained for the role of desecration and sacred loss in predicting R/S. Specifically, appraisals of desecration and sacred loss at Time 2 were significant in the prediction of three and two of the eight R/S domains at Time 2, respectively. In addition, combined Time 1 negative spiritual appraisals were significant in predicting one Time 2 R/S domain. At Time 1, negative spiritual appraisals together accounted for significant increments in the prediction of three of eight Time 1 R/S domains.

The second major focus of this study was whether reports of posttraumatic change were significantly correlated with actual change over the period of the study. This hypothesis was tested through two sets of analysis: a visual comparison of these correlations for those with high and low trauma, and a more rigorous statistical comparison of these data. Results of both analyses supported the hypothesis that those with high trauma were significantly more accurate in their reports of posttraumatic change than those with low trauma for six of eight R/S domains. Details of the two major foci of this study are discussed, in turn, below.

Relevance of Religiousness and Spirituality to Emerging Adults in College

Because emerging adulthood is a time of heightened exposure to traumatic and adverse life events, and religion and/or spirituality continue to be a significant force at this time in the developmental life span, the study of religiousness and spirituality as it relates to trauma deserves empirical attention. In this study, we found the notion that, for university students in emerging adulthood, religiousness and spirituality are lenses through which a significant proportion of them appraise their adversities. Participants in this study experienced an average of two adverse events in their college career to date, ranging from death of an immediate family member to parental difficulties including substance abuse, joblessness, and divorce. Approximately half of the students perceived these events as having at least some of the qualities

of a desecration or sacred loss. In addition, students overall reported significant religious and spiritual changes from Time 1 to Time 2, three years later, as a result of these events for three of eight R/S domains studied.

Consistent with the literature on changes in R/S during emerging adulthood, there were significant decreases in some facets of R/S and stability in others for the sample as a whole. In a national study of American college students through their first three years of study, Astin, Astin, and Lindholm (2011) found that attendance at religious services declined significantly, while the level of religious commitment remained stable or increased for the majority of students. Results of the current study parallel these results, with practices, community, and belief-behavior congruence significantly decreasing over the three year period, regardless of trauma exposure. The remainder of the R/S domains, i.e., God image, spiritual struggles, permeation, apostasy, and salience, were generally stable over the period of the study.

Multidimensionality of Religiousness and Spirituality Amidst Trauma

Several authors and researchers have called for a more multidimensional conceptualization of religiosity and spirituality, particularly as it relates to trauma and adversity (Spilka, Hood, & Gorsuch, 1985, Pargament, 1997, Paloutzian & Park, 2005). This study examined eight aspects of R/S over the three years of the study. Looking at the entire study sample at Time 2, where all but 9 participants experienced at least 1 adverse event, a range of correlations emerged among the eight R/S variables. By no means do the levels of correlation imply redundancy among these factors; in fact only approximately one quarter of all correlations were above .7. The variability of these correlations, as well as the differing results for each domain of R/S in their relationships with trauma and negative spiritual appraisals, highlight the

importance of specificity in the study of R/S and in the need to avoid overgeneralizing from one aspect of R/S to others.

The Effects of Trauma on Religiousness and Spirituality

This study was designed to address limitations of extant trauma research as it relates to religiousness and spirituality by examining the effects of trauma on R/S longitudinally, measuring both positive and negative changes in eight aspects of religiousness and spirituality, and comprehensively assessing traumatic exposure. This study prospectively assessed changes in eight discrete elements of religiousness and spirituality, both positive and negative, over a period of three years. Results of this study provided some empirical support for the premise that traumatic events shape religiousness and spirituality.

Significant changes in R/S ensued from traumatic events at both data collection points of this study. Interestingly, the effects of adversity on the R/S of participants differed between these two data collection points. At Time 1, increased trauma was associated with increased R/S in five of eight domains: Belief-behavior congruence, community, practices, salience, and religious affiliation. In contrast, trauma during college, i.e., at Time 2, predicted increased spiritual struggles, decreased salience, and lower apostasy, after controlling for Time 1 R/S. In addition, trauma prior to entry into college incrementally contributed to increased salience at Time 2, after controlling for Time 1 salience.

The variations in the findings that emerged between Time 1 and Time 2 may reflect in part the difference between cross-sectional and longitudinal study designs. Results at Time 1, which were cross-sectional, included significant effects for more R/S domains than did results at Time 2, which controlled for Time 1 R/S in predictions of Time 2 R/S. There are, however, additional possible interpretations which point to several areas of interest to investigators of

trauma: the time trajectory of posttraumatic change, the relevance of trauma type and multiple event exposure, and the potential significance of developmental factors in response to trauma.

Looking specifically at R/S as it relates to the question of the time trajectory of posttraumatic change, Schaefer, Blazer, and Koenig, (2008) suggested that aspects of R/S may change depending on the time frame of data collection vis a vis the reported event. From their literature review of R/S and trauma, these authors found that the time course of intrinsic religiosity (equivalent to permeation in this study) significantly affected the results of the relationship between these variables. Specifically they suggested that, based on the twenty three studies included in their review, within the first eight months after a trauma, intrinsic religiousness declines significantly. Over the subsequent time frame, intrinsic religiousness increases significantly. One possible explanation of this pattern of findings is that people require a certain amount of time, as yet unknown, to process and resolve the distress and disequilibrium to a religious framework caused by traumatic events.

It is generally assumed that traumatic experiences require a recovery period. Implicit in the Lazarus and Folkman model of stress and coping is the assumption that people require a significant amount of time to process and incorporate the traumatic event into a cognitive framework. Findings from Time 2 of this study suggest that trauma during college shakes people up spiritually and leads to at least temporary losses in salience, at the same time that they maintain or adopt religious affiliation. It is unclear at this point how long these effects persist and whether they lead to growth over the longer term.

Complicating matters further, different findings emerged between Time 1 and Time 2 data collection points as a function of the type of traumatic events, i.e., Criterion A traumatic events or adverse life events. Distinction was made in this study between traumatic events that

are commonly assessed in diagnosing Posttraumatic Stress Disorder (PTSD) (i.e., Criterion A traumatic events) and other potentially traumatic adverse life events specific to childhood and emerging adulthood. At Time 1 Criterion A traumatic events, and not adverse life events, yielded significant ties to R/S, whereas at Time 2 it was generally traumatic life events (not Criterion A traumatic events) that were significantly associated with R/S. (Apostasy was the exception at Time 2, which was inversely associated with Criterion A trauma.) Both event types were included in this study due to the ongoing controversy regarding the kind of life events that should qualify for the diagnosis of Posttraumatic Stress Disorder (PTSD). Despite updates to the Diagnostic and Statistical Manual (DSM) definition of qualifying events for PTSD, disagreement remains as to what can be considered "traumatic", based on a number of studies that have failed to find substantive differences in PTSD and other symptomatology experienced by people who have encountered Criterion A events and people who have encountered adverse life events (Bodkin, Pope, Detke, & Hudson, 2007; Mol, Arntz, Metsemakers, Dimant, Vitters-VanMontfort & Knottnerus, 2005; Lancaster, Melka, & Rogriguez, 2009). One study using a college sample (Gold, Marx, Soler-Baillo & Sloan, 2009) found that those with adverse life events reported significantly higher psychological symptomotology than those with Criterion A trauma. Although this study did not report on R/S effects, these results are consistent with Time 2 findings of the current study in terms of the significance of adverse life events in producing subsequent R/S declines and possible psychological difficulties. Further study of traumatic event type is needed to clarify the nature of events and their psychological and R/S effects.

It is also possible that the differential R/S effects are a function of the nature of traumatic experiences. In this study at Time 2, where adverse life events accounted for significant changes in R/S, the three events perceived to be the most traumatic were interpersonal in nature, i.e.,

infidelity of romantic partner, breakup of romantic relationship, and significant ridicule or bullying. In contrast, in childhood and adolescence prior to entry into college, it was Criterion A traumatic events that significantly predicted R/S change. These three most traumatic experiences were death of an immediate family member and miscellaneous "other" events. There is some empirical evidence that interpersonal trauma is more distressing and related to higher rates of psychological disorder than non-interpersonal trauma (Green, Goodman, Krupnick, Corcoran, Petty, Stockton, and Stern, 2000). Although the death of a parent or sibling has considerable personal impacts, it differs from situations involving betrayal and rejection that target a specific individual. Further, desecration perceptions of such interpersonal trauma are theorized to heighten the psychological trauma by damaging not only the secular worldview (sense of justice, benevolence, and self-worth) but also the core spiritual worldview (Mahoney, Rye & Pargament, 2005). According to this perspective, these events "may be especially painful because such violations may raise serious doubts about the sacred nature of the violated object as well as undermine the individual's larger spiritual system of meaning. Furthermore, these types of offenses entail the destruction of a connection to the divine realm" (p. 8). As such, it is possible that emerging adults who experience traumatic life events of an interpersonal nature are more likely to have spiritual doubts, questions, and feelings of abandonment by God, particularly given the developmental tasks of identity formation and relationship development during emerging adulthood.

Little research has been conducted that examines the differential effects of trauma on R/S and psychological variables over the lifespan. Although a significant portion of trauma research uses college samples, results from these studies are most often generalized to the adult population, making differential conclusions about the processes of coping with adversity for

emerging adults and older adults obscured at this time. Recent studies of the religious and spiritual aspects of emerging adults make it clear that this is a unique time of personal development (Astin, Astin, & Lindholm, 2011; Astin & Astin, 2003; Lefkowitz, 2005; Smith & Snell, 2009), although these studies have not considered the impacts of trauma on R/S. According to Erikson's model of development (1968) as it relates to emerging adulthood, developing a coherent and integrated sense of identity is one of the primary developmental tasks of this time period. Decisions including whether (and whom) to marry, whom to socialize and develop friendships with, and the type of relationship desired with family members are aspects of this identity-in-formation, and as such are expected to have significant effects on emerging adults. Because the nature of high trauma among this sample of emerging adults tended to be interpersonal, it is plausible that these relational losses, betrayal, and suffering were more acutely felt, resulting in spiritual struggles and feelings of separation from the sacred.

Psychologists are beginning to study the effects of childhood trauma on later spirituality and religiousness, as evidenced by the review done by Walker, Reid, O'Neill, and Brown (2009). Their review of 34 cross-sectional studies of retrospectively recalled childhood abuse concluded that the majority (41%) of children who experience serious physical and sexual abuse have a damaged view and relationship with the divine, approximately 25% have subsequent increases in R/S, largely through finding meaning and purpose in their lives and freeing themselves of blame and guilt, and the remainder (35%) have increases in some aspects of R/S and declines in others. A portion of this latter group reported movement away from organized religion to more pluralistic and individual approaches to spirituality, whereas those with few ties to organized religion in childhood reported embracing it later in life. These authors offer their perspective on the unique effects of childhood abuse on R/S, saying "Abuse survivors undoubtedly experience

ambivalence and difficulty resolving spiritual struggles involving a faith that has been damaged while also attempting to make use of that faith to cope" (p. 140). Results at Time 2 in the present study which show increased spiritual struggles and religious affiliation due to adversity experienced during college corroborate these findings. Walker et. al. include among their recommendations the need for studies that include multiple dimensions of R/S, to further clarify the complex dynamic between trauma and R/S.

It should be noted that the present study included the full complement of participants' potentially traumatic events, including all such events during childhood and adolescence, as well as during the first three years of college. This method offers a more comprehensive assessment of traumatic experiences, as compared to the common practice of asking respondents to report their most upsetting event in a given time period. In the past several years researchers have begun to highlight the significance of exposure to multiple traumatic events in more fully understanding the development, maintenance, and recovery from adverse sequellae of these events (Green, Goodman, Krupnick, Corcoran, Petty, Stockton, and Stern, 2000; Macdonald, Danielson, Resnick, Saunders, and Kilpatrick, 2010). Without inclusion of other trauma experiences in a person's history it becomes impossible to clearly delineate links between actual trauma exposure and subsequent outcomes (Schnurr & Green, 2004).

The Significance of Negative Spiritual Appraisals

Negative spiritual appraisals added to the prediction of R/S over and above that provided by trauma, as expected. These two types of negative spiritual appraisals, however, contributed to R/S in very different ways. Looking at Time 2 findings overall, appraisals of desecration were shown to increase R/S, whereas appraisals of sacred loss predicted declines in R/S. Specifically, appraisals of desecration for events that occurred during college led to increased integration of

religious and spiritual beliefs and behavior, to increased engagement with their R/S community, and to an increase in the importance of R/S in their lives. In addition, it appears that desecration appraisals of traumatic events that occurred during childhood and adolescence lead to a more positive God image in the subsequent years. Based on these findings, it is possible that perceptions of sacred violation activated protective measures of the object of sacred veneration, thereby moving these individuals closer to their religious and spiritual values, community, and beliefs. Appraisals of sacred loss, on the other hand, predicted spiritual decreases in two R/S domains: Belief-behavior congruence and spiritual struggles, after controlling for Time 1 R/S. These results suggest that perceptions of sacred loss can rupture one's sense of congruence between beliefs and behaviors and create spiritual struggles, including doubts, questions, and unresolved difficulties with the sacred as a result of traumatic experiences.

At Time 1 of this study, negative spiritual appraisals were combined due to multicollinearity, and yielded significant findings for three of eight R/S domains: Spiritual struggles, permeation, and apostasy. These combined negative spiritual appraisals were associated with increased spiritual struggles and permeation, and decreased apostasy. Parsing of the effects of desecration and sacred loss separately was impossible due to their combination.

Pargament's (1997) formulation of coping with stressful events emphasizes the significant place of the sacred in the fundamental assumptions, beliefs, and values people hold as they relate to stressful and traumatic events. Sanctification, which is the adoption or overlay of sacredness on any aspect of life, vaults ordinary phenomena to the extraordinary by virtue of its association with the divine. Pargament and Mahoney (2005) propose that the sacred is a unique and potentially informative construct in understanding reactions to events, circumstances, and difficulties. These authors also suggest several implications of sanctification, including that

individuals make extra efforts to preserve and protect sacred aspects of their lives that have been threatened. Although this is as yet an understudied construct, there is some empirical evidence in support of this notion. For example, Mahoney, Pargament, Jewell, Swank, Scott, Emery, and Rye (1999) found that married couples who sanctified their marriage engaged in less destructive reactions and more constructive efforts in response to marital conflict. Of more direct relevance to this study, Magyar (2001) examined desecration among college students who had experienced romantic relationship breakups. Among her findings was that spiritual growth and positive posttraumatic change were significantly correlated with appraisals of desecration, even after controlling for age, gender, general religiousness, and negative attributions about the relationship. In a similar vein, it is possible that students who perceived adverse events during college as desecrations would make increased efforts to preserve and protect their R/S as shown in this study. These results suggest that such individuals may have done so through increased engagement with their spiritual community, feeling an increased importance of their religious and spiritual life, being more conscious of making their beliefs and behaviors more congruent, and seeking to broaden the role of R/S across diverse aspects of their lives.

The pattern of R/S changes as a result of appraisals of sacred loss is the opposite of that found for appraisals of desecration. Sacred loss appraisals among those with high trauma during college appear to have a fracturing effect, in terms of further compartmentalization of religious and spiritual beliefs and behaviors, and increased spiritual struggles. These perceptions of sacred loss may be associated with feelings of abandonment by God and disconnectedness to the sacred, which in turn could result in a detachment between one's values or beliefs and one's behavior, as well as struggles of a spiritual nature. It is also possible that losses of a sacred nature require longer recovery periods, particularly if the sacred is a fundamental part of one's worldview.

These findings underscore the need not only to assess spiritual appraisals of traumas, but to differentiate among types of spiritual appraisals. They are consistent with the Lazarus and Folkman model (1984), which emphasizes the significance of cognitive appraisals in the process of coping with stressful and adverse events. According to this model, appraisals of threat and challenge tend to activate coping efforts, while appraisals of loss or harm, particularly if they are significant, can have the most damaging effects. To cite Lazarus and Folkman:

> In harm or loss [appraisals], some damage to the person has already been
> sustained, as in an incapacitating injury or illness, recognition of some damage to
> self- or social esteem, or loss of a loved or valued person. The most damaging
> life events are those in which central and extensive commitments are lost. (p. 32)

Further extension of this model to encompass emotion indicates that different types of appraisals elicit different emotions. For example, appraisals of loss may be followed by sadness or depression, whereas events that are appraised as violations are more likely to elicit anger and frustration (Lazarus, 1991). In a similar way we may expect perceptions of sacred loss and desecrations to be associated with differing emotions. Thus, appraisals of sacred loss may parallel secular loss and lead to sadness or depression and sadness, while appraisals of desecration may be more linked to anger. These associations were investigated and confirmed in a community adult sample by Pargament, Magyar, Benore, and Mahoney (2005).

These findings are important in efforts to understand the effects of traumatic events on R/S, particularly given the multiplicity of R/S definitions and mixed results in the existing literature. They also provide further confirmation of the differential effects of desecration and sacred loss appraisals in coping with traumatic events.

Veridicality of Posttraumatic Religious and Spiritual Change

The second major focus of this study evaluated whether reports of posttraumatic change for those with high trauma were more significantly correlated to actual change over the period of

the study, as compared to the low trauma group. This hypothesis was tested by a visual

comparison of these correlations for those with high and low trauma, and through a more

rigorous statistical comparison of these data. Both sets of analyses confirmed that those with

high trauma were significantly more accurate in their reports of posttraumatic change than those

with low trauma. That is, for those with high trauma levels, actual changes in R/S from Time 1

to Time 2 of this study significantly correlated with their recollection of change in the majority

of corresponding aspects of R/S at Time 2. Although half of the R/S domains were significantly

correlated for those with low trauma levels, these were far fewer in number, lower in magnitude,

and of less statistical significance, as compared to the high trauma group. Further, the

recollection of two of these areas of R/S, i.e., spiritual struggles and community, for those with

low trauma was inversely related to the change they actually experienced.

Because the issue of veridicality has been highlighted as a topic of critical importance

within the posttraumatic growth literature, extant research has been focused within this area.

Several studies have confirmed veridicality through corroborative reports by known others or

control group comparisons (Park, Cohen, & Murch, 1996; Shakespeare-Finch & Enders, 2008;

Weiss, 2002). One study using a prospective design has been published to date, with results that

supported veridicality only for R/S (Frazier, Tennen, Gavian, Park, Tomich, & Tashiro, 2009).

This study of undergraduate trauma examined correlations between perceived and actual change

in 5 domains: relationships with others, personal strength, life appreciation, new possibilities,

and spiritual change over an 8 week period. These correlations were significant only for spiritual

change. Interestingly, despite this correlation, these authors interpreted this finding as

respondents using religion as a coping mechanism rather than it being a reflection of actual

change. This explanation was offered due to the additional positive correlations between actual

R/S change and changes in distress and positive reinterpretation coping, indicating that more R/S

change was related to more distress and increased attempts to see positive aspects of the trauma.

This explanation is also puzzling due to the acknowledgement by Tedeschi and Calhoun (2004)

that PTG and distress can and often do occur simultaneously:

> The presence of growth does not necessarily signal an end to pain and distress, and usually it is not accompanied by a perspective that views the crisis, loss, or trauma itself as desirable. Many persons facing devastating tragedies do experience growth arising from their struggles. The events themselves, however, are not viewed as desirable – only the good that has come out of having to face them. (pp. 6-7)

Although not proposed by Frazier, et. al., it is possible that aspects of posttraumatic change are

related to distress in different ways over the course of recovery from such events. R/S in

particular may have the capacity to offer meaning, comfort, and a connection to the sacred, even

in the midst of distress.

The notion of suffering and struggle as part of posttraumatic change and growth is central

to Calhoun and Tedeschi's model of PTG (2006).   It is also central to many religions. The

notion that R/S can offer those who experience trauma a worldview in which distress and

positive change can co-exist within the context of meaning is starting to be empirically explored

(Park & Folkman, 1997; Wortmann & Park, 2009). In their review of qualitative studies of R/S

meaning-making in the aftermath of the death of a loved one, Wortmann and Park evaluated

ways in which R/S frameworks of meaning related to bereavement. They found that 40% of 39

studies included could be characterized as assimilative, in terms of the R/S belief system

providing a lens through which participants' losses could be interpreted and understood. This

R/S worldview, which continued to be a source of meaning, provided comfort, solace, and

acceptance, despite not knowing the reason for their loss at times.   In addition, these participants

tended to re-appraise their losses benevolently. Another 40% of studies contained people who

struggled spiritually due to incongruity between their R/S worldview, or meaning system, and their experience of loss. These individuals were reported to experience several difficulties in reconciling their trauma and R/S beliefs, including doubts about the benevolence of God, guilt over their own actions, anger at God or their R/S community, and feelings of being punished by God. According to these authors 60% of these "spiritual strugglers" eventually resolved their spiritual struggles through accommodation. These individuals, in other words, altered their R/S worldview, or framework of meaning, to integrate their traumatic experience. This was accomplished in several ways: transformation of God image, from punishing to beneficent; broadening life goals; greater appreciation of life and awareness of the sacred; stronger R/S beliefs. Of particular note, these authors noted several studies that discussed the intermingling of distress and posttraumatic growth during the process of recovery.

Pargament, in his model of the search for significance (1997), details the ways in which R/S may be a means to an end of significance as well as an end in itself. He explains that encounters with stressful events may involve conservation (assimilation) or transformation (accommodation) to both means and ends of significance, depending on a number of factors, including the nature of the event, resources available, and prior experiences of R/S. Within this framework, it seems plausible that those facing adversity may experience spiritual growth and distress concurrently. Existential philosophy highlights the central significance of meaning amidst suffering and offers a deeper understanding of the paradox of trauma-related distress and R/S. To quote Nietzsche: "He who has a why to live can bear almost any how". Gerald May, a psychiatrist, explores the relationship between life's difficulties and spiritual change in his book entitled "The Dark Night of the Soul" (2004):

> The dark night is a profoundly good thing. It is an ongoing spiritual process in
> which we are liberated from attachments and compulsions and empowered to live

> and love more freely. Sometime this letting go of old ways is painful,
> occasionally even devastating. But this is not why the night is called "dark". The
> darkness of the night implies nothing sinister, only that the liberation takes place
> in hidden ways, beneath our knowledge and understanding. It happens
> mysteriously, in secret, and beyond our conscious control. For that reason it can
> be disturbing or even scary, but in the end it always works to our benefit (pp. 4-5)

Given the paucity of research in this area, it appears premature to discard claims of veridicality

in R/S because it fails to act like other domains of posttraumatic change. Rather, it would seem

to indicate that further research is needed, to expand our understanding of the ways adversity

shapes R/S and of the relationship between posttraumatic R/S change and distress over time. In

addition, as Zoellner and Maercker (2006) have proposed in the Janus Face model of

posttraumatic growth, such change most likely has concurrent adaptive, constructive components

as well as distorted, defensive aspects. Our challenge as researchers is to better elucidate a

complex process in the aftermath of trauma that may include both veridical and non-veridical

components.

The question of whether reports of posttraumatic change are veridical or not can, and

should be posed as it applies to any type of posttraumatic change. Results from this study

highlight the differences in accuracy of posttraumatic change between those with high and low

levels of trauma and support the position that those with high trauma are more veridical in their

accounts of R/S change. Because empirical research of posttraumatic change other than that

related to PTG is lacking, I have outlined below other possible factors that may be at play in

explaining the veridicality of those with high trauma in this study.

As noted above, emerging adulthood is a time in which issues of relatedness to others are

at the forefront. Trauma in these areas, including relationship betrayals, breakups, and severe

mocking and bullying, as seen in this study, may activate a re-evaluation of the significance of

these areas. To the extent that these processes are volitional and conscious, it would make sense that R/S changes in the aftermath of these experiences would be more accurately recollected.

It is also possible that aspects of the human stress response and its effects on memory could inform differences in veridicality between those with high and low levels of trauma of the type seen in this study. Studies of physiological responses to high stress show heightened and focused awareness of stimuli in preparation for defense, attack or escape. Extreme stress that involves threat to physical integrity may overwhelm this system, thereby making recall of actions taken and decisions made in the aftermath of such situations fragmented, distorted, or otherwise inaccurate. The interpersonal stress of the nature of the sample for this study, however, may exert a different effect, highlighting such actions and making them more easily recollected. That is, in a state of heightened, but not overwhelming, awareness, it may be more likely that a person would consciously introspect about issues related to the stressor. In addition, the stress normally activated through recollections of the trauma of these types may abate more quickly than comparable life-threatening stress, making introspection more productive. A state of equilibrium reached more quickly may, in turn, make actions and decisions more conscious and more accurately and easily recalled. While current research does not speak to these aspects of memory in the wake of trauma, they may be worthwhile areas for future research aimed at better understanding sequellae of trauma.

While it may appear that this study has added to the mountain of as yet unanswered questions about the nature of adversity and its effects on R/S, it is important to recognize those aspects of this dynamic confirmed through this study. First, the multidimensionality of R/S as it relates to adversity was evident in the differential outcomes of R/S domains subsequent to trauma during college. Second, the veridicality of reports of R/S change in the aftermath of these

experiences was confirmed for those with high trauma levels. In addition, the significance of spiritual appraisals of traumatic events was highlighted, and the relevance of these appraisals to emerging adults in college corroborated.

As in any emerging field, questions surrounding the complex interplay of adversity and R/S outnumber what is known at this time. This study has drawn attention to several areas of potentially fruitful investigation as it relates to trauma and R/S: the potentially unique developmental time of emerging adulthood, differences between interpersonal and non-interpersonal trauma, ways in which R/S differs from other commonly studied domains of posttraumatic change, particularly in the area of distress, the course of posttraumatic R/S change, including resolution of spiritual struggles, over time.

Clinical and Policy Implications

The findings of this study have several implications for university administrators and clinicians engaged with emerging adults. Because significant, potentially life-changing events commonly occur during college years, it is important for university clinicians and administrators to acknowledge this and provide resources that may be helpful to their students. Given the common goal of adaptive and successful students on our campuses, it is critical to more fully understand factors that are relevant in coping with these events. It is also important to recognize that R/S is significant to most college students in a myriad of ways. Regarding those providing mental health services to college students, despite the collective aversion among those in this field to R/S, it is important to better understand R/S in it complexity and recognize that R/S factors can be a resource or obstacle to improved psychological functioning. Based on this study, there is evidence that significant changes in R/S occur during the college years, some of which may be developmental and others related to their experiences of adversity. As facilitators

of the university experience, it is our responsibility to understand specific aspects of R/S as it relates to our students and not to generalize based on our own beliefs and assumptions of R/S.

Although therapeutic interventions that incorporate R/S into recovery from adversity are few, several have demonstrated empirical promise. Among spiritually-oriented group interventions, *Solace for the soul: A journey towards wholeness*[©] (Murray-Swank & Pargament, 2005) has shown improved spiritual well-being and increased positive religious coping among females with childhood sexual abuse, Avants, Beitel, and Margolin's (2005) program has helped those in recovery from drug addiction decrease their substance cravings and increased their motivation for abstinence, and those in Tarakeshwar, Pearce, and Sikkema's (2005) coping group intervention for HIV-positive adults reported higher religiosity, increased positive spiritual coping, decreased negative spiritual coping, and lower depression.

Although these studies indicate that spiritually-sensitive group interventions can improve well-being among community members, to date there is only one spiritually oriented intervention developed specifically for college students. The *Winding Road* (Gear, Faigin, Gibbel, Krumrei, Oemig, McCarthy, & Pargament, 2008) is a spiritually sensitive group psycho-educational intervention for college students struggling with spiritual issues. All students in the pilot of this program showed significant improvements in emotion regulation and congruence between personal behavior and spiritual values, as well as decreases in psychological distress, spiritual struggles, and stigmatization of spiritual struggles.

On another note, Oman, Flinders, and Thoresen (2008) have developed a college course designed to promote spiritual growth that combined traditional academic and experiential components. Two spiritual interventions that were incorporated into this course were effective in decreasing negative spiritual coping and images of God as controlling (Oman, Shapiro,

Thoresen, Flinders, Driskil, & Plante, 2007). These studies provide promising results for interventions that target the spiritual lives of college students. Clearly, further studies are needed, particularly as they relate to the long-term effects of spiritual struggles and factors that facilitate their resolution.

Limitations and Recommendations for Future Research

Limitations of this study should be noted. One limitation is use of an undergraduate college sample from a single Midwestern university. This sample was not randomly selected and tends to represent a higher functioning group of emerging adults, which could lead to a restricted range of scores and smaller within group variability. While the sample used in this study consisted of individuals with a range of ages, religious backgrounds, and ethnicity, generalizability of the findings may be limited due to a restricted diversity of race, geographic representation, and non-student emerging adults. It is recommended that future researchers in this area use larger, more nationally representative samples. In addition, self-selection bias may have been present in this study, despite the similarity to typical response rates for studies of this kind. The increased permeation and decreased spiritual struggles of those who participated at both data collection points, as compared to those who participated only at Time 1, may have contributed to a restricted range in these R/S domains. Regarding the potential objection that participants of this study were unusually religious, however, it should be noted that the level of correlation between spiritual appraisals and these aspects of R/S were of low magnitude.

Despite these limitations, it is important to note that this study was designed to address methodological concerns that have characterized research examining posttraumatic R/S change. This included use of a longitudinal design, delineation of discrete domains of R/S, measurement

of both positive and negative change, inclusion of multiple validated measures of posttraumatic change, and a comprehensive assessment of trauma exposure.

Recommendations for further investigation build on steps taken in this study to improve the quality and robustness of research on adversity and R/S changes that ensue from these events. To build on our understanding of different aspects of R/S, efforts to limit generalization of "religiousness" and "spirituality" from measurement of specific domains should be made to reduce confusion about these complex constructs. Rather, domain-specific instruments can, and should be explicitly stated when they are used. While the longitudinal design of this study helped to clarify the veridicality of reports of posttraumatic change among university students, additional data collection points would further clarify the trajectory of such change over time. In addition, the inclusion of other factors that may have roles in the effects of trauma on R/S, e.g., psychological distress and well-being, personality variables such as optimism or openness to change, aspects of the event beyond the perception of trauma and objective measures of potentially traumatic events, and social support, will further expand our understanding of the interplay of factors in this dynamic relationship.

Current practices regarding definitions of trauma and measurement of posttraumatic change appear to muddy the waters of trauma research. The lack of consensus about what constitutes trauma and the consequent variability in operational definitions and measurement of trauma may be contributing factors to lack of consensus of results in this literature. As this body of research has grown, more researchers are calling for more comprehensive assessment of trauma exposure to better understand the effects of and influences on individuals' experience of potentially traumatic events (Nishith, Mechanic, & Resick, 2000; Rini, Manne, DuHamel, Austin, Ostroff, Boulad, Parsons, Martini, Williams, Mee, Sexson & Redd, 2004; Williams,

Williams, Stein, Seedat, Jackson, & Moomal, 2007). The significance of multiple traumatic events in subsequent psychological dysfunction, physical harm, social skills deficits, and sexual abuse has highlighted children and adolescents' higher exposure and vulnerability to trauma (Costello, Erkanli, Fairbank, & Angold, 2002; Lila, Herrero, & Gracia, 2008; Macdonald, Danielson, Resnick, Saunders, & Kilpatrick, 2010). In addition, refinement of instruments used to assess posttraumatic change may be necessary, given the lack of differential validity between those with high and low levels of trauma in this study (only the Spiritual Transformation Scale – Spiritual Decline subscale differentiated those with high and low trauma at Time 2). The varying levels of correspondence between commonly used measures of posttraumatic change and actual change found in this study highlights the need for added sophistication in our measurement of this construct. Further exploration of trauma and its effects on religiousness and spirituality promises to be a fruitful area for future research.

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APPENDICES

Appendix A

Demographic Information

What is your gender?   Female   Male

What is your current age?

What is your marital status?   Single, never been married
                                Married
                                Divorced or Legally Separated
                                Widowed

What is your race or ethnicity: White/Caucasian
                                    African American/Black
                                    Hispanic
                                    Asian

Appendix B

Measure of Traumatic and Adverse Life Events

Presented next are a number of events that may have happened to you since you started at BGSU. For events that you indicate have happened to you in this time period, you will be asked a few follow up questions. When answering the questions, think of the experience and for a few moments visualize the event in your mind.*

TE1. Since you started school at BGSU, have you been in or witnessed a serious industrial, farm, or car accident, or a large fire or explosion?

TE2. Have you been in a natural disaster, such as a tornado, hurricane, flood or major earthquake since you started school at BGSU?

TE3. Have you witnessed someone who was seriously injured, mutilated, or violently killed since you started school at BGSU?

TE4. Since you started school at BGSU, have you been in serious danger of losing your life or of being seriously injured or disabled?

TE5. Since you started school at BGSU, has anyone (parent, other family member, romantic partner, stranger, or someone else) ever succeeded in *physically forcing* you to have intercourse, or oral or anal sex against your wishes *or* when you were in some way helpless?

TE6. Other than experiences described in the previous item, has anyone ever used *physical force or threat* to TRY to make you have intercourse, oral or anal sex, against your wishes or when you were in some way helpless since you started school at BGSU?

TE7. Other than experiences mentioned in the two prior items, since you started school at BGSU has anyone ever *actually touched* private parts of your body or made you touch theirs against your wishes, or when you were in some way helpless?

TE8. Since you started school at BGSU, have you been a victim of a violent crime such as robbery or assault?

LE9. Since you started school at BGSU, have you been regularly physically abused by one or both of your parents?

TE10. Since you started school at BGSU, has anyone in your immediate family died? If, please indicate who it was, i.e., your mother, father, sister, brother.

LE11. Since you started school at BGSU, has anyone in your extended family died? If so, please indicate who it was, your grandparent, aunt, uncle, cousin, etc.

LE12. Have your parents divorced since you started school at BGSU?

LE13. Since the time you started school at BGSU, has your father or mother not have a job for a long time when they wanted to be working?

LE14. Since you started school at BGSU, have either of your parents drink or use drugs so often or so regularly that it caused problems for the family?

LE15. In the time since you started at BGSU, have you discovered that your partner in a close relationship was unfaithful?

LE16. In the time since you started at BGSU, has there been a major change in the closeness among your family members?

LE17. During your time at BGSU have you experienced periods of intense doubt and internal conflict about your religious beliefs and/or spirituality?

LE18. In the time since you started at BGSU, have you ever ended (or had your partner end) a relationship when you were still in love with him or her?

LE19. During your time at BGSU have you ever been in mocked, ridiculed, or bullied in a way that was extremely upsetting or stressful for you?

TE20. Beside what you have already indicated in the previous items, have you experienced any other extremely upsetting, stressful, or traumatic events since you started at BGSU? If yes, very briefly describe the event below.

TE21. Since you started at BGSU, have you experienced any other extremely upsetting, stressful, or traumatic event that you do not wish to describe here?

For each event the respondent selected, the following are also presented for completion:

1. How traumatic **was** this for you at the time this event happened?

Not at all		Somewhat		Quite a bit		Extremely
1	2	3	4	5	6	7
	A little		Moderately		Very	

2. How do you feel about this event **now**?

Totally Resolved		Somewhat resolved		Quite upset		Extremely Upset
1	2	3	4	5	6	7
	Pretty much resolved		Still moderately upset		Very upset	

*Note: Events from the TEQ are identified as starting with (TE). Events from the LES are identified as starting with (LE). They are listed here in the order they were presented to study participants.

Appendix C

Measure of Negative Spiritual Appraisals (Desecration and Sacred Loss)

Answer the following questions, thinking about your feelings when this event took place.

1. To what extent do you feel that something sacred was torn out of your life due to this event? (SL)

2. To what extent do you believe that this event was an immoral act against something you value? (D)

3. To what extent do you believe that a part of your life in which you experienced God's love is now absent? (SL)

4. To what extent do you believe that something of sacred importance in your life disappeared when this event took place? (SL)

5. In this event, was something central to your spirituality lost? (SL)

6. Regarding this event, do you believe that something sacred that came from God was dishonored? (D)

7. Is something that you held sacred no longer present in your life due to this event? (SL)

8. To what extent do you believe a sacred part of your life was violated due to this event? (D)

9. To what extent do you believe this event was both an offense against you and against God? (D)

10. To what extent do you believe this event was a sinful act involving something meaningful in your life? (D)

11. To what extent is this event a transgression of something sacred? (D)

The following scale was used for responses on this measure:

Not at all		Somewhat		Quite a bit		Extremely
1	2	3	4	5	6	7
	A little		Moderately		Very	

Note: Items are designated as (D) for desecration and (SL) for sacred loss for each item.

Appendix D

Measure of God Image

The following set of items refers to "God". Please feel free to substitute the term you use to refer to the sacred or transcendent in responding to these items.

Please respond to each statement by indicating the response that comes closest to describing your thoughts and feelings:

Strongly agree   Somewhat agree   Somewhat disagree   Strongly disagree
1   2   3   4   5   6   7
        Agree   Neutral   Disagree

1. I am confident of God's love for me. (A)

2. I know I'm not perfect, but God loves me anyway. (A)

3. I can feel God deep inside me. (P)

4. Even when I do bad things, I know God still loves me. (A)

5. I can talk to God on an intimate basis. (P)

6. God nurtures me. (P)

7. God loves me regardless. (A)

8. God takes pleasure in my achievements. (C)

9. God is always there for me. (P)

10. God wants me to achieve all I can in life. (C)

11. God's love for me is unconditional. (A)

12. God asks me to keep growing as a person. (C)

13. I sometimes feel cradled in God's arms. (P)

14. I feel warm inside when I pray. (P)

15. God encourages me to go forward on the journey of life. (C)

Note: Letters correspond to subscales: (C)hallenge, (A)cceptance, and (P)resence.

Appendix E

Measure of Spiritual Struggles

Keeping in mind the [event just described], try to rate each of the following items separately in your mind from the others. For these items, respond to how much or how frequently you did each of these items in dealing with this event. Please make your answers as true FOR YOU as you can.

1. Wondered what I did for God to punish me.

2. Wondered whether God had abandoned me.

3. Felt punished by God for my lack of devotion.

4. Decided the devil made this happen.

5. Questioned God's love for me.

6. Questioned the power of God.

The following scale was used for responses on this measure:

Not at all		Somewhat		Quite a bit		Extremely
1	2	3	4	5	6	7
	A little		Moderately		Very	

Appendix F

Measure of Religious/Spiritual Permeation

Please indicate the degree to which you agree or disagree with the following statements, by choosing one response for each item as follows:

Strongly agree		Somewhat agree		Somewhat disagree		Strongly disagree
1	2	3	4	5	6	7
	Agree		Neutral		Disagree	

1. Religion is only one part of my life.*
2. I wouldn't let my religion become more important to me than my friends or family. *
3. There's a time and place for religion, and a time and place for other things in life. *
4. I don't really want to involve my religion in other parts of my life. *
5. I take my religion home with me after I leave church.

*Note: This item is reverse scored.

Appendix G

Measure of Behavior-Belief Congruence

Using the scale below, indicate how much influence your spiritual or religious beliefs have on each of the following:

1 – Not at all influential
2 – A little influential
3 – Somewhat influential
4 – Quite a bit Influential
5 – Extremely influential

- what you wear?

- what you eat and drink?

- whom you associate with?

- what social activities you undertake?

- the important decisions of your life?

- marrying someone of another religion?

Appendix H

Measure of Religious and Spiritual Community

1. How long have you been a member of your present congregation, parish or spiritual community?

   a. I have always been a member
   b. More than ten years
   c. Six to ten years
   d. Three to five years
   e. One to two years
   f. Less than one year
   g. I am not a member*

2. All in all, how important would you say your religious or spiritual community is to you?

   a. Extremely important
   b. Quite important
   c. Fairly important
   d. Not too important
   e. Fairly unimportant
   f. Not at all important to me

3. All in all, how well do you think you fit in with the group of people who make up your congregation or spiritual community?

   a. I really don't fit in too well with this group of people
   b. I fit in, but not too well
   c. I fit in quite well
   d. I fit in very well

4. Generally speaking, would you say most of the people you associate with in activities aside from religious or spiritual ones are or are not members of your religious or spiritual community?

   a. Most are members of my religious or spiritual community
   b. About half are and half aren't
   c. Most are not members of my religious or spiritual community

5. Of your five closest friends, how many are members of your religious or spiritual community?

   ☐ None   ☐ One   ☐ Two   ☐ Three   ☐ Four   ☐ Five

*Note: If respondent checked this response, additional R/S Community items were not presented.

Appendix I

Measure of Religious and Spiritual Practices

Use the following responses in responding to each of the questions below:

    a. More than once a day
    b. Once a day
    c. More than once a week
    d. Once a week
    e. More than once a month
    f. Less than once a month
    g. Never

1. How often do you read Holy Scriptures?

2. How often do you pray?

3. How often do you attend religious or spiritual services?

4. How often do you attend religious or spiritual activities?

5. How often do you pray or say grace before or after meals?

Appendix J

Measure of Religious or Spiritual Salience

How important would you say religion or spirituality is in your life?

	A little		A fair amount		Quite a bit	
1	2	3	4	5	6	7
Not at all important	Somewhat		Moderately		Extremely important	

Appendix K

Measure of Religious Affiliation and Apostasy

To what faith do you belong?   Protestantism (e.g., Lutheran, Methodist, or other
                                   Christian church)
                                Catholicism
                                Judaism
                                Islam
                                Buddhism or Hinduism
                                Other: Please specify:_____
                                None

Appendix L

Religious Outcomes Scale

In responding to the following items, think about how you were before the events you described in this survey and how you are now. Then indicate how you've changed in each of these areas using the following scale in your responses:

1 – Extremely less
2 - Quite a bit less
3 – Somewhat less
4 – I didn't change
5 – Somewhat more
6 – Quite a bit more
7 – Extremely more

If you have NOT had any of the experiences you were asked about in this survey, think about how you were at the very start of your time at BGSU and compare it to how you are now in answering the following questions.

1. The importance of faith or spirituality in my life. (Salience)

2. How often I see things in spiritual terms. (Permeation)

3. The degree to which my faith affects my everyday decisions. (Belief-Behavior Congruence)

4. Closeness to my church or spiritual community (Community)

5. Strength of my spiritual support system. (Community)

6. My attendance at religious or spiritual services. (Practices)

7. How frequently I pray or meditate. (Practices)

8. Feeling of God as a loving, compassionate being. (God Image)

9. Closeness to the Sacred. (God Image)

10. My sense that God is challenging me to change. (God Image)

11. The amount of conflict I have with others (my family, friends) over religious or spiritual matters. (Spiritual struggles)

12. How upsetting any religious or spiritual questions or doubts are to me. (Spiritual struggles)

13. How strongly I feel that God has abandoned me. (Spiritual struggles)

Appendix M

Posttraumatic Growth Inventory - Spiritual Change Subscale

Indicate for each of the statements below the degree that you have changed as a result of the event(s) you entered in the preceding section.

If you have NOT had any of these experiences, think about how much you have changed since you started at BGSU.

Please use the following scale in your response:

       0 – Not at all
       1 –To a small degree
       2 –To a moderate degree
       3 –To a great degree
       4 –To a very great degree

1. A better understanding of spiritual matters.

2. I have a stronger religious faith.

Appendix N

Spiritual Transformation Scale

Whether you are or are not spiritual or religious, please indicate the extent to which these statements are true for you as a result of the event(s) you described above.

Think about how you were <u>before</u> the event(s) happened and how you are <u>now</u>.

If you have NOT had any of these experiences, think about how you were when you first started at BGSU and how you are now.

1. Spirituality has become more important to me. (SG)

2. My way of looking at life has changed to be more spiritual. (SG)

3. In some ways I am spiritually withdrawn from other people. (SD)

4. I pay more attention to things that are spiritually important and forget about the little things that used to bother me. (SG)

5. My faith has been shaken and I am not sure what I believe.

6. I spend more time taking care of my spiritual needs. (SG)

7. I more often experience life around me as spiritual. (SG)

8. I more often think that I have failed in my faith. (SD)

9. I have a stronger spiritual connection to other people. (SG)

10. Spirituality seems less important to me now. (SD)

11. I am less interested in organized religion. (SD)

12. Spiritually I am like a new person. (SG)

13. In some ways I have shut down spiritually. (SD)

14. My relationships with other people have taken on more spiritual meaning. (SG)

15. I have a stronger sense of the Sacred (God, Higher Power, Allah, Adonai, etc.) directing my life now. (SG)

16. I act more compassionately towards other people since the event. (SG)

17. In some ways I think I am spiritually lost. (SD)

18. I see people in a more positive light. (SG)

19. I more often express my spirituality. (SG)

20. I am more humble since the event. (SG)

21. I feel I've lost some important spiritual meaning that I had before. (SD)

22. I have grown spiritually. (SG)

23. I am more spiritually present in the moment. (SG)

24. My relationships with other people have lost spiritual meaning. (SD)

25. I more often have a sense of gratitude. (SG)

26. I more often pray for other people. (SG)

27. I am more spiritually wounded. (SD)

28. My spirituality is now more deeply imbedded in my whole being. (SG)

29. In some ways I am off my spiritual path. (SD)

30. I'm finding it more important to participate in a spiritual community. (SG)

Respondents used the following scale in their responses on this measure:

not at all true		Somewhat true		Moderately true		Very much true
1	2	3	4	5	6	7
	A little true		Pretty much true		Quite true	

Note: Items are notated according to their inclusion on the Spiritual Growth (SG) or Spiritual Decline (SD) subscale.

Appendix O

Measure of Spiritual Effect

Keeping in mind the [event you just endorsed], rate the following item separately in your mind from the others.

What effect, if any, would you say this event has had on your spirituality?

a. I have rejected my beliefs and practices

b. My faith has significantly diminished.

c. My spirituality has lessened somewhat.

d. No real change.

e. I feel some increase in my faith.

f. I have a much deeper faith now.

g. It was a conversion experience for me.

Appendix P

Human Subjects Review Board Approval Letter

BGSU
Bowling Green State University

Office of Research Compliance
309A University Hall
Bowling Green, OH 43403-0183
Phone: (419) 372-7716
Fax: (419) 372-6916
E-mail: hsrb@bgsu.edu

August 17, 2011

TO: Maria Gear
        Psychology

FROM: Hillary Harms, Ph.D.
        HSRB Administrator

RE: Continuing HSRB Review for Project H08O021GE7

TITLE: *Differences in Religiousness and Spirituality between Trauma and Non-Trauma Victims*

This is to inform you that your research study indicated above has received continuing Human Subjects Review Board (HSRB) review and approval. This approval is effective August 17, 2011 for a period of 12 months and will expire on August 16, 2012. You may continue with the project.

Please communicate any proposed changes in your project procedures or activities involving human subjects, including consent form changes or increases in the number of participants, to the HSRB via this office. Please notify me, at 372-7716 or hsrb@bgsu.edu, upon completion of your project.

Good luck with your work. Let me know if this office or the HSRB can be of assistance as your project proceeds.

Comments:

C: Dr. Kenneth I. Pargament

Table 1

Sample Socio-demographic Characteristics at Time 1 and Time 2

Characteristic	Time 1		Time 2	
	Sample n	Descriptive Statistic	Sample n	Descriptive Statistic
Gender				
Female	178	70.4%	64	75.3%
Male	70	28.3%	21	24.7%
Age				
18	188	74.3%		
19	60	23.7%		
20			4	4.7%
21			57	67.1%
22			23	27.1%
Marital Status				
Single	248	100.0%	84	98.8%
Married			1	1.2%
Race/Ethnicity				
Caucasian	215	85.0%	73	85.9%
African American	22	8.7%	7	8.2%
Hispanic	4	1.6%	2	2.4%
Asian	1	0.4%	1	1.2%
Other	6	2.4%	1	1.2%
Religious Affiliation				
None	59	23.8%	18	21.2%
Buddhism, Hinduism	7	2.8%	0	0.0%
Judaism	2	0.8%	1	1.2%
Catholicism	72	29.0%	22	25.9%
Protestantism	108	43.5%	44	51.8%

Table 2

Psychometric Properties of Religiousness and Spirituality Variables (n=85)

Variable	Mean		SD		α		Potential Range		Actual Range	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
Time 2 R/S										
God Image	73.94	77.20	23.72	26.82	.98	.98	15 - 105	15 -105	15 - 105	15 - 105
Spiritual Struggles[a]	8.07	6.92	7.58	6.20	.81	NA	0 - 42	0 - 42	0 - 32	0 - 30
Permeation	20.07	20.88	5.86	7.75	.80	.87	5 - 35	5 - 35	7 - 35	5 - 35
Belief-Behavior Congruence	13.76	12.41	5.93	6.15	.89	.90	6 - 30	6 - 30	6 - 27	6 - 30
Community	14.45	11.56	4.70	5.13	.71	.87	5 - 24	5 - 24	5 - 22	5 - 21
Practices	15.13	14.09	7.15	7.89	.87	.91	5 - 35	5 - 35	5 - 31	5 - 31
Apostasy[b]	0.25	0.22	0.43	0.42	NA	NA	0 - 1	0 - 1	0 - 1	0 - 1
Salience	4.49	4.18	1.89	2.06	NA	NA	1 - 7	1 - 7	1 - 7	1 - 7
Negative R/S Appraisals[c]										
Desecration	1.81	0.85	1.63	1.36	NA	NA	0 - 7	0 - 7	0 - 5.7	0 - 5
Sacred Loss	1.59	0.81	1.66	1.08	NA	NA	0 - 7	0 - 7	0 - 5.5	0 - 4.1

[a] Spiritual Struggles at Time 1 were collected once, and at Time 2 for each event reported. The average for Time 2 was calculated by dividing the total by the number of events experienced.

[b] Apostasy = 1; Stated religious affiliation = 0.

[c] Desecration and Sacred Loss were measured at Time 1 using 1 item each, and at Time 2 using six and five items, respectively, for each event reported. Time 2 scores were scaled to correspond to Time 1 scale.

Table 3

Psychometric Properties of Measures of Reported R/S Change and Current Distress (n=85)

	Mean		SD		α		Potential Range		Actual Range	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
T2 Reported R/S Change Measures										
Religious Outcome Scale (ROS)[a]	2.35	2.62	12.92	10.80	.92	.90	-33 - 33	-30 - 30	-33 - 33	-30 - 28
ROS– Spiritual Struggles	-0.53	-0.80	2.37	2.41	.84	.92	-6 - 6	-9 - 9	-6 - 5	-9 - 6
STS – Spiritual Growth	55.06	44.97	30.66	27.99	.97	.98	19 - 133	19 - 133	19 - 133	19 - 125
STS – Spiritual Decline	24.30	19.22	13.68	10.23	.91	.88	11 - 77	11 - 77	11 - 65	11 - 61
PTGI – Spiritual Change	5.27	4.48	2.78	2.21	.74	.88	2 - 10	2 - 10	2 - 10	2 - 10
Spiritual Effect	0.28	0.19	0.57	0.70	NA	NA	-3 - 3	-3 - 3	-1.1 - 2	-1.5 - 2
Current Level of Distress	2.68	2.62	1.18	1.07	NA	NA	1 - 7	1 - 7	1 - 5	1 - 5

[a]ROS Total includes all R/S domains but spiritual struggles, which was calculated separately

Table 4

Time 2 Event-related Characteristics by Event Type and Mean Trauma Level

Criterion A Event	n	Mean Trauma[a]	Mean Desecration[a]	Mean Sacred Loss[a]	Time 1 n
Death in immediate family	5	6.2	1.2	1.3	8
Victim of violent crime	3	6.0	2.3	0.5	22
Other trauma – undescribed	4	6.0	0.5	1.0	11
Other trauma – described	16	5.6	0.8	1.4	15
Danger of losing life	5	5.4	0.0	0.0	15
Inappropriate sexual contact	2	4.5	1.9	0.8	6
Rape	3	4.3	1.8	1.1	6
Attempted rape	2	4.0	3.6	1.6	3
Witness serious injury or death	4	4.0	2.0	0.9	10
Accident, fire, or explosion	12	3.8	0.4	0.2	32
Natural disaster	9	3.8	1.1	0.9	11
Subtotals/Means	65	4.8	1.4	0.9	139
Adverse Life Event					
Romantic partner unfaithful	15	5.7	2.1	1.4	19
Romantic relationship breakup	23	5.4	0.5	0.8	36
Significant ridicule or bullying	6	4.8	2.4	0.7	27
Death in extended family	33	4.4	0.4	1.4	44
Spiritual crisis	8	4.3	2.0	1.1	NA
Change in family closeness	9	3.8	1.4	1.3	12
Parental joblessness	11	3.5	0.2	0.4	14
Parental divorce	2	2.5	0.3	1.4	17
Parental substance abuse	4	1.8	0.1	0.2	9
Parental physical abuse	0	NA	NA	NA	1
Subtotals/Means	111	4.0	1.0	1.0	179
Overall Totals/Means	176	4.4	1.2	0.9	318

[a] Potential Range from 0 to 7; actual range from 0 to 7

Table 5

Time 1 Event-related Characteristics by Event Type and Mean Trauma Level

Criterion A Event	n	Mean Trauma[a]	Mean Desecration[a]	Mean Sacred Loss[a]
Death in immediate family	20	6.4	4.6	4.1
Other trauma – described	47	6.2	3.2	2.5
Other trauma – undescribed	34	5.7	2.2	2.1
Rape	20	5.3	4.6	3.5
Attempted rape	12	5.3	3.1	3.1
Danger of losing life	49	4.9	1.9	1.6
Witness serious injury/death	39	4.9	2.6	2.3
Accident, fire, or explosion	89	4.2	1.8	1.5
Inappropriate sexual contact	20	4.0	1.8	1.4
Natural disaster	34	3.3	1.6	1.4
Victim of violent crime	25	2.7	1.7	1.6
Subtotals/Means	389	4.8	2.7	2.3
Adverse Life Event				
Romantic relationship breakup	98	5.6	2.7	2.5
Romantic partner unfaithful	51	5.4	2.1	1.9
Significant ridicule or bullying	67	5.1	2.4	2.2
Parental physical abuse	7	4.9	4.7	3.9
Death in extended family	128	4.6	2.2	2.1
Major change in family closeness	49	4.2	2.4	1.9
Parental divorce	61	3.6	2.0	1.8
Parental substance abuse	27	3.6	1.9	2.0
Parental joblessness	35	3.3	1.5	1.3
Subtotals/Means	523	4.5	2.4	2.2
Total/Means	922	4.65	2.55	2.25

[a] Potential Range from 0 to 7; actual range from 0 to 7

Table 6

Prevalence of Negative Spiritual Appraisals by Event Type and Overall

Criterion A Event	Desecration			Sacred Loss		
	None	Some	Moderate to High	None	Some	Moderate to High
Death in Immediate Family	2 (40%)	2 (40%)	1 (40%)	3 (60%)	0	2 (40%)
Victim of Violent Crime	1 (33%)	1 (33%)	1 (33%)	1 (33%)	2 (67%)	0
Other - Undescribed	2 (50%)	2 (50%)	0	2 (50%)	1 (25%)	1 (25%)
Other - Described	8 (50%)	5 (31%)	3 (19%)	9 (56%)	2 (13%)	5 (31%)
Danger of Losing Life	5 (100%)	0	0	5 (100%)	0	0
Inappropriate Sexual Contact	0	1 (50%)	1 (50%)	0	2 (100%)	0
Rape	0	2 (67%)	1 (33%)	0	2 (67%)	1 (33%)
Attempted Rape	0	1 (50%)	1 (50%)	0	1 (50%)	1 (50%)
Witnessed Injury/Death	1 (25%)	1 (25%)	2 (50%)	3 (75%)	0	1 (25%)
Accident, Fire, or Explosion	9 (75%)	1 (8%)	2 (17%)	10 (83%)	2 (17%)	0
Natural Disaster	5 (56%)	2 (22%)	2 (22%)	6 (67%)	1(11%)	2 (22%)
Subtotals/Means	33 (51%)	18 (28%)	14 (22%)	39 (60%)	13 (20%)	13 (20%)
Adverse Life Event						
Romantic Partner Unfaithful	2 (13%)	6 (40%)	7 (47%)	3 (20%)	8 (53%)	4 (27%)
Relationship Breakup	19 (83%)	1 (4%)	3 (13%)	17 (74%)	1 (4%)	5 (22%)
Significant Ridicule/Bullying	2 (33%)	0	4 (67%)	4 (67%)	1 (17%)	1 (17%)
Death in Extended Family	24 (73%)	8 (24%)	1 (3%)	0	28 (85%)	5 (15%)
Spiritual Crisis	3 (38%)	2 (25%)	3 (38%)	3 (38%)	3 (38%)	2 (25%)
Change in Family Closeness	5 (56%)	2 (22%)	2 (22%)	5 (56%)	1 (11%)	3 (33%)
Parental Joblessness	9 (82%)	2 (18%)	0	8 (73%)	2 (18%)	1 (9%)
Parental Divorce	1 (50%)	1 (50%)	0	0	2 (100%)	0
Parental Substance Abuse	3 (75%)	1 (25%)	0	3 (75%)	1 (25%)	0
Subtotals/Means	68 (59%)	23 (37%)	20 (18%)	43 (39%)	47 (42%)	21 (19%)
Total for All Events	101 (57%)	41 (24%)	34 (19%)	82 (47%)	60 (34%)	34 (19%)

Table 7

Prevalence of Spiritual Struggles by Event Type and Overall

	Spiritual Struggles		
Criterion A Event	None	Some	Moderate to High
Death in Immediate Family	2 (40%)	1 (20%)	2 (40%)
Victim of Violent Crime	3 (100%)	0	0
Other - Undescribed	0	2 (50%)	2 (50%)
Other - Described	8 (50 %)	6 (38%)	2 (13%)
Danger of Losing Life	3 (60%)	2 (40%)	0
Inappropriate Sexual Contact	0	2 (100%)	0
Rape	2 (67%)	0	1 (33%)
Attempted Rape	1 (50%)	0	1 (50%)
Witnessed Injury/Death	3 (75%)	1 (25%)	0
Accident, Fire, or Explosion	8 (67%)	3 (25%)	1 (8%)
Natural Disaster	7 (78%)	2 (22%)	0
Subtotals/Means	37 (57%)	19 (29%)	9 (14%)
Adverse Life Event			
Romantic Partner Unfaithful	8 (53%)	3 (20%)	4 (27%)
Relationship Breakup	17 (74%)	2 (9%)	4 (17%)
Significant Ridicule/Bullying	4 (67%)	1 (17%)	1 (17%)
Death in Extended Family	22 (67%)	8 (24%)	3 (9%)
Spiritual Crisis	1 (13%)	2 (25%)	5 (63%)
Change in Family Closeness	8 (89%)	1 (11%)	0
Parental Joblessness	5 (45%)	4 (36%)	2 (18%)
Parental Divorce	2 (100%)	0	0
Parental Substance Abuse	4 (100%)	0	0
Subtotals/Means	71 (64%)	21 (19%)	19 (17%)
Overall Totals/Means	108 (61%)	40 (23%)	28 (16%)

Table 8

Prevalence of Reported Spiritual Effect by Event Type and Overall

	Spiritual Effect		
Criterion A Event	Negative	None	Positive
Death in immediate family	2 (40%)	3 (60%)	0
Victim of violent crime	0	3 (100%)	0
Other trauma – undescribed	2 (50%)	0	2 (50%)
Other trauma – described	3 (19%)	6 (38%)	7 (44%)
Danger of losing life	0	5 (100%)	0
Inappropriate sexual contact	1 (50%)	1 (50%)	0
Rape	1 (33%)	2 (67%)	0
Attempted rape	0	1 (50%)	1 (50%)
Witness serious injury/death	0	2 (50%)	2 (50%)
Accident, fire, or explosion	0	9 (75%)	3 (25%)
Natural disaster	0	8 (89%)	1 (11%)
Subtotals/Means	9 (14%)	40 (62%)	16 (25%)
Adverse Life Event			
Romantic partner unfaithful	1 (7%)	8 (53%)	6 (40%)
Sig. Relationship breakup	4 (17%)	16 (70%)	3 (13%)
Significant ridicule/bullying	1 (17%)	3 (50%)	2 (33%)
Death in extended family	3 (9%)	21 (64%)	9 (27%)
Spiritual crisis	2 (25%)	1 (13%)	5 (63%)
Change in family closeness	0	8 (89%)	1 (11%)
Parental joblessness	3 (27%)	7 (64%)	1 (9%)
Parental divorce	0	2 (100%)	0
Parental substance abuse	0	4 (100%)	0
Subtotals/Means	14 (13%)	70 (63%)	27 (24%)
Overall Totals/Means	23 (13%)	110 (63%)	43 (24%)

Table 9

Changes in Key Study Variables over Period of Study for Time 2 Sample (n=85)

	Time 2 Mean	Time 1 Mean	Mean Difference[a]	t(84)	p
R/S Domains					
God Image	77.20	73.94	3.26	1.49	.14
Spiritual Struggles	6.92	8.07	-1.16	-1.33	.19
Permeation	20.88	20.07	0.81	1.21	.23
Belief-Behavior Congruence	12.41	13.76	-1.35	-2.98	.00**
Community	11.56	14.45	-2.88	-5.87	.00***
Practices	14.09	15.13	-1.04	-2.25	.03*
Apostasy	0.22	0.25	-0.02	-0.58	.57
Salience	4.18	4.49	-0.32	-1.87	.07
Event-related Variables					
Overall Average Trauma Level	3.08	3.66	-0.59	-2.35	.02*
Average "Criterion A" Trauma	2.62	3.27	-0.52	-1.92	.06
Average Life Event Trauma	3.53	4.05	-0.65	-1.61	.11
Desecration Appraisals	0.85	1.81	-0.97	-4.62	.00***
Sacred Loss Appraisals	0.81	1.59	-0.78	-4.35	.00***
Current Event-related Distress[b]	2.62	2.68	-0.06	-0.38	.70
Reported R/S Change Measures					
ROS - Total	2.62	2.35	0.30	0.20	.84
ROS – Spiritual Struggles	-0.80	-0.53	-0.22	-0.75	.46
STS – Spiritual Growth	44.97	55.06	-10.09	-3.07	.00**
STS – Spiritual Decline	19.22	24.30	-5.08	-2.75	.01**
PTGI – Spiritual Change	4.48	5.27	-0.79	-2.65	.01**
Spiritual Effect	0.19	0.28	-0.09	-1.24	.22

[a] Difference is Time 2 – Time 1; negative scores indicate higher score at Time 1
[b] Higher scores indicate higher levels of distress
*p < .05; **p < .01; ***p < .001

Table 10

Inter-correlations among Religiousness/Spirituality Variables

Variable	God Image	Spiritual Struggles	Permeation	Belief-Behavior Congruence	Community	Practices	Salience	Apostasy[a]
R/S Domain								
God Image	-	.20	.66***	.59***	.49***	.69***	.74***	-.76***
Spiritual Struggles	.20	-	.12	.14	.20	.16	.11	-.16
Permeation	.66***	.12	-	.74***	.47***	.82***	.84***	-.43***
Belief-Behavior Congruence	.59***	.14	.74***	-	.53***	.80***	.78***	-.45***
Community	.49***	.20	.47***	.53***	-	.48***	.52***	-.60***
Practices	.69***	.16	.82***	.80***	.48***	-	.81***	-.53***
Salience	.74***	.11	.84***	.78***	.52***	.81***	-	-.53***
Apostasy	-.76***	-.16	-.43***	-.45***	-.60***	-.53***	-.53***	-
R/S Appraisals								
Desecration	.17	.26*	.18	.23*	.28**	.17	.20	-.17
Sacred Loss	.27*	.43***	.11	.07	.25*	.14	.06	-.27*

[a] Point Biserial Correlations

*p < .05; **p < .01; ***p < .001

Table 11

Hierarchical Multiple Regression Analyses Predicting Time 2 R/S Variables with Time 1 and Time 2 Event-related Predictors

Predictor Variables	God Image		Spiritual Struggles		Permeation		Belief-Behavior Congruence	
	$R^2 \Delta$	Std β	$R^2 \Delta$	Std β	$R^2 \Delta$	Std β	$R^2 \Delta$	Std β
Step 1 – Time 1 R/S	.476***		.112**		.380***		.577***	
God Image		.633***						
Spiritual Struggles				.202				
Permeation						.612***		
Belief-Behavior Congruence								.728***
Step 2 – Time 1 Trauma	.004		.022		.005		.010	
Criterion A Events		-.002		.062		.062		.113
Adverse Life Events		-.066		.028		.080		-.058
Step 3 – Time 1 Appraisals	.049**		.002		.001		.000	
Neg. Spiritual Appraisals		.204*		.012		-.053		.017
Step 4 – Time 2 Trauma	.011		.071*		.005		.010	
Criterion A Events		.082		.002		.061		.095
Adverse Life Events		-.084		.229*		-.065		-.081
Step 5 – Time 2 Appraisals	.007		.082*		.033		.051**	
Desecration Appraisals		-.007		-.041		.233*		.277**
Sacred Loss Appraisals		.096		.347*		-.107		-.277**
Total R^2	.547***		.289***		.423***		.648***	
n	85		85		85		85	

*p < .05; **p < .01; ***p < .001

Table 11, continued
Hierarchical Multiple Regression Analyses Predicting Time 2 R/S with Time 1 and Time 2 Event-related Predictors

Predictor Variables	Community		Practices		Salience	
	$R^2\Delta$	Std β	$R^2\Delta$	Std β	$R^2\Delta$	Std β
Step 1 – Time 1 R/S	.334***		.714***		.474***	
Community		.567***				
Practices				.800***		
Salience						.680***
Apostasy						
Step 2 – Time 1 Trauma	.002		.014		.009	
Criterion A Events		-.006		.116		-.010
Adverse Life Events		.023		-.056		.171*
Step 3 – Time 1 Appraisals	.000		.005		.004	
Neg. Spiritual Appraisals		-.100		.059		.017
Step 4 – Time 2 Trauma	.005		.016		.050*	
Criterion A Events		.031		.107		.017
Adverse Life Events		-.095		-.106		-.242**
Step 5 – Time 2 Appraisals	.068*		.006		.052*	
Desecration Appraisals		.209		.101		.297**
Sacred Loss Appraisals		.087		-.066		-.159
Total R^2	.410***		.755***		.589***	
n	85		85		85	

*p < .05; **p < .01; ***p < .001

Table 11, continued
Hierarchical Multiple Regression Analyses Predicting Time 2 R/S with Time 1 and Time 2 Event-related Predictors

| Predictor Variables | Apostasy[a] | | |
	Pseudo $R^2 \Delta$	B	Odds Ratio
Step 1 – Time 1 R/S	.435***		
Apostasy		-3.860*	0.021
Step 2 – Time 1 Trauma	.001		
Criterion A Events		-0.021	0.979
Adverse Life Events		-0.535	0.586
Step 3 – Time 1 Appraisals	.004		
Neg. Spiritual Appraisals		0.032	1.032
Step 4 – Time 2 Trauma	.089*		
Criterion A Events		-3.403*	0.033
Adverse Life Events		1.905	6.721
Step 5 – Time 2 Appraisals	.050		
Desecration Appraisals		-0.337	0.714
Sacred Loss Appraisals		-0.610	0.543
Total R^2	.579***		
n	85		

[a] Logistic regression used, with Nagelkerke Pseudo R^2
*$p < .05$; **$p < .01$; ***$p < .001$

Table 12

Correlations between Actual and Reported Changes in Dimensions of R/S for Entire Sample

Actual Changes in R/S	Religious Outcome - Total	STS – Spiritual Growth	STS – Spiritual Decline	PTGI – Spiritual Change	Spiritual Effect
God Image	.33**	.18	-.29*	.10	.17
Spiritual Struggles	.03	-.07	-.11	-.07	.26*
Permeation	.62***	.48***	-.33**	.44***	.39***
Belief-Behavior Congruence	.18	.25*	.05	.17	.06
Community	-.06	-.11	-.02	-.05	-.08
Practices	.54***	.45***	-.21	.39***	.33**
Salience	.47***	.30**	-.37***	.37***	.35**
Apostasy	-.10	-.03	.20	-.07	-.07

*p < .05; **p < .01; ***p < .001

Table 13

Correlations between Actual Changes in Dimensions of R/S and Reported Changes in Corresponding Subscales of the Religious Outcomes Scale for Entire Sample

Actual Changes in R/S	God Image	Spiritual Struggles	Permeation	Bel.-Beh. Congr.	Community	Practices	Salience
God Image	.37***	-	-	-	-	-	-
Spiritual Struggles	-	.06	-	-	-	-	-
Permeation	-	-	.53***	-	-	-	-
Belief-Behavior Congruence	-	-	-	.15	-	-	-
Community	-	-	-	-	-.05	-	-
Practices	-	-	-	-	-	.54***	-
Salience	-	-	-	-	-	-	.46***
Apostasy	-	-	-	-	-	-	-

*p < .05; **p < .01; ***p < .001

Table 14

Correlations between Actual and Reported Changes in Dimensions of R/S for High Trauma Group (n=37)

Actual Changes in R/S	Religious Outcomes - Total	STS – Spiritual Growth	STS – Spiritual Decline	PTGI – Spiritual Change	Spiritual Effect
God Image	.55***	.29	-.58***	.26	.30
Spiritual Struggles	.12	.13	.03	.06	.44**
Permeation	.69***	.66***	-.37*	.60***	.48**
Belief-Behavior Congruence	.20	.32	.10	.21	.14
Community	.23	-.03	-.28	.09	.04
Practices	.64***	.61***	-.34*	.60***	.42**
Salience	.65***	.51**	-.48**	.55**	.52**
Apostasy	-.27	-.03	.48**	-.14	-.10

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

Table 15

Correlations between Actual and Reported Change in Dimensions of R/S for Low Trauma Group (n=48)

Actual Changes in R/S	Religious Outcomes - Total	STS – Spiritual Growth	STS – Spiritual Decline	PTGI – Spiritual Change	Spiritual Effect
God Image	.00	.08	.11	-.08	-.09
Spiritual Struggles	.02	-.19	-.36*	-.20	.06
Permeation	.47**	.30*	-.25	.24	.19
Belief-Behavior Congruence	.11	.17	.06	.12	-.11
Community	-.37*	-.17	.22	-.16	-.23
Practices	.32*	.28	.07	.08	.08
Salience	.14	.09	-.08	.20	-.04
Apostasy	.13	-.02	-.14	-.02	-.02

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

Table 16

Correlations Between Actual Changes in Dimensions of R/S and Reported Changes in Corresponding Subscales of the Religious Outcomes Scale for High Trauma Group (n=37)

Actual Changes in R/S	God Image	Spiritual Struggles	Permeation	Bel.-Beh. Congruence	Community	Practices	Salience
God Image	.61***	-	-	-	-	-	-
Spiritual Struggles	-	.16	-	-	-	-	-
Permeation	-	-	.59***	-	-	-	-
Belief-Behavior Congruence	-	-	-	.14	-	-	-
Community	-	-	-	-	.21	-	-
Practices	-	-	-	-	-	.64***	-
Salience	-	-	-	-	-	-	.61***
Apostasy	-	-	-	-	-	-	-

*p < .05; **p < .01; ***p < .001

Table 17

Correlations Between Actual Changes in Dimensions of R/S and Reported Changes in Corresponding Subscales of the Religious Outcome Scale for Low Trauma Group (n=48)

Actual Changes in R/S	God Image	Spiritual Struggles	Permeation	Bel.-Beh. Congruence	Community	Practices	Salience
God Image	-.02	-	-	-	-	-	-
Spiritual Struggles	-	.02	-	-	-	-	-
Permeation	-	-	.43**	-	-	-	-
Belief-Behavior Congruence	-	-	-	.11	-	-	-
Community	-	-	-	-	-.40**	-	-
Practices	-	-	-	-	-	.25	-
Salience	-	-	-	-	-	-	.13
Apostasy	-	-	-	-	-	-	-

*p < .05; **p < .01; ***p < .001

Table 18
Z Scores and Significance of Differences in Veridicality Correlations between High and Low Trauma Groups

Actual Changes in R/S	Religious Outcomes - Total	STS – Spiritual Growth	STS – Spiritual Decline	PTGI – Spiritual Change	Spiritual Effect
God Image	2.72**	0.96	-3.40***	1.52	1.76
Spiritual Struggles	0.44	1.42	1.79	1.16	1.81
Permeation	1.49	2.13*	-0.59	1.97*	-0.48
Belief-Behavior Congruence	0.50	0.84	-0.59	1.16	-0.23
Community	2.74**	0.62	-2.25*	1.11	1.21
Practices	1.88	1.85	-1.87	2.70**	1.62
Salience	2.79**	2.01*	-1.95	1.83	2.71**
Apostasy[a]	-1.79	-0.04	2.92**	-0.53	-0.35

*p < .05; **p < .01; ***p < .001

Table 19
Z Scores and Significance of Differences in Veridicality Correlations for Subscales of the Religious Outcomes Scale between High and Low Trauma Groups

Actual Changes in R/S	God Image	Spiritual Struggles	Permeation	Bel.-Beh. Congr.	Community	Practices	Salience
God Image	3.21**	-	-	-	-	-	-
Spiritual Struggles	-	0.62	-	-	-	-	-
Permeation	-	-	0.96	-	-	-	-
Belief-Behavior Congruence	-	-	-	0.13	-	-	-
Community	-	-	-	-	2.80**	-	-
Practices	-	-	-	-	-	2.21*	-
Salience	-	-	-	-	-	-	2.54*

*p < .05; **p < .01; ***p < .001