

5-1-2016

IS THERE JUSTICE FOR SEXUAL TRAUMA?
A STRUCTURAL MODEL TO EXAMINE
FACTORS INFLUENCING
POSTTRAUMATIC GROWTH AND
DISTRESS

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IS THERE JUSTICE FOR SEXUAL TRAUMA? A STRUCTURAL MODEL TO EXAMINE
FACTORS INFLUENCING POSTTRAUMATIC GROWTH AND DISTRESS

by

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A Dissertation
Submitted in Partial Fulfillment of the Requirements for the
Doctor of Philosophy

Department of Psychology
in the Graduate School
Southern Illinois University Carbondale
May 2016

DISSERTATION APPROVAL

IS THERE JUSTICE IN SEXUAL TRAUMA? A STRUCTURAL MODEL TO EXAMINE
FACTORS INFLUENCING SURVIVORS' POSTTRAUMATIC GROWTH AND DISTRESS

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Danielle Grace Fetty, M.A.

A Dissertation Submitted in Partial

Fulfillment of the Requirements

for the Degree of

Doctor of Philosophy

in the field of Counseling Psychology

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March 7, 2016

AN ABSTRACT OF THE DISSERTATION OF

DANIELLE GRACE FETTY, for the Doctor of Philosophy degree in COUNSELING PSYCHOLOGY, presented on March 7, 2016, at Southern Illinois University Carbondale.

TITLE: IS THERE JUSTICE IN SEXUAL TRAUMA? A STRUCTURAL MODEL TO EXAMINE FACTORS INFLUENCING SURVIVORS' POSTTRAUMATIC GROWTH AND DISTRESS

MAJOR PROFESSOR: Dr. Yu-Wei Wang and Dr. Benjamin Rodriguez

The current study employed an exploratory approach to examine how specific sets of variables map onto a theoretical framework of posttraumatic growth (Schaefer & Moos, 1998). Specifically, the predictive capacity of belief in ultimate justice, optimism, and supportive relationships on outcomes of posttraumatic growth (PTG) and distress were examined, as mediated by supportive spirituality, meaning making, and problem solving. Secondly, the factor structure and internal consistency of the English translation of the Belief in Immanent and Ultimate Justice Scale (BIUJS; Maes, 1998a, 1998b) was tested, which had yet to be used in the United States or with sexual assault survivors specifically. Archival data of 217 female survivors of sexual assault who completed an online survey as part of the author's thesis were analyzed through structural equation modeling (SEM). The BIUJS, when applied specifically to sexual assault survivors, is best represented by a three-factor solution. The model hypothesized according to Schaefer and Moos' (1998) theoretical framework was not supported by SEM results, and an alternate model emerged from analyses is presented to explain how worldview and appraisal/coping are related to posttraumatic growth and distress for sexual assault survivors. Survivors' worldview (i.e., supportive spirituality, belief in ultimate justice, and belief in an immanently just world) indirectly predicted levels of PTG and distress. The relation between worldview and outcomes was significantly mediated by appraisal and coping (i.e., presence of meaning, optimism, supportive relationships, and problem solving). The current

study adds to the literature and provides important directions for researchers and clinicians by demonstrating the important roles of worldview and appraisal/coping in facilitating growth, as well as the essential role of distress in healing.

DEDICATION

I would like to dedicate this dissertation to my oldest and dearest friend, David Eldridge. He has shaped me into the person I am today through both his presence and absence in my life. He became my family, and words cannot do justice to how influential he has been to my life's journey. That relationship and connection has continued to provide meaning and motivate me, and he remains an inspiration for the kind of person I hope to become. He taught me how powerful and healing it can be to connect with another human being, and I will be forever thankful for having known such a caring friend.

His friendship has taught me many lessons, but there is one message that I will always carry with me: Despite being wounded, we are not made weak by pain; on the contrary, it takes bravery and courage to embrace our struggles and sadness, and awe-inspiring strength to live daily with emotions so painful, tender, and raw. Our pain is not something to hide or forget, but a badge of honor to carry proudly, to show the world and ourselves that we have survived. It tells not only the story of who we are, but shows us who we can one day be. Thank you, my friend, for becoming part of my story and teaching me what no one else could.

For David:

“The dull ache in my gut... that’s how I know it’s real, that we were real, this existence and reality, this soul-like connection between us, and the sadness that it ended so soon. It becomes a hunger and yearning for something I cannot fully explain or understand outside the electric fibers of my being. Perhaps grief and hunger for a different past, present, or future. But I feel it, and it reminds me I am still alive, and it fills me with life. It moves to my chest and heart, warms over me, grows within me, and becomes me—it inexplicably and irreversibly alters me, as though the genetic code of my existence has been modified by your presence in my life. There is no moving backward to who I was before because that person is gone and I am someone else. I cannot “un-feel” or “un-become.” It is done and I have changed already. But when I am seized with the terror, agony, and grief of that loss of you, when it feels like I must unravel my very being and who I have become to have you leave, when it feels like destroying me to destroy you—that is how I know that I love you and all that you have been in my life. You have been my best and dearest friend, and you will be forever with me.”

ACKNOWLEDGMENTS

I am thankful to my family who never doubted that I could accomplish my goals, and who taught me what it means to work hard for what we want in life. I also want to thank all those individuals who collectively helped me to reach this mile-stone; my journey has not been an individual one, but is a reflection of the sacrifice and dedication of many, without whom I would not have had the opportunity to become the first college-graduate in my family. I also offer an immeasurable depth of thanks and admiration for Dr. Yu-Wei Wang. She has provided much needed encouragement along the way, and I am thankful for all that she has done to help me reach this point. Her patience, dedication, and commitment to excellence – not only in research, but also in the practice of human compassion – continue to inspire me.

I would especially like to thank my SIU and University of Utah cohorts for supporting me during this journey, as well as all the friends I have found there who have become my family along the way. I am so appreciative of a world that gave me supportive colleagues, supervisors, and friends who have helped me along this journey, and in particular, Brittany Beasley and Amanda Mitchell. I think the universe knew I would need to have such kind-hearted and compassionate fellow-travelers to provide me with the support, encouragement, and strength to persevere. I thank you for listening, being present, and remaining steadfast when I needed you. I could not have done it without you.

There have been numerous others who have been instrumental in this process and helped with data collection. In particular, I would like to acknowledge and thank Chris Michaels, Julia Conrath, and Katharina Dieckhoff. Their support, help with recruitment, and assistance with translation were invaluable to this research.

PREFACE

The current study is the latest step in a programmatic line of research which was developed as part of the primary author's master's thesis (Fetty, 2012). Using path analysis, Fetty (2012) examined the mediating effects of problem solving, supportive spirituality, and search for meaning on the relation between beliefs in ultimate justice on posttraumatic growth in a sample of 144 female sexual assault survivors through conducting an online survey. Results of the study (Fetty, 2012) demonstrated the relevance of beliefs in ultimate justice for sexual assault survivors, as well as provided support for the applicability of the Schaefer and Moos (1998) framework (see Figure 1) in explaining the mechanisms through which sexual assault survivors experience posttraumatic growth (see Figure 2).

Findings revealed that problem-solving coping and supportive spirituality (System IV; Coping and Appraisal) serve as partial mediators on the relation between beliefs in ultimate justice (System II; Personal Resources) and posttraumatic growth (System V: Outcomes). Conflicting with original hypotheses, the search for meaning was not a significant mediator on the relation between belief in ultimate justice and posttraumatic growth (Fetty, 2012). However, in an alternative model which included distress as a System V outcome variable in place of posttraumatic growth, the search for meaning appeared to buffer against outcomes of distress (Fetty, 2012). In light of these findings suggesting that distress has an important relationship with the coping and appraisal process for sexual assault survivors, an important direction includes examining distress alongside posttraumatic growth as a System V outcome variable. In addition, Fetty (2012) found significant group differences in levels of posttraumatic growth with those who had prior counseling reporting higher levels of posttraumatic growth than those who had not received counseling before.

The current investigation is an extension of the original study (Fetty, 2012), as well as Schaefer and Moos (1998) framework on which it is based, in multiple ways. First, the current study took an exploratory SEM approach to assess how hypothesized variables map onto the theoretical framework when applied to sexual assault survivors. Second, the current study examined the predictive power of including additional variables (e.g., optimism, supportive relationships, and distress) in the model of posttraumatic growth supported by the original study (Fetty, 2012). Third, the theoretical framework (Schaefer & Moos, 1998) and original study (Fetty, 2012) only included outcomes of posttraumatic growth as an outcome. However, given the findings of Fetty (2012) and other research supporting the concurrent presence of posttraumatic growth and distress (Frazier et al., 2004), the primary investigator of the current study also assessed outcomes of distress, as predicted by worldview and coping/appraisal. Lastly, the current investigation differs from the original study in that it included a larger sample, utilized more advanced statistical analyses, and was thus able to assess predictive power of multiple latent constructs on simultaneous outcome variables. Due to significant group differences in levels of posttraumatic growth in Fetty (2012), it was also hypothesized that there would be similar differences in the current investigation based on previous counseling.

In addition, the current study assessed the factor structure and psychometric properties of the BIUJS which had been previously translated from German to English (Fetty, 2012). The psychometric properties and factor structure of the English translation of the scale had not been previously examined, it has had little use with sexual assault survivors, and there is conflicting research for the application of various dimensions of just world beliefs with this population. Thus, the current investigation utilized exploratory factor analysis in hopes of providing empirical support for the BIUJS and its application with American sexual assault survivors.

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CHAPTER 1

INTRODUCTION

The current investigation expands a preliminary study (Fetty, 2012) based on Schaefer and Moos' (1998) model of posttraumatic growth. An exploratory model of the predictors and mechanisms through which posttraumatic growth and distress occur was examined in order to assess the application of this theoretical framework with sexual assault survivors. Specifically, the current study aims to address existing gaps in the literature in two ways: First, it provides empirical support for the factor structure and internal consistency of the Belief in Immanent and Ultimate Justice Scale (BIUJS; Maes, 1998b). This measure was translated for use in the preliminary investigation by Fetty (2012), and an exploratory factor analysis (EFA)—rather than a confirmatory factor analysis (CFA)—was conducted due to no prior use of the English translation of the BIUJS or in the United States, and the minimal evidence for its usage with sexual assault survivors (with whom inconsistent results were reported as related to other measures of just world beliefs). Second, the current study examined the predictive and mediating roles of personal/environmental resources and coping/appraisal (i.e., problem-solving, supportive spirituality, meaning making, belief in ultimate justice, optimism, and supportive relationships) on outcomes of posttraumatic growth and distress. These mechanisms and variables were explored based on interpretations of the Schaefer and Moos' (1998) framework of posttraumatic growth, and were analyzed through structural equation modeling (SEM) analyses.

Overview of the Literature

Sexual assault has been associated with distress and PTSD, comorbid disorders, and disruptions in psychological, relational, and social functioning that tends to decrease over time, but can last for years (Kilpatrick, Saunders, Veronen, Best, & Vaughn, 1987; Rothbaum, Foa,

Riggs, Murdock, & Walsh, 1992). However, many sexual assault survivors report both positive and negative outcomes after a traumatic experience (Fetty, 2012; Folkman, 2008; Frazier, Conlon, & Glaser, 2001; Frazier & Berman, 2008; Grubaugh & Resick, 2007; Klaw, Lonsway, Berg, Waldo, Kathari, et al., 2005). Calhoun and Tedeschi (1998) have called for research ascertaining the particular mechanisms and processes through which posttraumatic growth occurs, and others have noted the need to understand the shared and differential mechanisms through which posttraumatic growth and distress occur after various traumas (Dekel, Mandl, & Solomon, 2011). However, Kleim & Ehlers (2009) have pointed out the dire need for research to identifying the unique mechanisms of posttraumatic growth and distress specific to the experiences of sexual assault survivors (Frazier & Berman, 2008; Prati & Pietrantonio, 2009).

Distress is defined as subjective emotional upset in terms of general distress, anger, anxiety, and depression (Mitchell, 2007). In the current study, distress is examined as an outcome variable with posttraumatic growth. It is well documented that traumatic experiences can lead to major disruptions in nearly every domain of personal, social, emotional, and vocational functioning (Resick, 2001), partially because of the distress from the disruption of core beliefs about the world (Janoff-Bulman, 1992). Frazier and colleagues (2001) reported that distress and growth can exist simultaneously, and despite being associated with increases in posttraumatic stress, emotional distress can also initiate coping and cognitive processes which may lead to growth (Groleau, Calhoun, Cann, & Tedeschi, 2013; Su & Chen, 2015; Ullman, 2014). Moderate, ongoing distress may be associated with assigning lasting significance to the trauma, and serves a complementary function by promoting and even maintaining posttraumatic growth over time (Dekel et al., 2011; Dekel, Ein-Dor, & Solomon, 2012; Kleim & Ehlers, 2009).

Posttraumatic growth is defined as the positive changes perceived and experienced by survivors during the healing and recovery process in the following areas: 1) new possibilities in life, 2) personal strength, 3) relationships with others, 4) appreciation of life, and 5) altered sense of spirituality (Tedeschi & Calhoun, 1996). It is important to note that these “positive outcomes” are considered to be a benefit of the healing process, and not the trauma itself (Tedeschi & Calhoun, 1996; Calhoun & Tedeschi, 1998). According to Schaefer and Moos’ (1998) model of posttraumatic growth, five dynamically interacting “systems” contribute to the process of positive growth through accounting for pre-existing worldviews and traits, pre-trauma personal and environmental resources, the coping and appraisal processes after the trauma, and subsequent outcomes (Schaefer & Moos, 1992, 1998). Environmental resources (System I) and personal resources (System II) are reciprocal, and together influence the experience of the trauma (System III), which jointly impact subsequent appraisal and coping (System IV), and collectively impact outcomes of growth (System V). Schaefer and Moos (1998) suggest that the entire process is recursive and iterative, such that each system impacts and is impacted by other systems (see Figure 1). Thus, outcomes have a recursive influence on other systems, such that survivors can experience enhanced coping resources or additional personal or environmental resources as a result of coping with the trauma.

Personal resources (System II) encompass various pre-trauma qualities of individuals, such as their world assumptions, beliefs, values, traits, personality, and worldview (Schaefer & Moos, 1998). Belief in ultimate justice is conceptualized as part of System II and is operationalized as a form of belief in a just world that is believed to operate indirectly, in an unspecified time-frame, and bears a similar to perception to karma; it refers to both restorative rewards for victims’ experiences of injustice and retribution for perpetrators’ acts of injustice

(Maes, 1998a, 1998b). However, the emphasis in ultimate justice is on the *belief* that there will one day be future reification of justice related to their suffering, rather than an expectation for immanent rectification of perpetrator's immediate or past injustices (Maes, 1998a, 1998b).

Ultimate justice is an aspect of one's worldview used to interpret events in the world, and is derived from the theory of a Belief in a Just World originally developed by Lerner (1980). However, findings are inconsistent about the benefits of sexual assault survivors holding general beliefs in a just world (rather than ultimate justice beliefs) due to (a) a lack of differentiation between different attribution styles and influences on perceived control; (b) failure to take into account relevant predictors and mediators for survivors' recovery outcomes; and most importantly (c) differences between beliefs in immanent justice, ultimate justice, and general just world beliefs (Abbey, 1987; Fetchenhauer, Jacobs, & Belschak, 2005; Furnham, 2003; Maes, 1998a, 1998b). By accounting for different domains of just world beliefs, the current study may offer clarity about the potential benefits of these beliefs for sexual assault survivors, and offer support for its application to Schaefer and Moos' (1992) model of posttraumatic growth.

Optimism is defined by Madsen and Abell (2010) as "cognitive-emotional energy toward positive expectations about life and future outcomes" (p. 225) and is assessed in order to understand how it interacts with the other variables to predict outcomes of posttraumatic growth and distress. Optimism is often considered to be a stable trait or characteristic that is not constrained to specific events or time periods, and positively predicts posttraumatic growth, approach coping, meaning making, and reduced distress after traumatic events (Brodhagen & Wise, 2008; Carver & Scheier, 2014; Carver, Scheier, Miller, & Fulford, 2009; Maes, 1998b; Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 2004). Ample research clearly demonstrates the roles of optimism and social support on coping/appraisal, as well as direct and indirect

relationship with distress and posttraumatic growth (Madsen & Abell, 2010; Schaefer & Moos, 1992; Smith, Ruiz, Cundiff Baron & Nealy-Moore, 2013). Smith and colleagues (2013) conceptualized optimism primarily according to individual characteristics and reported its links to relational capacity, interpersonal style, quality of relationships, social support, and relationship satisfaction (Smith et al., 2013). As a result, in the current study it was hypothesized to fall within System II, which theoretically encompasses personal resources, traits, and characteristics.

It is evident from a cursory examination of the posttraumatic growth and coping literature that problem-solving, supportive spirituality, and meaning making are positively associated with posttraumatic growth for sexual assault survivors (Bell, 1999; Frazier, Tashiro, Berman, Steger, & Long, 2004; Frazier & Berman, 2008; Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 2004). In the current investigation, these constructs were conceptualized as coping and appraisal variables that correspond to System IV in Schaefer and Moos' (1998) framework. However, there is a lack of clarity in their theoretical model and the literature as to the specific functions and mechanisms through which different coping/appraisal strategies predict posttraumatic growth and distress (Dekel et al., 2011; Pruitt & Zoellner, 2008; Relyea & Ullman, 2015).

Social support, optimism, and holding just world beliefs are associated with increased levels of active coping (Bryant-Davis, Ullman, Tsong, & Gobin, 2009; Dalbert, 1998; Fetchenhauer et al., 2005; Furnham, 2003; Furnham & Boston, 1996; Lee, Cohen, Edgar, Laizner, & Gagnon, 2006; Lucas, Alexander, Firestone, & LeBreton, 2008; Prati & Pietrantonio, 2009). Meta-analyses on posttraumatic growth and coping suggest that supportive spirituality, problem solving, and meaning making are significant predictors of posttraumatic growth, and are examples of approach coping strategies that promote active processing and confrontation with the trauma, which is associated with posttraumatic growth, as well as distress (due to shattered

assumptions) (Ahrens et al., 2010; Janoff-Bulman, 1992; Prati & Pietrantonio, 2009; Steger et al., 2006; Valdez & Lilly, 2014). Sexual assault survivors may use problem-solving, their spirituality, or meaning making as ways of appraising the impact of the trauma, processing its effects on their identity/worldview, begin rebuilding shattered assumptions, and regain a sense of stability, predictability, and safety (Ahrens, Abeling, Ahmad, & Hinman, 2010; Borja, Callahan, & Long, 2006; Frazier & Burnett, 1994; Park, 2005; Ullman, 1999; Valdez & Lilly, 2014).

However, there is conflicting research and a general lack of knowledge about the specific mechanisms that are unique to sexual assault survivors through which outcomes of posttraumatic growth and distress occur (Dekel et al., 2011; Kleim & Ehlers, 2009). Therefore, the current study aimed to explore the potential predictive and mediating functions of belief in ultimate justice, optimism, supportive relationships, supportive spirituality, problem solving, and meaning making on outcomes of posttraumatic growth and distress among sexual assault survivors. To my knowledge, no studies have addressed all of the specified variables in a single study, with a population of sexual assault survivors specifically, and rarely made between the different dimensions of just world beliefs. In addition, no research has examined just world beliefs (or the specific dimensions of the construct) in relation to the specified variables collectively, or within a model of posttraumatic growth and distress for sexual assault survivors.

Because the framework on which the current investigation is conceptualized is theoretical, recursive, and has not been tested in a model or amply studied with sexual assault survivors, much remains to be learned about how the model operates to promote distress and posttraumatic growth. The current study explored how specified variables group together and how the constructs relate to on another in order to promote growth and distress. This investigation provides knowledge about how these variables function in a population of sexual

assault survivors, as well as how an exploratory model maps onto the Schaefer and Moos' (1998) model. Thus, the current study adds to the literature by providing insight as to the predictors and mechanisms through which outcomes of posttraumatic growth and/or distress occur for sexual assault survivors, and offers important research and clinical implications for understanding process of healing after a sexual trauma. Furthermore, it offers information about the factor structure of the English translation of the BIUJS (Maes, 1992). The hypotheses generated in order to assess these questions are as follows:

Hypothesis 1 (BIUJS Factor Analysis): I would conduct a factor analysis of the BIUJS (Maes, 1992) in order to examine the factor structure and psychometric properties of this instrument in the United States. Because (a) this scale has not been utilized in the United States (the English version of the scale was developed for the purpose of this study) or with sexual assault survivors specifically, and (b) the inconsistent findings related to Just World Beliefs for sexual assault survivors, I would conduct an EFA vs. CFA. I hypothesized that factor analyses would reveal four dimensions of Just World Beliefs (i.e., beliefs in ultimate and immanent justice, a general just world, & an unjust world).

Hypothesis 2 (SEM Model): Using Gaskin's (2012) exploratory SEM approach, I would complete EFA and CFA to develop a sound measurement model and then test the structural model with SEM. Based on Schaefer and Moos' (1998) framework, I hypothesize that variables would group into various systems and operate in the following way: System IV (problem solving, meaning making, and supportive spirituality) would mediate the relation between (a) System I (supportive relationships) and System II (belief in ultimate justice and optimism) and (b) System V (posttraumatic growth and distress). **Hypothesis 2a.** System I (supportive relationships) and System II (optimism and belief in ultimate justice) would all be significantly

and indirectly associated with posttraumatic growth and distress (System V). **Hypothesis 2b.**

System I (supportive relationships) and System II (optimism and belief in ultimate justice) would be significantly and directly associated with System IV (problem solving, meaning making, and supportive spirituality). **Hypothesis 2c.** System IV (problem solving, meaning making, and supportive spirituality) would be significantly and directly associated with posttraumatic growth and distress (System V).

Hypothesis 3 (Group difference hypotheses): There would be significant differences in the levels of posttraumatic growth between participants with prior counseling and those without prior counseling.

CHAPTER 2

REVIEW OF THE LITERATURE

Much research has arisen in recent years that contribute to the thriving programmatic line of research on sexual violence, but there are many aspects of sexual assault survivors' experiences that remain to be understood (Burt & Katz, 1988; Frazier & Berman, 2008; Resick, 2001). Calhoun and Tedeschi (1998) have called for additional steps in the field of posttraumatic growth research, such as ascertaining the particular mechanisms and processes through which posttraumatic growth occurs. More recently, Frazier and Berman (2008) have called on researchers to identify the mediating variables which may explain the path to posttraumatic growth after sexual violence, above and beyond that of other trauma survivors (Prati & Pietrantonio, 2009). Others in the field of posttraumatic growth have highlighted the gaps within the current empirical research and the need for greater empirical support of existing theoretical and conceptually-derived models of posttraumatic growth, which will begin bridging the gap between theory, research, and practice (Frazier & Berman, 2008; Schaefer & Moos, 1998; Tedeschi & Calhoun, 1996). By investigating and better understanding the experience of sexual survivors' growth, and healing after sexual violence, as well as the factors that influence growth and distress, both researchers and practitioners can better aid these individuals in their recovery.

Sexual violence is a crime which affects those of all sexes and gender identities and represents a systemic societal issue which burdens men, women, and transgender individuals. However, the current study focuses specifically on female sexual assault survivors because (a) the greatest number of victims who report experiences of sexual violence are women (Resick, 2001), (b) much of the research to date has examined the posttraumatic growth experiences of female survivors, but there is still not enough understood about how the process of posttraumatic

growth works (Frazier & Berman, 2008), and (c) there are previously identified gender differences in styles of coping which may influence outcomes of posttraumatic growth and distress (Tedeschi & Calhoun, 1996). Thus, while much remains to be learned about the experiences of sexual assault (SA) survivors from various sexes, gender identities, and cultural backgrounds, the current study focused only on experiences of female-identified SA survivors.

The current investigation sought to better understand the variables and their interactions that contribute to posttraumatic growth and distress for female sexual assault survivors by taking an exploratory SEM approach, assessing congruence with an existing model of posttraumatic growth, and extending a line of research originally developed as part of a master's thesis (see preface). Specifically, the current study aimed to address existing gaps in the literature by empirically examining the predictive and mediating roles of belief in ultimate justice, supportive spirituality, optimism, problem solving, supportive relationships, and meaning making on the outcomes of posttraumatic growth and distress. The literature review commences with defining the relevant variables and constructs, describing the theoretical framework on which the exploratory model and analyses are based, and presenting supporting empirical literature. Lastly, a synopsis of the need for the current study and proposed hypotheses are presented.

Posttraumatic Growth and Distress Outcomes

Distress

It has been well documented that traumatic experiences can lead to major disruptions in nearly every domain of personal, social, emotional, and vocational functioning, and sexual violence has been found to be the leading cause of Posttraumatic Stress Disorder (PTSD) among women (Resick, 2001). Given the extremely personal nature of sexual violence, as well as the shame, powerlessness, and blame associated with sexual assault, it is reasonable that PTSD

affects nearly 30% of sexual assault survivors in their lifetime, and that sexual violence is associated with increased rates of PTSD, chronic and comorbid disorders, physical complaints, and other negative outcomes (Frazier & Berman, 2008; Kimmerling & Calhoun, 1994; Resick, 2001; Vickerman & Margolin, 2009; Walsh & Bruce, 2011). While diagnostic criteria for PTSD is more commonly used as a measure of the negative sequelae after sexual violence – as is evident in the research presented below – the aim of the current study was to understand the concurrent role of both posttraumatic growth and distress, regardless of whether distress reached levels consistent with PTSD (Fetty, 2012). Thus, the current study defines “distress” as self-reported emotional upset that includes feelings of general distress, anxiety, anger, and depression (Fetty, 2012; Mitchell, 2007).

Women who have been sexually assaulted meet criteria for PTSD at 6.2 times that of the general population and are 80% more likely to experience comorbid psychological disorders than those who have not been assaulted (Kilpatrick, Edmunds, & Seymour, 1992; Vickerman & Margolin, 2009). Sexual assault survivors are 33% more likely to contemplate suicide and 13% more likely to make an attempt (compared to 8% and 1% for populations who are not crime victims), which means that sexual trauma survivors are at a 13.2 times higher risk for suicide attempts compared to those who have not been the victim of a crime (Kilpatrick et al., 1992; Vickerman & Margolin, 2009). Sexual violence has been associated with a wide variety of negative sequelae, such as (a) increased negative views about self and the world (Janoff-Bulman, 1992), (b) decreased sexual satisfaction (van Berlo & Ensink, 2000); (c) impaired interpersonal relationships (Koss, Heise, & Russo, 1994); (d) increased substance use (Cecil & Matson, 2006); and (e) greater chance of psychopathology, poorer health, poorer vocational/social functioning, and greater use of medical/mental health services (Koss, Figueredo, & Prince, 2002).

The passage of time influences the course of distress and predicts a survivors' later reported levels of distress/posttraumatic growth (Kleim & Ehlers, 2009). Distress in the immediate aftermath of the trauma is an expected and nearly universal experience, with almost 94% of survivors meeting criteria for PTSD at two weeks post-assault (Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). This number decreases to 64% and 50% at one month and three months, respectively; however, for the other half still experiencing clinically significant distress at three months post-assault, symptoms seemed to remain elevated and temporally stable over time (Rothbaum et al., 1992). In fact, many individuals may experience distress and other symptoms for years after being assaulted (Kilpatrick et al., 1987; Rothbaum et al., 1992; Vickerman & Margolin, 2009).

Distress and damaged world views are to be expected after a trauma (Frazier et al., 2001; Janoff-Bulman, 1992; Koss & Figueredo, 2004). Most survivors report that distress decreases over the course of the first year post-trauma, as well as increased perceptions of growth and perceived control over the recovery process (Frazier, 2003; Ullman, 2014). A number of factors have been found to predict distress in sexual assault survivors and to mediate the relation between experiences of sexual trauma and outcomes of psychological and emotional distress. For example, survivors who endorse a belief in ultimate justice (i.e., the expectation that there will be an eventual balancing between justice and injustice; Maes, 1998a, 1998b), optimism (i.e., "positive expectations about life and the future;" Madsen & Abell, 2010, p. 225), and supportive relationships may more effectively cope and be able to make sense of the trauma, which may subsequently impact experiences of distress and growth (Brodhagen & Wise, 2008; Frazier et al., 2004; Kay, Gaucher, McGregor, & Nash, 2010; Lucas, Alexander, Firestone, & LeBreton, 2009; Prati & Pietrantoni, 2009; Regehr, Hemsworth, & Hill, 2001; Walsh & Bruce, 2011). Supportive

relationships may help survivors cope with traumas and promote resilience (Madsen & Abell, 2010; Orchowksi, Untied, & Gidycz, 2013; Pruitt & Zoellner, 2008). While appearing paradoxical initially, as Frazier and colleagues (2001) reported, distress and growth often exist simultaneously. Trauma challenges core beliefs about the world and is associated with shattered world assumptions and intrusive rumination about the event (Janoff-Bulman, 1992; Frazier et al., 2001; Groleau et al., 2013). Although associated with posttraumatic stress, the experience of distress set into motion various coping and appraisal processes which facilitate and even maintain growth (Groleau et al., 2013; Kleim& Ehlers, 2009; Su & Chen, 2015; Ullman, 2014).

Sexual assault and other types of trauma have most frequently been studied in terms of the negative and harmful impact on an individual's life as a result of both primary and secondary victimization. Sexual violence and victim blaming are perpetuated and normalized by many environmental factors (Klaw et al., 2005), including acceptance of rape culture (i.e., support and promotion of power and gender-based violence), and rape myths (Burnett, Mattern, Herakova, Kahl, Tobola et al, 2009). However, despite this, many survivors report both positive and negative outcomes after a traumatic experience (Folkman, 2008; Frazier et al., 2001; Frazier & Berman, 2008; Grubaugh & Resick, 2007; Klaw et al., 2005). As a result, it is important to consider not only experiences of distress, but also the growth reported by many survivors.

Posttraumatic Growth

Posttraumatic growth is an area that has received an increasing amount of attention in recent years, but posttraumatic growth following sexual assault in particular has received relatively less attention (Frazier & Berman, 2008; Grubaugh & Resick, 2007; Park & Ai, 2006; Tedeschi & Calhoun, 1996; Tedeschi, Park, & Calhoun, 1998). As the following review of the literature will show, even the most resilient, optimistic individuals may not have the necessary

healing experiences, resources, or support that would allow for growth and healing, making it even more important to understand the factors that *do* promote healing after sexual violence. Research on the posttraumatic growth after sexual assault is not intended to diminish the distress, horror, and humiliation experienced by these survivors, but only suggests that there is much diversity in the personal and environmental resources available to help survivors cope (Frazier & Berman, 2008). It is important to realize that these experiences and growth happen within a larger context – one that may foster *or* inhibit healing. Posttraumatic growth is not a reflection of the survivor’s personal choice, will power, intrinsic motivation, or personality, and not all survivors experience posttraumatic growth. If a survivor does then it is to be celebrated, but if that process does not occur, it is a reflection of systemic and societal factors that failed to promote the recovery and needs of the survivor. Posttraumatic growth is also not an end-point to be “achieved”, but a life-long journey that includes times of hope and healing, as well as distress, and reflects a global change process affecting multiple realms of one’s perspective, experience, coping, relationships, and being.

Definition of posttraumatic growth. Posttraumatic growth is defined according to survivors’ perceptions of positive outcomes related to coping with a traumatic event (Tedeschi & Calhoun, 1996; Tedeschi et al., 1998). These may include perceptions that the healing process has presented them with positive changes in: 1) New possibilities in life, 2) Personal strength, 3) Relationships with others, 4) Appreciation of life, and 5) Altered spirituality (Tedeschi & Calhoun, 1996). These “positive outcomes” assessed by posttraumatic growth – which converge into the three domains of changed self-perception, interpersonal relationships, and life philosophy – are considered to be a benefit of the healing process, and not the trauma itself (Tedeschi & Calhoun, 1996; Calhoun & Tedeschi, 1998).

The first domain – changes in perceptions of self – may include an increased sense of self-reliance and vulnerability that involves an evolution in how individuals experience and label their trauma and identity, such as transitioning into a “survivor” label or identity from that of a “victim”, for those who identify with such terms (Tedeschi & Calhoun, 1996). This may mean embracing ones’ sense of self-reliance, power, and efficacy as part of their identity, as well as gaining confidence in their ability to cope through the healing process. While many survivors feel a greater sense of personal-strength, they may also be more aware of their own sense of vulnerability and mortality, which follows from an increased understanding of self and their experiences (Tedeschi et al., 1998).

The second domain – positive changes in interpersonal relationships – may include increased (appropriate) self-disclosure, emotional expressiveness, compassion, and giving back to others (Tedeschi & Calhoun, 1996; Tedeschi et al., 1998; Wang & Heppner, 2011). Some survivors reported that experiences of positive social support after disclosure promoted more self-disclosure and openness to others, which in turn facilitated greater emotional intimacy and feelings of safety (Tedeschi & Calhoun, 1996). However, not all self-disclosure reactions and social support are equal, and they are not always a positive experience for sexual assault survivors (Relyea & Ullman, 2015; Ullman, 1996). Despite the risk and potential negative reactions, self-disclosure is considered a positive aspect of growth because it allows survivors to receive support, express themselves, create a trauma narrative, and build intimate but safe connections with others (Tedeschi & Calhoun, 1996). In the process of acknowledging ones’ vulnerability and bolstering social supports, some survivors report an increased capacity for compassion, empathy, altruism, and desire to help others experiencing similar difficulties (Tedeschi et al., 1998; Wang & Heppner, 2011).

The third domain – changes in philosophy of life – can include a greater appreciation of life, a reevaluation or change in one's life priorities, an increased sense of meaning, a transformation of one's spirituality, or an increased sense of wisdom (Tedeschi & Calhoun, 1996; Tedeschi et al., 1998). During the course of healing from trauma, survivors are forced to confront existential matters, and question their purpose and meaning in life, which may lead to changes in spirituality and life philosophy (Tedeschi & Calhoun, 1996). Many survivors report a feeling that they have been spared, that they better understand the fragility of life, or have a greater understanding of what is truly important in life (Tedeschi & Calhoun, 1996). Lastly, perceptions of increased wisdom (i.e. increased knowledge of self, others, life experience, and how to cope with difficult experiences) are often reported by survivors' as part of their healing process (Tedeschi et al., 1998).

Schaefer and Moos' (1992, 1998) model of posttraumatic growth. While Tedeschi and Calhoun (1996) have pioneered much of the posttraumatic growth research, Schaefer and Moos (1992, 1998) also theorized a conceptual model of the process through which posttraumatic growth may occur (see figure 1). Their model accounts for environmental, personal, crisis, coping, and outcome factors in the process of posttraumatic growth. While it has had minimal use in research with sexual assault survivors (Frazier & Berman, 2008), it has been used as a conceptual framework in other types of trauma research, such as natural disasters (Saylor, Swenson, & Powell, 1992), war (Rosenthal & Levy-Shiff, 1993), cancer (Zemore, Rinholm, Shepel, & Richards, 1989), HIV infection (Schwartzberg, 1994), and bereavement (Calhoun & Tedeschi, 1989/1990, as cited in Schaefer & Moos, 1992). Schaefer and Moos' (1992) model serves as the conceptual framework on which the current investigation is conceptualized, as it

examines the variables that facilitate the healing process and the mechanisms through which posttraumatic growth and distress occur for sexual assault survivors.

According to this model, five dynamically interacting systems contribute to the process of positive growth through accounting for pre-existing worldviews and traits, pre-trauma resources, the coping and appraisal processes after the trauma, and outcomes (Schaefer & Moos, 1992, 1998). The two reciprocally interacting pre-trauma systems include environmental resources (System I) and personal resources (System II), which jointly influence the experience of the trauma (System III), subsequently influence post-trauma systems of appraisal and coping (System IV), and collectively impact outcomes (System V). Outcomes also recursively impact the other systems to bolster personal, environmental, or coping/appraisal resources (see figure 1).

Pre-Trauma (Systems I and II): Environmental resources (System I) include variables that are available as resources in one's environmental context, and influence the experience of the trauma, the coping/appraisal process, and outcomes. These resources may include social support (e.g., support from family, friends, and coworkers), financial resources, or living situations (e.g., having a safe and stable place to live). The personal resource system (System II) includes specific, stable, pre-existing factors specific to the individual which reciprocally interacts with environmental resources to influence subsequent systems/processes. Individual factors may include prior trauma, personal efficacy, resilience, traits, personality, personal beliefs, or worldview. The pre-trauma domains (System I and II) are thought to be relatively stable factors in an individual and their environment which influence the experience and impact of the trauma (System III) and its details (e.g. severity, frequency, type, and duration).

Post-Trauma (Systems IV and V): Schaefer and Moos (1992) conceptualize System IV within a framework of approach/avoidance coping and appraisal, which indirectly influences

outcomes. Schaefer and Moos (1992) hypothesize that survivors either a) approach their situations through seeking support, problem-solving, analyzing, and processing their crisis in a beneficial way, or b) avoid their crisis through emotional numbing, substance use, avoidance strategies, or minimizing and denying it. Outcomes of growth (System V) are generally found to fall within three domains: 1) Personal Resources – such as greater self-understanding, a stronger sense of empathy and wisdom or maturity, or greater assertiveness and self-advocacy; 2) Social Resources – such as greater support from friends and family, and more intimate and secure interpersonal relationships; and 3) Coping Resources/Abilities – such as better perceived problem-solving skills, more coping resources, and being able to seek out support and help when needed (Schaefer & Moos, 1992, 1998). For the current study, an exploratory SEM approach was used to ascertain how the variables under investigation work together to promote posttraumatic growth and distress, and how the derived constructs and indicators correspond to the systems in Schaefer and Moos' (1992, 1998) framework.

Experiences and correlates of posttraumatic growth. The literature suggests that posttraumatic growth is not as uncommon an experience as once thought, and is not exclusive to those who have been coping with their trauma for a long period of time (Schaefer & Moos, 1998; Tedeschi et al., 1998). For example, Frazier and colleagues (2001) investigated the experiences of 171 sexual assault victims through a longitudinal study, which revealed that survivors experienced both positive and negative life changes after their sexual assault. Further, 91% of participants reported at least one positive life change as soon as two weeks after their rape (Frazier et al., 2001). A previous study by Frazier and Burnett (1994) found that in a sample of rape survivors, 57% of participants reported positive life changes as soon as three days following the assault, some of which included appreciating life more.

Overall, Frazier and colleagues (2001) found a number of negative experiences reported by survivors, which are consistent with other theories suggesting that trauma can negatively impact one's worldview and assumptions (e.g., weakened belief in the goodness, safety, and fairness of the world and other people; Janoff-Bulman, 1992; Koss & Figueredo, 2004; Valdez & Lilly, 2014). In addition, there are a wide range of positive changes experienced by survivors, with the most prominent positive ones including increased empathy, improved relationships, and greater appreciation for life (Frazier & Berman, 2008; Frazier et al., 2001). Also, perceptions of control and spirituality were most associated with reduced levels of distress (Frazier et al., 2001). Frazier and colleagues (2001) found a general trend in which positive changes increased over time while negative changes tended to decrease, both of which reflect a natural response to trauma and a progression towards adjustment. Important to the current investigation is the finding that many survivors experience both positive and negative changes simultaneously, demonstrating that the relationship between positive and negative life changes after sexual assault is not linear or mutually exclusive (Dekel et al., 2011; Kleim & Ehlers, 2009; Frazier et al., 2001). However, there is significant variability in how survivors experience positive and negative changes after their assault. Some survivors may have an initial trauma response of emotional numbing or avoidance which inhibits both positive and negative responses, and later when attempting to cope with and process the trauma, report experiencing an increase in distress and followed by positive life changes. Others may not experience positive changes at all (Frazier et al., 2001; Grubaugh & Resick, 2007).

Specifically, research findings appear to suggest a complex relationship between posttraumatic growth and distress (Dekel et al., 2011; Dekel et al., 2012; Kleim & Ehlers, 2009). For example, in a study of 100 adult female sexual assault survivors who were seeking treatment,

Grubaugh and Resick (2007) found that posttraumatic growth and psychological distress (e.g., symptoms of depression and PTSD) are commonly experienced simultaneously. Of the 100 participants queried, 99 reported at least some posttraumatic growth, with just fewer than half (45%) reporting moderate levels of growth. But despite the relatively high amounts of growth reported, most also reported significant distress, with 91% meeting criteria for PTSD, 54% meeting criteria for depression, and 52% meeting criteria for both (Grubaugh & Resick, 2007). The literature suggests that posttraumatic growth and distress exist independently and are predicted by coping and appraisal in similar, as well as ways (Dekel et al., 2011; Fetty, 2012). Many argue that distress is a complementary and necessary component of promoting and maintaining the kind of cognitive/emotional processing that facilitates posttraumatic growth (Dekel et al., 2012; Frazier et al., 2001; Grubaugh & Resick, 2007; Kleim & Ehlers, 2009).

Frazier and colleagues (2004) found that some of the strongest factors associated with posttraumatic growth include social support, positive reframing, approach coping, religious coping, and perceptions of control over the recovery process (Frazier et al., 2004; Frazier, 2003). Perceived control over the recovery process is significantly related to reduced distress, effective coping, and higher self-rated recovery (Carver & Scheier, 2014; Frazier, 2000, 2003; Frazier & Schauben, 1994; Frazier et al., 2004). Thus, the use of particular appraisal/coping strategies (in addition to worldview or post-trauma experiences) promote a sense of control through perceived coping self-efficacy and resources, and positive expectations of the future (Dekel et al., 2011; Frazier, 2003; Frazier et al., 2004; Park & Fenster, 2004; Valdez & Lilly, 2014).

Summary of Distress and Posttraumatic Growth

Sexual assault has been associated with distress and PTSD, comorbid disorders, and disruptions in psychological, relational, and social functioning that tends to decrease over time,

but can last for years (Kilpatrick et al., 1987; Rothbaum et al., 1992). However, many sexual assault survivors report both positive and negative outcomes after a traumatic experience (Fetty, 2012; Folkman, 2008; Frazier et al., 2001; Frazier & Berman, 2008; Grubaugh & Resick, 2007; Klaw et al., 2005). The current study examines posttraumatic growth and distress as simultaneous outcomes of coping with sexual assault. Distress is understood as emotional upset that includes general distress, anger, anxiety, and depression (Mitchell, 2007). Posttraumatic growth can be understood as positive life changes in perceptions of self, relationships with others, and philosophy of life as a result of coping with the trauma (Tedeschi & Calhoun, 1996; Tedeschi et al., 1998). Schaefer and Moos' (1998) model of posttraumatic growth provides a conceptual framework for the current study's investigation of the predictors of posttraumatic growth and distress unique to sexual assault survivors.

The literature supports the current investigation's inclusion of various forms of coping and supportive relationships in understanding posttraumatic growth, as social support, perceptions of control, and coping have been found to be strong correlates of posttraumatic growth (Frazier et al., 2004). Further, perceived control over recovery, adaptive coping, and social support are associated with decreased distress, while social withdrawal, self-blame, problem avoidance, and maladaptive coping are predictive of increased distress (Frazier, Mortensen, & Steward, 2005; Kay et al., 2010; Najdowski & Ullman, 2009; Regehr et al., 2001; Ullman, 2014; Vickerman & Margolin, 2009; Walsh & Bruce, 2011). However, there appears to be a complex relationship between distress and growth (Dekel et al., 2012), and research is lacking on the distinct and differential paths that promote each. The current study aims to address this issue by testing an exploratory SEM model in order to understand potential predictors and mediating variables in the process of coping and healing after sexual assault.

Belief in a Just World and Optimism

Beginning in the realms of social psychology, belief in a just world is a well-studied and broadly recognized phenomenon (Dalbert, 1998; Furnham, 2003; Janoff-Bulman, 1992; Lerner, 1980; Lucas et al., 2008). Despite the ample research with a variety of applications of the construct in many settings, there is comparatively little research about the role of a belief in a just world in the experiences of sexual assault survivors (Furnham, 2003). As part of the current investigation's use of the Schaefer and Moos' (1998) model of posttraumatic growth, belief in ultimate justice (a dimension of belief in a just world) is examined as a personal resource (System II) variable that encompasses pre-trauma qualities of individuals, such as their world assumptions, beliefs, values, traits, personality, and worldview. Just world (Lerner, 1980) and assumptive world theories (Janoff-Bulman, 1992) posit that most individuals hold assumptions that are inherently tied to their worldview, which can directly and indirectly impact the coping/appraisal strategies employed in response to a trauma, as well as subsequently affect outcomes of growth and distress.

Theories about Just World Beliefs and Assumptions

The role of belief in a just world is a construct that has been applied and studied with a wide variety of phenomenon including natural disasters, cancer, and perceptions of blame and responsibility of sexual assault survivors (Furnham, 2003). While the construct has been criticized due to its association with victim-blaming with sexual assault survivors (Furnham, 2003; Janoff-Bulman, 1992; Lerner, 1980), comparatively little research has examined how this world belief influences a survivor's coping and journey of recovery. Lerner (1980) originally developed the theory of the just world as an explanation for how people behave in, and understand, the world around them. According to Lerner's (1980) theory, the core element of a

just world is the belief that based on individual qualities, choices, and behaviors, people “get what they deserve.” Therefore, if one behaves according to what is condoned and expected and has positive qualities and attributes (e.g., being kind, selfless, hardworking, generous, and planful), then that person deserves good rather than bad things. However, someone who breaks rules/laws, has poor judgment, makes bad choices, is cruel, selfish, or lazy deserves negative outcomes (Lerner, 1980).

Just world beliefs are based on social constructions of culturally acceptable behavior and people’s goals in life, and serve as ways of making attributions for ourselves and others (Lerner, 1980). Lerner (1980) suggested that assumptions about the world as fair are functional, but also necessary because “(p)eople want to and have to believe that they live in a just world so that they can go about their daily lives with a sense of trust, hope, and confidence in their future” (Lerner, 1980, p. 14). Individuals can feel hopeful and maintain a sense of control and predictability about their futures, as well as about the consequences and outcomes of their actions. Therefore, just world beliefs allow individuals to believe that they can avoid painful or negative outcomes through their behavior and adherence to given rules and expectations, and thus offers a sense of trust, safety, and predictability in the world.

Festinger’s (1957) work on cognitive dissonance is, in many ways, related to the theory of a just world. According to theories of cognitive dissonance, when confronted with evidence or experiences that are discrepant with prior held beliefs, individuals experience a state of dissonance or conflict (Festinger, 1957; Lerner, 1980). When confronted with evidence (in the form of a traumatic event) that the world is not just, a state of tension is created in which individuals have to acknowledge the injustice and unpredictability of the world, or develop a new understanding and meaning of events in order to restore just world beliefs (Lerner, 1980).

Trauma survivors are faced with the options of: (1) rejecting the original assumption/belief and developing a new one, (2) denying the experience to maintain the belief, (3) modifying the belief to accommodate the experience, or (4) reinterpreting the events to fit the belief (Lerner, 1980).

Individuals seek to resolve their experiences of dissonance in a variety of ways in the aftermath of a personal injustice. Lerner (1980) suggested that individuals typically rely on three strategies of resolving this conflict; individuals may act to defend or restore just world beliefs by (1) reinterpreting the outcome of a traumatic event in a more positive light, (2) reinterpreting the cause so as to blame the victim, or (3) reinterpreting the character of the victim (Lerner, 1980). Given the purpose of the particular study, the first strategy is one of particular interest, as it may hold important implications for understanding how just world beliefs influence coping/appraisal and subsequently lead to posttraumatic growth after a sexual assault. The last two strategies are visible in the history of our society in which majority groups label a minority group with negative qualities that justify suffering and allows one to maintain a belief that the world is just. This interpretation tendency is apparent in victim-blaming of rape victims (Lerner, 1980).

In response to Lerner's (1980) belief in a just world theory, Janoff-Bulman (1992) developed the assumptive-world theory. Building upon the same underlying framework, she further developed the theory and expanded it to include three specific and fundamental assumptions which individuals hold about themselves and the world. Though Janoff-Bulman (1992) described these as "world assumptions" that form (in part) one's worldview, others describe these beliefs as cognitive schemas about self and the world, which help individuals form global meaning systems (Horowitz, 1992; Park, 2010; Proulx & Inzlicht, 2012).

According to Janoff-Bulman (1992), the three fundamental assumptions are: (1) benevolence of the world, (2) meaningfulness of the world, and (3) the self as worthy. The world

as benevolent refers to an underlying belief that the world and people in it are ultimately good, which allows for the maintenance a sense of hope and safety in life (Janoff-Bulman, 1992). Benevolence of the world (and the people in it) is particularly important in relation to optimism, for both share an overlapping (albeit tentative) expectation in a positive future (Carver, Scheier, & Segerstrom, 2010; Janoff-Bulman, 1992). The world as meaningful refers to the belief that the world, as well as our lives and actions, are meaningful and have purpose. It is the belief what we do has significance and consequence, and things happen for a reason—which is especially relevant to individual’s interpretation of events; it includes perceptions of the degree of randomness and distribution of good and bad fortune. The third assumptions is the self as worthy, an important assumption which promotes perceiving one’s self as significant, worthy of good fortune, and deserving of good things (Janoff-Bulman, 1992). Self as worthy is conceptually distinct from constructs such as self-esteem, but is important in relation to perceived blame. For example, if one believes that he or she deserves to be punished, than experiencing a negative event would still allow that individual to perceive the world as just. But when the individual believes s/he deserves good things, yet experiences something negative, the unjust experience gives rise to dissonance, and his/her world assumptions are subsequently shattered (Janoff-Bulman, 1992; Lerner, 1980).

Janoff-Bulman’s (1992) assumptive-world theory is important for the current investigation in that it explicates strategies to maintain and restore world assumptions (such as “the world is just”), as well as the possible sequelae of those processes and assumptions. According to (Janoff-Bulman, 2006), because such fundamental beliefs are necessary to well-being, individuals may experience significant distress or dissonance when traumatic events violate these assumptions, and such cognitive dissonance causes distress that prompts efforts by

individuals to reconcile their discrepant experiences and assumptions (Valdez & Lilly, 2014). For example, rape violates the assumption that “people are inherently good” or “the world is a good place,” which challenges the survivor to reconcile their preexisting world assumptions with the lived reality of the assault. The “world as meaningful” assumption is related to the just world beliefs about the “distribution” of justice and causality of events. A meaningful world is one that “makes sense” and where people believe that they get what they deserve, are in control of what happens to them, and that the world is just. Bad things (and good) are meaningfully distributed, and do not just happen randomly (Janoff-Bulman, 1992, 2006; Sarid, 1996). Thus, when an event occurs that is seemingly in conflict with this belief, the survivor is forced to make sense of what has happened in order to restore the assumption of the world as meaningful and maintain a stable sense of meaning (Horowitz, 1992; Park, 2010; Proulx & Inzlicht, 2012; Robinson et al., 2011).

The process of reconciling traumatic experiences and pre-existing just world beliefs typically happens through the assimilation, accommodation, or over-accommodation of world beliefs and schemas about the self, in response to the sexual assault that challenge to their world assumptions. Survivors must decide to change their beliefs about the world or themselves—either integrating their experience into an existing frame of reference or changing their beliefs about their experiences in order to maintain world assumptions and schemas (Horowitz, 1992; Littleton, 2007). Because the belief of oneself and identity as worthy revolves around the assumption that one is deserving of good fortune, sexual assault survivors often question their self-worth after the trauma (Janoff-Bulman, 1992, 2006). World assumptions and schemas, while somewhat stable, are not fixed, and can therefore be changed. Thus, survivors’ assumption of self as worthy (as well as other world assumptions) can be significantly influenced by the trauma and/or subsequent revictimizations (Casey & Nurius, 2005; Valdez & Lilly, 2014).

Belief in Immanent and Ultimate Justice

While belief in a just world has received prominent attention in the research, there are nuanced beliefs of justice that have been less recognized and studied—such as the concepts of immanent and ultimate justice as originally conceptualized by Piaget in 1932 (Furnham, 2003; Lerner, 1980; Maes, 1998a, 1998b; Maes & Schmitt, 1999). Immanent justice refers to justice (particularly negative consequences for one's poor choices/unjust actions) in direct response to an event, in which there is a clear link between the action and the outcome (Maes, 1998a, 1998b). An example of immanent justice would be a child being punished for stealing another child's toy; there is a swift and direct consequence for an identifiable action. This perception of justice is still distinct from the just world beliefs as conceptualized by Lerner (1980), but there is room to imply that consequences are the result of one's previous actions and choices (positive or negative), and that there should therefore be visible retribution for wrongs.

In contrast, ultimate justice is a form of justice that operates in an indirect and unforeseen manner, and over a long-term period of time; there is no clear or direct link between the original injustice and its retribution, and no known time-frame over which justice may ultimately occur (Maes, 1998a, 1998b). It refers to the belief that while someone may experience misfortune or suffering unfairly, that the scales of justice and injustice will one day balance out. Thus, that they will one day receive restorative justice (or compensation) for suffering, and those who commit injustice will one day have to take responsibility and suffer the consequences. While balance is restored through both immanent and ultimate justice, immanent justice operates directly in response to immediate or past events, while ultimate justice operates indirectly in the future.

Ultimate justice is consistent with many Eastern and Western belief systems, religions, and spiritual doctrines when it comes to notions of suffering, justice, and retribution. Similar to

Buddhist and Hindu religions, ultimate justice bears some resemblance with notions of Karma, in which there is a belief that good and bad deeds will eventually be balanced, all deeds (good and bad) have consequences, and suffer is only temporary (Lerner, 1980; Maes, 1998b). Belief in the eventual balance of justice-injustice provide a sense of meaning and purpose to suffering and the world, supporting Janoff-Bulman's (1992) assumptions that (1) the world is ultimately a good place (because it restores justice), and (2) suffering, injustice, and our experiences in the world are meaningful (Janoff-Bulman, 1992; Maes, 1998a, Maes, 1998b). Research has found a positive correlation between just world beliefs and self-reported levels of religiosity, such that stronger just world beliefs are associated with stronger religious beliefs (Maes, 1998a), which is not surprising given that many just world beliefs have connections with the roots of religion. It is particularly significant given its implications for coping, compensatory control, and related outcomes of distress and growth for sexual assault survivors (Kay et al., 2010).

The concept of ultimate justice is extremely important to understanding the appraisal and recovery process of sexual assault survivors, as many do not receive legal or societal justice (Walsh & Bruce, 2011). Victims may be comforted by the idea that their perpetrators will "ultimately get what they deserve" even if it is not immediate, which may provide a sense of external order, predictability, meaning, compensatory control, and expectations of safety for the future (Kay et al., 2010). Belief in an ultimate justice allows the victim to preserve just world beliefs and withstand current injustices because it promotes the world assumptions of benevolence, meaningfulness, and self as worthy (Janoff-Bulman, 1992; Lerner, 1980; Maes, 1998b; Maes & Schmitt, 1999). Thus, a belief in ultimate justice is very relevant to meaning making, coping and posttraumatic growth for survivors, regardless of secular worldviews and/or religious/spiritual beliefs (Janoff-Bulman, 1992).

Ultimate Justice Correlates and Predictors/Mediators of Posttraumatic Growth/Distress

While there are many adaptive functions of holding just world beliefs (Dalbert, 1998), belief in a just world has also been associated with blaming the victim, distress, and self-attributions of blame for survivors (Fetchenhauer et al., 2005; Janoff-Bulman, 1992). However, there are important distinctions and variables that influence the relationship between just world beliefs and outcomes of posttraumatic growth and distress. As will be described below, attribution and appraisal style (Fetchenhauer et al., 2005), perceptions of control (Frazier et al., 2001), and pre-existing schemas about the world (Janoff-Bulman, 2006) are important variables that influence the relationship between just world beliefs and posttraumatic growth/distress.

Belief in a just world has several important functions as a personal resource for trauma survivors (Dalbert, 1998). First, because just world beliefs influence individual perceptions of justice on a daily basis and because people tend to perceive justice in their own lives more than others' lives, individuals rely on this expectation of justice for the future. Second, belief in a just world promotes proactive and beneficial social behavior with others out of a desire to do the right thing and to hold up culturally approved standards of behavior because individuals believe they will be rewarded in the long-run. Third, maintaining such world beliefs allows individuals to maintain a stable, fair, and meaningful understanding of the world, which in turn allows them to cope with daily events. Fourth, belief in a just world promotes well-being (both physical and mental) after traumatic events and allows survivors to positively cope with their trauma and achieve higher levels of well-being.

In the past, just world assumptions have been criticized due to their tendency to implicate guilt and attributions of blame to victims of crimes, but also as they relate to natural disasters or other unfortunate circumstances such as illness, cancer, loss of a child, or accidents (Furnham,

2003). However, there has been comparatively little attention to survivors' perspective of justice and the relation between belief in a just world and posttraumatic growth. The limited research available yields conflicting findings, applications of general just world beliefs have been inconsistently significant, and measures generally demonstrate low internal consistencies when applied to sexual assault survivors (Fetchenhauer et al., 2005; Furnham, 2003).

However, in a path analysis of 144 female sexual assault survivors, there was a significant relation between ultimate justice and outcomes of posttraumatic growth (Fetty, 2012), while other research employing more general conceptualizations of just world beliefs have been mixed and inconsistent for survivors of sexual assault (Furnham & Boston, 1996). Prior research has shown just world beliefs are associated with increased levels of posttraumatic growth, coping, and other positive outcomes after traumas (Furnham, 2003). Further, belief in a just world has been found to predict positive coping, health behaviors, and outcomes, and reduced stress (Lucas et al., 2008). Some research shows that stronger beliefs in a just world are associated with fewer causal self-attributions and lower stress, which in turn promoted regaining of control (Dalbert, 1998; Furnham, 2003; Lucas et al., 2008). Even though belief in a just world does not directly relate to well-being, it does directly influence how one copes, or reacts, to circumstances. Individuals who have high just world beliefs tend to ruminate less, have fewer depressive symptoms, and report higher levels of well-being (Dalbert, 1998). However, observers who have strong beliefs in a just world may attribute blame to victims (Furnham & Boston, 1996; Maes, 1998a; Murray, Spadfore, & McIntosh, 2005). In addition to associations with blame by others, Abbey (1987) found that sexual assault survivors who hold just world beliefs tend to attribute more blame and responsibility to themselves for their assault, which has negative consequences for their recovery.

Blame and different types of attributions can have a significant impact and role on sexual assault survivors' adjustment, which is exemplified in a study conducted by Fetchenhauer and colleagues (2005). Attribution styles are deeply held beliefs about the world which survivors also hold regarding their own experiences. According to Fetchenhauer and colleagues (2005), these attribution styles can be categorized into three basic groups: characterological self-blame, situational factors, and environmental factors. In characterological self-blame, the survivor attributes blame for the assault to their own personal characteristics. Behavioral self-blame refers to attributing the cause of the rape to one's own actions, behaviors, or choices. Lastly, situational or external blame refers to a style of attributing the assault to uncontrollable and unforeseeable circumstances or environmental factors (Fetchenhauer et al., 2005).

Fetchenhauer and colleagues (2005) found that the type of attribution made mediated the relationship between just world beliefs and adjustment after the sexual assault (Fetchenhauer et al., 2005). The most maladaptive attribution style was characterological self-blame, as it involves blaming uncontrollable and unchangeable aspects of oneself for the sexual assault (e.g., "I am the type of person who gets raped;" Fetchenhauer et al., 2005). It violates Janoff-Bulman's third world assumption of self as worthy and may prevent the restoration of shattered just world beliefs (Fetchenhauer et al., 2005; Janoff-Bulman, 1992). Behavioral and external attributions were comparatively more adaptive, lead to better well-being and maintenance of just world beliefs, but were still associated with significant distress (Fetchenhauer et al., 2005). By blaming the assault on a behavioral or external source, blame is somewhat absolved from the victim's identity, and for some, offers a sense of control because the survivor can avoid similar situations or circumstances in the future (Fetchenhauer et al., 2005; Janoff-Bulman, 2006).

In fact, research findings are inconclusive regarding the benefits of different attribution styles for sexual assault survivors. For example, in a longitudinal study of 59 rape survivors, Koss and Figueredo (2004) found that both characterological and behavioral self-blame were unhelpful to the survivor's recovery process, and recovery seemed to progress most optimally when preoccupation with attributing any form of blame as well as behavioral prevention of future assaults was decreased (Koss & Figueredo, 2004). Characterological self-blame directly influences levels of psychological distress after the assault, and is influenced by personal and environment variables such as prior trauma history, personality, psychopathology, assault severity, and social cognitions such as just world beliefs (Koss & Figueredo, 2004). It was also directly related to the formation of maladaptive beliefs about self and subsequent levels of distress, pathology severity, and multiple traumas (Koss & Figueredo, 2004). Maladaptive beliefs (including deeply held assumptions about self, others, and the world) mediated the relation characterological self-blame and distress (Koss & Figueredo, 2004; Ullman, 2014).

Littleton (2007) suggests that interpersonal violence challenges assumptions and schematic beliefs about themselves and the world (such as the world as benevolent, meaningful, and the self as worthy (Horowitz, 1992; Janoff-Bulman, 1992)). Due to the dissonance that sexual trauma presents in the face of these world and self-beliefs, survivors are forced to appraise the trauma and assimilate, accommodate, or over-accommodate their beliefs to fit their experience of being assaulted (Festinger, 1957; Horowitz, 1992; Janoff-Bulman, 1992; Littleton, 2007). How survivors respond to and integrate the trauma has a significant impact on their subsequent coping strategies, perceived self-worth, beliefs about the world, and experiences of distress (Littleton, 2007). Those who rely on accommodation (i.e., change their beliefs about the world to take their trauma into account) seem to have the most positive outcomes, and tend to rely on both approach

and avoidance coping as they attempt to approach and integrate their trauma into their meaning system (Littleton 2007). They report moderate levels of distress, perceptions of benevolence in the world, and self-worth, which is consistent with findings that any form of coping leads to distress, but the resulting rumination is instrumental in achieving posttraumatic growth (Groleau et al., 2013; Littleton, 2007; Su & Chen, 2015). Thus, belief in a just world has a strong impact on survivors' pre-existing schemas and world beliefs (Janoff-Bulman, 2006; Lucas, Alexander, Firestone, & LeBreton, 2007) which influences the ways in which they appraise their trauma and make subsequent attributions of blame (Fetchenhauer et al., 2005; Koss & Figueredo, 2004).

Beliefs in Immanent/Ultimate Justice and Posttraumatic Growth/Distress

The concepts of immanent and ultimate justice and general belief in a just world all seem to play a critical role in survivors' adjustment, but have typically not been assessed for their role on sexual assault survivors' recovery. Because these conceptualizations of justice assess very different dimensions of just world beliefs, research may be skewed due to prior research studies that did not differentiate the concepts. While the construct of ultimate justice has not been broadly applied across cultures, factor analyses in a sample of 345 male and female Chinese undergraduates provided strong support for three dimensions of belief in a just world, including Ultimate justice, Immanent justice, and Immanent Injustice, and constructs were operationalized similarly to Maes' Unjust World items (Du, Zhu, & Li, 2007). While the sample was not restricted to women or trauma survivors in Du and colleagues' (2007) study, it does provide evidence for ultimate justice and immanent justice as a valid construct across cultures.

In a factor analysis of 326 cancer patients, Maes (1998b) found that immanent and ultimate justice were quite differentiated on a number of variables, and ascription of victim responsibility were much higher for immanent than ultimate justice (Furnham, 2003). Those with

stronger ultimate justice beliefs reported greater positive impressions of the victim, increased optimism and confidence in coping, greater ability to make meaning of the illness, and lower attribution of victim responsibility (Maes, 1998b). In a sample of 178 American men and women, Mudrack (2005) found that a principle components factor analysis led to mixed results when using general measures of belief in a just world (such as the scale published by Rubin and Peplau in 1975). However, when items were differentiated between those focused on “deserving bad outcomes” (insinuates that one is not worthy of good things) and those “deserving good outcomes” (insinuates a positive hope for the future and is more reflective of beliefs in ultimate justice), results were more robust (Mudrack, 2005).

Summary

In summary, belief in a just world theory was originally developed by Lerner (1980) and describes a manner in which people interpret events in the world. This theory was used to inform Janoff-Bulman’s (1992) assumptive world theory in which she described three fundamental assumptions: belief in the benevolence of the world, the meaning of the world, and the self as worthy. Janoff-Bulman’s (1992) theory and the contributions of others helps to explain the manner in which survivors of trauma come to appraise their trauma, maintain their beliefs about the world, and come to find meaning in their trauma, despite the distress and difficulty of the experience (Littleton, 2007; Valdez & Lilly, 2014). There are conflicting findings about the effectiveness of holding just world beliefs for survivors of sexual trauma due to (a) a lack of differentiation between different attribution styles and influences on perceived control; (b) failure to take into account relevant predictors/mediators for survivors’ recovery outcomes; and most importantly (c) differences between beliefs in immanent and ultimate justice, and general just world beliefs (Abbey, 1987; Fetchenhauer et al., 2005; Furnham, 2003; Maes, 1998a,

1998b). By accounting for differences in immanent and ultimate justice and additional predictors/mediators, the current investigation will clarify inconsistent findings concerning the contribution and role of just world beliefs on posttraumatic growth and distress within Schaefer & Moos' (1992) model of posttraumatic growth.

Optimism

The concept of optimism has been well documented as a predictor of recovery and posttraumatic growth has been substantially explored within the trauma, personality, and positive psychology literature (Alarcon, Bowling, & Khazon, 2012; Carver et al., 2009; Madsen & Abell, 2010; Prati & Pietrantonio, 2009). Optimism is associated with (a) outcomes such as increased adjustment, well-being, life satisfaction, life meaning, (b) effective and positive coping strategies such as benefit-finding, meaning making, and approach/problem-solving coping, (c) environmental resources such as social support, and (d) negatively associated with depression, psychopathology, and various psychosocial problems (Carver & Scheier, 2014; Fontaine, Manstead, & Wagner, 1993; Ho, Cheung, & Cheung, 2010; Lee et al., 2006; Solberg Nes & Segerstrom, 2006; Prati & Pietrantonio, 2009). Research suggests that there is a relationship between optimism, positive health behaviors, and beliefs in ultimate justice, and there appears to be a correlation between beliefs in ultimate justice belief and hope among cancer survivors (Lucas et al., 2008; Maes, 1998b). However, the majority of optimism research has examined levels of optimism in medical settings or with particular illnesses (including cancer, HIV, and infertility), school adjustment, accidents, and aging (Carver et al., 2009; Carver et al., 2010).

While there have been efforts to include sexual assault and abuse survivors in prior research on trauma, optimism, and distress, little can be gleaned from the findings, as sexual assault survivors were not differentiated from non-trauma survivors in the data analyses

(Brodhagen & Wise, 2008). There has been a noticeable lack of research on the relationship between optimism, belief in a just world (particularly ultimate and immanent justice), and posttraumatic growth with adult sexual assault survivors. Because dispositional optimism is often considered a characterological, stable trait, the current investigation conceptualized optimism as part of System II (personal resources) along with belief in ultimate justice as a predictor of distress and posttraumatic growth.

Definitions and Theoretical Concepts

As defined by Madsen and Abell (2010), optimism can be conceptualized as the “cognitive-emotional energy toward positive expectations about life and future outcomes” (p. 225). While someone who endorses optimistic beliefs expects that there will be good things to come, it is not necessarily to the exclusion of bad outcomes in the future. This is important to keep in mind, as optimism is not the denial of negative feelings or thoughts, but rather the expectation of positive outcomes in spite of negative events.

According to expectancy-value models of optimism, there are two important factors within the concept of optimism: value and expectancy (Carver et al., 2009). People have goals, and the more important they perceive the goal, the higher the value that is placed upon that goal. In addition, expectancy refers to one’s confidence that a goal will be achieved. Thus, those who feel more confident that the goal can be attained, the more persistent they may be in following it, perhaps even in the presence of great barriers (Carver et al., 2009). This holds great implications for the possibilities in which bolstering optimism can facilitate coping with stress. While popular culture and folk psychology use optimism interchangeably with other terms such as hope, happiness, good-naturedness, and faith etc., there are important distinctions and definitions. For example, there are important differences between transient (goal or situation specific optimism)

and trait optimism (dispositional characteristics), as well as between situational and dispositional optimism (Carver & Scheier, 2014).

Carver and Scheier (2014) define dispositional optimism as a temporally stable, trait-like quality characterized by “positive... expectations for the future without expectation for the means by which they occur...” (p. 293). Transient optimism is constricted temporally, as well as to specific situations, events, or goals (Carver & Scheier, 2014). Thus, dispositional optimism is a broader and more stable personality and worldview characteristic that is not meant to be constricted to a single situation or applicable only to a specific goal. Dispositional optimism is also distinguishable from correlates such as hope (Alarcon et al., 2013; Madsen & Abell, 2010), as hope includes paths through which goals are achieved (Scheier & Carver, 1985). Snyder, Harris, Anderson, Holleran, Irving and colleagues (1991, p. 571) defined “‘hope’ as ‘... a cognitive set that is based on a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways (planning of ways to meet goals)’” (as cited in Alarcon and colleagues, 2013, p. 821).

In their meta-analytic study, Alarcon et al. (2013) found ample support that not only are hope and optimism significantly independent (though still related) constructs, but that they have differential predictive power. Optimism is a more relevant predictor in situations where individuals have little personal control over events or their outcomes, while hope has stronger predictive abilities in circumstances where individuals have a greater degree of personal control (Alarcon et al., 2013). This finding has important relevance to the current study, as survivors have little control over their experience of sexual violence, nor whether their experience is believed or the perpetrator held accountable. Thus, dispositional optimism is a potentially important predictor of posttraumatic growth and distress for sexual assault survivors.

Optimism, Coping, Meaning Making, and Posttraumatic Growth/Distress

Optimism have been shown to be positively related with important correlates of posttraumatic growth, such as meaning making, spirituality, positive mood, benefit-finding, adjustment, life satisfaction, well-being, and coping (Carver, et al., 2009; Ho et al., 2010; Lee et al., 2006; Prati & Pietrantonio, 2009). In a study of 74 male and female cancer patients, Lee and colleagues (2006) found approach coping and meaning making intervention strategies (which involved cognitive appraisal and emotional processing) to be positively associated with optimism even early in the process, prior to cancer remediation (Lee et al., 2006). Both optimists and pessimists appraised the trauma in terms of impact and their personal stakes, but optimists were better able to identify and mobilize coping resources (Chang, 2008; Lazarus & Folkman, 1984).

In a sample of 198 trauma survivors, Brodhagen & Wise (2008) found that experiencing a trauma was associated with lower levels of dispositional optimism and higher levels of distress than the general population. This is consistent with literature suggesting that traumatic events have a negative impact on world assumptions and cognitive schemas about self, world, and others (Frazier et al., 2001; Horowitz, 1992; Janoff-Bulman, 1992; Koss & Figueredo, 2004). However, those who reported higher levels of dispositional optimism in turn reported lower levels of distress, regardless of trauma history. This provides support for the finding that dispositional optimism may be related to lower distress levels, possibly due to more effective and positive coping and meaning making strategies (Brodhagen & Wise, 2008).

In addition, research suggests an important role of optimism on posttraumatic growth outcomes. In a meta-analysis of factors predicting posttraumatic growth, optimism had an indirect influence which was thought to occur through promoting positive appraisals and active coping strategies (Prati & Pietrantonio, 2009). Prati and Pietrantonio (2009) interpreted the

influence of optimism on posttraumatic growth and reduced distress as occurring through the mechanisms of social support and coping strategies. They suggested that optimists tend to seek out more social support, which is associated with other positive approach coping strategies (Carver et al., 2010; Prati & Pietrantonio, 2009). Further, they found that optimism was strongly associated with positive reappraisal coping and the ability to find meaningful benefits in stressful situations, which is also associated with posttraumatic growth. This meta-analytic study, which also used Schaefer and Moos' (1998) model of posttraumatic growth as a framework, provides empirical support for the important role of optimism within the model (Prati & Pietrantonio, 2009). Other research has found that optimism is positively associated with a) the use of social support, humor, acceptance, positive reframing, and b) approach, problem-solving, and spiritual-religious forms of coping; conversely, it is negatively associated with the use of denial and avoidance coping strategies (Brodhagen & Wise, 2008; Carver et al., 2009; Prati & Pietrantonio, 2009; Solberg Nes, Evans, & Segerstrom, 2009; Solberg Nes & Segerstrom, 2006).

Optimism also has an important role in how individuals appraise and make meaning of a trauma, and begin restoring world assumptions. After traumatic events, individuals experience much distress when their world assumptions have been shattered and their schemas have been challenged, and as they begin to confront and make sense of the experience (Horowitz, 1992; Janoff-Bulman, 1992; Park, 2010). Survivors with a future-oriented orientation may be more successful in making sense of the trauma than those with a past or immediate focus, as these may exacerbate attributions of blame and negative self-schemas (Horowitz, 1992; Maes, 1998b; Park, 2010; Park & Ai, 2006). Because optimism is the expectation of positive outcomes, this future-oriented style may provide greater confidence to begin coping and reconciling discrepant world beliefs and the shattered assumptions, particularly with a similarly future-oriented worldview

such as belief in ultimate justice (Alarcon et al., 2013; Janoff-Bulman, 1992; Maes, 1998b; Park, Edmondson, Fenster, & Blank, 2008).

Some have suggested that optimists have “an ability to concentrate on the most important things and to disengage from unachievable goals or worldviews that are inconsistent with the reality of the trauma... [which] is crucial to cognitive processing related to growth,” (Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 2004). It is possible, then, that optimists may focus energy towards integrating the trauma into their global meaning system and making sense of the event, and more easily or quickly relinquish characterological and behavioral self-blame over time (Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 2004). Optimists tend to persevere in trying to understand and make sense of events in the face of adversity, and these individuals may continue more active cognitive and emotional processing and coping efforts (Brodhagen & Wise, 2008; Prati & Pietrantonio, 2009). Optimism may lead to posttraumatic growth and decreased distress through the mechanisms of effective coping, emotional desensitization, and narrating the trauma, which leads to more successful meaning making efforts and restoration of world beliefs (Horowitz, 1992; Prati & Pietrantonio, 2009; Brodhagen & Wise, 2008). This explanation would be consistent with the finding that while trauma damages worldview assumptions, for those who hold optimistic and ultimate justice worldviews, they are more likely to report lower distress and more growth, as well as greater use of approach coping, meaning making, and problem-solving coping (Alarcon et al., 2013; Brodhagen & Wise, 2008; Frazier et al., 2001; Frazier et al., 2004; Furnham, 2003; Janoff-Bulman, 1992; Koss & Figueredo, 2004; Valdez & Lilly, 2014).

Summary

Optimism had been a widely explored topic both in pop culture and psychology and is defined by Madsen and Abell (2010) as “cognitive-emotional energy toward positive

expectations about life and future outcomes” (p. 225). The construct is a stable trait or characteristic of personality that is not constrained to specific events or time periods, and positively predicts posttraumatic growth, approach coping, meaning making, and reduced distress after traumatic events (Brodhagen & Wise, 2008; Carver & Scheier, 2014; Carver et al., 2009; Maes, 1998b; Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 2004). The current study conceptualizes optimism within System II in Schaefer and Moos’ (1998) model of posttraumatic growth along with belief in ultimate justice. However, by employing an exploratory approach, the current investigation will gain insight as to the specific mechanisms through which optimism relates to other variables to facilitate outcomes of posttraumatic growth and distress. Therefore, the current investigation adds to the literature by assessing the unique predictors and mechanisms of growth and distress for sexual assault survivors.

Supportive Relationships

While supportive relationships and social support are important and well-studied areas in the trauma literature, their influence is perhaps even more critical in the context of interpersonal violence, trauma, and sexual assault (Beck, Grant, Clapp, & Palyo, 2008; Littleton, Grills-Taquechel, Axsom, Bye, & Buck, 2012). The role of supportive relationships in the healing process is complicated by the interpersonal nature of sexual trauma, and because relationships are often a source of the secondary victimization, stigma, and blame associated with sexual assault, which may impact social support through a number of mechanisms (Littleton et al., 2012; Madsen & Abell, 2010). Some survivors may have difficulty trusting others, avoid relationships, or may socially withdraw due to emotional and psychological symptoms related to the trauma (Beck et al., 2008). After disclosing their trauma, some survivors may avoid developing relationship due to negative reactions from others, may experience interpersonal

conflict and difficulty navigating relationships, or struggle relating to others due to symptoms such as hyper-arousal or emotional numbing (Beck et al., 2008; Littleton et al., 2012). Still others may lose support due to victim blaming, because the perpetrator(s) is in their immediate support network, or they may receive little or no support because they never disclose their experience (Littleton et al., 2012). Perceived supportive relationships can thus be an important source of resilience, but frequently consist of a combination of positive, negative, and neutral experiences (Madsen & Abell, 2010; Orchowski et al., 2013; Pruitt & Zoellner, 2008).

Given the interpersonal nature of sexual trauma and the potential impact on survivors' global belief systems, supportive relationships significantly impacts how survivors appraise, assess, interpret, process, and cope with the trauma (Janoff-Bulman, 1992; Littleton et al., 2012; Schaefer & Moos, 1992; Steger & Park, 2012). However, due to mixed research about the exact role supportive relationships plays, much remains to be understood about the manner in which supportive relationship impact the process of adjustment for female-identified sexual assault survivors. For the purpose of the current study, supportive relationships are hypothesized to function as an independent predictor, corresponding to environmental resources (System II) in the Schaefer and Moos (1998) model.

Definitions, Theories, and Models of Supportive Relationships

Supportive relationships are commonly considered a protective factor that facilitates resilience in the face of adversity, or in other words, as a quality that promotes positive adaptation after negative experiences (Madsen & Abell, 2010; Smith et al., 2013). Madsen and Abell (2010) defined supportive relationships as “the perceived ability to generate and maintain constructive reciprocal relationships” that are healthy (p.225). Similar to the construct of supportive relationships, Regehr and colleagues (2001) focused on “relational capacity” as a

personality construct which influences behaviors, cognitions, and coping, and contributes to posttraumatic distress and positive recovery outcomes. In their analysis of 164 firefighters, they sought to expand beyond the “dose-effect” view of trauma-related distress to examine social support in a broader context of personal factors. They found that perceived social support and subsequent coping were directly related to the individual’s relational capacity for developing and maintaining relationships, and distinguished between the *capacity* for relationships and the *utilization* of social support. Due to trauma-related factors and others’ reactions to survivors’ disclosures, social relationships may inhibit or facilitate the adaptive coping strategies that affect posttraumatic growth and distress (Pruitt & Zoellner, 2008; Regehr et al., 2001; Ullman, 1996).

Relational capacity is a quality that allows the individual to identify and utilize effective forms of coping/processing and support-seeking behaviors that may lead to reduced distress (Regehr et al., 2001). Thus, it can be influenced by other variables and experiences, or even acquired, as is hypothesized by Schaefer and Moos’ (1998) theory that outcomes of growth can include an increased ability to seek out support (Schaefer & Moos, 1992; Schnell & Becker, 2006). Further, the optimism research suggest that individuals with higher levels of reported optimism tend to perceive more supportive relationships, even when they do not experience the provision of increased social support (Carver & Scheier, 2014). Individuals reported higher levels of optimism also tend to work harder to maintain high-priority relationships, engage in more productive and creative problem-solving in relationships, have more extensive networks across multiple groups, and report experiencing greater social support. Consistent with the bidirectional influence between environmental resources (System I) and personal resources (System II) in the recursive Schaefer and Moos (1998) framework, experiencing social support in relationships can also bolster optimism over time, and vice versa (Carver & Scheier, 2014).

Experiences and Correlates of Social Support and Posttraumatic Growth/Distress

There is mixed evidence about whether social support is a positive or negative influence on the recovery of sexual assault survivors, as well as the exact manner in which it affects recovery (Ullman, 1999). While there may be harmful effects from negative social support, positive experiences of social support can serve as a beneficial and healing aspect of recovery, a protective factor, and a strength for trauma survivors as they cope with their trauma experience (Madsen & Abell, 2010; Ullman, 1999). For example, positive social support has been shown to promote seeking ongoing emotional support (Orchowski et al., 2013), more effective meaning making attempts (Ullman, 1999), and perhaps serve as a protective factor against distress (Borja et al., 2006; Bryant-Davis et al., 2011; Ullman, 1999).

In a sample of 413 female African American sexual assault survivors, results revealed that social support served as a protective factor and was associated with lower level of depression and PTSD (Bryant-Davis et al., 2011). In another study of 56 trauma survivors examining the moderating effects of perceived social support on the relationship between PTSD symptoms and suicidal behavior, high perceived social support was associated with less suicidal behavior even when the number and severity of PTSD symptoms remained high, as compared to those with low perceived social support (Panagioti, Gooding, Taylor, & Tarrier, 2014). In a study of 517 female sexual assault survivors, experiences of positive and negative social support from both formal and informal source were reported, as were reports of simultaneous growth and distress (Borja et al., 2006). A link between social support and adjustment has also been found, with those reporting more support experiencing greater adjustment, meaning, and those endorsing less support reporting poorer adjustment and outcomes (Borja et al., 2006; Stillman, Baumeister, Lambert, Crescioni, DeWall, et al., 2009).

Reactions that survivors receive—when and if they decide to disclose their assault—are often the catalyst for whether they will continue to perceive the presence of supportive relationships (Orchowski et al., 2013; Ullman, 1999). Individuals who experience a less stereotypical (but in reality, much more common) form of sexual assault, such as by someone they know, in their own home, or while under the influence of alcohol, are much more likely to experience negative reactions from others, which in turn promotes more negative self-attributions, self-blame, increased distress, and poorer recovery outcomes (Ullman, 1999).

In a sample of 374 women, Orchowski and colleagues (2013) examined the roles of positive and negative social reactions to sexual assault disclosures in survivors' psychological distress, coping, social support, and self-esteem. Survivors who perceived others' reactions as blaming in response to their assault disclosure tended to engage in less adaptive coping and experienced lower self-esteem, while receiving emotional support facilitated adaptive coping and encouraged survivors to continue seeking emotional support (Orchowski et al., 2013; Ullman, 2014). While negative reactions have adverse effects on coping, self-esteem, PTSD symptoms, and impede recovery by potentially damaging the attribution process when survivors are trying to cope (Orchowski et al., 2013; Pruitt & Zoellner, 2008; Ullman, 2014), even "neutral" reactions to assault disclosure can be invalidating and can actually be more destructive and long-lasting in their effects than explicitly negative or blaming reactions (Pruitt & Zoellner, 2008).

Multiple meta-analytic studies have demonstrated that unsupportive social reactions to the disclosure of traumatic events are one of the strongest predictors of post-trauma distress and PTSD (Pruitt & Zoellner, 2008). In a study of female sexual assault and non-sexual assault survivors, interpersonal friction and negative support was even more predictive of PTSD than the experience of the initial trauma (Zoellner, Foa, & Brigidi, 1999). They argue that while positive

perceptions of support may be important to the healing process, negative and neutral experiences have a much stronger influence on the development of PTSD. Further, “neutral” reactions may play a stronger role and lead to more intrusive thoughts and rumination because overtly negative reactions are perhaps easier to reject initially. Pruitt & Zoellner (2008) found that negative social support promotes distress, maintains PTSD symptomology, and inhibits recovery by hindering natural, adaptive coping responses. The absence of social support has similar effects by preventing personal resources from being allocated towards coping with, processing, and making meaning of the trauma (Pruitt & Zoellner, 2008; Stillman et al., 2009).

Summary

Schaefer and Moos (1998) conceptualize social support as an environmental resource (System I) variable that predicts coping/appraisal responses, and in turn influences outcomes of posttraumatic growth. With this framework in mind, the current investigation hypothesizes that supportive relationships will function as an independent predictor, corresponding with System I (environmental resources) in the Schaefer and Moos (1998) model. Some research suggests that the experience of positive support may influence the development of PTSD symptoms or distress indirectly through promoting more adaptive coping efforts that allow for survivors to regain a sense of control, meaning, and order in their worldview and assumptions (Borja et al., 2006). Social support has also been linked with optimism, meaning making, positive adjustment, and posttraumatic growth (Madsen & Abell, 2012; Pruitt & Zoellner, 2008; Smith et al., 2013). Other research shows a strong, influential link between social exclusion/rejection and the lack of supportive relationships, and individuals’ global perceptions of meaninglessness (Schnell & Becker, 2006; Stillman, Baumeister, Lambert, Crescioni, DeWall, & Finchman, 2009). Thus, there is ample research that demonstrates the roles of social support with optimism, coping and

appraisal, as well as their direct and indirect relation to distress and posttraumatic growth (Madsen & Abell, 2010; Schaefer & Moos, 1992; Smith et al., 2013). However, much remains to be understood about the specific capacity and path in which supportive relationships functions for survivors of sexual assault, particularly given conflicting research about how it interacts with other variables to promote positive and negative outcomes (Ullman, 2014). Thus, the current study's exploratory approach aimed to provide clarification as to how perceived supportive relationships operate for survivors of sexual violence.

Coping and Appraisal

Coping and appraisal is an important aspect of the model of posttraumatic growth by Schaefer and Moos (1992, 1998). They postulated that personal resources (System II; belief in ultimate justice and optimism) interacts with environmental resources (System I; supportive relationships) to influence one's style of appraisal and strategies of coping (System IV; e.g., approach vs. avoidance coping) after the trauma (System III). These systems directly and indirectly affect trauma survivors' subsequent levels of posttraumatic growth and distress, as well as interact recursively and reciprocally with the other systems (Schaefer & Moos, 1998). The current study similarly hypothesized that coping and appraisal would function as a mediator in the relation between predictors (belief in ultimate justice, optimism, and supportive relationships) and outcomes (posttraumatic growth and distress) for sexual assault survivors.

Folkman and Lazarus (1991) defined coping as the "cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person," while appraisal is understood as "the process of categorizing an encounter, and its various facets, with respect to its significance for well-being.... It is largely evaluative, focused on meaning or significance" (Lazarus & Folkman, 1984, p.31). Appraisal is

influenced by personal and environmental variables such as resources for coping, expectations for the future, and beliefs about self and the world (Folkman & Lazarus, 1991; Schaefer & Moos, 1992). Research also suggests that coping is influenced by the need to regain control after world assumptions have been shattered, and therefore represent a means of compensatory control in response to the individual's expectations about people and assumptions about the world have been violated (Kay et al., 2010). In other words, how individuals "cope" is influenced not only by the thoughts and actions used to deal with a stressor, but also their pre-trauma beliefs and supports, and their assessment of meaning (Steger & Park, 2012).

Coping has a clear link to reports of distress and growth (Frazier et al., 2004), but the types of coping strategies utilized are associated with differences related to personality, gender, coping resources, worldviews and beliefs, attributions, and self-concept. For example, individuals are influenced by socialized gender norms and roles constraints in terms of not only the stressors experienced, but also in their styles of coping (Matud, 2004). Women report different sources of stress, describe stressors as being more unpleasant, and perceive events and life changes as less controllable (Matud, 2004). Women also tend to cope with stressors in more passive, avoidant, and emotion-focused ways with less use of instrumental/active strategies, such as problem-solving coping (Matud, 2004).

Gender differences in coping strategies holds significant implications for survivors' choice of coping strategies, as it relates to reliance on worldview, meaning frameworks, optimism, and social support. While seeking social support is sometimes considered a coping strategy for trauma survivors (Prati & Pietrantonio, 2009; Schaefer & Moos, 1998), according to the model by Schaefer & Moos (1992), social support may also function as an environmental resource that interacts with personal resources to predict coping/appraisal. This is consistent with

the view of social support as a protective factor, defined as “the capacity for developing and maintaining supportive relationships”, which promotes effective coping, rather than as the coping strategy itself (Madsen & Abell, 2010, p.25). Research over the past several decades has examined the different coping strategies utilized by sexual assault survivors, and more recent studies have undertaken efforts to understand how some coping strategies may be more or less effective in reducing distress and promoting posttraumatic growth (Bell, 1999; Burt & Katz, 1988; Frazier & Burnett, 1994; Littleton & Bretkopf, 2006; Morris, Shakespeare-Finch, & Scott, 2007). In fact, coping strategies has been cited as one of the primary mechanisms through which trauma survivors experience posttraumatic growth (Frazier et al., 2004).

The literature shows mixed findings about the mechanism of influence through which appraisal and coping impact posttraumatic growth and distress. However, active cognitive processing and deliberate rumination appears to be the component of coping that allows survivors to make sense of the discrepancy between pre-existing global meaning systems (or schemas) and the trauma event that creates dissonance with prior beliefs and assumptions about the world (Bosson, Kelley, & Jones, 2012; Steger & Park, 2012; Stockton, Hunt, & Joseph, 2011; Taku, Cann, Calhoun, & Tedeschi, 2008). For the purpose of the current study, I focus on three approach strategies of coping strategies and appraisal—problem solving, supportive spirituality, and meaning making—corresponding to System IV (coping and appraisal) in the Schaefer and Moos (1998) model of posttraumatic growth.

Approach/Problem-Solving Coping

Consistent with the definition utilized in the Schaefer and Moos (1998) model of posttraumatic growth, approach coping is defined here as a strategy that allows survivors to engage in problem solving strategies. Problem solving strategies include, but are not necessarily

limited to, actively addressing, appraising, or confronting the trauma and/or its resulting sequelae (Heppner & Baker, 1997; Schaefer & Moos, 1998). In a similar vein, problem-focused coping (problem solving) was defined by Folkman & Moskowitz (2000) as “thoughts and instrumental behaviors that solve or manage the underlying cause of distress” (p.2).¹ In contrast, avoidance coping includes strategies that do not directly address the trauma, and instead may include denial or active avoidance in thinking about or dealing with the event and its resulting sequelae (Heppner & Baker, 1997). Avoidance coping can lead survivors to minimize their trauma and develop a sense of helplessness in responding or coping with the experience, and may include activities such as use of substance abuse to block out memories of the trauma, or avoiding reminders of the sexual assault (Heppner & Baker, 1997; Littleton & Breitkopf, 2006; Najdowski & Ullman, 2009; Schaefer & Moos, 1998). Avoidance coping, denial, and distraction are associated with prolonged distress and negatively associated with posttraumatic growth outcomes (Nadjowski & Ullman, 2009; Ullman et al., 2005).

Frazier, Mortensen, and Steward (2005) found in a sample of 171 female sexual assault survivors that coping mediated the relationship between perceived control and outcomes of distress. This is consistent with other research demonstrating that maladaptive coping strategies such as avoidance, denial, self-blame, and substance use are associated with increased distress and poorer outcomes (Frazier et al., 2005). The use of avoidance coping tactics were associated with less posttraumatic growth and meaning making, and exacerbated posttraumatic stress symptoms (Boesch, Koss, Figueredo, & Coan, 2001). Some studies on the resolution and

¹ For the purpose of the current study, approach coping, problem-solving coping, and problem-focused coping will be used synonymously because these terms have had similar and overlapping definitions in the literature.

meaning making of childhood sexual abuse have found that actively avoiding the assault has a strong inhibitory effect on healing (e.g., Wright et al., 2007). Survivors with high self-blame and low opinions of self-worth reported an increased reliance on avoidance coping strategies, though positive social support seemed to buffer this effect (Littleton & Breitkopf, 2006). And while use of avoidance coping is common (and likely adaptive) in the immediate aftermath of sexual abuse, continued use of avoidance can lead to harmful and maladaptive coping, and can inhibit posttraumatic growth (Wang & Heppner, 2011).

A number of studies have demonstrated the predictive ability of approach coping/problem solving strategies on posttraumatic growth in sexual assault and other trauma survivors, as well as the inverse relationship between avoidance coping and posttraumatic growth and positive association with increased long-term distress and PTSD (Frazier et al., 2004; Frazier & Berman, 2008; Littleton & Breitkopf, 2006; Najdowski & Ullman, 2009; Schaefer & Moos, 1998). Often, those who feel confident in their coping resources are more likely to utilize approach coping (Littleton & Breitkopf, 2006) and approach coping is also associated with social support (Chao, 2011), whereas avoidance coping is used more often when survivors feel that they have inadequate coping resources and an absence of supportive relationships (Littleton & Breitkopf, 2006; Littleton, 2007). Because those who utilize problem-solving coping are better able to assess social support and utilize other forms of coping, they tend to experience less stress and greater well-being (Chao, 2011).

There are also close links between approach and problem-solving coping with other forms of coping, coping resources, and traits/dispositions (Fetty, 2012). In a path analysis of 144 sexual assault survivors, there was a positive association between beliefs in ultimate justice, problem-solving, supportive spirituality, and outcomes of posttraumatic growth (Fetty, 2012).

Further, individuals with greater reported optimism and those who have more social support are also more likely to utilize approach coping and/or religious/spiritual coping, use less avoidance coping and self-blame, and report more positive life changes over time (Carver et al., 2010; Frazier et al., 2004; Prati & Pietrantonio, 2009; Pruitt & Zoellner, 2008; Ullman, 2014). In fact, dispositional optimism is thought to indirectly lead to decreased distress and increased growth through the utilization of approach and adaptive coping strategies (Dougall, Hyman, Hayward, McFeely, & Baum, 2001). In addition, individuals with greater levels of optimism are more likely to rely on problem-solving/approach coping strategies and more persistent in their coping efforts. Similarly, they are less likely to rely on avoidance and other maladaptive forms of coping (Carver et al., 2010; Prati & Pietrantonio, 2009).

In sum, the literature suggests that generally, problem solving coping and related strategies positively is a beneficial approach for sexual assault survivors, and that problem solving generally predicts posttraumatic growth (Frazier et al., 2004; Frazier & Berman, 2008; Littleton & Breitkopf, 2006; Schaefer & Moos, 1998). Further, holding ultimate justice world beliefs, optimism, and social support are associated with increased use of active coping (Carver & Scheier, 2014; Dalbert, 1998; Fetchenhauer et al., 2005; Fontaine et al., 1993; Furnham, 2003; Furnham & Boston, 1996; Lucas et al., 2008; Prati & Pietrantonio, 2009), which is significant given the importance of deliberate engagement, rumination, and processing on promoting posttraumatic growth and inhibiting distress (Bosson et al., 2012; Groleau et al., 2013; Su & Chen, 2015). Further, optimism (Carver & Scheier, 2010; Fontaine et al., 1993), ultimate justice (Maes, 1998b), and social support (Bryant-Davis et al., 2009; Frazier et al., 2004) are associated with higher levels of confidence in one's coping ability, which is associated with more active coping (Frazier, 2003; Frazier et al., 2005). Therefore, the current study examines how this

coping strategy may mediate the relations between (a) belief in ultimate justice, optimism, and supportive relationships and (b) outcomes of posttraumatic growth and distress. Next, supportive spirituality and meaning making are discussed.

Religious and Spiritual Coping

In addition to problem solving, research suggests that religious/spiritual coping have been found to be very helpful in coping with trauma, and is related to various other positive outcomes, coping strategies, and reports of well-being for survivors of many kinds of trauma, including sexual assault (Madsen & Abell, 2010; Pargament & Mahoney, 2009). A reliance on, and connection with, a high-power is associated with a sense of comfort, hope, acceptance, inner-strength, and sense of purpose and meaning for survivors, and can be an important part of coping with trauma (Bryant-Davis et al., 2011; Madsen & Abell, 2010). In a path analysis of 144 sexual assault survivors, supportive spirituality was significantly and positively associated with outcomes of posttraumatic growth (Fetty, 2012).

However, there have been problems of definitional and operational consistency across studies that make it difficult to differentiate the underlying mechanisms through which religious and spiritual coping operate. In the past, religion and spirituality have not always been distinguished from each other despite their distinct differences. Further, some studies have focused on the behavioral manifestations of religious/spiritual coping which is often confounded with social support and other conceptually related variables, while others have focused on the strength of internally held spiritual beliefs (Bryant-Davis et al., 2011) and how spirituality may contribute to the global meaning system of one's worldview (Robinson et al., 2011). While there has been strong empirical support for the role of religious/spiritual coping in recovering from trauma, but is relatively little known about how operates for survivors of sexual assault. The

current investigation hypothesized that supportive spirituality would function as a coping and appraisal variable corresponding to System IV in the Schaefer & Moos' (1992) model of posttraumatic growth. Thus, it was hypothesized to mediate the relation between (a) ultimate justice, optimism, and supportive relationships on (b) outcomes of growth and distress.

There has been significant variation in the definitions of religiosity/spirituality and religious/spiritual coping between studies. Pargament and Mahoney (2009) define religiosity as adherence to a classical institutional domain and organized belief system that includes both personal affiliation and endorsement of beliefs, as well as activities related to that belief system; in addition to adherence to a belief system, it also connotes behavioral participation. However, spirituality is understood more broadly as the “essence” of religion, and refers to deeply held beliefs of such concepts such as the divine and transcendent reality, but without necessitating behavioral participation (Pargament & Mahoney, 2009). Thus, spirituality and religiosity are conceptually independent, but can be expressed simultaneously (Pargament & Mahoney, 2009). The current study utilized Madsen and Abell's (2010) definition of supportive spirituality as “deeply personal beliefs and practices that transcend the regular activities of this world” (p. 225). Different individuals may rely on their spirituality to cope in public ways that include activities such as attending church and religious events, or they may cope more privately by feeling more spiritually connected to a divine power, praying, or simply feeling comforted by knowing that a divine being is “out there” (Pargament & Mahoney, 2009).

Due to the finding that an increased sense of spirituality is often reported with posttraumatic growth, it is important to distinguish “changes in spirituality” from supportive spirituality as a form of coping and method of processing the trauma. While spiritual change occurring through posttraumatic growth may lead to a greater salience and significance of

spirituality in the survivor's life after the trauma occurs (Tedeschi & Calhoun, 1996; Tedeschi et al., 1998), it is distinct from supportive spirituality as a coping strategy, which refers to an active search process of seeking out and engaging in spiritually related activities/reflection in order to cope with a stressor (Madsen & Abell, 2010; Pargament & Mahoney, 2009). It is important to note that because changes in spirituality is understood as a change in one's philosophy of life (Tedeschi & Calhoun, 1996), outcomes of increased spirituality may occur for spiritual and non-spiritual individuals alike (Bosson et al., 2012; Tedeschi & Calhoun, 2004). For example, some survivors may develop an entirely new sense of spirituality, and for those who do not identify as religious or spiritual, this change may occur in the form of deepened existential questioning (Bosson et al., 2012; Tedeschi & Calhoun, 1996; Tedeschi et al., 1998). Thus, spiritual coping is a means of cognitively, emotionally, or behaviorally dealing with a specific stressor and the related distress, whereas increased spirituality in posttraumatic growth refers to a difference in the priority that spirituality takes in one's life, or even a change in one's philosophy of life (Tedeschi & Calhoun, 1996; Tedeschi et al., 1998).

It appears that spirituality operates through multiple mechanisms in the aftermath of trauma. Research has found that a sense of spirituality seems to allow survivors to be better able to make meaning from their trauma, (Frazier et al., 2004; Prati & Pietrantonio, 2009; Tedeschi & Calhoun, 1996). Positive religious coping is predictive of increased posttraumatic growth, well-being, life satisfaction, and adjustment (Ahrens et al., 2010), but there have been few studies examining the relationship between spiritual coping and sexual assault survivors' posttraumatic growth specifically (Ahrens et al., 2010). Bosson and colleagues (2012) found that in a path analysis of 85 female natural disaster survivors, intentional cognitive processing (or rumination) appeared to be the mechanism through which positive spiritual coping promotes posttraumatic

growth. Of note, positive religious/spiritual coping promotes the *deliberate* processing of the trauma that leads to positive adjustment, which is distinguished from the experience of intrusive thoughts and rumination associated with posttraumatic disorder (Bosson et al., 2012; Groleau et al., 2013; Su & Chen, 2015). Positive religious/spiritual coping may provide a means of approaching and assimilating one's trauma experience into their global meaning framework and reconstructed worldview (Bosson et al., 2012; Calhoun, Cann, Tedeschi, & McMillan, 2000; Overcash, Calhoun, Cann, & Tedeschi, 1996; Robinson et al., 2011).

However, negative religious coping and religious coping in the form of behavioral engagement may have no effect on the recovery process, or even be associated with increased depressive and PTSD symptomology (Bryant-Davis et al., 2011). Pargament, Tarakeshwar, Ellison, and Wulff (2001, as cited in Ahrens et al., 2010, p.4) defined negative religious/spiritual coping as "involving religious struggle and disconnection. Such struggles may occur when negative life events lead individuals to question the existence and benevolence of God". Negative religious coping has been associated with significantly higher levels of distress, depression, and posttraumatic stress symptoms (Ahrens et al., 2010).

Discrepant findings of the benefits and efficacy of religious/spiritual coping seems, in part, related to whether positive or negative spiritual coping strategies were used, the salience and centrality of pre-existing religious affiliations, engagement on behavioral versus cognitive processing levels, and the degree to which it interacts with other coping resources and strategies such as social support (Ahrens et al., 2010; Bosson et al., 2012; Bryant-Davis et al., 2011; Calhoun et al., 1996; Groleau et al., 2013). This finding helps to explain why some survivors of sexual assault reported that their trauma has harmed their sense of spirituality, whereas others reported that reliance on their spirituality has been helpful in coping and growing after the

assault (Ahrens et al., 2010). Religious and spiritual coping, whether positive or negative, are more likely to be used by those who already describe themselves as religious or spiritual prior to experiencing the assault (Ahrens et al., 2010; Park, 2005) and tends to be used in different ways with differing efficacy depending on the individual's intrinsic/extrinsic orientation and the reported centrality of their religion-spirituality (Krageloh, Chai, Shepherd, & Billington, 2012). For those who identify as highly or intrinsically spiritual, spiritual coping tends to be utilized in an active and problem-focused way, while those endorsing low or extrinsic religiosity tend to rely on religious coping for avoidance, escapism, or wishful thinking (Krageloh et al., 2012).

In one study which examined the role of religion/spirituality in a sample of 70 female sexual assault survivors (Ahrens et al., 2010), 60% of participants reported an increased salience/role of religion/spirituality in their lives after the sexual assault. Survivors who reported increased spirituality reported a restored sense of well-being, while those who did not report an increase in spirituality remained depressed (Kennedy, Davis, & Taylor, 1998). Religious coping can significantly influence appraisals of meaning and lead to better adjustment and potential for growth (Bosson et al., 2012; Frazier et al., 2004; Pargament & Mahoney, 2009; Prati & Pietrantoni, 2009). In fact, a sample of college students grieving the loss of a significant other ($M = 5.8$ months prior) demonstrated a positive and significant association between religiosity, meaning making, subjective well-being, and posttraumatic growth (Park, 2005).

Relying on one's religion or spirituality as a meaning framework to reinterpret an event and restore a sense of global meaning and just world beliefs is quite a common coping strategy among trauma survivors (Ahrens et al., 2010; Park, 2005). For example, survivors of sexual assault and other traumas may find meaning through reinterpreting their trauma as "part of God's plan" in order to cope with the terrible event (Ahrens et al., 2010; Park, 2005; Robinson et al.,

2011). In this way, spiritual coping is like any other appraisal/coping strategy by which engaging in meaning making and deliberate processing of a traumatic experience allows it to be assimilated into one's global world beliefs and assumptions (Bosson et al., 2012; Bryant-Davis et al., 2011; Calhoun et al., 2000; Steger & Park, 2012; Stockton et al., 2011).

For the current investigation, supportive spirituality as a strategy of coping was examined because of the literature which suggest positive associations between spiritual coping and posttraumatic growth (e.g., Frazier et al., 2004), as well as the role of spiritual coping as a compensatory control in response to shattered world assumptions and beliefs (Kay et al., 2010). In addition to the meaning derived from, and anxiety relieved by, spiritual coping, this strategy may provide survivors of trauma with a framework with which to make sense of their trauma and to restore their world assumptions and global meaning beliefs (Ahrens et al., 2010; Bryant-Davis et al., 2011; Park, 2005; Ullman, 1999). Supportive spirituality has not yet been assessed as a style of appraisal/approach coping as it corresponds to System IV in Schaefer and Moos' (1998) model, but the current study hypothesized supportive spirituality would function as a coping and appraisal variable (along with problem solving and meaning making) to mediate the relation between (a) optimism, supportive relationships, and beliefs in ultimate justice on (b) outcomes of posttraumatic growth and distress.

Appraisals of Meaning and Meaning Making

Meaning making is a long-standing area of research in the existential and philosophic realms, and has been a growing area of research for survivors of traumatic events, but research has generally been lacking for sexual assault survivors (Cromer & Smyth, 2010; Lindner, 2010; McElroy, 2010; Park, 2008, 2010; Park & Ai, 2006; Pipinelli & Kalayjian, 2010; Wright et al., 2007). The shattering of just world assumptions through the experience of traumatic events

creates dissonance between one's experience and preexisting beliefs and expectations about the self, others, and the world, and individuals will attempt to make sense of events that do not fit their life and world assumptions. As a result, survivors of traumatic events are motivated to find meaning and order in those things that seem meaningless by restoring world assumptions (Davis, Wohl, & Verberg, 2007; Festinger, 1957; Horowitz, 1992; Janoff-Bulman, 2006).

Viktor E. Frankl (2006) is often described as the progenitor of much of the literature on meaning. Through his own experiences living in a concentration camp during the holocaust, he describes the search for meaning by human beings, even in the face of great suffering. He discussed the need and drive of individuals to find significance, purpose, and meaning in distressing events, and in their lives generally. He suggested that there is an instinctual motivation and *will* to find meaning (Frankl, 2006), and stated that, "In some way, suffering ceases to be suffering at the moment it finds a meaning... But let me make it perfectly clear that in no way is suffering necessary to find meaning. I only insist that meaning is possible even in spite of suffering..." (p.113). Frankl (2006) suggested that by finding meaning in suffering, one is able to cope with that experience to some degree. It follows that survivors who are able to cope and find meaning in their trauma may be more likely to achieve posttraumatic growth.

Theories of meaning making. Global meaning is distinguished from situational meaning, and refers to the general beliefs and feelings an individual holds about them self, the world, goals, and justice (Park, 2010). Situational meaning, on the other hand, refers to the meaning and feeling an individual attributes to a particular context, experience, or situation (Park, 2010). The meaning making process requires individuals to reevaluate their situation, goals, and beliefs in order to integrate their appraised meanings of the event with their global belief and meaning systems (Park & Ai, 2006). Individuals must adapt to understand how the

traumatic event fits in with their overall schemas about life and the world, and make efforts to reduce the discrepancy with their shattered beliefs about the world (Littleton, 2007; Park et al., 2008). As survivors make sense of and find meaning in their trauma, they begin to reestablish their shattered beliefs about justice and the world (Davis et al., 2007).

Park (2010) proposed an integrative model of the meaning making process in response to traumatic events. This model was developed from theories of many prominent meaning researchers in the field who emphasize differing aspects of meaning making (Davis, Wortman, Lehman, & Silver, 2000; Janoff-Bulman, 1992; Joseph & Linley, 2008). According to Park's model (2010), people have a global meaning system with which they interpret events and experiences in their life and in the world. When experiencing a stressful event that may challenge that global system, a subjective meaning is assigned to that event (Park, 2010; Steger & Park, 2012). Distress is caused by a discrepancy in the meaning of an event and the global system, and the level of distress depends on the degree to which the situational meaning challenges the global meaning system (Groleau et al., 2013; Park, 2010; Steger & Park, 2012).

Distress resulting from the discrepancy between global and situational meaning leads to deliberate rumination, processing, and meaning making attempts. The processing that occurs when individuals make efforts to resolve the discrepancy and reduce distress may result in greater adjustment with regards to the event (Park, 2010). This is consistent with research suggesting that distress leads to active rumination and contemplation, which is associated with greater posttraumatic growth (Steger & Park, 2012; Stockton et al., 2011; Su & Chen, 2015). Depending on the centrality of a traumatic event, associated levels of distress, and the process by which schemas are adapted to accommodate the traumatic experience, each individual may engage in a variety of coping and appraisal strategies which are influenced by the pre-trauma

global belief system and personal/environment resources to affect experiences of growth or distress (Groleau et al., 2013; Littleton, 2007; Schnell & Becker, 2006; Steger & Park, 2012).

In addition to the ideas of assimilation and accommodation of schemas which occurs when confronted with a traumatic event that disrupts systems of meaning (Horowitz, 1992; Littleton, 2007), processes of *affirmation*, *abstraction*, and *assembly* contribute to trauma survivors experiences of recovery and coping (Proulx & Inzlicht, 2012). While assimilation and accommodation refer more closely to the appraisal process of how the trauma experience fits within preexisting or adapted schemata, affirmation refers to the tendency to more strongly endorse a threatened value or meaning system in response to dissonance through compensatory control methods (Kay et al., 2010; Proulx & Inzlicht, 2012). On the other hand, abstraction refers to the process of extracting patterns, relations, connections, and implicit meaning from seemingly unrelated experiences or events. In other words, individuals draw meaningful conclusions and connections between experiences in order to integrate them within a meaning system or to create an entirely new meaning system (Proulx & Inzlicht, 2012). Similarly, assembly is the process by which individuals reconfigure meaning systems and experiences into new systems of meaning to make them familiar (Proulx & Inzlicht, 2012). Though this theory has not been applied to the healing process of sexual assault survivors, it holds significant implications for understanding the process through which sexual assault survivors may engage in meaning making.

Thompson (1985) described five ways in which trauma survivors (including sexual assault survivors) find meaning in their trauma as a means to cope. The first is finding sideline benefits, which essentially means focusing on the positive and seeing the silver lining of things. By focusing on the benefits that have come out of the traumatic experience, one is better able to see the meaning that event had. The second is comparing oneself to others in worse situations.

While this may seem somewhat calloused, by comparing oneself to others who are worse off, the trauma survivor can build confidence in his or her coping skills and continue to see the positive. The third way is by imagining that the event could have been worse. While it is generally not helpful for survivors to ruminate on what happened, imagining that the trauma could have been worse allows the survivor to feel spared in some sense. The fourth way is forgetting the negative aspects of the trauma. While it is impossible, barring unusual circumstances, to simply forget the negative aspects of the trauma, survivors can find some meaning in the event by distancing themselves, putting it behind them, and not dwelling on the negative aspects but instead focusing on the positive aspects. Fifth, redefining one's goals after the trauma can be helpful in finding meaning. By reevaluating one's life goals and making new goals, one is able to cope with the stressful event in a more positive way (Thompson, 1985).

Baumeister (1991) suggested that for individuals to experience their life as meaningful, they need four domains which include purpose, efficacy, value, and self-worth. A sense of purpose allows individuals to derive meaning from current circumstances and expected future outcomes. Efficacy refers to a sense of confidence and expectation about the future, feeling a sense of control, and that one can make a difference on a given outcome. Value refers to a need to believe that one's actions are morally justified and commonly accepted. Finally, self-worth refers to the belief that one is a unique individual with desirable traits, qualities, or is superior in some valued way (Stillman et al., 2009). These are notable, given that perceived confidence about coping and perceived control over the recovery process are important facets of coping and adjusting after trauma (Frazier et al., 2001; Frazier et al., 2004; Prati & Pietrantonio, 2009).

Stillman and colleagues (2009) suggest that human beings have a need for positive, close relationships and a sense belonging, and that when they are denied or lacking such relationships

or sense of belonging (such as through social exclusion), they are unable to develop and sustain meaning through the four domains. While even an isolated experience of social rejection affects perceived global meaning in life, ongoing experiences of loneliness, isolation, social exclusion can lead to even global perceptions of meaninglessness (Stillman et al., 2009). The meaning domains of purpose, efficacy, value, and self-worth are derived through social and interpersonal contexts in daily life, and are threatened by an experience like sexual assault. Such an experience threatens one's purpose in life and the relevance of current experience to future outcomes, one's sense of agency and ability to exercise control over one's life, value and acceptance to society, and sense of uniqueness and value as a person (Stillman et al., 2009). Because negative social reactions or lack of perceived supportive relationships after sexual violence are strong predictors of PTSD, survivors' attributions of blame and appraisal of social reactions have significant implications for recovery after sexual assault (Davis, Lehman, Wortman, Silver, & Thompson, 1985; Pruitt & Zoellner, 2008; Regehr et al., 2001; Robinson et al., 2011; Ullman, 1996).

Correlates of meaning making. In a longitudinal study of 172 cancer survivors, Park and colleagues (2008) found that meaning making was positively associated with psychological well-being and posttraumatic growth over the course of one year. They found that meaning making (as assessed through open-ended qualitative questions) predicted improved growth, well-being, and life meaningfulness (Park et al., 2008). As individuals "make sense" of the trauma, it appears that the world is perceived as more ordered and controlled such that just world beliefs are restored through the process of meaning making and growth, consistent with Janoff-Bulman's (1992) research finding that after just world assumptions are shattered, survivors attempt to reconcile these beliefs through finding meaning in the experience. Because of the perceived lack of control, meaninglessness, randomness, and incongruence associated with

sexual assault and other traumatic experiences, many individuals engage in appraisal/coping that promotes compensatory control, whether through external structures and meaning systems, personal control or beliefs, or social outlets (Kay et al., 2010; Park & Fenster, 2004).

Some research suggests that for those who identify as non-secular, existential contemplation, reflection, and searching for meaning may provide a similar function as religious/spiritual coping does for those who identify as religious or spiritual (Robinson et al., 2011). Meaning making is like any other appraisal/coping strategy by which one integrates and scaffolds a traumatic experience onto an existing framework in order to integrate it with world beliefs and assumptions, and in this regard, operates similarly to spiritual and/or religious coping for sexual assault survivors (Bryant-Davis et al., 2011). By engaging in existential reflection, intentional rumination, and finding meaning in the trauma, survivors are trying to find order and control in their past experiences (Groleau et al., 2013; Kay et al., 2010; Su & Chen, 2015). Relying on problem-solving and spiritual coping allows survivors to gain a sense of control over their recovery, and through reliance on personal/environmental resources and positive expectations for the future, survivors are able to reestablish a sense of agency and utilize more effective coping (Davis et al, 2007; Frazier et al., 2005; Kay et al., 2010).

Others have also examined the how trauma survivors utilize meaning making as a coping strategy (Frazier & Burnett, 1994), as well as assessed the process through which survivors search for meaning. The search for meaning often involves the use of approach coping strategies, which are also associated with increased posttraumatic growth, a sense of control over their recovery, and fewer reports of distress (Frazier, 2003; Frazier et al., 2005). Some have even suggested that the meaning making and appraisal process is a critical ingredient in achieving posttraumatic growth (Davis et al., 2007). Perhaps because of the seemingly meaningless and

unjust nature of sexual assault, survivors may utilize more approach coping, reframing, or ascribe more significance to the trauma in order to rebuild their trust in the world as a safe and just place, and one in which their experiences “make sense” (Frazier & Burnett, 1994).

Wright and colleagues (2007) found in a study of 60 adult survivors of childhood sexual abuse that approximately half of the participants were able to find meaning, or make sense of, their traumas. For participants who reported finding meaning in their abuse, it appears that they were able to find strength through coping efforts of their suffering, and through the process of coping and searching for meaning in their trauma, were able to take stock of their identity and self-worth in a positive way. Many who reported finding meaning also endorsed experiencing improved relationships, heightened spirituality, more effective coping skills, enhanced parenting skills, and personal growth (Wright et al., 2007). In addition, research has demonstrated a link between meaning and the experience within social contexts and interpersonal relationships (Stillman et al., 2009), as well as positive therapy outcomes (Robinson et al., 2011). Further, in a path analysis of 144 sexual assault survivors, beliefs in ultimate justice were associated with the search for meaning, which was in turn associated with reduced levels of distress (Fetty, 2012).

In sum, meaning making is understood a process of appraisal and reappraisal which may lead to posttraumatic growth (Park et al., 2008). Sexual assault survivors search for meaning in order to make sense of their traumatic experience and to restore their belief that the world is a safe and just place (Frazier & Burnett, 1994), and the process and experience of meaning making is positively associated with higher levels of posttraumatic growth (Wright et al., 2007). Thus, meaning making is hypothesized in the current investigation to function as a coping and appraisal variable (along with supportive spirituality and problem solving) to mediate the relation between (a) belief in ultimate justice, optimism, and supportive relationships, and (c) outcomes

of posttraumatic growth and distress. Because there is relatively little research and few measures regarding meaning making, and none related to finding meaning from sexual assault, this variable is assessed through the self-reported search for meaning (Steger et al., 2001).

Summary of Coping and Appraisal

As can be seen from above, the coping literature shows that approach/problem-solving, supportive spirituality, and meaning making are positively associated with posttraumatic growth for sexual assault survivors (Bell, 1999; Frazier et al., 2004; Frazier & Berman, 2008; Prati & Pietrantoni, 2009; Tedeschi & Calhoun, 2004). Meta-analyses on posttraumatic growth and coping suggest that supportive spirituality is one of the most significant predictors of growth, and social support, optimism, and holding just world beliefs are also associated with increased levels of active coping (Bryant-Davis et al., 2009; Dalbert, 1998; Fetchenhauer et al., 2005; Furnham, 2003; Furnham & Boston, 1996; Lee et al., 2006; Lucas et al., 2008; Prati & Pietrantoni, 2009). Sexual assault survivors may use their spirituality or meaning making to process their trauma, reconstruct their just world beliefs, restore a sense of meaning, and regain a sense of control and predictability over their experience (Ahrens et al., 2010; Borja et al., 2006; Frazier & Burnett, 1994; Park, 2005; Robinson et al., 2011; Ullman, 1999). However, relatively little is known about the relation between the specific coping/appraisal efforts mentioned above to the other variables under investigation, or how they map onto the Schaefer and Moos (1998) model when applied to a population of sexual assault survivors. Thus, the current study aims to explore the potential mediating effects of the above coping/appraisal strategies on the relation between (a) belief in ultimate justice, optimism, and supportive relationships, and (b) posttraumatic growth/distress outcomes among sexual assault survivors.

Summary and Need for Current Study

As can be seen from the review of the above literature, there are important influences of belief in ultimate justice, optimism, supportive relationships, problem-solving, supportive spirituality, and meaning making in the lives of sexual assault survivors, as well as their experiences of posttraumatic growth and distress. Preliminary research (Fetty, 2012) supports the significance of several of the above variables in predicting posttraumatic growth and distress. Further, Frazier and colleagues (2004) found that approach and religious coping, positive appraisals, control over the recovery process, and the perception of supportive relationships mediated the relation between personality traits and posttraumatic growth. However, Frazier and colleagues (2004) did not include belief in ultimate justice or meaning making in their research, which is accounted for in the current study.

Research shows that just world beliefs, coping, and meaning making have significant influences on posttraumatic growth (Furnham, 2003; Folkman & Lazarus, 1991; Park et al., 2008), but that the processes in which these constructs operate, and their relationship to each other, have yet to be fully explored. In particular, researchers have called for additional studies to delineate the path to posttraumatic growth (Frazier & Berman, 2008). Many studies have demonstrated the correlates of posttraumatic growth (Fetchenhauer et al., 2005; Folkman, 2000; Kennedy et al., 1998; Park & Ai, 2006; Prati & Pietrantonio, 2009). While there is substantial research on meaning making, coping, belief in ultimate justice, optimism, social support, distress, and posttraumatic growth of sexual assault survivors, there is a dearth of research that addresses all of these variables. To my knowledge, there are no studies that have addressed all of these variables in a single study. The previous research has seemingly been limited to investigation of only one or two of these constructs, or has been conducted with populations

other than sexual assault survivors. In addition, much of the previous research failed to make distinctions between a general belief in a just world, belief in immanent justice, and ultimate justice, if addressing just world beliefs at all, and such beliefs have not been examined in relation to coping and appraisal to indirectly predict outcomes of posttraumatic growth and distress.

The current study adds to the literature by exploring the roles of personal worldview, trait, environmental resources, and coping/appraisal in trauma survivors' experiences of posttraumatic growth and distress. Specifically, the current study aims to investigate the mechanism through which meaning making, problem solving, and supportive spirituality mediate relation between (a) the belief in ultimate justice, optimism, and supportive relationships, and (b) posttraumatic growth or distress for sexual assault survivors. Further, exploratory SEM results will provide insight as to how findings map onto the theoretical model of posttraumatic growth by Schaefer and Moos' (1998). The proposed study holds important implications for research and clinical applications, as findings will provide information and understanding of the important mechanisms of coping and meaning making, and the role of personal and environmental resources on healing, and potentially contribute to enhanced interventions aimed to help survivors heal after a sexual assault.

The purpose of the current study, thus, was two-fold. First, it aimed to examine the factor structure of the Belief in Immanent and Ultimate Justice Scale (Maes, 1992). Second, it sought to explore the predictive and mediating constructs that promote posttraumatic growth and distress for sexual assault survivors. Thus, the following hypotheses were generated to assess these aims.

Hypothesis 1 (BIUJS Factor Analysis): I would conduct a factor analysis of the BIUJS (Maes, 1992) in order to examine the factor structure and psychometric properties of this instrument in the United States. Because (a) this scale has not been utilized in the United States

(the English version of the scale was developed for the purpose of this study) or with sexual assault survivors specifically, and (b) the inconsistent findings related to Just World Beliefs for sexual assault survivors, I would conduct an EFA vs. CFA. I hypothesized that factor analyses would reveal four dimensions of Just World Beliefs (i.e., beliefs in ultimate and immanent justice, a general just world, & an unjust world).

Hypothesis 2 (SEM Model): Using Gaskin's (2012) exploratory SEM approach, I would complete EFA and CFA to develop a sound measurement model and then test the structural model with SEM. Based on Schaefer and Moos' (1998) framework, I hypothesize that variables would group into various systems and operate in the following way: System IV (problem solving, meaning making, and supportive spirituality) would mediate the relation between (a) System I (supportive relationships) and System II (belief in ultimate justice and optimism) and (b) System V (posttraumatic growth and distress). **Hypothesis 2a.** System I (supportive relationships) and System II (optimism and belief in ultimate justice) would all be significantly and indirectly associated with posttraumatic growth and distress (System V). **Hypothesis 2b.** System I (supportive relationships) and System II (optimism and belief in ultimate justice) would be significantly and directly associated with System IV (problem solving, meaning making, and supportive spirituality). **Hypothesis 2c.** System IV (problem solving, meaning making, and supportive spirituality) would be significantly and directly associated with posttraumatic growth and distress (System V).

Hypothesis 3 (Group difference hypotheses): There would be significant differences in the levels of posttraumatic growth between participants with prior counseling and those without prior counseling.

CHAPTER 3

METHOD

The current investigation examined belief in ultimate justice, optimism, and supportive relationships as exogenous or predictor variables; posttraumatic growth and distress as endogenous or criterion variables; and problem-solving, supportive spirituality, and meaning making as mediating variables. Hypotheses were tested using an archival dataset that was gathered through a master's thesis study with a cross-sectional design (Fetty, 2012). The online survey used the Revised Sexual Experiences Survey–Short Version (Koss et al., 2007) to determine participant eligibility for the study and gather background information. After a demographic questionnaire, the aforementioned variables were then assessed by the following instruments in this order: Emotion Thermometer (Mitchell, 2007), Revised Sexual Experiences Survey–Short Version (Koss et al., 2007), Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996), Belief in Immanent and Ultimate Justice Scale (Maes, 1998b), the Meaning in Life Questionnaire (Steger et al., 2006), and Trauma Resilience Scale (Madsen & Abell, 2010). Upon completion, participants received informative resources and could choose to provide qualitative feedback.

Participants

While the survey was open to all trauma survivors over the age of 18 regardless of gender, requirements for inclusion in the current study were that individuals (a) identify as female and (b) have experienced at least one attempted or completed act of sexual assault (oral, vaginal, or anal) after the age of 14, per the Revised Sexual Experiences Survey (Koss et al., 2007). Kline (2011) suggests a minimum of 10 participants per parameter to test a model, and Barrett (2007) suggests a sample size of ≥ 200 participants for factor analyses. With 22

parameters in the model, the current study's sample size ($N = 217$) was deemed sufficient, but the findings should be interpreted with caution.

Of the 217 female-identified participants (see Table 1), they had a mean age of 27.5 years ($SD = 10.8$). In terms of the participants' racial/ethnic backgrounds, 73.3% of the participants identified as White American ($n = 159$), 16.1% as Black/African American ($n = 35$), 6.5% as Chicano/Hispanic/Latino/a ($n = 14$), 1.8% as Bi-Racial/Multi-racial ($n = 4$; i.e., Mexican American/Native American, Alaskan Native/White, and Japanese/Native American/White, or non-specified), 1.4% as Native American ($n = 3$), and $< 1.0\%$ did not specify ($n = 1$).

Participants from Illinois made up the largest percent (64.1%), with participants from twenty-seven other states accounting for the remaining 33.7% (one chose not to respond).

Approximately 71.3% came from the Midwest, 13.9% from the West Coast, 8.5% came from the South, and 4.9% from the East Coast or North East.

Growing up, 22.1% of participants were never able to make ends meet, or often unable to make ends meet, whereas 9.2% were sometimes able to make ends meet, and 67.8% were usually or always able to make ends meet. Most of the participants either had completed some college or were currently working on a Bachelor's degree (54.4%). Other participants had received a graduate degree (20.7%) or a Bachelor's degree (18.9%), and 5.1% had received a high school diploma.

Most participants identified their relationship status as single (46.5%). Others identified as: partnered/cohabitating (29.0%), married (17.5%), and divorced (6.9%). Participants represented a range of sexual orientations; most of them (68.7%) identified as exclusively heterosexual, 15.2% identified as mostly heterosexual, 5.5% as bi-sexual, 5.1% as mostly homosexual, and 5.5% as exclusively homosexual. The majority of participants identified as

Christian (56.1%), and had an average religiosity rating of 3.2 ($SD = 1.9$) and average spirituality rating of 4.6 ($SD = 1.9$) on a 1-7 rating scale with 7 being the most religious/spiritual (see Table 1 for participants' levels of religiosity and spirituality and specific religions). Roughly 44.2% ($n = 96$) of participants were recruited from a class, 20.7% ($n = 45$) from emails/listservs, 16.1% ($n = 35$) from flyers, 15.2% ($n = 33$) from other sources (word of mouth, friends, and social media being the most common), and 3.7% ($n = 8$) from a therapist or community agency.

While it is unknown whether participants were referring to their sexual assault and/or another trauma, 15.2% ($n = 33$) reported experiencing the trauma in the past year, 19.4% ($n = 42$) had experienced the trauma between 1-3 years prior, 17.1% ($n = 37$) had experienced the trauma between 4 to 6 years prior, 10.1% ($n = 22$) experienced their trauma more than 7 to 10 years prior, and 38.3% ($n = 83$) experienced their sexual assault more than 10 years prior to taking the survey. Approximately 42% ($n = 91$) of the participants had sought counseling for their sexual assault, and 58% ($n = 126$) had not received counseling. Many participants reported both attempted and completed sexual assaults, with 72.8% ($n = 158$) experiencing attempted and/or completed oral rape, 88.5% ($n = 192$) experienced vaginal attempts/completed assaults, and 41.9% ($n = 91$) having experienced attempted or completed anal rape. Specifically, 62.3% ($n = 136$) of participants reported completed oral rape, 71.9% ($n = 156$) reported completed vaginal rape, and 31.8% ($n = 69$) reported completed anal rape. Participants also reported attempted oral (45.6%, $n = 99$), vaginal (71.9%, $n = 156$), and anal rape (30.4%, $n = 66$; see Table 2).

Measures

Demographic Questionnaire

Participants provided demographic information about themselves that included: age, sex, race/ethnicity, sexual orientation, family socioeconomic backgrounds, educational level,

relationship status, religious/spiritual preferences, levels of religiosity and spirituality, prior counseling experiences, and how they heard about the study. After completing the demographic questionnaire, participants were then directed to the first of six scales included in the study.

Emotional Thermometer (ET; Mitchell, 2007)

The criterion variable of emotional distress was assessed using the Emotion Thermometer (ET). The ET is a five-item visual analogue assessment tool where items 1-4 utilize an 11-point scale (0 = “None” to 10 = “Extreme”) and measure perceived levels of distress, anxiety, depression, and anger within the previous week. The fifth item assesses the degree to which participants need help for their concerns (items 1-4) and utilizes a different 11-point scale (0 = “Can manage on my own” and 10 = “Desperately’ needing help”). Participants indicated their subjective level of emotional upset by marking the appropriate number on an image of a thermometer. Scores ranging from 0-4 indicate generally manageable levels of distress; scores of 5-7 indicate moderate levels of distress which may significantly affect one’s life; and scores of 8-10 indicate extreme distress. For the purposes of the current study, distress was examined as a latent variable with the individual items (1-4) serving as indicators. Due to the symptoms and triggers that survivors may experience even years after the trauma, and the research demonstrating the robust psychometric properties of this scale, the ET appears to be a sound measure of participants’ distress levels.

The ET was developed as an extension of the single item Distress Thermometer (National Comprehensive Cancer Network) for use in medical settings to assess levels of distress in cancer patients (Mitchell, 2007). Though not specifically validated with sexual assault survivors, the ET has been used with multiple types of cancer patients, with both males and females, with individuals from a variety of different racial and ethnic backgrounds (Mitchell, 2007, 2008, 2010a, 2010b) and

in several different countries including Great Britain (Mitchell, 2007) and Australia (Hughes Sargeant, & Hawkes, 2011). It has been shown to be consistent with other measures of emotional distress (e.g., the Beck Depression Inventory, the Hospital Anxiety and Depression Scale, and the Brief Symptom Inventory) and shows 77% sensitivity for detecting clinically significant distress (Hughes et al., 2011; Mitchell, 2008). In the current study, the individual items statistics were as follows: $M = 5.89$ ($SD = 2.70$) for general distress, $M = 4.47$ ($SD = 2.76$) for anxiety, $M = 5.91$ ($SD = 3.02$) for depression, and $M = 6.14$ ($SD = 2.84$) for anger. Thus, participants generally reported a moderate level of distress.

Revised Sexual Experiences Survey—Short Version (Revised SES-SV; Koss et al., 2007)

Information about participants' unwanted sexual experiences was gathered using the revised SES-SV, a 10-item measure that assesses the experiences of sexual coercion, attempted rape, and rape. Participants were asked to report the frequency (0, 1, 2, or 3 or more times) of a variety of unwanted sexual experiences in (a) the past 12 months and (b) since the age of 14, with higher scores reflecting more frequent experiences of sexual coercion. Questions are asked in a behavioral framing, so participants' answers were not biased because of assumptions about sexual violence, and survivors were not required to apply labels of "rape" or "sexual assault" to their unwanted experiences. As a result, more accurate responses are obtained because, even when fitting the legal definition, many victims do not define their experience as rape (Koss et al., 2007). This measure has shown adequate test-retest reliability ($r = .93$) as well as consistency between this scale and other self-reported measures of sexual violence ($r = .73$; Koss et al., 2007).

This scale has been validated in White Americans, African Americans, adult and adolescent female populations, and is correlated with other measures of sexual coercion such as

the Revised Attitudes Towards Sexuality Inventory and the Revised Conflict Tactics Scale (Cecil & Matson, 2006; Koss et al., 2007). For the purpose of this study, a brief version of the Revised SES-SV was utilized in which participants were asked about their sexual experiences, but not specific tactics used by their perpetrators. Therefore, the data about the participants' sexual experiences were gathered without greatly lengthening the survey. See Table 2 for participant information about the frequency of unwanted sexual experiences.

Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996)

The criterion variable of posttraumatic growth was assessed by the PTGI, which is a 21-item measure assessing positive change after a trauma with a six-point Likert-type scale (0 = "I did not experience this change as a result of my crisis"; 5 = "I experienced this change to a very great degree as a result of my crisis"). The PTGI consists of five subscales assessing domains of growth, which include: 5 items measuring New Possibilities (e.g., "I established a new path for my life"), 7 items measuring Relating to Others (e.g., "I have a greater sense of closeness with others"), 4 items measuring Personal Strength (e.g., "I discovered that I'm stronger than I thought I was"), 2 items measuring Spiritual Change (e.g., "I have a stronger religious faith"), and 3 items measuring Appreciation of Life (e.g., "I have a greater appreciation for the value of my own life"). The current study examined posttraumatic growth as a latent variable and used the above subscales as observed variables for the overall construct.

There is ample support for the validity of the PTGI. Shakespeare-Finch and Enders (2008) found that in a study of trauma survivors that self-reported PTGI scores were significantly correlated with the subjective reports of observers. The PTGI was originally developed for use with trauma survivors generally, rather than specifically for sexual assault survivors (Tedeschi & Calhoun, 1996). However, the PTGI has been used in adult treatment-seeking sexual assault

survivors, and the findings suggested midrange growth scores that were comparable to other trauma survivor samples (Grubaugh & Resick, 2007). It has also been validated in a variety of populations, including clinical and non-clinical populations of males and females with varying degrees of trauma severity and experiences, including natural disaster, illness, and interpersonal violence (see Tedeschi & Calhoun, 1996).

The PTGI has demonstrated good internal consistency with an overall Cronbach's alpha of .90, and an alpha range of .67-.85 for each subscales (New Possibilities, .84; Relating to Others, .85; Personal Strength, .72; Spiritual Change, .85; and Appreciation of Life, .67; Tedeschi & Calhoun, 1996). The scale as a whole has a test-retest reliability of .71 over two months; however, the subscales of Personal Strength and Appreciation of Life had a low test-retest reliability of $r = .37$ and $.47$, respectively (Joseph & Linley, 2008; Tedeschi & Calhoun, 1996). For the current study, the internal consistency estimate of the total scale is .92. The individual subscales also showed adequate internal consistencies with a range of .76-.85 (New Possibilities, .82; Relating to Others, .85; Personal Strength, .82; Spiritual Change, .76; and Appreciation of Life, .76).

Belief in Immanent and Ultimate Justice Scale (BIUJS; Maes, Schmitt, & Seiler, 1998; Maes & Schmitt, 1999)

The predictor variable of belief in ultimate justice was measured using the BIUJS, which was developed and validated in Germany. There are no measures assessing belief in ultimate justice specifically for sexual assault survivors, and few measures exist that have been used in the United States. The original BIUJS contained 19 items and four factors (5 items measuring belief in immanent justice, 4 items measure belief in ultimate justice, 5 items measuring belief in a general just world, and 5 items measuring belief in an unjust world). However, a modified and

expanded version of the scale was later developed in which illness-specific language was removed from the items, and additional items from the General Belief in a Just World Scale (Dalbert, Montada, & Schmitt, 1987) were incorporated.

The revised BIUJS (Maes & Schmitt, 1999) was analyzed in the EFA for hypothesis one. The revised scale retained the same four factors as the previous version, but with additional items. It contains 30 items and is rated on a six-point Likert-type scale ranging from 0 (“not at all”) to 5 (“completely true”). The four subscales measure the extent to which participants believe in immanent and ultimate justice, as well as the degree to which participants see the world as just or unjust. Belief in ultimate justice had 14 items (e.g., “I am convinced everyone will be compensated for suffered injustice one day”), belief in immanent justice included 6 items (e.g., “A bad conduct of life is directly followed by a bad fate”), 4 items measuring general just world beliefs (e.g., “I believe that people all, overall, get what they deserve”), and 6 items assessing unjust world beliefs (e.g., “Life is full of injustice”). Researchers reported that the modified scale has adequate internal consistency, except for the unjust world subscale: $\alpha = .72$ for the immanent justice subscale, $\alpha = .90$ for the ultimate justice subscale, $\alpha = .61$ for an unjust world subscale, and $\alpha = .87$ for a general belief in a just world in a German sample (Maes, 1996; Maes & Schmitt, 1999). Mean subscale scores have a possible range between 0-5, where higher scores represent stronger beliefs in just world. The BIUJS has been found to correlate with other scales measuring just world beliefs (Dalbert et al., 1987) and is associated with beliefs in control, draconian beliefs (“A dispositional proneness to react strictly and rigorously to human faults and weaknesses;” Maes & Schmitt, 1999, p.71), and beliefs about the distribution of justice.

The BIUJS was originally developed and validated in a German population of cancer patients (Maes, 1992), but has been translated and utilized in a number of countries including

Pakistan (Fatima & Suhail, 2010) and France (Bègue, 2002). In Pakistan, a portion of the scale (which excluded unjust world beliefs) was translated into Urdu through forward and backward translation, and was found to maintain its factor structure (Cronbach's alpha of .75 for immanent justice, .70 for ultimate justice, and .90 for belief in a just world; Fatima & Suhail, 2010). In France, the BIUJS was translated to French and exhibited a Cronbach's alpha of .64 and .58 for the immanent and ultimate justice subscales, respectively (the subscales of a just world and unjust world were excluded). This relatively low alpha could be the result of a small and heterogeneous sample ($N = 58$), or because participants were sampled by being approaching randomly in public locations, which may have resulted in a lack of consistency (Bègue, 2002).

Because the BIUJS has not been used in the United States, other English-speaking populations, or specifically in a population of sexual assault survivors, forward and back-translation was conducted prior to the beginning of the study. Beginning with the German version of the scale, a native German speaker—a graduate student in Psychology in the United States who was blind to the purpose of this study—translated the measure into English. Subsequently, another native German speaker—who currently resides in Germany and was blind to the purpose of this study—back-translated the measure from English into German. After both translation processes were complete, a third bilingual individual who is a professor in the Foreign Languages Department in a Midwestern University and who was blind to the purpose of this study compared the original German version with the back-translated version to ensure cultural and linguistic equivalency and deemed the two versions equivalent.

As part of testing the current study's hypotheses, an EFA was conducted on the BIUJS in a population of 217 female sexual assault survivors. Prior to the factor analysis and associated revisions, the internal consistency estimates were: .89 for the full scale, .93 for Ultimate Justice,

.69 for Belief in Immanent Justice, .67 for Belief in a Just World, and .73 for Belief in an Unjust World. Through factor analysis, 8 items were eliminated and the result was a three-factor solution (rather than four-factors), which included: 1) Ultimate Justice ($n = 12$ items), 2) Belief in an Immanently Just World ($n = 7$ items), and 3) Belief in an Unjust World ($n = 3$ items). The revised internal consistencies were .89 for the total scale, .92 for Belief in Ultimate Justice, .74 for Belief in an Immanently Just World, and .73 for Belief in an Unjust World (see Table 10 and Chapter 4 for a detailed discussion of the EFA results).

Trauma Resilience Scale (TRS; Madsen & Abell, 2010)

Optimism, supportive relationships, problem solving, and supportive spirituality were measured by the TRS, which was recently developed and shows great applicability to the current study. It was developed for and validated in a population of 307 sexual assault, sexual abuse, and intimate partner violence survivors. The TRS has 48 items with a seven-point Likert-type scale, ranging from 1 (“Almost Never True of me”) to 7 (“Almost Always True of me”). There are four subscales including: Problem Solving, Supportive Relationships, Optimism, and Supportive Spirituality. The Problem Solving subscale contains 10 items and measures a survivor’s ability of finding creative solutions to problems, set goals, and find needed resources (e.g., “I am able to find and get the services I need to help me with tough situations”). The Supportive Relationships subscale consists of 13 items and measures the survivor’s relative level of perceived social support from friends, family, and coworkers (e.g., “I have people in my life who I can talk to about everything”). The Optimism subscale includes 12 items and measures survivors’ hope and expectation that good things will happen and that current difficulties will be resolved (e.g., “Even though bad things have happened to me, I have peace about my future”). Finally, the Supportive Spirituality subscale contains 13 items and assesses the degree to which the survivor

uses their spirituality to cope with their trauma (e.g., “My spiritual beliefs help me through difficult times”).

In the current investigation, the subscales of supportive relationships and optimism, and supportive spirituality and problem solving, were hypothesized as predictors (System I and II) and coping/appraisal variables (System IV) respectively, as they corresponded to the systems of Schaefer and Moos’ (1998) model of posttraumatic growth. Mean scores were calculated for each subscale with a possible range of 1-7, where higher scores reflect greater endorsement or utilization of the given construct under question. The scale was validated in both men and women ranging between the ages of 18-70 years old, from a wide variety of ethnic and racial backgrounds, as well as with various types of trauma histories (Madsen & Abell, 2010).

The scale as a whole has excellent internal consistency ($\alpha = .96$). Each subscale also has good internal consistency (Problem Solving: $\alpha = .85$; Supportive Relationships: $\alpha = .85$; Optimism: $\alpha = .85$; and Supportive Spirituality: $\alpha = .98$). Madsen and Abell (2010) also reported evidence for convergent validity; the TRS was significantly correlated with the Beckham Coping Strategies Scale (COSTS), with the Problem Solving and Supportive Relationship subscales associated with the Problem Solving and Social Support subscales in the predicted direction. The Spirituality subscale of the TRS was also positively correlated with the Spirituality subscale of the Spiritual Care Rating Scales in the predicted direction. Convergent validity for the Optimism subscale of the TRS and test-retest reliability estimates are unavailable at this time (Madsen & Abell, 2010). For the current study, the internal consistency estimates were .89 for Problem Solving, .98 for Supportive Spirituality, .91 for Optimism, .90 for Supportive Relationships, and .95 for the total TRS scale.

Meanings in Life Questionnaire (MLQ; Steger et al., 2006)

The MLQ was used to measure meaning making because to date, there are no scales that specifically measure the perceived presence of meaning or search for meaning in the context of a specific traumatic event, or with sexual assault survivors in particular (Park & Ai, 2006). The MLQ is a 10-item measure with two subscales and a seven-point Likert-type scale (1 = “Absolutely Untrue” to 7 = “Absolutely True”), which assesses the degree to which participants are searching for and currently perceive the presence of meaning in their lives. The two subscales are: Presence of Meaning (i.e., individual reports having perceiving a sense of meaning or purpose in their life, such as “I understand my life’s meaning”) and Search for Meaning (i.e., individual is actively searching for meaning, such as “I am looking for something that makes my life feel meaningful”). For the purpose of the present study, the search for meaning was conceptualized as a System IV (coping and appraisal) variable. However, it was later dropped from the model and the presence of meaning was included in analyses (see Chapter 4).

The scale demonstrates good internal consistency on the Presence and Search subscales ($\alpha = .86$ and $.87$, respectively), as well as good discriminant and convergent validity according to the authors (Steger et al., 2006). The MLQ-Presence subscale has been found to be negatively correlated with extrinsic religiosity, and positively correlated with life satisfaction, intrinsic religiosity, as well as positive emotions. The MLQ-Search subscale has been shown to be positively associated with neuroticism, depression, and negative emotions, which is consistent with findings suggesting that the search for meaning is often distressing because of the discrepancy between global and situational meaning systems (Steger et al., 2006). Test-retest reliability was strong at one month ($r = .70$ for Presence and $.73$ for Search; Steger et al., 2006). The Presence and Search subscales of the MLQ demonstrated good internal consistency in a

variety of populations including Asian Americans ($\alpha = .88$ and $.87$), Latino/a Americans ($\alpha = .84$ and $.90$), and European Americans ($r = .90$ and $.91$; Kiang & Fuligni, 2010). For the current study, the internal consistency estimate of the MLQ Presence and Search subscales demonstrated internal consistencies of $.91$ and $.90$, respectively.

Procedure

The study was designed as part of a master's thesis (Fetty, 2012), after which additional data was gathered. The study was advertised in a variety of contexts, and participants were recruited from a mid-size Midwestern university's Psychology courses, community rape crisis centers, social media and internet search engines, and online listservs (see Appendix A for recruitment email). Participants completed the online survey anonymously through Survey Monkey after providing consent (see Appendix B) and being briefed about the sensitive nature of the study. Participants' names were not attached to responses and IP addresses were not recorded to maintain anonymity. A list of resources were included in the informed consent, and after completing the study and being thanked for their participation (see Appendix C for the debriefing form), participants were directed to resources related to seeking counseling and sexual assault support services (see Appendix D). Upon completion, participants could choose to (a) provide their student ID number for course credit, or (b) supply their email address to enter a lottery for one of five \$15 Wal-Mart gift cards. Prior to beginning analyses for the current study, IRB approval was obtained for analyzing the archival data (see Appendix E for IRB approval documentation).

CHAPTER 4

RESULTS

SPSS 22.0 was used for all data-cleaning, descriptive, univariate statistics, and EFA's, while CFA and SEM analyses were performed using AMOS 22.0. SEM contains two main components: an initial measurement model and a structural model (Kline, 2011; Weston & Gore, 2006). According to Weston and Gore (2006), the measurement model "allows the researcher to evaluate how well his or her observed (measured) variables combine to identify underlying hypothesized constructs" (p. 724). Weston and Gore (2006) recommend a multi-phase approach to testing the measurement model prior to analyzing the specified structural model, yet there is no "gold standard" methodology, particularly when assessing less well-understood or defined constructs. According to Kline (2011) and Asparouhov and Muthén (2009), a four-step approach in which indicators are unconstrained and allowed to load on every factor, followed by constraining indicators to a single factor, is suitable when assessing multiple-indicator constructs with more unknown variance than is typically represented in confirmatory approaches. This approach has the benefit of allowing a model to more accurately represent the "reality" of the data in some cases, account for indicator covariance, promote factor stability, and lend itself to model building because it reflects the limited knowledge of constructs or relations between specific variables (Asparouhov & Muthén, 2009; Kline, 2011). On the other hand, two-step confirmatory approaches may result in misspecified structural models, inclusion of extraneous variables that contribute little to the model, or lead to mistakenly missing meaningful constructs due to covariance between indicator residuals (Asparouhov & Muthén, 2009).

Thus, the current study followed Gaskin's (2012) multi-phase approach during the model specification and estimation steps described below. Gaskin's (2012) approach is an iterative

process of conducting an EFA, making necessary model modifications, followed by a CFA to ensure that all indicators load on their respective latent factors. AMOS uses Maximum Likelihood (ML) estimation, and as suggested by Gaskin (2012), a ML method was also used when conducting the EFA. Subsequently, the structural model involves assessing the interrelationships between latent constructs. In testing SEM models, the principles and criteria suggested by Gaskin (2012), Kline (2011) and Russell, Kahn, Spoth, and Altmaier (1998) were used as guidelines.

Because Russell and colleagues (1998) suggest that a minimum of two, but a recommendation for at least three, indicators be used per latent variable, item-parceling was used for measures that were assessed with only one measure (Bandalos, 2002; Kline, 2011; Weston & Gore, 2006). As a result, I created three item-parcels to form a latent construct for supportive relationships (TRS-SR; Madsen & Abell, 2010). In order to create each item-parcel, items were factor analyzed using a Maximum Likelihood (ML) approach, rank-ordered according to factor loadings, and grouped by combining and averaging the highest and lowest loadings (Russell et al., 1998; Weston & Gore, 2006). In this way, factor loadings were roughly equivalent across the parcels. For all other latent variables, at least two indicators were available, and it was not necessary to create item-parcels.

Best practice in SEM methodology suggests following these steps: model specification, identification, estimation, evaluation, and modification (Kline, 2011; Russell et al., 1998; Weston & Gore, 2006). Model specification requires the researcher to specify the hypothesized relationship between latent and observed variables. Secondly, it is necessary to determine whether the model is just-identified, over-identified, or under-identified. This is determined by calculating the free parameters of the model using the following equation: $p(p+1)/2$. In the

current study, the hypothesized factor and structural models were over-identified. This means that there is no exact equation or single solution, and it is therefore possible to determine which parameters provide the best model fit, fitting with the exploratory nature of the current investigation. Alternatively, over-identification means there is also greater opportunity for the model to be discrepant with the data and therefore disconfirm a given model or even suggest an alternate model (Kline, 2011).

According to Weston and Gore (2006), the third step—model estimation—involves “determining the value of the unknown parameters and the error associated with the estimated value” (p. 737). During this process of running the specified SEM analysis, standardized and unstandardized values and errors are generated in order to assess the fit between the proposed model and the actual relationship with latent constructs. The fourth step is model evaluation, in which model fit is assessed by examining a number of indices and determining how well the model fits the data. In order to do this, Weston and Gore (2006) suggest examining the “(a) significance and strength of estimated parameters, (b) variance accounted for in endogenous observed and latent variables, and (c) how well the overall model fits the observed data, as indicated by a variety of fit indices” (p. 741). Schreiber, Stage, King, Nora, and Barlow (2006) suggest looking at multiple indices, which may include: (a) Absolute/Predictive Fit Indices (including Chi-Square, AIC, BIC), (b) Comparative Fit Indices (including CFI), (c) Parsimonious Fit Indices (including PCFI), and (d) Other indices of fit (including GFI, AGFI, RMR, RMSEA). In the current study, Weston and Gore’s (2006) and Gaskin’s (2012) recommendations were followed, and the six fit indices below were used: CFI (recommended value > .90), GFI (recommended value > .95), AGFI (recommended value > .80), RMSEA

(recommended value $< .10$), SRMR (recommended value $< .10$), PCLOSE (recommended value $> .05$), and lastly, the Satorra-Bentler Robust Chi-Square (CMIN/df) (recommended value < 3).

The fifth step according to Weston and Gore (2006) involves modifying the model in order to improve fit. In order to determine whether modification would improve fit, Goodness-of-fit indices are evaluated. If theoretically appropriate and indicated by fit indices, the model can be modified, but must be re-estimated and re-evaluated afterwards (Weston & Gore, 2006). In developing and testing the measurement model during the current investigation, the EFA suggested that the hypothesized model did not adequately fit the data, so the measurement model was significantly modified. After assessing modification and fit indices, evaluating various theoretical considerations, and reevaluating the inclusion of relevant variables according to theory and empirical findings, the result was a 4-factor model with a reconfigured factor structure and observed variable makeup. As a result of the significant modifications, the model was then re-estimated and re-evaluated as suggested by Weston and Gore (2006).

Data Preparation, Assumptions of Normality, and Univariate Statistics

Approximately 601 participants began the survey, but only 36% ($N = 217$) met study eligibility requirements, completed all measures, and were included in data analyses. Upon examining trends in attrition, it appears that 28 participants discontinued the survey after the demographic questionnaire, 40 after the SES-SV, 7 after the BIUJS, 2 after the TRS, and 2 discontinued after the PTGI. Because the survey was open to survivors of various forms of trauma, it is unclear how many sexual assault vs. non-sexual assault survivors discontinued at particular points. Of the 601 participants, 384 cases were excluded due to meeting one or more of the following exclusion criteria: incomplete data ($n = 152$), did not self-identify as female ($n = 231$), did not reside in the United States ($n = 32$), or were invalid due to not responding correctly

to both validity questions ($n = 74$). Of the valid cases, many were excluded because they failed to identify any sexual assault experiences ($n = 245$).

Prior to performing analyses and after excluding the aforementioned participants, all variables were examined to ensure they adhered to the univariate and multivariate assumptions of normality. Examination of the data and z-scores revealed no outliers, but three variables did not meet assumptions of normality for skewness and kurtosis. The indicators of supportive spirituality (TRS-SS), spiritual change (PTGI-SC), and emotion thermometer-depression (ET-De) were kurtotic, and as a result, these continuous variables were transformed using a two-step process recommended by Templeton (2011) to achieve a more normal distribution while retaining the original sample mean and standard deviation. Because SEM assumes a normally distributed sample, this transformation is important to obtaining more accurate and interpretable results (Kline, 2011; Templeton, 2011; Weston & Gore, 2006). I then reverse-coded all negatively worded items and grouped items according to subscales and measures. In sum, 217 female-identified participants were included in analyses. See Table 3 for the means, standard deviations, reliability estimates, and score ranges.

Analyses

Hypothesis One: Exploratory Factor Analysis of the BIUJS

One aim of the current study was to conduct an EFA on the Belief in Immanent and Ultimate Justice Scale (Maes, 1992) in order to examine the factor structure and internal consistency of this instrument in the United States. I hypothesized that the EFA would yield four dimensions of Just World Beliefs—beliefs in ultimate justice, immanent justice, a just world, and an unjust world—according to the author of the instrument (Maes, 1992).

The translated BIUJS developed by Maes (1992) had 30 items, and with 217 observations in the final data set, a ratio of 7.2 cases per item is less than ideal, but > 200 cases still meets satisfactory criteria with which to conduct a factor analysis (Kline, 2011). A principle axis factor analysis was conducted using an oblique (promax) rotation in SPSS 22.0. The number of components to be extracted was determined by eigenvalues > 1.0 and by visually examining the steepness in slope of scree plots (Kline, 2011), which indicated retaining one to four components. In addition to considering the amount of total cumulative variance accounted for by each of the four factors (32% to 52.5%), I performed principal axis factoring analyses with an oblique (promax) rotation by specifying one-, two-, three-, and four-factor solutions.

The three-factor solution was chosen for several reasons: 1) it was the most conceptually and theoretical congruent with the original scale, 2) it allowed for retention of the greatest number of items, and 3) resulted in the most sound factor structure, with stronger item loadings and factor internal consistencies. All items with single-factor loadings of less than .40 and cross-loadings of greater than .35 were eliminated. In total, 8 items were eliminated, with $n = 6$ due to having poor factor loadings (items 3, 8, 15, 17, 27, and 30), and $n = 2$ due to high cross-loadings (items 10 and 13). Of the items with poor factor loadings, 3 items were from the belief in an unjust world subscale (items 3, 8, and 30), 1 item was from the belief in a general just world subscale (item 17), and 2 items were from the belief in immanent justice subscale (items 15 and 27). Of the items with high cross-loadings, 1 item was from the belief in ultimate justice subscale (item 10) and the second was from the belief in immanent justice subscale (item 13), and both cross-loaded with belief in a general just world. The items that were eliminated for the above reasons appeared at face value to share three similarities: 1) relate to unjust world beliefs, 2) be stated in absolute language, and 3) describe punishment rather than reward.

The first factor (12 items) best corresponds with the original belief in ultimate justice subscale and accounted for 36% of the total variance (eigenvalue = 7.92). The second factor (7 items) contained both belief in a just world and belief in immanent justice items and accounted for 10% of the total variance (eigenvalue = 2.19). The third factor (3 items) was composed of items from the original belief in an unjust world subscale, and accounted for 7% of the total variance (eigenvalue = 1.47). These three subscales accounted for 53% of the total variance, and their factor loadings, communalities, item–total correlations, means, and standard deviations are presented in Table 4.

Factor one was labeled belief in ultimate justice ($n = 12$ items) and consisted of 11 of the 13 original belief in ultimate justice items, with the addition of one item originally included on the general belief in a just world subscale (“I am sure at some point justice always wins in the world”). Factor two was labeled as belief in an immanently just world ($n = 7$ items), and contained 4 items from the original 6-item belief in immanent justice subscale (e.g. “Everyone is responsible for their own life circumstances”), as well as 3 items from the original 5-item general belief in a just world subscale (e.g. “I believe that overall, people get what they deserve”). Finally, factor three ($n = 3$ items) was labeled belief in an unjust world and consisted of 3 out of the 6 items on the original belief in an unjust world subscale (e.g. “Many things in life are completely unjust”) of the BIUJS (Maes, 1992). Cronbach’s alphas for the final revision of the 22-item BIUJS were .89 for the total scale, .92 for belief in ultimate justice, .74 for belief in immanent justice, and .73 for belief in an unjust world.

Hypothesis Two: SEM Model

Development of Measurement Model. Prior to estimation of the structural model, it is important to first assess the measurement model in order to assess the degree to which the

observed variables reflect the underlying constructs (Weston & Gore, 2006). Gaskin (2012) suggests using both EFA and CFA in order to assure the best model fit, particularly in areas lacking ample empirical support. Because (1) multiple variables and item-parcels are used to create the latent constructs, (2) the Schaefer and Moos (1998) model has had relatively little application with the given population, and (3) there have been due conflicting findings about the application of just world beliefs with sexual assault survivors, a more exploratory approach was justified rather than beginning with a CFA to test the given SEM model (Gaskin, 2012). Thus, analyses commenced with an EFA and CFA to assess whether indicators would load onto their respective latent factors, and determine whether or not the measurement model should be modified and re-specified prior to CFA and structural model estimation.

Development of the measurement model began by calculating mean scores of each measure and sub-measures to serve as possible indicators for their respective latent construct in order to conduct the EFA with all observed variables in the analysis. Item-parcels were created for the supportive relationships subscale of the TRS (TRS-SR) to use as indicators for the hypothesized latent variable of System I (environmental resources; see below). In addition, the mean scores of optimism (TRS-O), belief in ultimate justice (BIUJS), supportive spirituality (TRS-SS), problem solving (TRS-PS), five subscales of the PTGI (RTO = relating to others, SC = spiritual change, AoL = appreciation of life, PS = personal strength, and NP = new possibilities), and four single-item from the Emotion Thermometer (ET-Di = distress, ET-Ax = anxiety, ET-Ag = anger, and ET-De = depression) were utilized as indicators.

The only latent variable formed through item-parceling was System I (environmental resources), which used the 13-item supportive relationships subscale of the TRS (TRS-SR). Consistent with the recommendations by Russell and colleagues (1998), three parcels were

derived; through exploratory factor analysis, items were rank-ordered according to their factor loadings. Higher loading items were paired with lower loading items, and then allocated to one of three groups in order to equate the average factor loading of each bundle. Because there were an unequal number of items, the item averages (rather than sums) were used for each bundle. Supportive Relationships Parcel 1 (SR-1) consisted of items: 10, 13, 36, 41, and 42. Supportive Relationships Parcel 2 (SR-2) consisted of items: 2, 15, 23, and 26. Supportive Relationships Parcel 3 (SR-3) consisted of items: 7, 21, 37, and 43. However, as will be discussed below, it was no longer necessary to use the item parcels for this measure during SEM analyses.

Hypothesized Model Fit. The hypothesized measurement model was then analyzed using an EFA in SPSS, per recommendations of Gaskin (2012) in order to assess whether all observed variables did, in fact, significantly load onto the expected latent variable. When observed variables were entered into the EFA to assess how they mapped onto the hypothesized conceptual model, contrary to hypotheses, they did not load onto the expected factors (i.e., Systems) and/or failed to meet the following criteria (Kline, 2011). Kline (2011) suggests all indicators should have single-factor loadings of greater than .40, and cross-loadings of less than .35. The number of components to be extracted was determined by eigenvalues >1.0 and by visually examining the steepness in slope of scree plots (Kline, 2011), which indicated a four-factor solution. Therefore, in alignment with the four-step approach recommended by Gaskin (2012) and Asparouhov and Muthén (2009), and supported by Weston and Gore (2006), the measurement model was significantly altered to better fit the data (see Figure 3).

As part of these modifications, three major revisions were made that should be noted. First, it is important to acknowledge that an additional indicator was included for System II. Because belief in ultimate justice loaded with supportive spirituality, and because Kline (2011)

recommends using at least three indicators per factor, a theoretically informed decision was made to include a third indicator of belief in an immanently just world. Due to evidence that belief in an immanently just world may also be important to informing one's worldview and subsequent coping/appraisal and growth (Dalbert, 1998; Furnham, 2003; Lucas et al., 2008), and there was a positive association with belief in an immanently just world and the other two indicators in this system ($p < .01$), belief in an immanently just world appeared to be the most theoretically appropriate indicator to include in analyses (Asparouhov & Muthén, 2009; see Table 4).

Second, because search for meaning unexpectedly loaded with the other PTGI indicators, there was no measure of meaning within the appraisal and coping latent factor. Due to theoretical and empirical evidence that the perceived presence of meaning has been conceptualized in a manner that is similar to other meaning based appraisals and benefit-finding efforts after a trauma (Baumeister, 1991; Park, 2010; Steger & Park, 2012; Thompson, 1985), and that it was positively associated with other indicators of optimism, problem solving, and supportive relationships ($p < .01$), it was included here as an indicator with the other coping and appraisal indicators (Asparouhov & Muthén, 2009; see table 4). Third, because supportive relationships loaded with other indicator variables in System IV, and due to item parceling not being a recommended strategy (Kline, 2011), the mean score was used as an indicator instead of the previously created item parcels.

Thus, the EFA yielded a model with four distinct latent factors, rather than the five factors originally hypothesized, and the composition of factors was different than expected, which has been noted as a potential outcome of the given four-step approach (Asparouhov & Muthén, 2009). The first factor was made up of the five subscales of the PTGI scale (relating to

others, new possibilities, personal strength, spiritual changes, and appreciation of life) and the search for meaning subscale of the MLQ. Contrary to expectations, search for meaning—which was hypothesized to load with coping and appraisal—loaded with posttraumatic growth.

However, otherwise the first factor corresponded relatively consistently with the hypothesized composition of the posttraumatic growth latent factor (Schaefer & Moos, 1998). The second factor consisted of the four Emotion Thermometer items (distress, anger, anxiety, and depression), consistent with the expected composition of the latent factor for distress.

The third factor was made up of three of the four TRS subscales (supportive relationships, optimism, and problem solving), as well as the presence of meaning subscale of the MLQ. This finding conflicted with expectations and interpretations of how variables would load according to Schaefer and Moos' (1998) framework and hypotheses, as supportive relationships was expected to comprise its own latent factor (corresponding to System I), optimism was thought to load with belief in ultimate justice (corresponding to System II), and presence of meaning was not originally included in the model due to concerns that it would overlap with posttraumatic growth (corresponding to System V). Given that the presence of meaning (e.g., benefit finding) and optimism have been theorized by some as part of the appraisal process (Park & Folkman, 2009; Prati & Pietrantonio, 2009), and that using supportive relationships and problem-solving relates to engagement with coping resources, these four indicators were re-conceptualized as part of coping and appraisal (Folkman et al., 1984; Solberg Nes & Segerstrom, 2009).

Finally, the fourth factor consisted of one subscale of the TRS (supportive spirituality), and two subscales of the BIUJS (belief in ultimate justice and belief in an immanently just world), which appear to generally correspond with, and therefore be labeled as worldview. While

supportive spirituality was expected to load with coping and appraisal, it appears to function as part of worldview for two reasons. First, research demonstrates a conceptual link between belief in ultimate justice and spirituality (Maes, 1998b). Second, because the TRS assesses individuals' "deeply held spiritual beliefs" as well as "practices" (p. 225), it is not illogical that supportive spirituality may operate as a personal resource, rather than coping and appraisal style (Madsen & Abell, 2010). With these revisions, the measurement model was satisfactory for CFA testing and accounted for approximately 68% of the variance. It is also important to note that because of the modified factors of the BIUJS, and because this modified structure may be different for sexual assault survivors than survivors of other traumas, it is possible that the derived measurement model is different than would have been represented by the original BIUJS or than would be represented in a different trauma population.

Modified Measurement Model. The CFA in AMOS 22.0 demonstrated insufficient model fit, primarily due to two indicators from the latent factor for posttraumatic growth that were problematic (spiritual changes and the search for meaning), as well as the anger indicator from the latent factor for distress. Given that search for meaning has had strong associations with distress (Steger et al., 2006) and demonstrated inconsistent applications in previous path analyses (Fetty, 2012), it is not surprising that it loaded weakly and on an unexpected factor. In addition, because the spiritual changes indicator consists of only two individual items (Tedeschi & Calhoun, 1998), it was also not surprising that this indicator was problematic. After theoretical consideration and observation of the data (Asparouhov & Muthén, 2009) the decision was made to drop these three indicators from the model for several reasons. First, they either demonstrated poor or inconsistent factor loadings. Second, they contributed to unsatisfactory model fit. Lastly, there were a sufficient number of other indicators for both latent constructs, so these three

indicators could be eliminated from the models while the primary goals of the analyses could be preserved. In addition, the error terms for belief in ultimate justice and belief in an immanently just world were correlated because of their shared variance due to being related sub-tests of the same measure, as well as shared theoretical similarities. While this covariation was indicated by modification indices, it was not incongruent with theoretical underpinnings (Maes, 1992). This practice accounts for these indicators' shared contributions to the latent worldview construct, and allows for more meaningful relations between constructs to be observed, thus significantly improving model fit after modifications were made. Because the measurement model (see Figure 4) demonstrated acceptable fit, $\chi^2/df (152.74/70) = 2.17, p < .001, CFI = .940, GFI = .914, AGFI = .871, RMSEA = .074 (CI = .058, .090), PCLOSE = .008$, the structural model was then tested.

Structural Model Fit. At the recommendation of Kline (2011), Gaskin (2012), Weston and Gore (2006), and Schreiber et al. (2006), I evaluated the structural model according to the following fit indices and their respective recommended cutoff values. After further specifying the structural model by co-varying theoretically related error terms according to suggested modification indices (see Figure 5), model fit was improved from the measurement model. Because these indicators and/or constructs likely represent some shared variance and contribution to the model, by accounting for their error in the structural model, the relations between latent constructs is more visible (Asparouhov & Muthén, 2009; Gaskin, 2012; Kline, 2011).

These modifications included: (1) co-varying the residuals of the relating to others indicator (posttraumatic growth) and the supportive relationships indicator (coping and appraisal), (2) co-varying the residual terms for the personal strength indicator (posttraumatic growth) with the latent coping and appraisal construct, and (3) co-varying the error terms for the

latent constructs of distress and posttraumatic growth. Although a few fit indices were marginal or unsatisfactory, examined as a whole, the current structural model (see Figure 5) demonstrated adequate fit among the following indices: χ^2/df (108.20/70) = 1.55, $p < .002$, CFI = .972, GFI = .937, AGFI = .905, RMSEA = .050 (CI = .030, .068), PCLOSE = .471. The means and standard deviations of observed variables, their correlations, indicators' latent variable factor loadings, and latent variable correlations were calculated (see Tables 4-7).

As part of conducting the structural analyses, indirect and direct effects were examined, and the significance of the mediation pathways was determined using the bootstrapping method in AMOS 22.0 (Biesanz, Falk, & Savalai, 2010; Preacher & Hayes, 2008). Mediation generally is understood in terms of direct and indirect effects, in which the predictor variable is associated with each mediator, and each mediator is in turn associated with the outcome variable. In addition, the predictor variable is correlated with the outcome variable. In mediation, the direct effect of the predictor on the outcome variable approaches non-significance once the unique variance of the mediators (indirect effects) are accounted for in the model (Biesanz et al., 2010; Preacher & Hayes, 2008). According to Preacher and Hayes (2008), whose method was employed here, significant mediation occurs when an indirect effect value of zero does not fall within the 95% bias corrected confidence interval rather than examining the direct effect between predictors and outcome variables as suggested by the traditional Barron and Kenny method (Biesanz et al., 2010).

In sum, Hypothesis two stated that coping and appraisal (i.e. search for meaning, problem solving, and supportive spirituality) would mediate the relation between (a) belief in ultimate justice and optimism, and supportive relationships (corresponding to Systems I and II) on (b) outcomes of distress and posttraumatic growth (corresponding to System V). This hypothesis

was not supported, as EFA analyses indicated a different relation between latent variables and their relative indicator variables. These analyses yielded an exploratory SEM model in which supportive relationships loaded with other variables rather than independently resulting in the elimination of what corresponded to System I in the Schaefer and Moos (1998) model.

Worldview (corresponding to System II) consisted of belief in ultimate justice, belief in an immanently just world, and supportive spirituality. Coping and appraisal (corresponding to System IV) consisted of problem solving, presence of meaning, supportive relationships, and optimism. Finally, posttraumatic growth and distress (corresponding to System V) respectively consisted of the four subscales of the PTGI (excluding spiritual changes), and the three indicator items of the ET (excluding anger).

When the structural model was tested, coping and appraisal accounted for approximately 34% of the variance in the relation between worldview and posttraumatic growth, and approximately 58% of the variance between worldview and distress. All regression paths and direct effects were significant, such that worldview was positively associated with coping and appraisal ($\beta = .389$, $SE = .091$, $CI = [.215 - .571]$, $p = .003^{**}$), coping and appraisal was positively associated with posttraumatic growth ($\beta = .344$, $SE = .078$, $CI = [.206 - .503]$, $p = .003^{**}$) and distress ($\beta = .580$, $SE = .059$, $CI = [.442 - .682]$, $p = .007^{**}$). Worldview has a significant unique indirect effect on Distress (indirect effect = .226, $SE = .054$, $CI = [.125 - .340]$, $p = .002^{**}$) and on posttraumatic growth (indirect effect = .134, $SE = .046$, $CI = [.059 - .244]$, $p = .002^{**}$). Hayes (2009) and Hayes and Scharkow (2013) suggest that examination of direct effects between exogenous and endogenous constructs are not required to determine mediation, particularly when there is opposing directionality between constructs. As a result the direct effect of worldview on posttraumatic growth and distress were not assessed.

Hypothesis Three: Group Differences

Group differences in reported levels of posttraumatic growth, based on whether or not participants had sought counseling, were discovered in previous research by Fetty (2012). As a result, Hypothesis three stated that there would be group differences in posttraumatic growth scores according to prior counseling experience. This hypothesis was supported when tested through an independent samples T-test, $t(2, 215) = 2.220, p = .027$. Those who had previous counseling ($n = 91$) compared to those who had not received counseling ($n = 126$) reported significantly higher mean scores of posttraumatic growth ($M = 3.01, SD = 1.04$, and $M = 2.71, SD = .953$, respectively). Due to the relatively small sample size of the groups when split based on counseling experience, it was not feasible to compare models or include prior counseling as a covariate in the hypothesized structural models.

CHAPTER 5

DISCUSSION

While research regarding sexual violence and posttraumatic growth has blossomed in recent decades, much still remains to be understood about survivors' experiences of assault and healing (Burt & Katz, 1988; Frazier & Berman, 2008; Resick, 2001). Calhoun and Tedeschi (1998) have called for additional research to study the process through which posttraumatic growth and distress occurs. Frazier and Berman (2008) also have proclaimed the dire need to identify mediators which may explain the mechanisms leading to posttraumatic growth and distress after sexual violence.

The current study took an exploratory approach to understanding how specified variables relate to, and promote, outcomes of posttraumatic growth and distress. I attempted to explore these mechanisms by examining the mediating effects of the search for meaning, supportive spirituality, and problem solving (System IV; Coping/Appraisal) on the relation between (a) supportive relationships (System I; Environmental Resources) and belief in ultimate justice and optimism (System II; Personal Resources) on (b) outcomes of posttraumatic growth and distress (System V; Outcomes). However, hypotheses regarding how these variables would operate and relate to each other to promote outcomes were not supported. Instead, the exploratory SEM model that emerged from the data was tested to examine how perceived meaning, optimism, supportive relationships, and problem solving (coping and appraisal) mediated the relations between (a) beliefs in ultimate justice, belief in an immanently just world, and supportive spirituality (worldview) and (b) outcomes of posttraumatic growth and distress. Results, implications, limitations, and future directions are discussed.

Findings and Support for Hypotheses

Hypothesis One: BIUJS EFA

Prior to testing and expanding the Schaefer & Moos' (1998) model of posttraumatic growth, it was necessary to assess the internal consistency and factor structure of the BIUJS (Maes, 1998b). In order to test hypothesis one, an EFA was performed on the BIUJS. I hypothesized that the results would yield a four-factor structure as in the original German translation (belief in immanent justice, belief in ultimate justice, general belief in a just world, and belief in an unjust world), which was not supported. An EFA resulted in a three-factor solution (belief in ultimate justice, $n = 12$; belief in an immanently just world, $n = 7$; and belief in an unjust world, $n = 3$) with 22 of the original 30 items.

Thus, when the English version of the BIUJS (Maes, 1998b) is applied to a population of American sexual assault survivors, it does not retain the original factor structure; the scale appears to be best represented by a three-factor, rather than a four-factor solution. While additional research is needed in order to understand how culture, language, and trauma experiences impact diverse applications of this measure, it is consistent with previous research suggesting that beliefs in justice may operate differently for sexual assault survivors in the United States (Fetchenhauer et al., 2005; Furnham, 2003). Alternately, the English version of the BIUJS may in fact assess different constructs than the German version, or the factors represented may represent a unique worldview perception of justice of sexual assault survivors that are unique due to individual, trauma, and sample-related influences. It is not unlikely that the revised factors represents unique dimensions of worldview (which may be different than the construct of just world beliefs), given that the factor structure of the BIUJS changed from a four-factor to a three-factor solution, a sizable number of items were eliminated, and that a new factor (belief in

an immanently just world) emerged from items originally intended to assess belief in immanent justice and belief in a general just world. These findings suggest that the experiences and worldview beliefs of sexual assault survivors in the current study were not best represented by the traditionally studied dimensions of belief in a just world (Furnham, 2003; Mudrack, 2005), but by the factors of belief in ultimate justice, belief in an immanently just world, and belief in an unjust world. However, it is unclear how the role of various trauma-related variables (e.g. multiple traumas, nature of the trauma, or length of time since the assault), previous counseling experience, or other unknown variables may impact survivors' justice-related worldview beliefs.

Hypothesis Two: Structural Model

In hopes of exploring the mechanisms through which survivors of sexual assault experience outcomes of posttraumatic growth and distress, and understanding how survivors' experience map onto Schaefer and Moos' (1998) model of posttraumatic growth, I hypothesized and tested a structural model. The resulting exploratory model differed from the originally hypothesized model, and therefore, hypothesis two was not supported. Even though the structure and relations between systems of the model differed from what was predicted, the modified model was supported. Below I describe the three most noteworthy findings in how the modified model differed from the hypothesized model.

First, although I originally hypothesized that supportive spirituality would load with problem solving and search for meaning, it instead loaded with belief in ultimate justice and belief in an immanently just world (worldview) to predict posttraumatic growth and distress, as mediated by coping and appraisal strategies. Thus, instead of being a specific strategy of coping through which worldview beliefs and personal characteristics predicted posttraumatic growth and distress, sexual assault survivors' supportive spirituality contributed to their worldview.

However, this is congruent with research that suggests a strong link between beliefs in ultimate justice and spiritual beliefs (Maes, 1998b), and findings that positive religious/spiritual coping may predict posttraumatic growth because these spiritual belief systems provide a framework within which to integrate one's traumatic experiences (Bosson et al., 2012; Calhoun, Cann, Tedeschi, & McMillan, 2000; Overcash, Calhoun, Cann, & Tedeschi, 1996). While research suggests that the predictive power of spirituality is stronger for those who report being spiritual prior to the assault (Ahrens et al., 2010; Park, 2005), its impact on worldview appears to function similarly for those who endorse explicit spiritual beliefs as well as more secular beliefs (Ganje-Fling & McCarthy, 1996). Those who are more secular in their worldview beliefs may rely more heavily on personally derived meaning, purpose, hope, and beliefs in an immanently just world and ultimate justice – independent of a specific religious/spiritual framework – while those who ascribe to a specific spiritual framework may relate their worldview beliefs within to that existing belief system. However, Ganje-Fling, and McCarthy (1996) describe the functions of spirituality as providing “meaning, purpose, hope, esteem, and belonging” (pp.253), which may be an important aspect of survivors' worldview without necessarily being labeled by the survivor as “spirituality”.

Second, optimism was originally expected to load with belief in ultimate justice, but this was not supported by the data. It instead loaded with the presence of meaning, problem solving, and supportive relationships to function as an aspect of coping and appraisal. Due to research suggesting optimism as an individual personality trait (Solberg Nes, & Segerstron, 2006), it was expected that it would load with individual traits and differences, but results instead indicate that optimism is associated with how sexual assault survivors appraised and coped with their trauma. While conflicting with the hypotheses, this finding is consistent with some literature

demonstrating its association with approach coping, social support, and meaning making in that optimism can be conceptualized as part of the appraisal and coping process (Folkman et al., 1984; Prati & Pietrantonio, 2009; Park & Folkman, 2009; Solberg Nes & Segerstrom, 2006).

Third, supportive relationships were hypothesized to function as an independent latent construct to indirectly predict outcomes through the mechanism of coping and appraisal strategies. It instead appeared to function as a strategy of appraisal and coping, alongside problem solving, optimism, and the presence of meaning. Again, this result is incongruent with the hypotheses, but is supported by research suggesting that social support is closely associated to variables such as optimism, problem solving, and meaning making (Borja et al., 2006; Orchowski et al., 2006; Schnell & Becker, 2006; Solberg Nes & Segerstrom, 2006; Ullman, 2014), as well as positive adjustment and outcomes of posttraumatic growth (Carver et al., 2010; Prati & Pietrantonio, 2009).

Even though hypotheses regarding the expected model, as corresponding to Schaefer and Moos (1998), were not supported, and findings differed in some important ways from my interpretation of their theoretical framework, the results of this study provide important insights. It provides clarification as to the mechanisms through which coping and appraisal mediate the relations between (a) a sexual assault survivor's spirituality and beliefs in justice and (b) experiences of posttraumatic growth and distress. In addition, results of the exploratory model supported the overall predicted relation between systems of the Schaefer and Moos' (1998) framework model, and provided clarification as to how coping and appraisal mediate the relation between worldview and outcomes of growth and distress. Not only do results underscore the importance of belief in ultimate justice (see Table 4) for sexual assault survivors (for which support has been lacking in the field), but they also clarify the processes through which

supportive spirituality, belief in ultimate justice, and belief in an immanently just world promote posttraumatic growth through effective coping and appraisal strategies. Further, results demonstrate the complexity of the healing process, and that survivors may experience distress concurrently with experiences of perceived posttraumatic growth.

Hypothesis Three: Group Differences

Based on previous research (Fetty, 2012), group differences in posttraumatic growth were examined according to whether or not participants had sought counseling, with Hypothesis 3 predicting that those who had sought counseling would report greater posttraumatic growth. An independent samples t-test was conducted to determine group differences according to self-reported prior counseling experience, and this hypothesis was supported. Those with prior counseling experiences reported higher levels of perceived posttraumatic growth than those without such experiences. Although no causality may be interfered from this finding, it may serve as an indication that seeking counseling – which may promote adaptive coping/appraisal strategies and foster intentional cognitive/emotional processing of the trauma – is an important intervention in promoting posttraumatic growth, and further research is needed.

Support of Schaefer & Moos' (1998) Model of Posttraumatic Growth

Schaefer and Moos' (1998) model of posttraumatic growth as conceptualized in the current investigation was not supported by analyses. The hypothesized model did not adequately fit the data, and significant modifications were required (Gaskin, 2012; Kline, 2011). The impact of variables such as the specific population, trauma-related variables, prior counseling experiences, inadequate measures, or even an inadequate sample size could contribute to the lack of fit of the hypothesized model. However, it is also possible that because the revised BIUJS factors were utilized, and due to following the four-step SEM approach, that the current study

simply yielded a model that better represents how the given constructs operate for sexual assault survivors (Asparouhov & Muthén, 2009; Gaskin, 2012).

Supportive Relationships

In the current model, supportive relationships loads with other coping and appraisal variables to mediate the relation between worldview and outcomes, which is conflicting with the hypothesized model where it was expected to function as an independent predictor. Within the Schaefer and Moos' (1998) model, it is unclear how "seeking support" as a form of coping is theoretically differentiated from the interpersonal relationships and "social support" received from friends/family as an environmental resource. This lack of theoretical differentiation in their framework, the recursive nature of the model, and conflicting findings in the literature regarding the specific role of social support, may account for the lack of support for how supportive relationships functioned in the current study. It is possible that supportive relationships may operate as an independent predictor, or function in a different capacity, should a different measure be utilized or a different population of trauma survivors be examined (such as combat survivors). It is also possible that this construct operates in a more complicated capacity, such that it depends on other variables not currently accounted for, such as living in a collectivistic culture, negative disclosure experiences, or levels societal support, acknowledgement, or blame (Prati & Pietrantonio, 2009; Solberg Nes & Segerstrom, 2006; Ullman, 2014).

Worldview

It was hypothesized that optimism and ultimate justice would load together to form the traits and characteristics consistent with System II. However, contrary to hypotheses, optimism did not load on the same factor as belief in ultimate justice, and a new factor in the model emerged in which belief in an immanently just world loaded with ultimate justice and supportive

spirituality. This new factor seemed to best represent the worldview beliefs of survivors, rather than the System II (personal resources) theorized in the Schaefer and Moos' (1998) model.

While there is ample research on individual traits, characteristics, and levels of resilience, no known prior studies examined belief in ultimate, belief in an immanently just world, and supportive spirituality as a part of worldview. Relatively little research has examined ultimate and immanent justice beliefs specifically as they apply to sexual assault survivors and their experiences of posttraumatic growth and distress (Furnham, 2003). In addition, rather than conceptualizing supportive spirituality as a form of coping and appraisal as suggested by much of the coping literature, the current study supports supportive spirituality as contributing to the survivor's worldview framework along with belief in ultimate justice and an immanently just world (Schaefer & Moos, 1998).

All worldview variables (belief in ultimate justice, belief in an immanently just world, and supportive spirituality) were positively correlated with posttraumatic growth, but not distress. However, there was a significant indirect effect of worldview on distress, which was mediated by coping and appraisal. This is consistent with previous research findings that when the concepts of ultimate justice and immanent justice are parceled out from general just world beliefs, they are associated with positive outcomes (Dalbert, 1998; Furnham, 2003; Lucas et al., 2008). In addition, spiritual beliefs are generally positive associated with posttraumatic growth (Ganje-Fling & McCarthy, 1996; Madsen & Abell, 2012). In the current investigation, it appears that holding justice worldviews and a supportive spiritual framework is associated with the utilization of effective appraisal and approach coping strategies. Because confronting the trauma is associated with distress (due to the discrepancy between global meaning and the assault experience), it directly contributes to experiences of distress and is simultaneously associated

with outcomes of posttraumatic growth. This is consistent with other research that suggests posttraumatic growth and distress are independent constructs which often co-occur (Frazier et al., 2004), are positively associated with one another (Dekel, Ein-Dor, & Solomon, 2012), and are both associated with appraisal/approach coping and confronting one's trauma (Park, 2010; Steger & Park, 2012; Steger et al., 2006; Stockton et al., 2011; Su & Chen, 2015). As such, the worldview construct as measured by belief in ultimate justice, belief in an immanently just world, and supportive spirituality, have profound implications for positive outcomes of coping with sexual trauma, particularly because sexual violence survivors often do not receive restorative justice from society.

Appraisal Styles and Strategies of Coping

The hypothesized variables thought to compose the coping and appraisal system of the Schaefer and Moos' (1998) model were not supported in the current analyses, and an unexpected grouping of indicators instead emerged to form the construct of appraisal/coping. These included problem solving, supportive relationships, optimism, and the presence of meaning, and though incongruent with the hypothesized groupings, these indicators and their relation with other latent constructs appears to be consistent with theoretical interpretations of coping and appraisal. The current study adds to the a more complex understanding of how the Schaefer and Moos ('1998) model may apply for sexual assault survivors, and adds to the literature by demonstrating that appraising trauma experiences and responding with coping efforts that include holding optimistic beliefs, finding meaning, problem solving, and perceiving supportive relationships significantly mediate the relation between worldview and outcomes of distress and posttraumatic growth. these styles of appraisal and coping allow the survivor to confront and appraise their traumatic experience and shattered assumptions, appraise the trauma, mobilize coping resources, and

engage in the cognitive/emotional processing that promotes positive outcomes. Consistent with the broader literature, in the current study, appraisal styles and coping strategies were positively related to outcomes of posttraumatic growth (Bell, 1999; Frazier et al., 2004; Frazier & Berman, 2008; Madsen & Abell, 2010; Pargament & Mahoney, 2009). However, it is unclear whether the current model may apply to those who use different methods—coping strategies that were not measured in the current study—to cope with the traumatic stress.

In addition, the finding that problem solving, supportive relationships, optimism, and the presence of meaning significantly mediated the relation between worldview and outcomes (posttraumatic growth and distress) is consistent with findings that just world beliefs (particularly beliefs in ultimate justice) are associated with use of active coping, which is in turn associated with posttraumatic growth outcomes (Dalbert, 1998; Fetchenhauer, 2005; Furnham, 2003; Lucas et al., 2008). Interestingly, the construct of coping/appraisal was positively associated with both experiences of distress and posttraumatic growth. Distress results from confronting shattered assumptions and the trauma experience, and prompts continued coping and meaning making efforts (Frazier et al., 2004; Janoff-Bulman, 1992; Lazarus & Folkman, 1984; Steger et al., 2006), which is consistent with literature suggesting that outcomes of distress and posttraumatic growth may be the result of shared coping and appraisal processes (Dekel et al., 2012; Dekel, Mandl, & Solomon, 2011).

Although the presence of meaning was a significant mediator, the search for meaning was not supported in the current study, and showed conflicting results as a mediator in a previous study (Fetty, 2012). Other research suggests a positive correlation between levels of negative symptoms (i.e., depression) and search for meaning (Park, 2010; Steger et al., 2006), and in an earlier study, search for meaning was positively associated with beliefs in ultimate justice and

negatively associated with distress (Fetty, 2012). The current study, on the other hand, suggests that search for meaning appears to not be a significant mechanism through which posttraumatic growth or distress occurs. It is possible that search for meaning better represents another unknown construct, or that the instrument used to measure search for meaning was not adequate to assess the coping/appraisal process through which survivors of sexual violence make sense of their trauma and rebuild shattered assumptions. Search for meaning may very well be a valuable process for survivors of sexual assault, but it may predict posttraumatic growth and distress by contributing to constructs not currently accounted for in the given model. If previous counseling, time since the trauma, or differentiations between acute and chronic distress were accounted for, it is possible that search for meaning may play a significant role.

Posttraumatic Growth and Distress

Even though the original Schaefer and Moos (1998) model only accounted for posttraumatic growth, the current model also included the experience of distress. The originally hypothesized model was not supported, but the model that emerged from analyses demonstrated that distress and posttraumatic growth are important outcome variables with a complex relationship for the healing process of sexual assault survivors. Both posttraumatic growth and distress were indirectly predicted by worldview, and positively associated with coping and appraisal. Thus, the contribution of worldview on outcomes of distress and posttraumatic growth was significantly mediated by coping and appraisal. While longitudinal research is needed in order to determine the exact nature of how these variables operate, this model suggests that optimism, presence of meaning, problem solving, and supportive relationships serve as the path through which worldview promotes both distress and posttraumatic growth. Therefore, the model that emerged from exploratory analyses expands the literature and reflects not only how

posttraumatic growth is predicted by approach appraisal/coping, but also the significant role of distress related to confronting traumatic experiences and shattered assumptions.

In the original model of posttraumatic growth theorized by Schaefer and Moos (1998), posttraumatic growth outcomes were conceptualized as greater perceived resources that fall within three domains: 1) Personal Resources (greater understanding of self or worldview, a stronger sense of empathy, or wisdom); 2) Social Resources (greater perceived support from others, and more intimate/secure relationships; and 3) Coping Resources/Abilities (better perceived problem-solving skills, coping resources, and ability to seek out support/help) (Schaefer & Moos, 1992, 1998). Thus, their model is recursive such that posttraumatic growth is associated with increased endorsement of personal resource, worldview, and coping/appraisal variables, which also promote further growth. Existing research supports the recursive nature of these variables, such that world assumptions have been found to predict posttraumatic growth for survivors of intimate partner violence, and become more positive over time with posttraumatic growth in the absence of further victimizations (Valdez & Lilly, 2014). Further, the current findings are supported by research supports that distress may play an important role in promoting not only effective coping strategies after a trauma, but also effectively promote and maintain experiences of posttraumatic growth (Dekel et al., 2011; Dekel et al., 2012; Kleim & Ehlers, 2009). This is because distress may serve as an impetus and continued motivation which prompts survivors to engage with processing through the trauma experience. Thus, it is unsurprising that coping and appraisal was positively associated with both outcomes in the current study.

Implications and Considerations

The results of the current study hold important practical implications for clinicians and researchers. However, I would like to provide a note of caution for those tempted to apply these

findings in clinical situations. Although the above results show the importance of supportive relationships, problem solving, optimism, and finding meaning on the relation between beliefs in ultimate justice, belief in an immanently just world, supportive spirituality, and posttraumatic growth and distress, it is important to remember that survivors heal and experience their trauma in different ways. In order to maintain a social justice framework, it is critical to understand and appreciate the unique journey every survivor takes, and to not give the impression that one set of reactions or modes of coping is the “right” way to heal, or even the only way to experience posttraumatic growth. There are significant individual and societal factors that influence how a survivor responds to sexual assault, many of which are completely outside the survivor’s control, that are responsible for creating a supportive enough environment to support potential growth.

It should be understood that the way a survivor responds is a reflection of the coping resources, supports, and models of coping styles they have available to them. It is unfair to blame survivors for responding in the only way they know how to in an unthinkable event, or blame them for not experiencing growth in the face of the unimaginable. Thus, clinicians should aim to help survivors to make sense of their experience and how it fits into their worldview and identity, help them to rebuild shattered assumptions to accommodate the trauma, and learn to find effective ways of coping with their distress. If a survivor does not have the necessary resources or supports that allow for the capacity for growth, but are given the message that they should, the result may promote victim-blaming or secondary trauma. It should also be noted in such scenarios that the underlying issue of rape culture and societal acceptance of sexual violence is to blame. Thus, one future direction in research is to better understand the mechanisms through which rape culture and societal acceptance of violence operate to promote sexual violence.

There are many factors that determine whether an individual has the resources, supports, and healing experiences that necessary for growth to occur in the aftermath of a trauma. Those who are still experiencing ongoing trauma may not be in a safe or supportive enough environment to effectively process their experience in order to experience posttraumatic growth (Cobb, Tedeschi, Calhoun, & Cann, 2006). In addition, those with early, repeated, and multiple type of traumatic experiences are more likely to experience the cumulative effects of trauma which may inhibit the formation of adaptive worldview assumptions, emotional regulation skills, and effective coping, and therefore decrease the available resources that may promote posttraumatic growth (Casey & Nurius, 2005; Finkelhor, Turner, Hamby, & Ormrod, 2011; Koss et al., 2002; Littleton et al., 2012; Valdez & Lilly, 2014). For example, experiencing sexual abuse or assault at an early age or that is severe in nature predicts sexual revictimization as an adolescent and adult, and multiple victimizations are associated with poor well-being, adjustment, coping, and prolonged distress that is cumulative in nature (Casey & Nurius, 2005; Messman-Moore, Long, & Siegfried, 2000). While single and repeated interpersonal and sexual violence has severe consequences due to the personal nature of the trauma compared to accidents or bereavement (Shakespeare-Finch & Armstrong, 2010), multiple forms of trauma of any kind are associated with poorer adjustment, damaged worldview assumptions, use avoidance coping and decreased perception of coping resources, and greater incidences of PTSD (Campbell, Dworkin, & Cabral, 2009; Littleton et al., 2012).

Whether trauma is experienced as multiple events or is more chronic in nature (e.g. cumulative experiences of oppression or discrimination), it is the subjective level of distress that is experienced that appears to significantly relate to whether posttraumatic growth is also reported (Kleim & Ehlers, 2009). Those who report moderate distress (whether it is chronic or

acute) are more likely to report greater levels of posttraumatic growth compared to those experiencing no or high distress (Kleim & Ehlers, 2009). Research suggests that acute distress is related to prompting approach coping efforts (Groleau et al., 2013; Steger et al., 2006), but that time since the assault is related to reductions in acute distress (Frazier, 2003; Frazier et al., 2001). While significantly high long-term elevations in distress are associated with PTSD, avoidance coping, and poor adjustment (Kleim & Ehlers, 2009; Koss & Figueredo, 2004), experiences of (moderate) ongoing distress is related to maintenance of perceived posttraumatic growth across multiple time points (Dekel et al., 2012; Kleim & Ehlers, 2009). However, many factors mediate how distressing a trauma is experienced to be, and continues to be, including: perceptions of control over recovery, attributions and self-blame; whether it is interpersonal in nature and level of perceived threat/danger, the centrality of the event and the degree to which it shatters world assumptions; the experience of additional traumas, secondary trauma, and revictimizations (Campbell et al., 2009; Dekel et al., 2011; Dekel et al., 2012; Frazier et al., 2001; Koss et al., 2002; Littleton et al., 2012; Nadjowski & Ullman, 2014; Valdez & Lilly, 2014). Future researchers should consider conducting longitudinal research that accounts for both acute and long term experiences of distress, which may provide insight as to the function of distress at different points in the healing process.

It is important to note that many variables influence the experience of the trauma and its subsequent sequelae, so the current model may operate differently for various groups of survivors according to these influences. For example, war veterans' beliefs in justice may not be shattered in the same way by exposure to combat as compared to an unwanted sexual experience perpetrated by a fellow soldier, which is more personal in nature and involves being singled out and individually targeted. In the first scenario, there may be preexisting expectations and

perceptions of combat that may differentiate the experience of the trauma and subsequent coping. Similarly, the experience of a natural disaster may be less central to the individual identity and life meaning of a survivor, as well as be more visibly and communally experienced. On the other hand, the interpersonal nature of sexual assault inherently singles out an individual from others, calls into question relationships and attributions of personal responsibility, and is publicly shamed. Survivors of sexual violence have no expectation or reasonable attribution for their experience, and may therefore perceived the sexual assault as more outside of their control, more conflicting with just world beliefs, and causes greater damage to their world assumptions and expectations about others, the world, and the future (Shakespeare-Finch & Armstrong, 2010; Valdez & Lilly, 2014). Thus, it is possible that constructs such as worldview and appraisal have less predictive power on outcomes when applied to survivors of non-sexual assault traumas. This is consistent with findings that sexual assault (as compared to motor vehicle accidents or bereavement) is associated with greater distress and lower reported levels of posttraumatic growth (Shakespeare-Finch & Armstrong, 2010).

For survivors who are not religious or spiritual, as compared to those who are, the path of existential questioning and meaning making coping may take a unique or differential route, or depend on additional variables, to predict growth and distress (Park & Fenster, 2004; Robinson, Mills, & Strickland, 2011). Spiritual beliefs may be confounded with coping strategies such as social support or a sense of community, but these may or may not be utilized more effectively or often than non-spiritual survivors (Madsen & Abell, 2010). In addition, endorsing a specific religious/spiritual affiliation may provide an existing framework to interpret traumatic events, but depending on the flexibility of the framework, may result in greater cognitive dissonance and/or limit the potential interpretations available for survivors to make sense of the trauma

(Overcash et al., 1996; Park & Fenster, 2004; Robinson et al., 2011). Thus, a multitude of other variables may impact how worldview is differentially impacted by both spiritual beliefs and beliefs in justice to predict coping and outcomes of growth and distress (Ganje-Fling & McCarthy, 1996; Valdez & Lilly, 2014). Future research should aim to better understand how spiritual versus secular beliefs impact worldview, experiences of sexual trauma, preferred forms of coping, and outcomes of growth and distress for survivors.

Clinical Applications

Within theories and approaches to trauma work, the current study has profound implications for working with sexual assault survivors in counseling. These findings promote a greater understanding of the mechanisms through which worldview and spiritual beliefs influence coping and appraisal processes (i.e., optimism, supportive relationships, presence of meaning, and problem-solving) after a trauma event. The current study contributes to a broader understanding of how worldview and spiritual beliefs indirectly influence experiences of posttraumatic growth and distress, by effectively working in tandem with coping and appraisal processes to promote the rebuilding of shattered world beliefs and assumptions that can accommodate the new trauma experience (Robinson et al., 2011). The current study also found that those who sought counseling also reported greater posttraumatic growth than survivors who had not sought counseling. Counseling has been shown to be an effective means of engaging in the cognitive/emotional processing and meaning making that promotes restored worldview beliefs, adaptive appraisal and coping, and positive adjustment (Ganje-Fling & McCarthy, 1996; Robinson et al., 2011). Thus, counselors may work to help individuals to understand their worldview and spirituality (in a secular or non-secular sense), justice beliefs, and how the

experience of the trauma impacts these views/assumptions and their personal identity (Ganje-Fling & McCarthy, 1996; Robinson et al., 2011).

Specifically, it may be helpful to utilize problem-solving and develop practical solutions to promote a sense of control, safety, and predictability, which is known to be one of the most important predictors of positive outcomes (Briere & Scott, 2013; Frazier et al., 2004). This can also be provided by providing psychoeducation, mind-body awareness, freedom to direct sessions and permission to vocalize their needs (Briere & Scott, 2013). Many theories of trauma counseling suggest promoting a sense of efficacy for tolerating one's distressing emotions, which may involve invoking preferred methods of coping, such as social support and skills-based strategies (Briere & Scott, 2013; Prati & Pietrantonio, 2009). It is important to note that because coping and encounters with the traumatic experience are associated with distress, both skills and support are necessary prior to engaging in higher-order cognitive processing related to identity, interpersonal relationships, and restoration of shattered world assumptions (Briere & Scott, 2013; Park & Fenster, 2004).

Counselors can help clients identify appropriate coping and re-appraisal strategies to rebuild their worldviews and beliefs about self, others, and the world to accommodate the trauma (Robinson et al., 2011). These strategies help survivors to reconstruct their worldviews and beliefs after sexual assault such that they are able to experience posttraumatic growth after the trauma (Robinson et al., 2011; Valdez & Lilly, 2014), as well a greater capacity to tolerate the distress associated with the trauma and coping process (Dekel et al., 2011; Dekel et al., 2012). Bolstering and reinforcing appraisal strategies, such as the perceived presence of meaning and optimism, may help survivors maintain a sense of hope, positive expectancy, and perseverance in the coping process, while coping strategies such as utilizing supportive relationships and

problem-solving may facilitate better access to support resources and development of concrete solutions and strategies, which in turn promote greater self-efficacy and control over the coping process (Frazier et al., 2001; Frazier et al., 2004; Park & Fenster, 2004; Prati & Pietrantonio, 2009). In addition, counselors should also explore creative methods of coping and appraisal unique to individual clients, as these may be critical avenues through which clients may integrate their experience within their reconstructed worldview. If reconstructed worldviews and beliefs (which influence appraisal of the trauma), along with effective coping, successfully promote posttraumatic growth, then specific aspects of growth may reflexively reinforce these modified worldviews/beliefs and the coping/appraisal strategies that support them (Valdez & Lilly, 2014).

Limitations and Future Directions

The current study has demonstrated a number of relevant findings, and paves the way for potentially significant and meaningful future directions in sexual violence research, as well as other forms of interpersonal violence research. However, as with any research, there are a number of limitations and areas of improvement that may pave the way for improved research efforts in the future. Below, I identify and discuss six limitations of the current investigation that are reason to interpret/generalize results cautiously, and related directions for future researchers.

The first limitations are inherent to the study's design/method, which was a cross-sectional, online survey. Given that the study assessed a model which hypothesizes processes and experiences that occurs over time, but through a cross-sectional design, it is impossible to prove causal directionality between the specified constructs. Additional longitudinal data examining levels of distress, posttraumatic growth, coping, and worldview over multiple time points and related to specific trauma experiences are needed to provide more confident generalizations of the model. In addition, because of the anonymity of online research, it is

impossible to verify the identity and experiences of participants, the accuracy of their self-reported responses, or their attentive engagement and motivation to accurately respond to questions throughout the survey. To attempt to control for those who may not vigilantly read questions and provide accurate response, two validity questions were included in the middle and near the end of the survey respectively. Those who did not respond correctly to these questions were excluded from further analysis, as were those with missing data, resulting in a smaller than ideal sample size. Although a number of participants ($N = 601$) began the study, many were excluded because they did not meet study criteria or respond correctly to the validity check questions, and as a result, the smaller remaining sample size ($N = 217$) may have resulted in less robust findings than would otherwise have been found in a larger sample. Because of design and methodological reasons, findings may be skewed to uniquely reflect those participants who completed the study, and while it appears that participant attrition was at random, but it is possible that those who completed the study may possess different characteristics and experiences of growth or distress than those who did not.

A second limitation of the study concerns the population of participants and the areas of diversity of experiences and identities represented in the current sample. The vast majority of the sample consisted of White, English-speaking, heterosexual, Christian, middle-class, and university-educated young adults. Many were current students, but even among those participants who were not, most had at least a bachelor's level education, or higher. Further, because the sample represents participants recruited from community sexual assault crisis centers, university classes, and APA Division listservs, as well as those who found the survey on media or through internet search engines (e.g. Google), they may be inherently differently from other sexual assault or trauma survivors. Given that participation was largely based on self-

selection, these participants may have already been seeking out resources related to coping and healing, or simply engaging in self-exploration, and attempting to make sense or meaning of their experience. Thus, findings should be interpreted with caution, and great care should be taken before generalizing results to other populations.

Those from more privileged backgrounds in terms of race, SES, religion, and education may have very different experiences of sexual trauma due to their access to formal and informal resources and support, their available coping resources, and thus have a very different array of opportunities for posttraumatic growth. On the other hand, those who identify as a racial/ethnic minority, do not speak English as a primary language, are from a lower socioeconomic background, do not have access to higher education, or who endorse an underrepresented gender identity or sexual orientation may have more limited access to support and coping resources than those endorsing multiple privileged identities. In addition, experiences of microaggressions, oppression, and discrimination may lead individuals with multiple minority identity statuses to experience intersecting traumas that cumulatively impact the way survivors appraise and interpret their trauma, rebuild worldview assumptions. The worldview and assumptions they hold prior to the trauma may be very different for this group of survivors. In future research, it will be important to ascertain how posttraumatic growth and distress outcomes are applicable and/or differentially impacted according to whether participants' various intersecting cultural identities, traumas, and experience of oppression.

A third limitation and areas of future research pertain to investigations of additional coping, contextual, and trauma-specific variables that may influence experiences of posttraumatic growth and distress after sexual violence. Although the current study examined the importance of several key variables, any construct as complex as sexual violence and

posttraumatic growth will likely have a host of influences. In addition to understanding how this model applies to those of various identity statuses and cultural backgrounds, it may be fruitful to assess the effects of various societal factors (such as acceptance of rape culture on outcomes of posttraumatic growth and distress), as well as coping/appraisal variables (like perceived centrality of events, cognitive processing styles, use of avoidance coping and perceived control/efficacy over coping, and perceived self-blame/attribution style). Furthermore, trauma-specific variables should be studied in future research to determine their impacts on coping, posttraumatic growth, and distress outcomes. These may include differences between different or same sex perpetrators, relation of perpetrator to the victim or their primary support network, whether the survivor has experienced multiple sexual traumas, or ongoing sexual abuse (include the age at which the trauma first occurred), and the length of time since the event, as well as the presence of other forms of interpersonal violence (physical abuse, domestic violence, etc.). In addition, variables such as the role of prior/subsequent counseling and decisions to disclose the assault could be examined to better understanding survivors' experiences of coping with sexual violence.

The fourth limitation is due to the primary research question and goal of the study, which aimed to understand the experiences of female-identified survivors. Because of this, and because there was not an adequate sample size to conduct separate analyses for men and transgender sexual assault survivors, these participants' experiences are not reflected in the results reported here. Due to societal assumptions, the prevalence of rape culture beliefs, and the unfortunately common occurrence of hate crimes that use sexual violence to target transgender individuals, participants of varying gender identities may have vastly different experiences of coping, disclosure, and perceptions of support after a sexual assault. Sexual violence is an atrocious

experience for anyone to experience regardless of gender-identity, and next steps in future research are to understand how models of posttraumatic growth and distress apply to survivors who identify as men, transgender, and gender-nonconforming.

The fifth limitation to the current study is related to the fact that, while aimed at understanding the experiences of sexual assault survivors, we sought to protect anonymity and be inclusive, and thus the survey was open to anyone who had experienced a traumatic event in her/his lifetime. Some participants had experienced traumas (e.g., natural disaster, illness, or car accidents) in addition to sexual violence, which they have had in mind when responding to questions, and participants were included in analyses based on endorsement of behaviorally-worded items that meet the definition of sexual assault. This strategy led to a less clearly defined sample and made it impossible to assess time since the assault. However, it also creates a more inclusive criterion for those who were unsure of how to label their unwanted sexual experience. There may be qualitative differences of those who identify themselves as survivors, but more stringent inclusion criteria may exclude the experiences of survivors who were reticent to label or identify their status as a survivor. Future research may explore qualitative differences and the applicability of findings for those who do and do not identify themselves as a sexual assault survivor, and those who experience other traumatic events in addition to sexual assault.

Lastly, as with all cross-sectional and non-experimental research, it is not possible to draw causal or longitudinal conclusions about the findings, and instruments do not always accurately assess the given constructs under investigation. Although the modified model in the current study was supported, there may be additional underlying processes and variables which were not accounted for, and the model may not be equally applicable to every subgroups. In the future, researchers should consider utilizing multiple types of research methods and designs to

test more complex models. Qualitative studies can aid in understanding the phenomenological experiences of posttraumatic growth and distress, and experimental studies may provide support for the causal mechanisms and processes of interest, and longitudinal designs may yield an abundance of information about the potential influences on the course of growth, as well as fluctuating experiences and perceptions of growth, at different life phases throughout one's lifespan. In addition, the current model did not account for the influence of prior counseling, but it is possible that the measurement model and structural model would operate differently and/or some constructs would be more/less salient for survivors based on counseling experience.

Although all the instruments utilized in this study demonstrated sufficient validity and reliability, modifications were made to the BIUJS that may impact the interpretations of the findings and the model that emerged from analyses. Because the factor structure was modified and a number of items were dropped, a new factor (belief in an immanently just world) emerged, which consists of items originally intended to measure belief in immanent justice and belief in a general just world. The modified factor structure may be unique to the sexual assault survivors represented in this study. As a result, the measurement model and subsequent structural model may be influenced by utilization of the modified BIUJS.

In addition, there are no measures that specifically assess meaning making for sexual assault survivors. Because of the complexity of the construct and the subjective nature of meaning, future studies should strive to ascertain other potential variables that influence the process of meaning making, and which may ultimately lead to growth. The presence of meaning subscale utilized in the present investigation had a limited number of items ($n = 5$) and was developed to assess the global perception of meaning in life. Therefore, it is possible that survivors' perceptions of meaning were not fully captured in the current study. In addition, it

should be noted that some of the originally hypothesized variables—search for meaning, spiritual change, and anger—were dropped from the study due to not adequately loading onto the hypothesized latent factors. Thus, future researches should consider the utility of developing instruments that better capture these processes and constructs as they apply to survivors of sexual violence.

Summary and Conclusions

As can be seen from the review of the above literature and discussion of results, there is an important relationship between posttraumatic growth, distress, belief in ultimate justice, belief in an immanently just world, supportive spirituality, supportive relationships, optimism, problem solving, and finding meaning for survivors of sexual assault. Inconsistent with hypotheses, results from the exploratory model was not consistent with the Schaefer and Moos' (1992, 1998) model of posttraumatic growth. However, it was found that coping and appraisal did mediate the relation between (a) worldview and (b) outcomes of posttraumatic growth and distress.

The current study adds to the previous literature by addressing the roles of multiple domains of just world beliefs, spirituality, appraisal and coping styles, and their relation to outcomes of both posttraumatic growth and distress. It also offers an alternative model which reflects how the various systems operate for the sexual trauma survivors in the current study. While research shows that just world beliefs and coping have significant influences on posttraumatic growth (Furnham, 2003; Folkman & Lazarus, 1991; Park et al., 2008), the current study underscores the influential roles of belief in ultimate justice, belief in an immanently just world, and supportive spirituality as a worldview framework for sexual assault survivors. Many studies have also demonstrated the correlates of posttraumatic growth (Fetchenhauer et al., 2005; Folkman, 2000; Kennedy et al., 1998; Park & Ai, 2006; Prati & Pietrantonio, 2009), but the

current investigation's findings provides greater theoretical and empirical understanding of the predictors and mediators for posttraumatic growth that may be experienced by sexual violence survivors. In particular, the perceived presence of meaning, problem solving, supportive relationships, and optimism are associated with greater posttraumatic growth and distress, and appear to mediate the relation between worldviews and outcomes of posttraumatic growth and distress. However, additional research is needed to better understand and predict how this complex relation influences healing.

No known studies have addressed all of the specified variables in a single study, and previous research has been limited to investigation of only one or two of these constructs or has been conducted with other populations. In addition, previous research failed to distinguish not between the unique dimensions of just world beliefs, and have not examined just world beliefs in relation to problem solving, supportive spirituality, presence of meaning, or optimism, to predict distress and posttraumatic growth. The current study adds to the literature and provides important directions for researchers and clinicians by demonstrating the important roles of worldview and appraisal/coping in facilitating growth, as well as the essential role of distress in healing.

TABLES AND FIGURES

Table 1

Participants' Demographic Backgrounds

Variable	<i>n</i>	<i>% of Total N</i>
Race/Ethnicity		
African American	35	16.1
Chicano/Hispanic/Latino/a	14	6.5
White American	159	73.3
Bi/Multi-racial	4	1.8
Native American	3	1.4
Other (did not specify)	1	0.5
Sexual Orientation		
Exclusively homosexual	12	5.5
Mostly homosexual	11	5.1
Bisexual	12	5.5
Mostly heterosexual	33	15.2
Exclusively heterosexual	149	68.7
Relationship Status		
Single	101	46.5
Partnered/Cohabitated	63	29.0
Married	38	17.5
Divorced	15	6.9
Widowed	0	0.0
Education Level		
Some high school	0	0.0
High school diploma/GED	11	5.1
Some college/attending	118	54.4
Associate's/Bachelor's degree	41	18.9
Graduate/professional degree	45	20.7
Unsure/prefer not to respond	1	0.4
Family Financial Background		
Could never make ends meet	16	7.4
Often could not make ends meet	32	14.7
Sometimes could not make ends meet	20	9.2
Often could make ends meet	72	33.2
Always could make ends meet	75	34.6
Not sure/prefer not to respond	1	0.5

Table 1 Continued

Demographic Variables

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>% of Total N</i>
State				
Alabama	1			0.5
California	8			3.7
Colorado	8			3.7
Connecticut	1			0.5
Georgia	2			0.9
Idaho	1			0.5
Illinois	143			64.1
Indiana	3			1.4
Iowa	1			0.5
Maryland	1			0.5
Massachusetts	3			1.4
Michigan	4			1.8
Missouri	1			0.5
New Jersey	1			0.5
New York	2			0.9
North Carolina	2			0.9
North Dakota	1			0.5
Ohio	2			0.9
Oregon	1			0.5
Pennsylvania	3			1.4
Tennessee	7			3.2
Texas	1			0.5
Utah	1			0.5
Virginia	3			1.4
Washington D.C.	1			0.5
West Virginia	2			0.9
Wisconsin	2			0.9
Wyoming	11			5.4
Recruitment				
Flyer or Poster	35			16.1
Email/listserv	45			20.7
Facebook	26			12.0
Friend	4			1.8
Community agency	6			2.8
Therapist/counselor	2			0.9
Professor/TA/Class	96			44.2
Other (internet search)	3			1.4

Table 1 Continued

Demographic Variables

<i>Variable</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>% of Total N</i>
Religious/Spiritual Preference				
Agnostic	24			11.1
Atheist	14			6.5
Buddhist	6			2.8
Christian	130			59.9
Humanism	1			0.5
Judaism	1			0.5
None	22			10.1
Spiritual	5			2.3
Unitarian	4			1.8
Pagan	2			0.9
Other (e.g. Wiccan, Quaker)	8			3.7
Level of Spirituality				
		4.63	1.81	
1 (Least Spiritual)	20			9.2
2	16			7.4
3	20			9.2
4	40			18.4
5	34			15.7
6	46			21.2
7 (Most Spiritual)	41			18.9
Level of Religiosity				
		3.23	1.91	
1 (Least Religious)	61			28.1
2	34			15.7
3	22			10.1
4	36			16.6
5	33			15.2
6	20			9.2
7 (Most Religious)	11			5.1

Note. $N = 217$

Table 2

Trauma Frequencies

Variable	<i>N</i>	<i>n</i>	% of Total <i>N</i>
Combined Attempted and Completed Rape			
Oral Rape	158		72.8
0		59	27.2
1		104	47.9
2		50	23.0
3+		4	1.8
Vaginal Rape	192		88.5
0		25	11.5
1		123	56.7
2		56	25.8
3+		13	6.0
Anal Rape	91		41.9
0		126	58.0
1		71	32.7
2		17	7.8
3+		3	1.3
Completed Rape			
Oral Rape	136		62.3
0		81	58.0
1		79	15.7
2		44	20.3
3+		13	6.0
Vaginal Rape	156		71.9
0		61	47.9
1		78	16.1
2		58	26.7
3+		20	4.1
Anal Rape	69		31.8
0		148	82.0
1		44	6.5
2		19	6.0
3+		6	0.9
Attempted Rape			
Oral Rape	99		45.6
0		118	54.4
1		53	24.4
2		41	18.9
3+		5	2.3

Table 2 Continued

Trauma Frequencies

Variable	<i>N</i>	<i>n</i>	% of Total <i>N</i>
Attempted Rape continued...			
Vaginal Rape	156		71.9
0		61	56.7
1		89	12.4
2		58	26.7
3+		9	4.1
Anal Rape	66		30.4
0		151	69.6
1		51	6.5
2		13	6.0
3+		2	0.9
Time since trauma			
0-3 months		16	7.4
4-6 months		4	1.8
7-12 months		13	6.0
1-3 years		42	19.4
4-6 years		37	17.1
7-10 years		22	10.1
11-14 years		29	13.4
15 or more years		54	24.9

Note. *N* = 217

Table 3

Means, Standard Deviations, Ranges, and Reliability Estimates for the Total Sample

Variable	<i>M</i>	<i>SD</i>	<i>Actual Ranges</i>	<i>Possible Ranges</i>	<i>Cronbach's Alpha</i>
BIUJ	3.46	0.76	1.63 - 5.36	0 - 5	.89
UJ	3.40	1.06	1.00 - 6.00		.92
IJW	2.90	0.83	1.14 - 6.00		.74
UJW	4.78	0.93	1.00 - 6.00		.73
MLQ	5.11	0.85	2.30 - 7.00	1 - 7	.73
S	5.09	1.39	1.00 - 7.00		.90
P	5.13	1.24	1.40 - 7.00		.91
TRS	4.89	0.95	2.35 - 6.94	1 - 7	.95
SS	4.17	1.81	1.76 - 7.00		.98
SR	4.98	1.19	1.77 - 7.00		.90
O	5.14	1.05	1.91 - 7.00		.91
PS	5.41	0.84	2.70 - 7.00		.89
PTGI	2.83	1.04	4.20 - 4.81	0 - 5	.92
NP	2.94	1.23	0.00 - 5.00		.82
R	2.43	1.19	0.00 - 5.00		.85
SC	2.23	1.48	0.00 - 5.00		.76
PS	3.29	1.14	0.00 - 5.00		.82
AoL	3.41	1.18	0.00 - 5.00		.76
ET	5.60	2.26	0.00 - 10.00	0 - 10	.81
Di	5.89	2.70			
Anx	4.47	2.76			
De	5.89	2.82			
Ang	6.14	2.84			

Note. *N* = 217.

Belief in Immanent and Ultimate Justice Scale (BIUJ): UJ = Ultimate Justice; IJ = Immanent Justice; UJW = Unjust World.

Meaning in Life Questionnaire (MLQ): S = Search; P = Presence.

Trauma Resilience Scale (TRS): SS = Supportive Spirituality; SR = Supportive Relationships; O = Optimism; PS = Problem Solving.

Posttraumatic Growth Inventory (PTGI): NP = New Possibilities; R = Relating to Others; SC = Spiritual Change; PS = Personal Strength; AoL = Appreciation of Life.

Emotion Thermometer (ET): Di = Distress; Anx = Anxiety; De = Depression; Ang = Anger.

Table 4

BIUJS EFA: Item-Total Correlations, Factor Loadings, Communalities, Means, and SD's

Item	Item-Total Correlation	Factor Loading	h^2	M	SD
<i>Belief in Ultimate Justice</i>					
20. Everyone who commits ill deeds will be held responsible for them one day.	.77	.87	.72	3.56	1.56
29. Those who gain at other's expense will pay dearly in the end.	.67	.86	.60	3.57	1.46
12. At some point everyone has to pay for his/her ill deeds.	.72	.77	.60	4.01	1.34
28. Those who have suffered seriously will one day be compensated.	.72	.76	.61	3.25	1.44
5. Those who plan ill deeds will fall by them.	.56	.75	.44	4.02	1.34
26. Those who suffer will see better days.	.65	.73	.50	3.99	1.40
18. Those who are Last will one day be First.	.61	.76	.47	3.43	1.44
16. Every bad fate will be balanced one day.	.71	.67	.58	3.23	1.42
24. Those who let others suffer will have to do penance one day.	.65	.65	.48	3.56	1.38
4. I am convinced everyone will be compensated for suffered injustice one day.	.65	.61	.46	2.79	1.50
2. We will see the day when all victims will be compensated for their suffering.	.62	.58	.45	2.83	1.50
7. There is hardly a crime which will not be punished in the long run.	.55	.54	.37	3.30	1.59

Table 4 Continued

Item	Item-Total Correlation	Factor Loading	h^2	M	SD
<i>Belief in an Immanently Just World</i>					
25. Each society has the government it deserves.	.59	.59	.28	1.99	1.12
27. If a person is treated badly, they typically do not deserve to be treated otherwise.	.27	.57	.26	1.78	1.18
9. Good fortune is the just reward for a good character.	.54	.52	.46	3.24	1.49
11. I believe that people overall get what they deserve.	.57	.49	.46	3.25	1.44
19. In nearly all areas of life (i.e. work, family, politics) injustice is an exception rather than the rule.	.34	.49	.26	3.23	1.13
1. Everyone is responsible for their own life circumstances.	.23	.45	.21	3.53	1.48
6. I believe that all participants in important decisions strive for justice.	.45	.44	.33	3.29	1.38
<i>Belief in an Unjust World</i>					
22. Many things in life are completely unjust.	-.12	.86	.71	4.52	1.23
21. Many people suffer an unjust fate.	-.01	.77	.60	4.61	1.22
14. One may be hit by bad fortune at any time.	-.09	.42	.21	5.21	1.02

Note. $N = 217$.

BIUJ = Beliefs in Ultimate Justice, MLQ-S = Meaning in Life Questionnaire, TRS-SS = Trauma Resilience Scale–Supportive Spirituality, TRS-PS = Trauma Resilience Scale–Problem Solving, PTGI= Posttraumatic Growth Inventory, ET-Di = Emotion Thermometer–Distress.

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

Table 5

Inter-correlations between Observed Variables in Model 1

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1) UJ	1	.574**	.391**	.166*	.123	.259**	.116	.124	.155*	.204**	.162*	-.030	.047	.018
2) IJ		1	.095	.061	.079	.101	.066	.178**	.074	.162*	.205**	-.074	-.071	-.072
3) TRS-SS			1	.212**	.251**	.357**	.388**	.244**	.229**	.263**	.255**	.000	.094	.107
4) TRS-SR				1	.573**	.663**	.469**	.108	.375**	.251**	.199**	.335**	.298**	.355**
5) TRS-PS					1	.760**	.537**	.294**	.268**	.483**	.322**	.301**	.337**	.332**
6) TRS-O						1	.607**	.209**	.310**	.460**	.270**	.449**	.427**	.449**
7) MLQ-P							1	.275**	.299**	.366**	.275**	.202**	.301**	.271**
8) PTGI-NP								1	.620**	.702**	.688**	-.080	-.030	-.137*
9) PTGI-R									1	.525**	.520**	.044	.050	.035
10) PTGI-PS										1	.598**	.115	.125	.085
11) PTGI-AL											1	.054	.065	-.016
12) ET-Di												1	.584**	.591**
13) ET-De													1	.588**
14) ET-Anx														1

Note: $N = 217$.

Belief in Immanent and Ultimate Justice Scale: UJ = Ultimate Justice. IJ = Immanent Justice.

Meaning in Life Questionnaire: MLQ-P = Presence Subscale.

Trauma Resilience Scale (TRS): S = Supportive Spirituality; SR = Supportive Relationships; O = Optimism; PS = Problem-Solving.

Posttraumatic Growth Inventory (PTGI): NP = New Possibilities; PS = Personal Strength; R = Relating to Others; AL =

Appreciation of Life.

Emotion Thermometer (ET): Distress = Di; Anxiety = Anx; Depression = De.

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

Table 6

Factor Loadings of Indicator Variables in Structural Model 1

Latent Variables and Indicators	<i>B</i>	<i>SE</i>	<i>Z</i>	<i>β</i>
Worldview (S-II)				
Supportive Spirituality	16.296	11.827	1.378	.870
Belief in Ultimate Justice	5.072	2.978	1.703	.452
Belief in Immanent Justice	1.000			.116
Coping and Appraisal Resources (S-II →S-IV)	3.179	2.201	1.444	.389
Problem-Solving	.856	.076	11.218	.811***
Optimism	1.230	.099	12.398	.935***
Meaning	1.019	.113	9.047	.649***
Supportive Relationships	1.000			.680***
Posttraumatic Growth (S-IV →S-VG)	.381	.086	4.414	.344***
Relating to Others	.971	.094	10.351	.698***
New Possibilities	1.271	.101	12.595	.904***
Personal Strength	.935	.087	10.792	.709***
Appreciation of Life	1.000			.741***
Emotional Upset (S-IV →S-VD)	1.505	.224	6.704	.580***
Depression	1.046	.105	10.006	.763***
Anxiety	1.037	.103	10.084	.772***
Distress	1.000			.760***

Note: $N = 217$

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

Table 7

Latent Variable Correlations and Factor Loadings

Model 1				
Latent Variables	1	2	3	4
1) S-II = Just Worldview	1	.453	.362	.106
2) S-IV = Coping/Appraisal Resources		1	.427***	.592***
3) S-VG = Posttraumatic Growth			1	-.336***
4) S-VG = Emotional Upset				1

Factor Loadings	<i>Model 1</i>
System II	
BUJ	.150
BIJ	.007
SS	.041
System-IV	
M	.560
O	.446
PS	.178
SR	.079
System-V-G	
AoL	.126
PS	.179
NP	.365
RtO	.120
System-V-D	
De	.229
Anx	.245
Di	.235

Note: $N = 217$.

Belief in Immanent and Ultimate Justice Scale: UJ = Ultimate Justice. IJ = Immanent Justice; Meaning in Life Questionnaire: MLQ-P = Presence Subscale; Trauma Resilience Scale (TRS): S = Supportive Spirituality; SR = Supportive Relationships; O = Optimism; PS = Problem-Solving; Posttraumatic Growth Inventory (PTGI): NP = New Possibilities; PS = Personal Strength; RtO = Relating to Others; AoL = Appreciation of Life; Emotion Thermometer (ET): Distress = Di; Anxiety = Anx; Depression = De.

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

Table 8

Standardizes Path Coefficients, and Fit Indices of SEM Model 1

Regression Coefficients	<i>Model 1</i>
Just Worldview → Coping/Appraisal	.389***
Coping/Appraisal → Posttraumatic Growth	.344***
Coping/Appraisal → Emotional Upset	.580***
Fit Indices	<i>Model 1</i>
CFI	.972
GFI	.937
AGFI	.905
X ² /(df)	121.15/(69) = 1.55
RMSEA	.050
CI for RMSEA	.030-.068
PCLOSE	.471

Note. $N = 217$.

CFI = Comparative Fit Index, GFI = Global Fit Index; AGFI = Adjusting Goodness-of-Fit Index; X² = Chi-Square; RMSEA = Root Mean Square Error of Approximation, CI = Confidence Interval for RMSEA, $\chi^2(df)$ = Satorra-Bentler Robust Chi-Square.

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

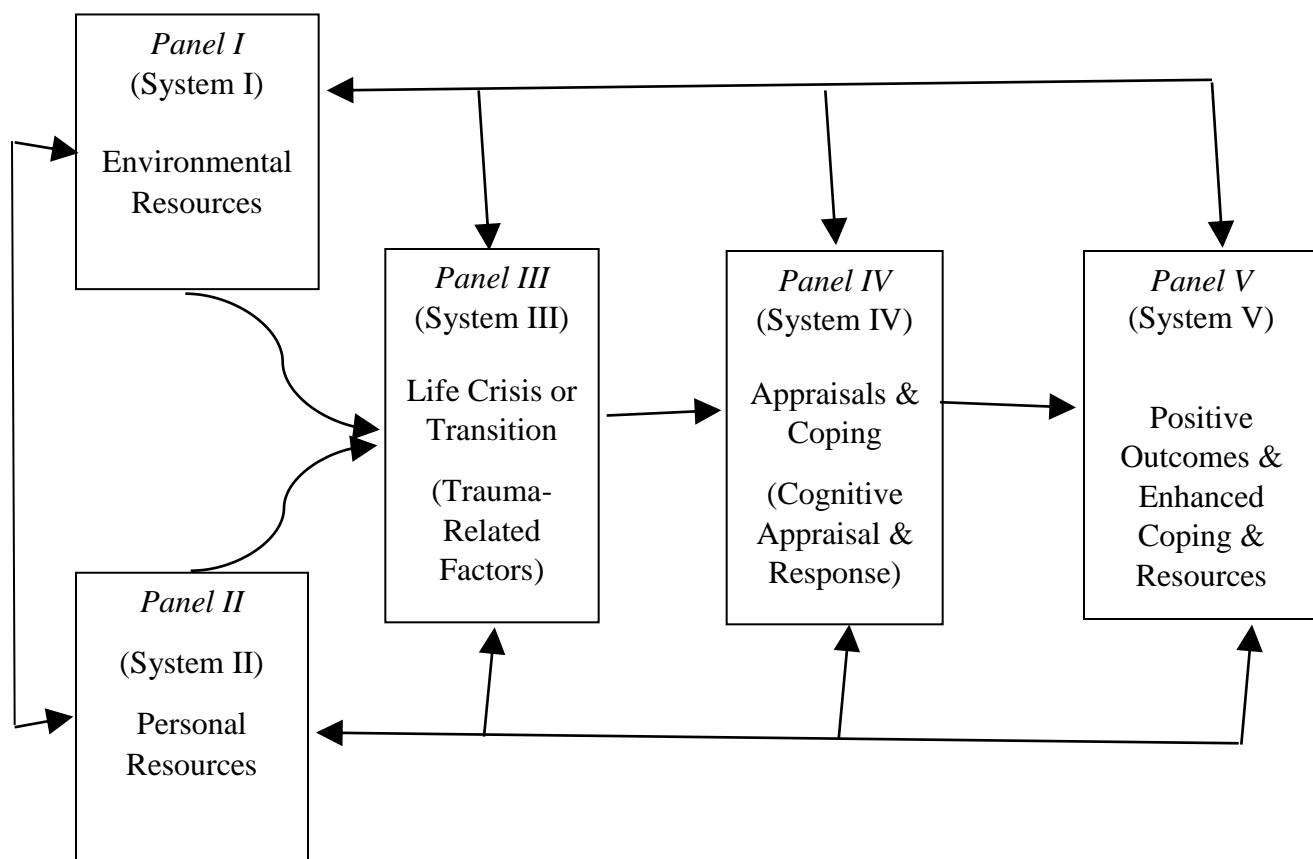


Figure 1. Schaefer and Moos (1998) model of posttraumatic growth.

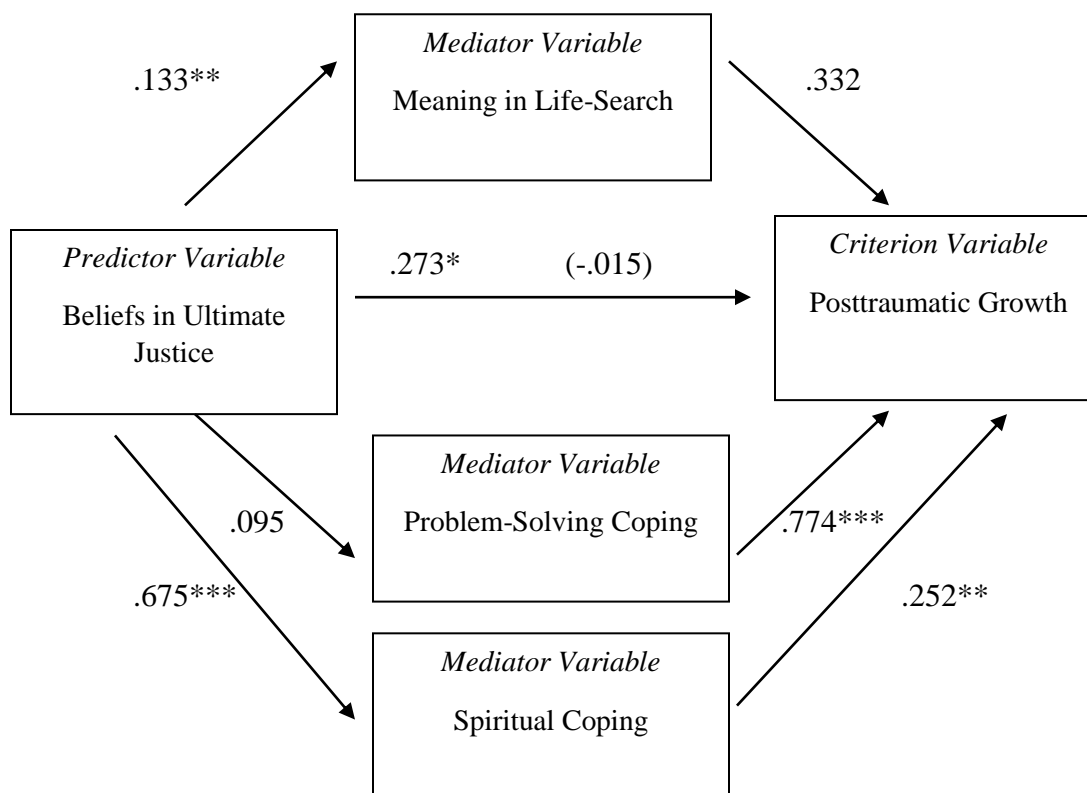


Figure 2. Thesis Path Model: Standardized regression coefficients for the relationship between beliefs in ultimate justice and posttraumatic growth as mediated by the search for meaning in life, problem-solving coping, and spiritual coping. The standardized regression coefficient for the path between beliefs in ultimate justice and posttraumatic growth controlling for the search for meaning in life, problem-solving coping, and spiritual coping is in parentheses.
 $p < .05$. $** p < .01$. $*** p < .001$.

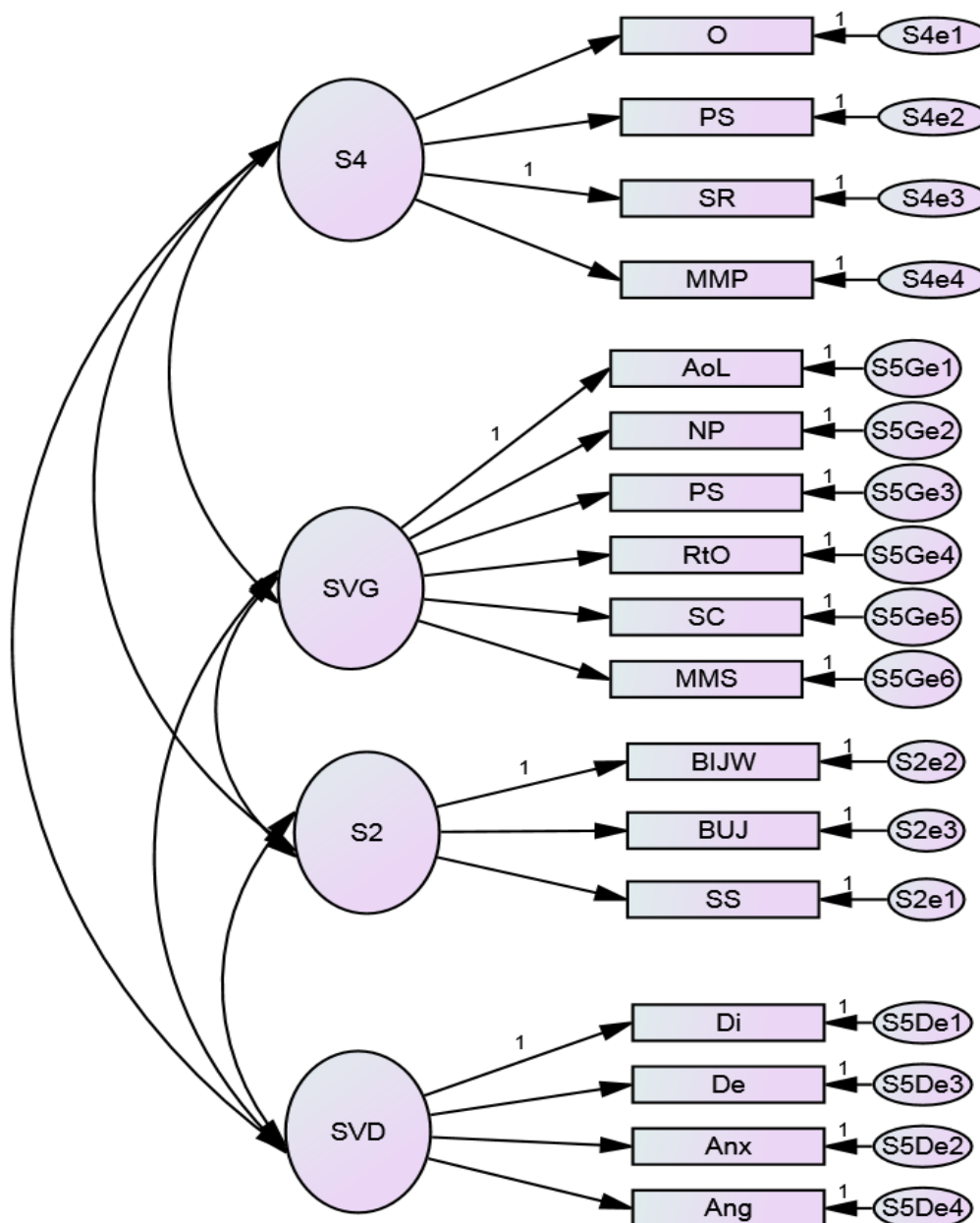


Figure 3. Model 1: Hypothesized Measurement Model. S2 = System II. BUJ = Ultimate justice. BIJW = Immanent justice. SS = Supportive spirituality. S4 = System IV. MMP = Presence of meaning; SR = Supportive Relationships; O = Optimism; PS = Problem-Solving; S5G = System V (PTG). NP = New Possibilities; PS = Personal Strength; RtO = Relating to Others; AoL = Appreciation of Life. SC = Spiritual changes. MMS = Search for meaning; S5D = System V (Distress). Di = Distress. Anx = Anxiety. De = Depression. Ang = Anger.

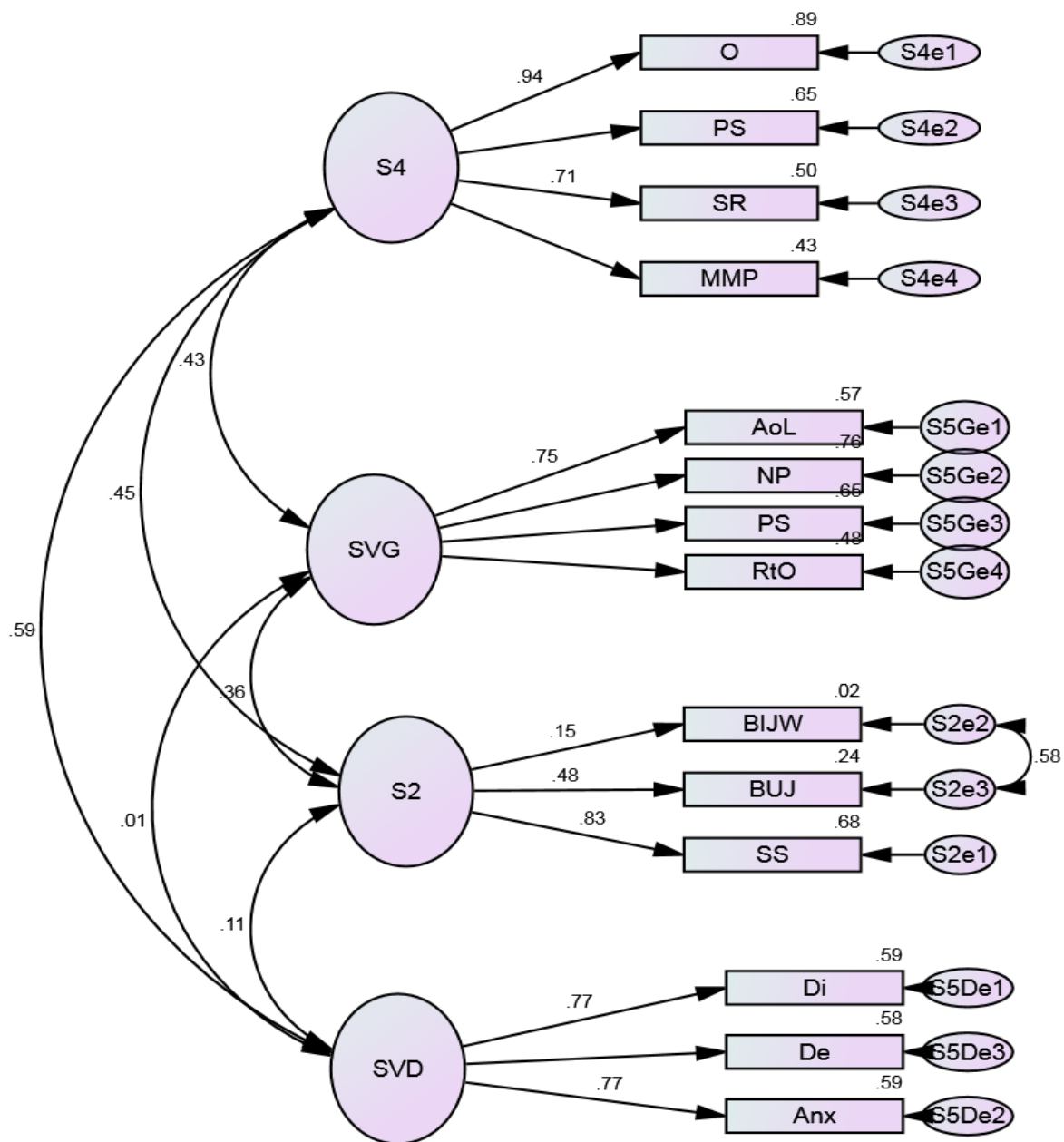


Figure 4. Model 1: Modified Measurement Model showing Standardized Regression Coefficients. S2 = System II. BUJ = Ultimate justice. BIJW = Immanent justice. SS = Supportive spirituality. S4 = System IV. MMP = Presence of meaning; SR = Supportive Relationships; O = Optimism; PS = Problem-Solving; S5G = System V (PTG). NP = New Possibilities; PS = Personal Strength; RtO = Relating to Others; AoL = Appreciation of Life; S5D = System V (Distress). Di = Distress. Anx = Anxiety. De = Depression.

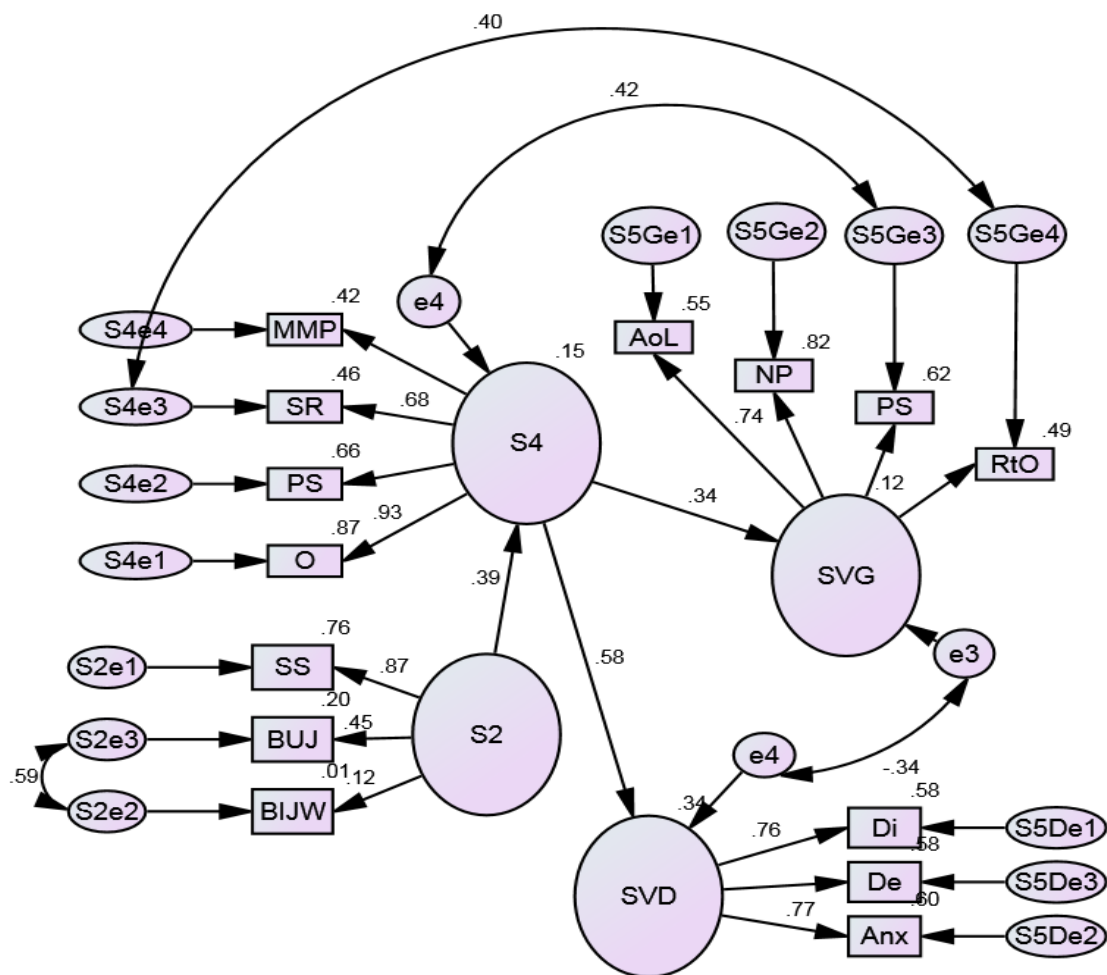


Figure 5. Model 1: Specified Structural Model showing Standardized Regression Coefficients. S2 = System II. BUJ = Ultimate justice. BIJ = Immanent justice. SS = Supportive spirituality. S4 = System IV. MMP = Presence of meaning; SR = Supportive Relationships; O = Optimism; PS = Problem-Solving; S5G = System V (PTG). NP = New Possibilities; PS = Personal Strength; RtO = Relating to Others; AoL = Appreciation of Life; S5D = System V (Distress). Di = Distress. Anx = Anxiety. De = Depression.

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APPENDICIES

APPENDIX A: RECRUITMENT EMAIL

From: Danielle Fetty/Yu-Wei Wang
Subject: Research request for sexual assault survivors

Dear Mr./Ms./Dr. _____ (their names):

Hope this email finds you well. We are a group of researchers who work with and care about sexual assault survivors. In order to understand survivors' healing after sexual trauma, we are conducting a web-based survey. The findings will help us understand survivors' experiences of sexual violence and subsequent healing, and develop programs that benefit the growth and quality of life of survivors of sexual assault. We would greatly appreciate it if you would forward our research announcement to survivors and/or sexual violence advocacy/resource centers in your organizations. Individuals who choose to participate will have the opportunity be entered into a lottery for **one of five \$15 Walmart gift cards**.

Below is a message that you can copy and paste to send through your listserv.

We would greatly appreciate it if you would be able to reply to our email and let us know whether you would be willing to send this message to agencies and survivors. Your email address was obtained from your university or organization website. If you have any other questions or concerns, please feel free to contact us via email (dfetty@siu.edu) as well. Thank you for your time and help.

Sincerely,

Danielle Fetty, B.A.
Graduate Student
Department of Psychology
Southern Illinois University

Yu-Wei Wang, Ph.D.
Assistant Professor
Department of Psychology
Southern Illinois University

Dear Survivor or Sexual Assault Organization:

We are a group that consists of people who work with and care about survivors of sexual violence at Southern Illinois University Carbondale. In order to understand about sexual assault survivors' traumatic experiences, we are conducting a web-based survey and are writing to invite you to participate in our research study. Your responses will help us understand sexual assault survivors' experiences of sexual violence and subsequent healing, and develop programs that benefit the growth and quality of life of survivors of sexual violence.

The entire study should take approximately 20 minutes. Those who choose to participate will have the opportunity to be entered into a lottery **one of the five \$15 Walmart gift cards**.

For more information about the study and to participate, please go to: [specific web address to be added]

The answers you provide will be kept completely **anonymous**. You will not be asked to provide your name on the survey. If you choose to receive your gift card, you will only be requested to provide an email address for the sole purpose of contacting you regarding where to send your gift card. Your email address will **NOT** be linked to your responses on the questionnaire. Also, it is possible that you may experience some discomfort while answering questions related to sexual trauma; otherwise, there are no known risks involved in this study beyond those of everyday life. If you ever feel uncomfortable or object to any of the questions, please discontinue your participation.

Thank you in advance for your participation! Please feel free to forward this email to anyone who would be interested in participating in our study.

Note: Please let us know if you would like to be removed from any future mailings from us regarding this study. If you do not respond to this email or return the opt-out message, you will be contacted again with this request 2 times during the next 2 months. If you have questions about this survey or the procedures in this project, please contact Danielle Fetty at dfetty@siu.edu, or Dr. Yu-Wei Wang at 618-453-3520 (email: ywang@siu.edu), Assistant Professor of Psychology, Southern Illinois University, Carbondale, 62901-6502.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, SIUC, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail: siuhsc@siu.edu

APPENDIX B: INFORMED CONSENT

NOTE: In order to participate in the study, you must be (a) **18 years of age or older** (b) **female** and (c) **a survivor of sexual violence**.

We are a group that consists of people who work with and care about survivors of sexual violence at Southern Illinois University Carbondale. In order to understand about sexual assault survivors' traumatic experiences, we are conducting a web-based survey and are writing to invite you to participate in our research study. Your responses will help us understand survivors' experiences of sexual violence and subsequent healing, and develop programs that benefit the growth and quality of life of survivors of sexual violence.

Participation is voluntary, and you are free to stop or refuse to participate in this study at any time without penalty. If you choose to participate in the study, it will take approximately 20 minutes of your time. After your informed consent has been obtained, you will be directed to a secured website and asked to indicate the degree to which each item pertains to you.

After completion of the survey, you will have the opportunity to either enter your email address be entered into a lottery in which you can win **one of the five \$15 Walmart gift cards**. To receive your gift card, you will be asked to provide an email address for the sole purpose of contacting you so that you may receive your gift card. Your email address will **NOT** be linked to your responses on the questionnaire; they will be kept in separate files and locations. Therefore, providing your email address to receive your gift card will not affect the confidentiality of your responses.

The answers you provide will be kept **anonymous**. You will NOT be asked to provide your name on the survey. Other participants in the study do not have access to the data. The obtained data will also be kept in a secured website; only Danielle Fetty and Dr. Wang will have access to the data. The results from this study may be published in the professional journals or presented in a conference, but you will not be identified as an individual. Instead, results will be reported as group average. It is possible that you may experience some discomfort while answering questions related to sexual trauma; otherwise, there are no known risks involved in this study beyond those of everyday life. If you ever feel uncomfortable or object to any of the questions, please discontinue your participation. If you need to speak with someone immediately or if you find yourself in a crisis or emergency situation, several resources are available (e.g., the Rape Abuse and Incest National Network Crisis Line: 1-800-656-HOPE; Live 24/7 Chat at <http://www.rainn.org/>). In an emergency, you also have the options of calling 911 or going to your nearest hospital emergency room.

If you have questions about this survey or the procedures in this project, please contact: Danielle Fetty, at 618-453-3520 (email: dfetty@siu.edu), Southern Illinois University, Carbondale, 62901-6502, or Yu-Wei Wang, Ph.D., at 618-453-3539 (email: ywang@siu.edu), Assistant Professor of Psychology, Southern Illinois University, Carbondale, 62901-6502.

Thank you for taking the time to assist us in this research.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail: siuhsc@siu.edu

By clicking on the "**NEXT**" option, you indicate that you are a female sexual assault survivor who is at least 18 years of age, you are agreeing to participate in this study, and you understand your right to refuse to participate at any time.

If you are NOT a female sexual assault survivor who is at least 18 years of age, or you do NOT agree with the study's terms, please exit this screen and terminate your online survey session.

APPENDIX C: DEBRIEFING FORM

Thank you for taking the time to participate in this study! Your participation has contributed greatly to a better understanding of women's positive growth after a traumatic experience. Specifically, you were providing information about how sexual assault survivors achieve positive life change after their trauma. Other participants completed the same questionnaires as you. Your data will be used to examine the specific ways women heal after sexual assault, and some of the factors that contribute to that healing.

It is an important goal in psychology to provide affirming and effective services for all clients, and your participation has contributed to this advancement. This research can also contribute to the women's psychology and positive psychology literature addressing the importance of positive emotions, coping, and beliefs after traumatic experiences. If you have any questions about this study, please feel free to contact Danielle Fetty by email at dfetty@siu.edu. You may also contact Dr. Yu-Wei Wang by email at ywang@siu.edu.

Please **click here** to download the PDF document if you are interested in obtaining a list of helpful resources for sexual assault survivors.

To express our appreciation for your participation, you will now have the opportunity to enter your email to be entered into a lottery for the chance to win one of five \$15 Walmart gift cards.

To receive your gift card, you will need to provide an email address for the sole purpose of contacting you with the gift card information. **Remember that your email address will not be linked to your responses to the questionnaire;** they will be kept in separate files and locations. Therefore, providing your email address to receive your gift card will not affect the confidentiality of your responses.

If you agree to provide your email address to receive your gift card, please enter it in the box below. Shortly after doing this, you will be contacted through the email address you provide, at which time we will request your name and mailing address for sending the gift card.

APPENDIX D: LIST OF HELPFUL RESOURCES

List of Helpful Resources

National Resources

RAINN (Rape Abuse and Incest National Network)

27/7 Toll free Hotline: 1-800-656-HOPE

Website: <http://rainn.org>

National Center for Victims of Crime

Phone: 1-800-394-2255

1-800-211-7996 (TTY)

Website: http://www.ncvc.org/ncvc/main.aspx?dbID=dash_Home

National Sexual Violence Resource Center

Phone: 1-877-739-3895

Website: <http://www.nsvrc.org/>

Southern Illinois Resources

Counseling

Southern Illinois University Counseling Center: Phone: 618/453-5371

Website: <http://counselingcenter.siuc.edu/>

Southern Illinois University Clinical Center: Phone: 618/453-2361

Website: <http://clinicalcenter.siuc.edu/>

Counseling & Volunteer Opportunities

The Women's Center (Carbondale, IL): Business- (618) 549-4807

24 Hour Toll Free Hotline: 1-800-334-2094

Website: <http://www.thewomensctr.org/index.php>

For Further Reading

Folkman, S. (2008). The case for positive emotions in the stress process. *Anxiety, Stress & Coping*, 21(1), 3-14. doi: 10.1080/10615800701740457

Park, C.L., & Ai, A.L. (2006). Meaning making and growth: New directions for research on survivors of trauma. *Journal of Loss and Trauma*, 11(5), 389-407. doi: 10.1080/15325020600685295

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Thompson, S.C. (1985). Finding positive meaning in a stressful event and coping. *Basic & Applied Social Psychology*, 6(4), 279

APPENDIX E: IRB Approval

SIU HSC FORM A

REQUEST FOR APPROVAL TO CONDUCT RESEARCH ACTIVITIES INVOLVING HUMAN SUBJECTS

CERTIFICATION STATEMENT

By making this application, I certify that I have read and understand the University's policies and procedures governing research activities involving human subjects. I agree to comply with the letter and spirit of those policies. I acknowledge my obligation to:

1. Accept responsibility for the research described, including work by students under my direction.
2. Obtain written approval from the Human Subjects Committee of any changes from the originally approved protocol **BEFORE** implementing those changes.
3. Signed approval letters to access the data should be kept in a secure location for at least **three** years after the completion of the research.
4. Immediately report any adverse effects of the study on the subjects to the Chairperson of the Human Subjects Committee, SIU, Carbondale, Illinois - 618-453-4533 **and** to the Director of the Office of Sponsored Projects Administration, SIU. Phone 618-453-4531. E-mail siuhsc@siu.edu

Project Title Is There Justice For Sexual Trauma? A Path Model
to Examine Factors Influencing Survivors' Posttraumatic Growth
and Distress
(Protocol #15201)

RESEARCHER ADVISOR'S ASSURANCE: *My signature on this application certifies that the student is knowledgeable about the regulations and policies governing research with human subjects. I am aware of my obligations stated on this form and will be available to supervise the research. When on sabbatical leave or vacation, I will arrange for an alternate faculty sponsor to assume responsibility during my absence. I will advise the Human Subjects Committee by letter of such arrangements.*

Danielle Felty (Danielle Felty) 1-20-15
Researcher(s) or Project Director(s) Date
Please print or type name below signature.

BPR II BENJAMIN RODRIGUEZ 2/4/16
Researcher's Advisor (required for all student projects) Date
Please print or type name below signature.

The request submitted by the above-named researcher(s) was approved by the SIUC Human Subjects Committee.

This approval is valid for one year from the review date. Researchers must request an extension to continue the research after that date. This approval form must be included in all Master's theses/research papers and Doctoral dissertations involving human subjects that are submitted to the Graduate School.

[Signature] 2-4-16
Interim Chairperson, Southern Illinois University Human Subjects Committee Date

VITA

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Bachelor of Arts, Psychology, May 2009

Southern Illinois University, Carbondale
Masters of Arts, Psychology, May 2012

Dissertation Title:

Is there justice in sexual trauma? A structural model to examine factors influencing survivors' posttraumatic growth and distress.

Major Professor: Yu-Wei Wang, PhD. and Benjamin Rodriguez, Ph.D.