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What We Learn From Each Other: Vicarious Posttraumatic Growth Among Non-Helping Professionals Following Exposure to Peer Trauma Experiences

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WHAT WE LEARN FROM EACH OTHER: VICARIOUS POSTTRAUMATIC GROWTH AMONG NON-HELPING PROFESSIONALS FOLLOWING EXPOSURE TO PEER TRAUMA EXPERIENCES

by

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ABSTRACT

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Trauma can result in adverse psychological outcomes from survivors and the helping professionals who support them. Vicarious (or secondary) traumatization is common among helping professionals and can lead to compassion fatigue and burnout. However, empathetic engagement with trauma survivors and their stories has been shown to lead to positive vicarious outcomes, including vicarious posttraumatic growth. Vicarious posttraumatic growth has been linked to personal and professional benefits for helping professionals. However, positive vicarious outcomes after engagement with peer trauma experiences had yet to be explored outside of helping relationships. The present study found that vicarious posttraumatic growth in non-helping professionals was uniquely predicted by hope, spirituality, and empathy. It is among the first studies to test multiple predictors of vicarious posttraumatic growth using an experimental design. Future research can continue to observe and magnify positive vicarious outcomes outside of helping profession contexts.

To my family and friends, thank you for loving me, unconditionally; believing in me, even when I didn't believe in myself; and trusting me, always, on this journey to myself and my calling.

To all whom I've served and loved, past and present, thank you for being a part of my life.

And to those lost, afraid, silenced, and unsure, you are worthy. You are seen. You are loved.

Always.

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NOMENCLATURE

IPT	Interpersonal trauma
PTSD	Posttraumatic stress disorder
PTG	Posttraumatic growth
VPTG	Vicarious posttraumatic growth

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CHAPTER I

INTRODUCTION

Traumatic events impact not only those who endure them, but also those who learn about them. Nine out of ten Americans report exposure to a traumatic event, with exposures to multiple types of traumas being normative (Kilpatrick et al., 2013). In the aftermath of trauma, helping professionals serve as a critical resource for recovery. However, in the process of helping trauma survivors, helping professionals risk experiencing trauma symptoms similar to their clients, which is known as vicarious trauma (Pearlman & Mac Ian, 1995). While many researchers and practitioners have sought to mitigate the negative outcomes of vicarious trauma in helping professionals (Bell et al., 2003; Palm et al., 2004; Trippany et al., 2004), others have looked into positive outcomes, including compassion satisfaction (Stamm, 2002), vicarious resilience (Hernández et al., 2007), and vicarious posttraumatic growth (Arnold et al., 2005). Researchers have noted that these constructs constitute both personal (Arnold et al., 2005; Engstrom et al., 2008; Hernández, Gangsei, & Engstrom, 2007) and professional (Eidelson et al., 2003; Nelson & St. Cyr, 2015a) benefits for helping professionals. The present study aimed to examine predictors of vicarious posttraumatic growth outside the context of helping professionals (i.e., among undergraduate college students) when exposed to a trauma narrative in the form of a written vignette. Predictive associations of vicarious posttraumatic growth, and whether these associations depended on the posttraumatic growth of the narrative victim, were examined.

Review of the Literature

Trauma

A traumatic event involves exposure to actual or threatened death, serious injury, or sexual violence such that harm is experienced directly or, in certain circumstances, indirectly

(APA, 2013). Worldwide, about 70% of people report experiencing a traumatic event during their lifetime (Benjet et al., 2016) with rates as high as 90% in the United States (Kilpatrick et al., 2013; Milanak et al., 2019; Norris, 1992). Associated problems include re-experiencing the trauma, avoidance, and increased emotional arousal (APA, 2013). Furthermore, certain traumatic events may occur on multiple occasions and can leave victims at increased risk for cumulative traumatic stress (Follette et al., 1996; Jones et al., 2001).

Negative Vicarious Outcomes of Trauma

Increasingly, researchers are considering how indirect experiences of traumatic events can result in adverse outcomes. Diagnostic criteria for posttraumatic stress disorder (PTSD) in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*; APA, 2013) were revised to include symptoms acquired after learning secondhand about traumatic events in certain circumstances. This recognizes that PTSD can arise from vicarious trauma to at least a limited extent. Vicarious trauma, also known as secondary traumatic stress, is cumulative stress that develops as a result of helping traumatized victims and clients (Pearlman & Mac Ian, 1995). Vicarious trauma is related to a similar construct, compassion fatigue, which refers to negative impacts on a helping professional's career life (e.g., burnout, career dissatisfaction) from exposure to client trauma narratives (Stamm, 2002). Although prevalence rates of vicarious trauma are unknown due to limited epidemiological data, one study found that 70% of social workers reported at least one post-traumatic stress symptom, and 15% reported symptoms severe enough to merit a diagnosis of PTSD (Bride, 2007). In addition to standard symptoms of posttraumatic stress, vicarious trauma among mental health professionals can also result in helplessness (Pearlman & Caringi, 2009), doubts in their ability to serve (Sartor, 2016), as well as distal outcomes of compassion fatigue (Adams et al., 2006; Bride et al., 2007; Figley, 2002)

and burnout (Killian, 2008). Therefore, vicarious trauma can result in negative outcomes similar to direct experiences of trauma, which ultimately challenge the way a person views themselves and the world, and understands suffering and safety (Hernández et al., 2007).

Positive Vicarious Outcomes of Trauma

In addition to risk for negative outcomes, researchers have noted positive outcomes as well. Several constructs have been studied to understand how exposure to client trauma narratives results in positive outcomes among helping professionals (Michalchuk & Martin, 2019), including compassion satisfaction (Stamm, 1996; Stamm 2002), vicarious resilience (Hernández et al., 2007; Engstrom et al., 2008), and vicarious posttraumatic growth (Calhoun & Tedeschi, 1999; Calhoun & Tedeschi, 2004). In the following sections, these positive vicarious outcomes of trauma are defined and reviewed.

Compassion Satisfaction. One positive outcome that is often cited among helping professionals is compassion satisfaction. Compassion satisfaction refers to a sense of professional fulfillment in a helping professional as they observe positive outcomes in their clients (Stamm, 2002). Compassion satisfaction has been linked to resilience against burnout and psychological distress (Craig & Sprang, 2010; Rossi et al., 2012). Compassion satisfaction may depend on the degree of exposure to trauma cases and one's own personal trauma history (Stamm, 1996). Compassion satisfaction differs from vicarious resilience and vicarious posttraumatic growth in that it refers primarily to fulfillment in one's role as a helping professional.

Vicarious Resilience. Another positive outcome that has been observed in helping professionals is vicarious resilience. Vicarious resilience refers to the internal transformation that therapists can experience as a result of empathetic engagement with their clients' trauma

experiences (Hernández et al., 2007). Vicarious resilience reflects the parallel benefits therapists can experience from witnessing their clients overcome trauma. Studies have identified multiple positive processes associated with vicarious resilience for therapists, including perspective shifting (Engstrom et al., 2008), self-evaluation, transformation (Hernández et al., 2007), and recommitment to helping others (Eidelson et al., 2003). These outcomes are believed to be facilitated by meaning making (i.e., reflecting & making sense of life circumstances; Hernández et al., 2007), appreciation for spirituality (Laidig & Speakman, 2009; Nelson & St. Cyr, 2015b), renewed hope in trauma recovery (Hernández et al., 2007; Richardson, 2001), and increased self-efficacy in their therapeutic abilities (Nelson & St. Cyr, 2015a).

Research on vicarious resilience began in the context of social work service provided to torture survivors. This research has been exclusively qualitative, yielding a better understanding of the processes involved in positive outcomes of vicarious trauma exposure. For example, interviews with helping professionals revealed that vicarious resilience is linked to a greater appreciation of clients' abilities to thrive despite adversity, a shift in their perspectives regarding their own lives, and affirmation of the value of therapy (Engstrom et al., 2008). Despite the value of qualitative research in naming and describing vicarious resilience, quantitative methods have not yet been utilized to understand the processes underlying vicarious resilience and subsequent outcomes, such as vicarious posttraumatic growth, which is the central outcome of interest in the present study.

Vicarious Posttraumatic Growth

A final construct used to describe positive outcomes in helping professionals who experience secondary trauma is vicarious posttraumatic growth. As with its principal measure, studies of vicarious posttraumatic growth emerged from research on posttraumatic growth.

Posttraumatic growth refers to positive changes after experiencing challenging life circumstances (Calhoun & Tedeschi, 1999). These circumstances include not only traumatic events as conceptualized by the diagnostic criteria for PTSD, but more broadly any stressful life event that challenges the stability of a person's view of themselves and the world (Tedeschi & Calhoun, 2004). Posttraumatic growth has been extensively studied among clients engaged in therapy, during which time they develop the skills and insight needed to overcome their challenges, find meaning and healing, and transform their lives. Vicarious posttraumatic growth is distinguished from posttraumatic growth in that it involves secondary exposure to details of a traumatic event without firsthand experience of the event (Manning-Jones et al., 2015). Thus, helping professionals who listen to their clients' challenges and witness their resilience and growth, can experience similar positive outcomes from these secondhand interactions (Arnold et al., 2005; Brockhouse et al., 2011).

Theoretical Framework. Vicarious posttraumatic growth is understood from a social learning perspective, specifically observational learning. Bandura (1977) posited that there were two types of observational learning: (1) imitation and (2) vicarious learning. Imitation occurs when an observer attempts to match a model's behavior, whereas vicarious learning takes place when an observer modifies their behavior after witnessing a model's behavior be reinforced or punished. There are two phases of vicarious learning, acquisition and performance, and several underlying processes, including attention, retention, motor reproduction, and motivation (Masia & Chase, 1997; Nathan & Kovoor-Misra, 2002). Attention processes assist with model and behavior selection, while retention processes involve the formation of mental representation of a model's behavior and outcomes following an observation (Masia & Chase, 1997). Motor reproduction processes involve a person's ability to physically replicate observed behaviors.

Lastly, motivation processes involve the evaluation of a model's outcomes (i.e., reinforcement or punishment) when deciding which behaviors to adopt. These processes work together so that observers avoid negative consequences and more effectively work toward goal attainment (Nathan & Kovoor-Misra, 2002).

When considering vicarious learning in the face of traumatic experiences, some organizations and communities utilize the vicarious learning processes in order to learn from previous crises and prevent similar crises that could directly impacting them (Nathan & Kovoor-Misra, 2002). Another recent study highlighted how the transmission of intergenerational trauma includes vicarious learning and traumatization and that repeated exposure to severe, but normative life stressors (e.g., discrimination, being turned down for a promotion, interpersonal conflict) can result in embitterment (i.e., anger, helplessness, and a profound sense of devaluation & injustice; Lehrner & Yehuda, 2018). Thus, vicarious learning can take place within many contexts and environments and across time. However, more research is needed to understand the vicarious experiences of resilience and growth within normative relationships following life stressors and traumatic events.

While closely related, vicarious resilience and vicarious posttraumatic growth are distinct constructs and approaches for measuring them are notably different. Vicarious resilience focuses on professional qualities of those who encounter trauma in their work, and it has mainly been studied through qualitative interviews (Hernandez, Engstrom, & Gangsei, 2010; Hernandez-Wolfe, 2018). In contrast, vicarious posttraumatic growth is less focused on professional benefits, and it has been studied by modifying a validated self-report measure, the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), to focus on vicarious outcomes of encountering a trauma survivor's traumatic experience (e.g., Manning-Jones et al., 2016; Shiri et

al., 2008). Given that research regarding these constructs is limited with respect to methodology and sampling population, the present study seeks to address these areas, as well as explore the role of known predictors of vicarious posttraumatic growth.

Predictors of Vicarious Posttraumatic Growth. Predictors of vicarious posttraumatic growth include positive affect (Linley & Joseph, 2005; Shiri et al., 2010), peer social support (Tehrani, 2010), self-care (Arnold et al., 2005), and hope (Edelkott et al., 2016; Splevins et al., 2010). Empathy is another predictor of vicarious posttraumatic growth (Brockhouse et al., 2011; Linley & Joseph, 2007), and this parallels findings that posttraumatic growth is related to empathy (Swickert et al., 2012) and compassion for others (Morris et al., 2012). Among those who work professionally with trauma survivors, having a sense of professional competence (Taubman-Ben-Ari & Weintroub, 2008) and valuing one's work (Gibbons et al., 2011) can predict experiences of vicarious posttraumatic growth.

One study found that negative affect was associated with vicarious posttraumatic growth (Linley & Joseph, 2005), perhaps because emotional engagement with another's trauma facilitates vicarious posttraumatic growth (Manning-Jones et al., 2015). To that end, helping professionals reported that their vicarious posttraumatic growth was facilitated by clients undergoing posttraumatic growth (Arnold et al., 2005; Guhan & Liebling-Kalifani, 2011). Further, one's own history of personal trauma has been positively associated with vicarious posttraumatic growth in some studies (Kjellenbeng et al., 2014; Linley & Joseph, 2007).

Together, qualitative literature has identified variables associated with vicarious posttraumatic growth, like posttraumatic growth and personal trauma history, as well as predictors of vicarious posttraumatic growth, like hope and empathy. Many of the predictors of posttraumatic growth are also predictors of vicarious posttraumatic growth. Spirituality is a

known predictor of posttraumatic growth (Barrington & Shakespeare-Finch, 2013; Splevins et al., 2010), but its role in possibly predicting vicarious posttraumatic growth has not been established. Thus, hope, empathy, and spirituality stand out as critical for vicarious posttraumatic growth experiences.

Hope. Hope is one predictor of vicarious posttraumatic growth that needs to be better understood. Hope has been conceptualized as the perception of being able to identify pathways toward goals and to muster agency in pursuit of those goals (Snyder, 2009; Snyder et al., 1991). Among theoretical models, hope is an important component to a sense of meaning in life (Feldman & Snyder, 2005). Hope may be an important predictor of vicarious posttraumatic growth. For helping professionals, stories of trauma survivors demonstrate what can happen when a person has hope (Engstrom et al., 2008) and, in turn, renew therapists' hope in recovery, survival, and transformation (Hernández et al., 2007). Thus, knowledge of another person's ability to thrive after trauma may be more likely to lead to vicarious posttraumatic growth in those with high levels of hope. The trauma survivor may serve as a model of how one can derive pathways toward goals and agency in pursuit of those goals. Thus, individuals with high levels of hope may be more likely to experience growth when they see it in others.

Spirituality. Another factor related to posttraumatic growth that has been identified in qualitative studies is spirituality (Barrington & Shakespeare-Finch, 2013; Splevins et al., 2010). Spirituality has been conceptualized as a perceived personal connection to a transcendent reality that manifests in beliefs and behaviors (Cascio, 1999). A distinction is made between spirituality and religiosity, such that religiosity is defined as beliefs and behaviors within a community of persons with congruent spirituality (Hodge, 2001; 2003). Previous studies have found that openness to religious or spiritual change can be a predictor of post-traumatic growth among

trauma survivors (Calhoun et al., 2000; Shaw et al., 2005). Researchers have noted that the idea of individuals or communities overcoming immense suffering has been an important theme in many religious viewpoints, including Judaism, Christianity, and Islam (Tedeschi & Calhoun, 1995). Many religious narratives center around individuals who endure suffering, but ultimately come to view their suffering as part of a divine plan. In turn, these narratives serve as inspiration for others; helping to formulate a sense of meaning in present suffering. In vicarious resilience research, many therapists have disclosed that their clients' traumatic events caused them to reflect on the spiritual meaning and means of overcoming adversity (Hernández et al., 2007). This perspective shifting has been associated with a greater appreciation for their own freedom (Engstrom et al., 2008) and the ability to reframe typically negative experiences as positive (Nelson & St. Cyr, 2015c).

Empathy. A third factor that must be considered when studying vicarious posttraumatic growth is empathy. Empathy is the ability to understand and identify with the emotions and thoughts of others. It is a multifaceted process that can help create and maintain social connections by strengthening trust, communication, and vulnerability (Batson, 2011; de Waal, 2010; Gibbons, 2011). For helping professionals, empathy is a necessary skill believed to facilitate positive therapeutic outcomes, including corrective emotional experiences, exploration and insight, and psychological growth (Elliott et al., 2011; Gibbons, 2011; Neumann et al., 2009). As clients benefit from empathetic responses, helping professionals leave themselves vulnerable to compassion fatigue, burnout, and vicarious trauma (Figley, 2002; Gleichgerrcht & Decety, 2013; Lakioti et al., 2020). Research has shown that empathetic helping professionals can be at increased risk for negative vicarious outcomes, particularly when they are trainees (DelTosta et al., 2019) or early career professionals (Goussakovski & Sizikova, 2017), or fail to

see therapeutic recovery in their clients (Deighton et al., 2007). However, when proper affective boundaries, supervision, and self-care are present, empathy can also result in reduced vicarious trauma (DelTosta et al., 2019; Thomas & Otis, 2010), greater compassion satisfaction (Wagaman et al., 2015) and deeper therapeutic bonds that benefit both helping professionals and their clients (Harrison & Westwood, 2009). Furthermore, both vicarious trauma and vicarious posttraumatic growth can manifest from empathetic engagement with clients' traumatic experiences (Cohen & Collens, 2013).

During times of distress, college students have sought mental health services and found them to be beneficial, but there has been notable variability in mental health service utilization (Eisenberg et al., 2011; Yorgason et al., 2008). Given that mental health stigma and fears persist across college student populations (Turner & Llamas, 2017; Wu et al., 2017), development of a strong therapeutic alliance through empathy is essential (Greenberg & Elliott, 1997; Zuroff & Blatt, 2006). When present, positive therapeutic outcomes have been observed for college students coping with trauma experiences (Elhai & Simons, 2007). Beyond the therapeutic relationship, social support is critical to maintaining good mental health (Hefner & Eisenberg, 2009). A recent study suggests that peer-to-peer communication about mental health helps to reduce stigma, encourage disclosure of mental health challenges, and raise awareness of available resources for college students (Conley et al., 2019). Although not directly assessed in this study, empathy likely facilitated students' abilities to connect to each other's challenges. More research is needed to understand the impact of trauma exposure in peer relationships and possible predictors and outcomes of such exposures.

Statement of the Problem

To date, positive vicarious outcomes of trauma have primarily been researched within samples of helping professionals from the United States (Arnold, Calhoun, Tedeschi, & Cann, 2005; Engstrom, Hernández, & Gangsei, 2008) and abroad (Hernández, Gangsei, & Engstrom, 2007; Linley et al., 2003). More specifically, experiences of vicarious posttraumatic growth have been examined among therapists (Brockhouse et al., 2011), social workers (Gibbons, Murphy, & Joseph, 2011), and physicians and nurses (Shiri et al., 2008; Taubman-Ben-Ari & Weintroub, 2008). A few studies have explored positive vicarious outcomes with samples of non-helping professionals, including teachers and community mothers aiding in child development and family relations following trauma (Hernandez-Wolfe, 2018) and general populations in the United States (Swickert et al., 2006), Canada (Davis & Macdonald, 2004), and Great Britain (Linley et al., 2003). But these studies generally sought to clarify the conceptualization of vicarious resilience or vicarious posttraumatic growth and centered around the psychological impact of the September 11th terrorist attacks on domestic and international individuals. While community- and global-based traumas bear significant importance, as is the case with the present COVID-19 pandemic (Griffin, 2020) and social justice movement (Godsay & Brodsky, 2018; Patterson & Swann, 2016), what is absent from present literature is an understanding of how traumas experienced by family members, friends, neighbors, or colleagues (i.e., peer trauma experiences) impact microsystems and then resonate in the everyday lives of people. Thus, research is needed to explore vicarious trauma outcomes among non-helping professionals from microsystemic and individual perspectives.

One non-helping professional population that is at risk for traumatization is the college student population. Sixty-six percent of college students report having witnessed or experienced

a trauma in their lifetime to date (Read et al., 2011). These rates have remained consistent in recent years (Pereira et al., 2018), but reports of interpersonal trauma (e.g., sexual and physical assault) have increased (Artime et al., 2019; Cusack et al., 2019). Within a large, multi-institutional sample of college students, 20% of students reported experiences of interpersonal trauma within the last year and, when compared to other groups, survivors of interpersonal trauma reported the worse outcomes with respect to mental health and academic functioning (Artime et al., 2019). While studies have shown that personal trauma history is positively correlated with vicarious posttraumatic growth (Kjellenbeng et al., 2014; Linley & Joseph, 2007), it is also linked to increased risk for vicarious traumatization and PTSD (Adams & Riggs, 2008; Ivicic & Motta, 2017). Furthermore, PTSD is a significant risk factor for new-onset interpersonal trauma exposure among college students (Cusack et al., 2019). Thus, history of interpersonal trauma may impact a person's experience of vicarious posttraumatic growth.

When considering gender identity, women are at greater risk for developing PTSD than men (Stein 2000; Cusack et al., 2019), particularly after traumatic events involving assault and violence (Breslau, 2002). Additionally, women are more likely to report secondary trauma symptoms than males (Invicic & Motta, 2017). As such, additional consideration of gender may be needed when assessing vicarious posttraumatic growth. Taken together, these factors can influence how trauma symptoms manifest and, when left unaddressed, can result in poorer mental health outcomes, including PTSD (Cusack et al., 2019) and substance use disorder (SUD) (Borsari et al., 2018), and diminished academic performance (Pereira et al., 2018). Therefore, the continued need to combat traumatic stress is evident, and investigating vicarious trauma outcomes among college students (i.e., non-helping and peer relationships) may reveal new ways of doing so.

The Present Study

Experiences of trauma pose risks to those directly and indirectly impacted, but they also present opportunities for resilience and growth. Consistent with the premise of vicarious learning, in the same way helping professionals experience vicarious resilience and vicarious posttraumatic growth from their clients' narratives, non-helping professionals can experience these positive vicarious outcomes from trauma narratives that could be experienced by someone they know. Written narratives in the form of vignettes have been widely used in social science research (Aguinis & Bradley, 2014; Bradbury-Jones, Taylor, & Herber, 2014), particularly as a way to present challenging topics, such as abortion (Hans & Kimberly, 2014), sexual assault (Sleed et al., 2002), and interpersonal conflict (Purdie & Morley, 2015). To date, vignettes have only been used in one study in order to depict the experience of posttraumatic growth compared to illusory growth (Orille et al., 2019). Given this, research using vignette methodology is needed to better understand vicarious posttraumatic growth.

In sum, the present study aimed to extend the literature by employing a quantitative design to assess vicarious posttraumatic growth among non-helping professionals (i.e., college students) and examine known predictors of vicarious posttraumatic growth (i.e., hope, spirituality, & empathy) among this population. Furthermore, studies have not examined whether the associations of hope, spirituality, and empathy with vicarious posttraumatic growth depend on whether or not a trauma victim displays posttraumatic growth. This was tested in the present study by randomly assigning participants to read a trauma vignette in which the trauma victim displays either posttraumatic growth or posttraumatic stress. Lastly, given the rates of interpersonal trauma among college students and gender differences in found in previous studies, the effects of interpersonal trauma history and gender were examined.

Hypotheses

By extending the research on vicarious post-traumatic growth to college students, more can be learned about how non-helping professionals are impacted by trauma experiences described in vignettes. The following outcomes were hypothesized:

Hypothesis I. It was hypothesized that measures of hope, spirituality, and empathy will significantly predict vicarious posttraumatic growth, such that participants reporting higher levels of hope, spirituality, and empathy will have higher levels of vicarious posttraumatic growth.

Hypothesis II. It was hypothesized that associations of hope, spirituality, and empathy with vicarious posttraumatic growth will be moderated by vignette type, such that the associations will be stronger for participants exposed to a vignette in which the trauma victim displays posttraumatic growth compared to those exposed to a vignette in which the trauma victim does not display posttraumatic growth.

Hypothesis III. It was hypothesized that the effects in hypotheses I and II will remain significant in a supplementary analysis involving the model used to test hypotheses I and II and including gender and history of interpersonal trauma as covariates.

CHAPTER II

METHOD

Participants

Participants were college men and women at least 18 years or older from a large, southeastern university. Students enrolled in psychology courses had access to this study via an online research participation system. Prior to beginning the study, participants were asked to complete an Informed Consent Agreement. Participation was voluntary, and those who completed the study received research credit. No identifiable participant information was collected. The treatment of participants aligned with the ethical standards of the American Psychological Association. Study procedures were approved by the Institutional Review Board of Old Dominion University.

To detect a small effect ($f^2 = .02$; Cohen, 1977), an a priori power analysis using the software package G*Power 3.1.9.7 was conducted. The power analysis included an α of .05, power of .80, and three predictors, and indicated that a minimum sample size of 395 participants would be required to detect a small effect for the regression analyses. Within the study sample, only participants who satisfied the inclusionary criteria would be used in the analyses. The proposed inclusionary criteria were the following: Participants had to correctly respond to all of the attention and manipulation check items (three and five questions, respectively).

Given that data collection for the present study included additional measures for use in supplemental studies, seven additional attention checks were created and included throughout. Thus, a total of ten attention check items were administered to participants. Participants were still required to complete five manipulation check items at the end of the study (see Appendix). Upon review of these items, it was determined that the final three items (i.e., Questions 3-5) best

inquired into the most critical vignette details. Therefore, the inclusionary criteria were modified to reflect these changes: Participants who correctly responded to (1) eighty percent of the attention check items and (2) the final three items of the manipulation check would be included in the analyses.

The total sample size post-data collection was 436 participants. Three hundred and thirty-one participants correctly responded to at least eight of the ten attention check items. Three hundred and sixteen participants provided correct responses to the last three items of the manipulation check. Taken together, participants were required to correctly respond to at least eight attention items and the last three manipulation check items. A filter with these parameters revealed that 291 participants met the inclusionary criteria. Given that this sample fell below the minimum sample size needed (i.e., 395 participants), post-hoc power analyses were conducted to determine the effect size that could possibly be detected with this sample. It was determined that with a sample size of 291 participants, a small effect (f^2 = .03) should be detected, if present (power of .84). With consensus from committee members, approval was granted to proceed to data cleaning and analyses with the present sample.

The final sample included 291 participants. The mean age was 22.09 years old (*SD* = 5.77). The sample included 220 females (75.6%), 67 males (23.0%), 2 non-binary individuals (.7%), 1 (.3%) transgender individual, and one who did not respond (.3%). Participants identified as White (143, 49.1%), Black (119, 40.9%), Asian (32, 11%), Hispanic (30, 10.3%), American Indian (8, 2.7%), Middle Eastern (5, 1.7%), and Native Hawaiian (2, .7%). The sample consisted of a breadth of religious affiliations, including Protestant Christian (87, 29.9%), Roman Catholic Christian (36, 12.4%), Muslim (5, 1.7%), Mormon (2, .7%), Orthodox, (2, .7%), and Pagan (2, .7%). Forty-four (15.1%), participants identified as spiritual but not religious, while 25

participants (8.6%) indicated that they practiced another religion, spiritual practice, or worldview. Fifty (17.2%) participants reported no religious affiliation. Additional demographic characteristics are reported in Table 1.

Table 1

Demographic Characteristics of Sample.

Characteristic	*N* (%)
Sexual Orientation	
Heterosexual or Straight	226 (77.7%)
Gay or Lesbian	14 (4.8%)
Bisexual	30 (10.3%)
Fluid	1 (.3%)
Pansexual	5 (1.7%)
Queer	6 (2.1%)
Demisexual	2 (.7%)
Questioning	3 (1%)
Asexual	4 (1.4%)
Class Standing	
Freshman	113 (38.8%)
Sophomore	53 (18.2%)
Junior	60 (20.6%)
Senior	63 (21.6%)
Graduate	1 (.3%)
Non-degree Seeking	1 (.3%)
Enrollment Status	
Full-time	262 (90%)
Part-time	29 (10%)
Student Athlete Status	
Yes	9 (3.1%)
No	282 (96.9%)
Greek Status	
Yes	18 (6.2%)
No	268 (92.1%)
Pledging	5 (1.7%)

Table 1 Continued.

Characteristic	*N* (%)
Living Arrangement	
Campus residence hall	53 (18.2%)
Fraternity or sorority house	1 (.3%)
Other university housing	4 (1.4%)
Off-campus, non-university housing	108 (37.1%)
Parent or guardian's home	118 (40.5%)
Other	7 (2.4%)
Past Mental Health Treatment	
Psychotherapy or counseling	
Yes	101 (34.7%)
No	190 (65.3%)
Pharmacotherapy or medication management	
Yes	58 (19.9%)
No	233 (80.1%)
Other	
Yes	10 (3.4%)
No	281 (96.6%)
Current Mental Health Treatment	
Psychotherapy or counseling	
Yes	40 (13.7%)
No	251 (86.3%)
Pharmacotherapy or medication management	
Yes	44 (15.1%)
No	247 (84.9%)
Other	
Yes	3 (1%)
No	288 (99%)

Materials

Demographic Questionnaire

Participants were asked to complete a demographic questionnaire created specifically for this study (see Appendix). It included questions that assessed age, gender, race and ethnicity, sexual orientation, religious or spiritual affiliation, class standing, enrollment status, student athlete status, sorority or fraternity affiliation, living arrangement, and past or current mental health treatment.

Trauma History

Self-report data regarding trauma history was gathered using the *Life Events Checklist for DSM-5* (LEC-5; Weathers et al., 2013) at baseline (i.e., prior to the vignette exposure). It is a 17-item questionnaire that assesses which of 17 traumatic events a person has experienced and the degree of that experience. For each event, participants respond with one or more of the following nominal indications: (a) it happened to you personally; (b) you witnessed it happen to someone else; (c) you learned about it happening to a close family member or close friend; (d) you were exposed to it as part of your job (e.g., paramedic, police, military, or another first responder); (e) you are not sure if it fits; or (f) it does not apply to you. The LEC-5 is used to establish whether a person has experienced an event that meets Criterion A for PTSD in the *DSM-5*. There are no scoring criteria for the checklist. In the present study it was used to gather descriptive information regarding the types of traumas participants endorsed in order to control for history of trauma involving interpersonal violence (see Hypothesis III). Validity of this measure for determining *DSM-5* Criterion A events has not yet been evaluated, but data is available for the version based on *DSM-IV* criteria (i.e., LEC; Blake et al., 1995). The LEC and LEC-5 differ in the following ways: (1) wording of item 15 (changed from "sudden, unexpected death of someone close to you" to "sudden accidental death") and (2) the addition of "part of my job" as a response category. The LEC has adequate convergent validity with other assessments of Criterion A events (Traumatic Life Events Questionnaire; $r = -.55$, $p < .001$) and PTSD symptom severity (PTSD Checklist; $r = -.48$, $p < .01$) in samples of undergraduate students and combat veterans (Gray et al., 2004).

Predictor Measures

Dispositional Hope Scale. In this study, baseline hope was determined using the Dispositional Hope Scale (DHS; Snyder et al., 1991). It is a 12-item measure that assesses a person's determination to successfully achieve their goals (agency), as well as their ability to create means to overcome goal-related obstacles (pathways). Four items assess agency (e.g., "My past experiences have prepared me well for my future"), four items assess pathways (e.g., "There are lots of ways around any problem"), and four items serve as filler items to prevent participants from understanding the construct assessed by the scale. Response options range from 1 (*definitely false*) to 8 (*definitely true*) (Roesch & Vaughn, 2006). Two subscale scores (Agency and Pathways) and a total score can be calculated. Studies suggest good internal consistency for the Agency (Cronbach's $\alpha = .82$) and Pathways (Cronbach's $\alpha = .79$) subscales among a large, multiethnic sample of undergraduate students (Roesch & Vaughn, 2006). The same was found in the present study for the Agency (Cronbach's $\alpha = .83$) and Pathways (Cronbach's $\alpha = .77$) subscales, as well as the total score (Cronbach's $\alpha = .87$). The DHS has also demonstrated good test-retest reliability (.80) in samples across 17 studies (Hellman et al., 2013).

Intrinsic Spirituality Scale. Baseline spirituality was measured using The Intrinsic Spirituality Scale (ISS; Hodge, 2003), which is a six-item measure that assesses the degree to which a person considers their spirituality to be important. Participants indicate on a scale of 0 to 10 the degree to which they attribute each statement to themselves. An example item is, "Growing spiritually is…" with a response range of 0 (*no importance to me*) to 10 (*more important than anything else in life*). Note that response descriptors vary across the items. Higher scores indicate higher levels of spirituality. The scale was designed to be valid for a variety of spiritual orientations, including both theistic and non-theistic viewpoints, and has shown

excellent internal consistency (Cronbach's α = .96) in a sample of undergraduate students (Hodge, 2003). The Cronbach's α for the present sample was .98.

Toronto Empathy Questionnaire. A broad measure of empathy, known as the Toronto Empathy Questionnaire (TEQ; Spreng et al., 2009), was used to measure this predictor at baseline. Spreng and colleagues (2009) developed the TEQ by applying factor analysis on 11 different empathy scales using a sample of undergraduate students. This resulted in 16 items (e.g., "I can tell when others are sad even when they do not say anything") with a 5-point Likert response scale ranging from 0 (*never*) to 4 (*always*). The TEQ has shown good internal consistency (Cronbach's α = .85-.87) and test-retest reliability (.81). The Cronbach's α for the present sample was .89. TEQ scores also have good convergent validity with other empathy measures (Interpersonal Responsivity Index Empathetic Concern subscale, *r* = .74; Empathy Quotient, *r* = .80; Spreng et al., 2009).

Moderator Variable

Trauma Vignettes. A vignette used in a prior study (Mendelsohn & Sewell, 2004) was adapted to fit the aims of this study. The original vignette describes a criminal assault with a male victim. In this study, the gender identity of the victim was changed to female as females are more likely to exhibit posttraumatic stress symptoms than males (Tolin & Foa, 2006). The victim in the vignette was also made to be a family member or close friend of the participant, as to elicit a personal connection (Aguinis & Bradley, 2014; Schnittker, 2000). Additionally, the vignette included a description of the victim's life two months after the assault that reflected two possible outcomes: (1) the victim displays posttraumatic growth or (2) the victim displays ongoing traumatic stress without posttraumatic growth. Thus, from these modifications two final vignettes were created: Growth and No Growth. Participants were first instructed to identify a

female family member or friend by typing in their first name (or pseudonym) and indicating their relationship to them. Then, participants were randomly assigned to read one of the two vignettes. The piped text feature in Qualtrics was used so that the name of the family member or friend provided was automatically generated in the vignette wherever a person was referenced. Thus, participants read the vignette with their family member or friend in mind. After reading the vignette, they were asked to imagine what the person's life was like today (post-trauma) and to provide a brief, written description.

Outcome Measure

Changes in Outlook Questionnaire – Short Form. Vicarious posttraumatic growth, the outcome variable of primary interest in this study, was measured using the Changes in Outlook Questionnaire – Short Form (CiOQ-S; Joseph et al., 2006). The CiOQ-S consists of five items measuring positive changes (e.g., "I value my relationships much more now") and five items measuring negative changes (e.g., "I don't look forward to the future anymore"). The instructions were modified for this study to assess changes in outlook after reading the vignette (see Appendix). Item wording is suitable for assessing changes after direct and indirect trauma exposure, and the measure has been used to study vicarious posttraumatic growth (Gibbons et al., 2011). Participants responded using a Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Two subscale scores representing positive (Changes in Outlook Positive-Short Form; CiOP-S) and negative (Changes in Outlook Negative-Short Form; CiON-S) changes can be calculated. Given that the present study was most interested in positive outcomes following traumatic events, scores reflecting positive changes (i.e., CiOP-S subscale scores) were used as the outcome variable in the analyses. The CiOQ-S has been supported with evidence of convergent and predictive validity and good internal consistency (Cronbach's $\alpha = .82$ for CiOP-S

and .85 for CiON-S) in a sample of undergraduate students (Stockton et al., 2011). In the present study, the CiOP-S (Cronbach's α = .89) and CiON-S (Cronbach's α = .87) subscales demonstrated good internal consistency.

Covariate Variables

Gender. Given that covariate variables must be dichotomous, gender was recoded such that participants who endorsed 'Male' and 'Transgender Male' were coded as 'Male' and participants who endorsed 'Female' and 'Transgender Female' were coded as 'Female'. All other responses or missing responses were excluded from the analyses. Two hundred and twenty participants were coded as 'Female' and 68 participants were coded as 'Male'.

Interpersonal Trauma History. A variable for history of interpersonal trauma (IPT) was created using items from the LEC-5. Participants who endorsed at least one of the following items as having happened to them personally were coded as having a history of interpersonal violence: Physical assault (item 6), weapon assault (item 7), sexual assault (item 8), other unwanted or uncomfortable sexual experience (item 9), captivity (item 11), and sudden violent death (item 14). Participants who did not endorse any of these items were coded as not having a history of IPT. A total of 150 participants (52.08%) endorsed personal experiences of IPT.

Attention Check

Ten attention check items were incorporated throughout the survey to verify that participants were attending to survey instructions and prompts. A summary of the attention check items and their location in the survey can be found in the Appendix. Participants who correctly responded to at least eight of the items were included in the analyses.

Manipulation Check

A manipulation check was administered at the end of the study to verify that participants read and remembered the vignette. It consisted of five questions that asked participants to indicate details from the vignette (see Appendix). The final item of the manipulation check (Question 5) asked participants to indicate what happened to the victim two months after the assault. Given that there were two conditions (Growth vs. No Growth), there were two correct responses to this item (choices a and d). Therefore, participants' responses to this item confirmed their assigned condition and the manipulation. Participants who correctly responded to the final three items (Questions 3-5) were included in the analyses.

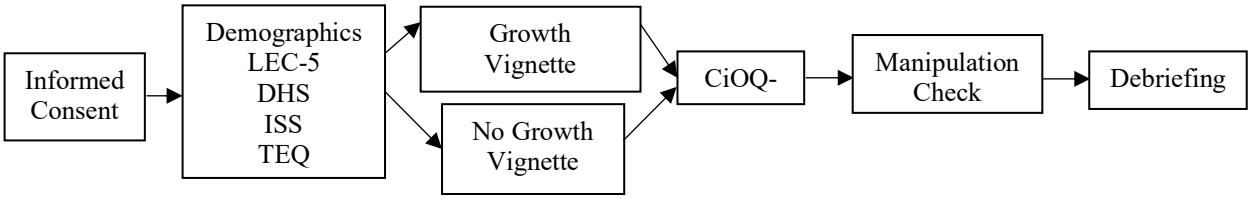
Procedure

Prior to beginning the study, participants were instructed to read and agree to the terms of the Informed Consent Agreement. Study participation was voluntary, and participants were permitted to exit the survey at any time. Next, participants were asked to provide their demographic information and trauma history (LEC-5) and to complete measures of hope (DHS), spirituality (ISS), and empathy (TEQ). Participants were asked to provide the name of the family member or friend, as well as their relationship to the person. Then, they were randomly assigned to read one of the two vignettes (i.e., Growth vs. No Growth) with the identified family member or friend being the victim. The piped text feature in Qualtrics was used to input the name of the family member or friend in the vignette whenever a victim was referenced. Following the vignette exposure, participants were asked to imagine for 20 seconds what their family member or friend's life is like today, and then to write two to five sentences describing what they envisioned. Afterward, participants were asked to complete a measure of vicarious posttraumatic growth (i.e., CiOQ-S) with changes since reading the vignette in mind. The last measure

participants completed was a brief manipulation check. At the end of the survey, participants received verification of their survey completion. The study concluded with debriefing information, including the purpose of the study, possible implications, and local and national mental health resources. A roadmap of the study is provided in Figure 1 (see below).

Figure 1

Study Roadmap.



CHAPTER III

RESULTS

Data Processing and Evaluation

Prior to conducting analyses, data were cleaned and analyzed for missing data patterns. The data were cleaned, and total scores for hope (DHS), spirituality, (ISS), empathy (TEQ), and positive changes in outlook (CiOP-S) were computed. Ten participants were missing DHS total scores, and one participant was missing a TEQ total score. Thus, total missingness within the dataset was less than five percent, which is considered a relatively small amount (Schafer, 1997). Multiple Imputation (MI) was used to address missing data (Rubin, 1987).

Descriptive statistics, histograms, and Q-Q plots were used to assess normality, skewness, and kurtosis. Descriptive statistics for each measure are provided in Table 2. Hope scores for participants in the No Growth group were normally distributed, as assessed by the Shapiro-Wilk's test ($p > .05$). All other scoring distributions were not normally distributed by this assessment ($p < .05$). Visual inspection of spirituality scores revealed a platykurtic distribution. Hope and empathy scores were normally distributed. The distribution of vicarious posttraumatic growth scores was negatively skewed; however, this was expected given that scores only represented positive changes (i.e., ceiling effect). The opposite was observed for negative changes (i.e., positively skewed distribution). Spirituality, hope, empathy, and vicarious posttraumatic growth scores were normally distributed for the Growth and No Growth groups, as assessed by visual inspection of Q-Q plots. Additionally, the boxplots revealed extreme scores within the empathy and vicarious posttraumatic growth distributions (one and eight cases, respectively) but no outliers. Despite slight non-normality within and across distributions, there was no evidence of non-normality in the residuals. Therefore, the data were approximately

normally distributed. Lastly, randomization was assessed by examining the distributions of demographic and study variables by vignette type. Equal distributions across vignette groups for each variable, except Middle Eastern or North African, were observed (see Table 3).

Table 2

Correlations, Means, and Standard Deviations of Study Variables.

Variable	1	2	3	4
1. Hope	-			
2. Spirituality	.304***	-		
3. Empathy	.360***	.198***	-	
4. Vicarious Posttraumatic Growth	.303***	.274***	.399***	-
Mean (*SD*)	49.35 (8.02)	5.16 (3.24)	48.62 (9.17)	22.83 (5.42)

Note. ***$p < .001$. Hope = Dispositional Hope Scale; Spirituality = Intrinsic Spirituality Scale; Empathy = Toronto Empathy Questionnaire; Vicarious Posttraumatic Growth = Changes in Outlook Positive – Short Form. SD = Standard Deviation.

Table 3

Vignette Type Comparisons.

	Growth			No Growth				
	M	*SD*	*n*	*M*	*SD*	*n*	*t* (χ^2)	*p*
Age	22.33	5.88		21.84	5.66		.73	.279
Hope	48.95	8.39		49.77	7.64		-.87	.144
Spirituality	4.89	3.22		5.45	3.24		-1.46	.932
Empathy	48.20	9.11		49.05	9.23		-.79	.734
Vicarious Posttraumatic Growth	22.99	5.05		22.66	5.80		.53	.216
Gender							(.02)	.884
Male			35			33		
Female			111			109		

Table 3 Continued.

	Growth			No Growth				
	M	*SD*	*n*	*M*	*SD*	*n*	*t* (χ^2)	*p*
Race								
American Indian or Alaska Native			6			2	(1.92)	.166
Asian			18			14	(.42)	.518
Black/African American			63			56	(.35)	.555
Hispanic, Latino, or Spanish Origin			15			15	(.01)	.921
Middle Eastern or North African			0			5	(5.27)	.022*
Native Hawaiian or Pacific Islander			2			0	(1.95)	.163
White/European Origin			70			73	(.41)	.522
Another race, ethnicity, or origin			2			1	(.30)	.582
Religion								
Agnostic			11			8	(.15)	.701
Atheist			5			9	(1.35)	.245
Buddhist			1			0	(.97)	.325
Hindu			-			-	-	-
Jewish			1			0	(.97)	.325
Mormon			1			1	(.001)	.981
Muslim			2			3	(.24)	.624
Orthodox			2			0	(1.95)	.163
Pagan			1			1	(.001)	.981
Protestant (Christian)			41			46	(.69)	.406
Roman Catholic (Christian)			15			21	(1.39)	.239
Spiritual but not religious			25			19	(.74)	.391
Another religion, spiritual practice, or worldview			12			13	(.09)	.765
No religion			28			22	(.64)	.424

*$p<.05$. Growth (n=148); No Growth (n=143).

Tests of Assumptions

To test the study hypotheses, multiple regression analyses were used to assess the relationships between the continuous, predictor variables (hope, spirituality, and empathy), dichotomous, moderator variable (vignette type), and the continuous, outcome variable (vicarious posttraumatic growth), as well as interactions between variables and the potential influence of covariate variables (gender and interpersonal trauma history). Before proceeding to the analyses, the eight assumptions of multiple regression were assessed (Cohen, Cohen, West, & Aiken, 2003). To use multiple regression, the model had to include a continuous, outcome variable and at least two predictor variables (Assumptions 1 & 2). There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.104 (Assumption 3). Visual inspection of the (a) plot of studentized residuals versus unstandardized predicted values and (b) partial regressions plots between each independent variable and the dependent variable revealed linear relationships (Assumption 4). In the former plot, the spread of studentized residuals neither increased nor decreased across unstandardized predicted values, thus, meeting the assumption of homoscedasticity (Assumption 5). Each correlation coefficient and variance inflation factor (VIF) were less than 0.7 and 10 across the model, respectively, indicating that multicollinearity was not a factor of concern (Assumption 6). Review of the data for unusual points revealed four cases with standardized residuals less than three standard deviations below the predicted values, which can be indicative of outliers. The decision was made to note, but not remove these cases. Further assessment revealed no high leverage or influential points were observed, as indicated by leverage and Cook's *D* values below 0.2 and 1.0, respectively (Assumption 7). Finally, visual inspection of histograms and the regression plots revealed that the distribution of standardized residuals was normal (Assumption 8).

Hypothesis I. *It was hypothesized that measures of hope, spirituality, and empathy will significantly predict vicarious posttraumatic growth, such that participants reporting higher levels of hope, spirituality, and empathy would have higher levels of vicarious posttraumatic growth.*

To test this hypothesis, a multiple regression analysis was run to predict vicarious posttraumatic growth (as measured by CiOP-S total scores) from hope (DHS total scores), spirituality (ISS total scores), and empathy (TEQ total scores). The model significantly predicted vicarious posttraumatic growth, F (3, 287) = 26.10, $p < .001$, adjusted $R^2 = .21$. All three variables significantly added to the prediction, $p < .05$. Regression coefficients and standard errors can be found in Table 4 (below).

Table 4

Multiple Regression Predicting Vicarious Posttraumatic Growth (CiOP-S) From Hope, Spirituality, and Empathy.

CiOP-S	*B*	95% CI for *B*		*SE B*	β	R^2	R^2_{adj}
		LL	*UL*				
Model						.22	.21***
Constant	7.68***	3.72	11.64	2.01			
Hope	.093*	.02	.17	.04	.14*		
Spirituality	.285**	.10	.47	.09	.17**		
Empathy	.187***	.12	.25	.03	.32***		

Note. Model = "Enter" method in SPSS Statistics; *B* = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; R^2_{adj} = adjusted R^2.
*$p < .05$. **$p < .01$. *** $p < .001$.

Hypothesis II. *It was hypothesized that associations of hope, spirituality, and empathy with vicarious posttraumatic growth will be moderated by vignette type, such that the associations will be stronger for participants exposed to the vignette in which the trauma victim displays posttraumatic growth (Growth vignette) compared to those exposed to the vignette in which the trauma victim does not display posttraumatic growth (No Growth vignette).*

To test this hypothesis three hierarchical multiple regression analyses were run to determine how the predictor variables (hope, spirituality, and empathy), moderator (vignette type), and predictor by moderator interactions were associated with the outcome variable (vicarious posttraumatic growth). Each predictor was tested by itself in a separate model to avoid the possibility of multicollinearity from multiple interaction terms with vignette type in a single model.

In the first hierarchical regression analysis, hope was entered into step one. Nine percent of the variance in vicarious posttraumatic growth (CiOP-S scores) was accounted for by hope (adjusted $R^2 = .09$, $p < .001$). In step two, vignette type was entered into the model, and the change in R^2 was not significant, F (1, 288) = 14.91, $p = .407$, adjusted $R^2 = .002$. Thus, vignette type was not a significant predictor of vicarious posttraumatic growth. In step three, the hope by vignette type interaction term was entered into model, and the change in R^2 was not significant, F (1, 287) = 10.19, $p = .377$, adjusted $R^2 = .002$. Therefore, no significant moderation in the model was indicated.

In the second hierarchical regression analysis, spirituality was entered into step one. Seven percent of the variance in vicarious posttraumatic growth was accounted for by spirituality (adjusted $R^2 = .07$, $p < .001$). In step two, vignette type was entered into the model; the change in R^2 was not significant, F (1, 288) = 12.23, $p = .334$, adjusted $R^2 = .072$. Thus, vignette type was

not a significant predictor of vicarious posttraumatic growth. In step three, the spirituality by vignette type interaction term was entered into model, and the change in R^2 was not significant, F (1, 287) = 8.16, p = .749, adjusted R^2 = .069. Therefore, no significant moderation in the model was indicated.

In the third hierarchical regression analysis, empathy was entered into step one. Sixteen percent of the variance vicarious posttraumatic growth was accounted for by empathy (adjusted R^2 = .16, p < .001). In step two, vignette type was entered into the model, and the change in R^2 was not significant, F (1, 288) = 27.78, p = .360, adjusted R^2 = .156. Thus, vignette type was not a significant predictor of vicarious posttraumatic growth. In step three, the empathy by vignette type interaction term was entered into model, and the change in R^2 was not significant, F (1, 287) = 19.16, p = .186, adjusted R^2 = .156. Therefore, no significant moderation in the model was indicated. These results (i.e., Hypothesis II analyses) are presented together in Table 5 (p. 33).

Table 5

Hierarchical Multiple Regressions Predicting Vicarious Posttraumatic Growth from Hope, Spirituality, and Empathy Moderated by Vignette Type.

	Step 1				Step 2						Step 3					
	B	β	R^2_{adj}	*F*	B	β	R^2_{adj}	*F*	ΔR^2	ΔF	B	β	R^2_{adj}	*F*	ΔR^2	ΔF
Hope																
Constant	12.73				13.40						8.59					
Hope	.205	.303	.088***	29.15	.206	.305					.304	.450				
Vignette type					-.506	-.047	.088	14.91	.002	.691	2.84	.262				
Hope X Vignette type											-.068	-.351	.087	10.19	.002	.783
Spirituality																
Constant	20.45				21.30						20.84					
Spirituality	.460	.274	.072***	23.52	.468	.279					.559	.334				
Vignette type					-.595	-.055	.072	12.23	.003	.935	-.279	-.026				
Spirituality X Vignette type											-.061	-.067	.069	8.16	.000	.103
Empathy																
Constant	11.35				12.08						5.93					
Empathy	.236	.399	.156***		.238	.401					.364	.616				
Vignette type					-.537	-.050	.156	27.78	.002	.842	3.58	.330				
Empathy X Vignette Type											-.085	-.450	.158	19.16	.005	1.76

Note. $N = 288$. *** $p < .001$.

Hypothesis III. *It was hypothesized that the associations found in hypotheses I and II would remain significant after including gender and interpersonal trauma history as covariates in the analyses.*

To test the third hypothesis, hierarchical multiple regression was used to repeat the significant regression model found in hypothesis I with gender and IPT entered as covariates. Prior to conducting this analysis, gender and IPT comparisons were assessed. A significant difference was found, such that more women (57.27%) reported IPT compared to men in the sample (35.29%), $\chi^2(1) = 10.05$, $p = .002$. Given this, separate hierarchical multiple regression models were used to test gender and IPT as covariates.

In the first hierarchical regression analysis, hope, spirituality, and empathy were entered into step one. As found previously, 21% of the variance in vicarious posttraumatic growth (CiOP-S scores) was accounted for by the model (adjusted $R^2 = .21$, $p < .001$). In step two, gender was entered into the model, and the change in R^2 was not significant, F (1, 283) = 19.41, $p = .847$, adjusted $R^2 = .204$. Therefore, hope, spirituality, and empathy remained significant predictors of vicarious posttraumatic growth, after controlling for gender.

In the second hierarchical regression analysis, step one consisted of the same model as the previous analysis. In step two, IPT was entered into the model, and the change in R^2 was not significant, F (1, 283) = 19.66, $p = .484$, adjusted $R^2 = .205$. As a result, the model did not significantly vary based on reported history of IPT.

CHAPTER IV

DISCUSSION

The present study is among the first to examine predictors of vicarious posttraumatic growth among a non-helping professional sample by using an experimental design. The findings build upon evidence of positive outcomes reported by helping professionals after witnessing the posttraumatic growth of their clients (Arnold et al., 2005; Engstrom et al., 2008; Hernández et al., 2007). As hypothesized, vicarious posttraumatic growth in non-helping professionals in the context of hearing about another person's traumatic experience was uniquely predicted by hope, spirituality, and empathy. Taken together, these predictors explained twenty-one percent of the variance in vicarious posttraumatic growth. These findings are consistent with past findings that showed the influence of hope and empathy on vicarious posttraumatic growth (Edelkott et al., 2016; Brockhouse et al., 2011). Thus, individuals who have a sense of hope and empathy toward others are more likely to experience vicarious posttraumatic growth compared to their counterparts. While previous studies demonstrated the role of spirituality with respect to vicarious resilience (Hernández et al., 2007) and posttraumatic growth (Arnold et al., 2005), this is the first study to establish an association between spirituality and vicarious posttraumatic growth. Therefore, cultivating a spiritual practice, or an appreciation for the spirituality of others, could have a positive impact on experiences of vicarious posttraumatic growth. Beyond demonstrating significant associations between constructs, this study extends vicarious posttraumatic growth research by showing that hope, spirituality, and empathy are predictors of vicarious posttraumatic growth. Further, each remained a significant predictor when all other predictors were controlled in the model. Therefore, hope, spirituality, and empathy each explain a unique proportion of the variance examined in vicarious posttraumatic growth.

Collectively, these findings suggest that individuals who possess hope, spirituality, and empathy are more likely to glean positive outcomes from the traumatic experiences of others than their counterparts. These traits are linked to several positive outcomes, including increased awareness, deeper social connection, and greater appreciation for life and others' perspectives (Tedeschi & Calhoun, 1995; Batson, 2011; Engstrom et al., 2008). Furthermore, cultivating hope, spirituality, and empathy, in turn, might help individuals foster more vicarious posttraumatic growth and become more resilient against vicarious traumatization. Hence, there are many benefits and protections that come from having hope, spirituality, and empathy in the face of vicarious trauma experiences. The results of the present study advance understanding of vicarious posttraumatic growth factors by examining them outside of a sample of helping professionals and by showing that each is a unique predictor.

Contrary to my second hypothesis, the role of hope, spirituality, and empathy predicting vicarious posttraumatic growth did not depend on the whether the trauma victim displayed posttraumatic growth (i.e., vignette type was not a moderator). Past research on vicarious posttraumatic growth has found that it can be facilitated by posttraumatic growth (Arnold et al., 2005; Guhan & Liebling-Kalifani, 2011), but whether it depends on it has remained unclear. Prior to the present study, this question had not been directly examined. Study results did not reveal that vicarious posttraumatic growth depends on posttraumatic growth; rather, that predictive associations were the same across groups. This suggests that hope, empathy, and spirituality predicted vicarious posttraumatic growth just as well for people exposed to a trauma narrative in which the victim's outcomes did not represent recovery, as for those exposed to a trauma narrative describing growth outcomes. However, another possibility is that the operationalization of posttraumatic growth was not precise enough to detect significant effects.

Nonetheless, this finding challenges the notion that vicarious posttraumatic growth can only occur when a person is exposed to the resilience or recovery of a trauma victim. Future research could aim to clarify the mechanisms between vicarious posttraumatic growth and posttraumatic growth.

For my third hypothesis, gender and interpersonal trauma history were examined as possible covariates and no significant findings were revealed. Recall that 57% of women in the study reported a personal history of IPT compared to 35% of men. This finding is in line with reports of interpersonal trauma found in previous studies (Artime et al., 2019; Cusack et al., 2019). Despite significant gender differences in interpersonal trauma history, separately, these factors did not explain any additional variance in posttraumatic growth after controlling for hope, spirituality, and empathy. At minimum, these findings further highlight the importance of these predictors in vicarious posttraumatic growth. Thus, despite known gender differences in trauma reporting and PTSD symptoms (Stein 2000; Cusack et al., 2019), it is possible that the benefits of having greater hope, spirituality, and empathy span across gender. However, additional research is needed to clarify the intersectionality of these factors.

Regarding interpersonal trauma history, previous studies have yielded mixed outcomes. While the risk of vicarious stress and trauma remain present (Adams & Riggs, 2008; Ivicic & Motta, 2017), studies have shown a positive link between personal trauma history and vicarious posttraumatic growth (Kjellenbeng et al., 2014; Linley & Joseph, 2007). Further, survivors of domestic violence, who knew another survivor who positively changed after their trauma, have reported higher levels of growth compared to survivors who did not know someone with a shared experience (Cobb, Tedeschi, Calhoun, & Cann, 2006). It is possible that having a shared connection to the trauma victim or narrative is key for experiencing vicarious posttraumatic

growth. Therefore, researchers could explore how individuals with personal trauma history experience vicarious posttraumatic growth compared to their counterparts and when witnessing someone recover from a trauma like their own.

Previous studies on vicarious posttraumatic growth among non-helping professionals focused on construct conceptualization or specific community- and global-based traumas (e.g., community mothers provided post-trauma aid to children or reflections follow the September 11th terrorist attacks) (Hernandez-Wolfe, 2018; Linley et al., 2003; Swickert et al., 2006). This study is the first experimental study to examine vicarious posttraumatic growth with a non-helping professional sample. Further, no other study has examined vicarious posttraumatic growth among a college student sample and about traumatic experiences in daily life. While the college student experience represents a specific time and experience, the possibility or occurrence of trauma as they navigate their academics, personal development, and interpersonal relationships (i.e., everyday life) remains. The present findings revealed that participants who reported higher levels hope, spirituality, and empathy, also reported higher levels of vicarious posttraumatic growth than their counterparts. This suggests that college students who possess high levels of hope, spirituality, and empathy are more likely to experience vicarious posttraumatic growth. Given the positive intra- and interpersonal changes linked to vicarious posttraumatic growth, fostering these traits could be vital in the growth and experiences of college students.

Limitations

Study Design. The present study utilized an experimental design in which participants were exposed to trauma vignettes. Drawn from the work of Mendelsohn & Sewell (2004), the trauma vignette was edited and expanded in the following ways: (1) the gender of the trauma

victim was changed from male to female, (2) an additional paragraph was added to reflect the two study conditions (Growth vs. No Growth), and (3) the name of the trauma victim was personalized to each study participant (based on the name they provided pre-exposure). Previous vignette studies found that participants were more willing to engage with female characters facing psychological distress than male characters, and that female characters were perceived as more equipped to handle these concerns than male characters (Schnittker, 2000; Bethan Davies, Wardlaw, Morriss & Glazebrook, 2016). In the same vein, the use of personalization aimed to increase participants' connection to the trauma victim and narrative. While vignettes have been used to examine trauma and violence (Sleed et al., 2002; Barter & Renold, 2000), the possibility of emotional discomfort because of vignette personalization was considered. Hence, the decision was made for all participants to provide written reflections regarding the character's well-being after reading the vignette. Finally, the decision to add text that reflected the experimental manipulation (i.e., posttraumatic stress vs. posttraumatic growth) was guided by the theoretical frameworks of posttraumatic growth and vicarious posttraumatic growth. Experiences of growth typically occur over time; thus, the present study aimed to describe the trauma victim's posttraumatic growth and capture participants' experiences of vicarious posttraumatic growth following a brief exposure to a trauma narrative.

The predictor and outcome variables in this study were examined by using self-report measures. Inflated correlations between self-report measures can occur due to common method variance (Orben & Lakens, 2020). Thus, it is possible that a portion of the observed effects can be explained by the similar method of measurement. Additional research that uses other measurements, such as observer ratings or behavioral measures, may be needed to address the limitation of self-report measures.

The idea that non-helping professionals can experience vicarious posttraumatic growth from those around them had been examined in only a few studies and never in the context of an experiment (i.e., an in vivo experience vs. self-report of past interactions). Researchers have utilized written and video vignettes to elicit responses regarding date rape, interpersonal violence risk recognition, and bystander behavior (Sleed et al., 2002; Witte & Kendra, 2010; Jouriles et al., 2020). Despite this, it is possible that participants struggled to connect to the curated nature of the trauma vignettes for a few reasons. First, the trauma vignettes described one form of interpersonal trauma (a criminal assault), but it is possible that it differs from other interpersonal trauma experiences and therefore is less generalizable. Second, to maintain adequate internal validity, the narrative within the trauma vignettes was simple and concise. But, when compared to real-world stories, it is possible that it lacked sufficient realism to have a meaningful impact (Hughes & Huby, 2004; Jenkins et al., 2010; Wilks, 2004). Third, written vignettes may not be best for communicating trauma and growth experiences as they are unlike the typical, or most salient, ways from which people learn about the trauma experiences of others.

Given these limitations, it seems that vignettes need to communicate, not only the factual details of a trauma, but also the complexity and paradox present within posttraumatic growth and healing, in a way that is current and easily accessible. Vignettes consisting of audiovisual stimuli may offer a better approximate to everyday life experiences. Researchers could utilize video trainings created for research or community engagement purposes (e.g., university sexual assault trainings, videos promoting safe sexual practices among at-risk groups) or public domain content, such as TedTalk video clips or podcast segments. Recent trauma studies have used digital storytelling in trauma interventions (Anderson & Cook, 2015; Gubrium et al., 2019; Hammond, Cooper, & Jordan, 2021). Therefore, audiovisual vignettes may prove to be more

effective for exploring trauma and growth experiences, as well as the connection between posttraumatic and vicarious posttraumatic growth.

Sample Size. The final sample size consisted of 291 participants, which was smaller than what was planned by the initial power analysis. Smaller sample sizes can limit statistical power and generalizability (Cohen et al., 2003). Data collection for this study occurred during the COVID-19 pandemic between December 2020 and June 2021. Given that this period was characterized by diminished social interaction and increases in mental health concerns among college students, it is unclear whether the effects might have been different in a sample without this psychosocially stressful context. Despite this, post-hoc power analysis indicated that there was sufficient power (.80) to detect an interaction with a small effect size of .027 or greater.

Study Participants. Study participants consisted of exclusively college students. While a convenience sample, the need to explore vicarious posttraumatic growth was evidenced by the rates of traumatic experiences that continue to be reported by college students (Read et al., 2011; Artime et al., 2019; Cusack et al., 2019). Thus, it was believed that college students would serve as a fitting sample of non-helping professionals. However, when assessing the external validity of the present findings, two factors must be considered. First, the experiences of college students in the present study vary from pre-pandemic experiences in many ways. College students have largely been limited to remote and online learning, which has been linked to academic and emotional challenges, including amotivation, attention concerns, and reduced social connection (Kecojevic et al., 2020; Copeland et al., 2021; Chaturvedi et al., 2021). Second, it is unclear how the present findings apply to adults in the broader community. Several factors, including age, level of education, and personality traits, impact the generalizability of student sample findings (Hanel & Vione, 2016). Thus, research is needed to uncover how college students have been

changed by pandemic loss and trauma, as well as how vicarious posttraumatic growth is experienced among non-helping professionals outside of the college.

Interpersonal Trauma History. Although history of interpersonal trauma was examined as a covariate, details about the trauma experiences, such as time (recent vs. past), age at the time of the incident, and trauma complexity (e.g., single vs. multiple or reoccurring incidents), were not collected and, as a result, could not be examined. While half of study participants endorsed experiences of interpersonal trauma (52%), it is unknown how having such experiences effects the way they engage or disengage with indirect trauma and, in turn, experience vicarious posttraumatic growth. Thus, more closely examining personal trauma history could reveal important intra- and interpersonal factors, as well as sociocultural and environmental considerations that help inform trauma and growth experiences.

Future Directions

This study was able to demonstrate that vicarious posttraumatic growth can take place among non-helping professionals following a brief exposure to a trauma narrative. The opportunities to explore vicarious posttraumatic growth with different samples and within multiple contexts are unnumbered. From this study, questions remain regarding the process and potential outcomes.

First, when considering the exposure or interaction from which vicarious posttraumatic growth could take place, does the length of the interaction matter? Similarly, does the length of the relationship (i.e., base-observer or client-therapist relationship) matter? In prior studies, participants described experiences of vicarious posttraumatic growth that occurred over time and with multiple interactions (Manning-Jones, de Terte, & Stephens, 2015) or in the context of an

acute, specific trauma (Linley et al., 2003; Swickert et al., 2006). Understanding more about these factors could help researchers better quantify and capture vicarious posttraumatic growth.

Next, whether vicarious posttraumatic growth depends on posttraumatic growth remains a complex question. When asked to reflect on the positive outcomes of their work with trauma survivors, licensed psychotherapists shared that they developed more sensitivity, empathy, and compassion, more openness and appreciation for spirituality, and increased awareness of the indiscriminate nature of trauma and, in turn, developed more gratitude for their lives and resilience of others (Arnold et al., 2005; Guhan & Liebling-Kalifani, 2011). Their experiences of vicarious posttraumatic growth fall within three categories—changes in self, interpersonal relationships, and life philosophy—which are the same areas identified by clients' who experience posttraumatic growth (Calhoun & Tedeschi, 1999; Linley, Joseph, & Loumidis, 2005). From this, it would seem reasonable to believe that posttraumatic growth and vicarious posttraumatic growth would share a similar trajectory. Future research is needed to examine the possibility that vicarious posttraumatic growth in helping professionals may occur even when their clients are not experiencing posttraumatic growth.

When reflecting on the impact of existing growth and trauma factors on vicarious posttraumatic growth, it is important to remember that vicarious posttraumatic growth is a complex process. Like direct experiences of trauma, indirect trauma challenges a person's understanding of the world, often causing them to re-evaluate their beliefs. Changes in cognitive schemas can be positive, negative, or absent and active engagement in trauma recovery will yield both growth and distress (Joseph & Linley, 2008). In line with the latter, Tedeschi and colleagues (2015) stated that, "…people who experience significant levels of posttraumatic growth will not necessarily experience a commensurate decrease in their levels of distress nor an increase in their

levels of happiness (p. 505).” As such, posttraumatic growth and psychological distress or comfort are held as distinct, parallel processes in trauma recovery. Further, the experience of vicarious posttraumatic growth is believed to follow a similar path—one marked by greater strength, life meaning, and appreciation for others, but also challenges, setbacks, and loss. As our observance and recognition of vicarious posttraumatic growth continues to expand, so will our understanding of its processes and outcomes.

Conclusion

As the United States prepares to enter a phase of recovery and relative stability in the COVID-19 pandemic, our ability to find meaning and healing in light of our traumatic experiences will be critical. With increases in reported mental health concerns (Zyolensky et al., 2020; Gunnell, 2020), delays in accessing mental healthcare (Bojdani et al., 2020; Ornell et al., 2021), and increased exposure to stressors and traumatic events (Depoux et al., 2020; Ng & Kemp, 2020), the need for free and effective coping strategies could not be more evident. In the same way that helping professionals have benefitted from learning about positive trauma outcomes (Park & Ai, 2006; Park, 2010), it is believed that development and dissemination of psychoeducation about vicarious posttraumatic growth and how it can (and does) happen in everyday life would be beneficial for non-helping and helping professionals alike. It is a concept that can be easily explained through real world stories and captured through individuals’ state reactions and reflections. Therefore, there is a need for researchers to continue to examine vicarious posttraumatic growth in real world contexts to gain a deeper understanding of these dynamics and effects among non-helping professionals. These efforts could then expand our resources for coping with trauma as people and as providers.

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APPENDIX

STUDY MEASURES

Demographic Questionnaire

1. What is your age? _____

2. How do you currently describe your gender identity? (please mark one)

	Male
	Female
	Transgender male
	Transgender female
	Intersex
	Non-binary
	Agender
	Genderfluid
	Other (please specify)
	I prefer not to answer

3. Which categories describe you? (please mark all that apply)

	American Indian or Alaska Native (e.g., Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Nome Eskimo Community)	
	Asian (e.g., Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese)	
	Black or African American (e.g., Jamaican, Haitian, Nigerian, Ethiopian, Somalian)	
	Hispanic, Latino, or Spanish Origin (e.g., Mexican/Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Columbian)	
	Middle Eastern or North African (e.g., Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian)	
	Native Hawaiian or Pacific Islander (e.g., Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese)	
	White (e.g., German, Irish, English, Italian, Polish, French)	
	Another race, ethnicity, or origin (please specify)	
	I prefer not to answer.	

4. How do you define your sexual orientation? (please mark one)

	Heterosexual or straight
	Gay or lesbian
	Bisexual
	Fluid
	Pansexual
	Queer
	Demisexual
	Questioning
	Asexual

	Other (please specify)	
	I prefer not to answer.	

5. How do you describe your religion, spiritual practice, or worldview? (please mark all that apply)

	Agnostic	
	Atheist	
	Buddhist	
	Hindu	
	Jewish	
	Mormon	
	Muslim	
	Orthodox (e.g., Greek or Russian Orthodox)	
	Pagan	
	Protestant (Christian)	
	Roman Catholic (Christian)	
	Spiritual but not religious	
	Another religion, spiritual practice, or worldview (please specify)	
	No religion	
	I prefer not to answer.	

6. What is your class standing? (please mark one)

	Freshman	
	Sophomore	
	Junior	
	Senior	
	Graduate	
	Other (please specify)	

7. What is your student status? (please mark one)

	Full-time
	Part-time

8. Are you a student athlete?

	Yes
	No

9. Are you a member of a fraternity or sorority? (please mark one)

	Yes
	No
	Pledging

10. What is your living arrangement?

	Campus residence hall	
	Fraternity or sorority house	
	Other university housing	
	Off-campus, non-university housing	
	Parent or guardian's home	
	Other (please specify)	

11. What is your relationship status? (please mark one)

	Single	
	Married	
	Divorced or separated	
	In a committed relationship	
	Other (please specify)	

12. Are you CURRENTLY receiving any of the following mental health treatments?

		Yes	No
Psychotherapy or counseling			
Pharmacotherapy or medication management			
Other mental health treatment (e.g., substance rehabilitation) (please specify)			

13. In the PAST have you received any of the following mental health treatments?

		Yes	No
Psychotherapy or counseling			
Pharmacotherapy or medication management			
Other mental health treatment (e.g., substance rehabilitation) (please specify)			

Life Events Checklist for *DSM-5* (LEC-5)

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it happened to you personally; (b) you witnessed it happen to someone else; (c) you learned about it happening to a close family member or close friend; (d) you were exposed to it as part of your job (for example, paramedic, police, military, or other first responder); (e) you're not sure if it fits; or (f) it doesn't apply to you. Be sure to consider your entire life (growing up as well as adulthood) as you go through the list of events.

Event	Happened to me	Witnessed it	Learned about it	Part of my job	Not sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)						
2. Fire or explosion						
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)						
4. Serious accident at work, home, or during recreational activity						
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)						
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)	*					
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)	*					
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)	*					
9. Other unwanted or uncomfortable sexual experience	*					
10. Combat or exposure to a war-zone (in the military or as a civilian)						
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)	*					
12. Life-threatening illness or injury						
13. Severe human suffering						
14. Sudden violent death (for example, homicide, suicide)	*					
15. Sudden accidental death						
16. Serious injury, harm, or death you caused to someone else						
17. Any other very stressful event or experience						

Note. *Interpersonal violence history items.

Intrinsic Spirituality Scale (ISS)

For the following six questions, spirituality is defined as one's relationship to God, or whatever you perceive to be Ultimate Transcendence. The questions use a sentence completion format to measure various attributes associated with spirituality. An incomplete sentence fragment is provided, followed directly below by two phrases that are linked to a scale ranging from 0 to 10. The phrases, which complete the sentence fragment, anchor each end of the scale. The 0 to 10 range provides you with a continuum on which to reply, with 0 corresponding to absence or zero amount of the attribute, while 10 corresponds to the maximum amount of the attribute. In other words, the end points represent extreme values, while five corresponds to a medium, or moderate, amount of the attribute. Please circle the number along the continuum that best reflects your initial feeling.

1. In terms of the questions I have about life, my spirituality answers

no questions										absolutely all my questions
0	1	2	3	4	5	6	7	8	9	10

2. Growing spiritually is

more important than anything else in my life										of no importance to me
10	9	8	7	6	5	4	3	2	1	0

3. When I am faced with an important decision, my spirituality

plays absolutely no role										is always the overriding consideration
0	1	2	3	4	5	6	7	8	9	10

4. Spirituality is

the master motive of my life, directing every other aspect of my life										not part of my life
10	9	8	7	6	5	4	3	2	1	0

5. Select option '3' for this item

no questions										absolutely all my questions
0	1	2	3	4	5	6	7	8	9	10

6. When I think of the things that help me to grow and mature as a person, my spirituality

has no effect on my personal growth										is absolutely the most important factor in my personal growth
0	1	2	3	4	5	6	7	8	9	10

7. My spiritual beliefs affect

absolutely every aspect of my life										no aspect of my life
10	9	8	7	6	5	4	3	2	1	0

The Dispositional Hope Scale (DHS)

Read each item carefully. Using the scale shown below, please select the number that best describes you and put that number in the blank provided.

Definitely False	Mostly False	Somewhat False	Slightly False	Slightly True	Somewhat True	Mostly True	Definitely True
1	2	3	4	5	6	7	8

1.	I can think of many ways to get out of a jam.	P
2.	I energetically pursue my goals.	A
3.	I feel tired most of the time.	F
4.	There are lots of ways around any problem.	P
5.	I am easily downed in an argument.	F
6.	I can think of many ways to get the things in life that are important to me.	P
7.	I worry about my health.	F
8.	Even when others get discouraged, I know I can find a way to solve the problem.	P
9.	My past experiences have prepared me well for my future.	A
10.	I've been pretty successful in life.	A
11.	I usually find myself worrying about something.	F
12.	I meet the goals that I set for myself.	A

Note. P = Pathways subscale item; A = Agency subscale item; F = Filler item.

Toronto Empathy Questionnaire (TEQ)

Below is a list of statements. Please read each statement carefully and rate how frequently you feel or act in the manner described. Circle your answer on the response form. There are no right or wrong answers or trick questions. Please answer each question as honestly as you can.

Never	Rarely	Sometimes	Often	Always
0	1	2	3	4

1.	When someone else is feeling excited, I tend to get excited too.
2.	Other people's misfortunes do not disturb me a great deal.*
3.	It upsets me to see someone being treated disrespectfully.
4.	I remain unaffected when someone close to me is happy.*
5.	I enjoy making other people feel better.
6.	I have tender, concerned feelings for people less fortunate than me.
7.	When a friend starts to talk about his/her problems, I tend to steer the conversation towards something else.*
8.	I can tell when others are sad even when they do not say anything.
9.	Select 'Often' for this item.
10.	I find that I am "in tune" with other people's moods.
11.	I do not feel sympathy for people who cause their own serious illnesses.*
12.	I become irritated when someone cries.*
13.	I am not really interested in how other people feel.*
14.	I get a strong urge to help when I see someone who is upset.
15.	When I see someone being treated unfairly, I do not feel very much pity for them.*
16.	I find it silly for people to cry out of happiness.*
17.	When I see someone being taken advantage of, I feel kind of protective towards him/her.

Note. *Reverse-scored item.

Trauma Vignettes
Adapted from Mendelsohn & Sewell (2004)

For this next part we would like you to think about a **female** family member or close friend. Please provide their first name below. Their name will remain confidential and will not be used in any way for this study.

[Note: The piped text feature in Qualtrics will automatically generate the name provided wherever a person is referenced. As an example, the name *Christina* is used.]

Christina

How is *Christina* related to you?

She is my:

	Mother	
	Sister	
	Daughter	
	Aunt	
	Grandmother	
	Friend	
	Co-worker	
	Other (please specify)	
	I prefer not to answer	

Now, take a moment to read the story below. Make sure to read it from start to finish.

CONDITION 1
Growth Vignette

Christina is walking to her car after running some errands. She is approached by a man who begins verbally insulting her. *Christina* walks quickly toward a busy intersection, but the stranger catches up with her. The man suddenly pulls out a knife and roughly pushes *Christina* into a deserted alley. He holds the knife to *Christina*'s throat and threatens to kill her if he does not hand over her purse. *Christina* can feel the blade of the knife pressing against her skin as she hands the man her purse. After grabbing her purse, the man pushes *Christina* to the ground and proceeds to kick her several times. The man then runs off, leaving *Christina* sprawled on the ground.

Two months later, *Christina*'s minor cuts and bruises have healed, and she does not think as much about the mugging. She is no longer having vivid nightmares of the attack. She no longer becomes very distressed if she reads about criminal violence in the newspaper. She has stopped avoiding the area in which the mugging occurred, and she no longer feels afraid to go out. She had been "jumpy" and unable to relax, but now she is doing better. The mugging was horrible, but *Christina* feels she has grown from the experience and has relearned how to trust others. She feels more committed to living her life and pursuing goals that matter to her.

CONDITION 2
No Growth Vignette

Christina is walking to her car after running some errands. She is approached by a man who begins verbally insulting her. *Christina* walks quickly toward a busy intersection, but the stranger catches up with her. The man suddenly pulls out a knife and roughly pushes *Christina* into a deserted alley. He holds the knife to *Christina*'s throat and threatens to kill her if he does not hand over her purse. *Christina* can feel the blade of the knife pressing against her skin as she hands the man her purse. After grabbing her purse, the man pushes *Christina* to the ground and proceeds to kick her several times. The man then runs off, leaving *Christina* sprawled on the ground.

Two months later, *Christina*'s minor cuts and bruises have healed but she cannot stop thinking about the mugging. She has vivid nightmares of the attack, and she becomes very distressed if she reads about criminal violence in the newspaper. She avoids the area in which the mugging occurred, and sometimes feels afraid to go out at all. She feels continually "jumpy" and unable to relax. The mugging was horrible, and *Christina* feels her life has shrunk and that she cannot trust anyone since it happened. She feels confused about how to live her life, and she no longer thinks much about pursuing goals that matter to her.

Now, take 20 seconds to imagine what *Christina* is like now? Write 2-5 sentences describing *Christina*'s life.

Changes in Outlook Questionnaire – Short Form (CiOQ – S)

Each of the following statements was made by people who experienced stressful and traumatic events in their lives. ***After thinking about <u>Christina</u> going through this experience***, please read each statement and indicate how much you agree or disagree with it now compared to when you began the study.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

1.	I don't look forward to the future anymore.	N
2.	Select 'Somewhat Disagree' for this item.	
3.	My life has no meaning anymore.	N
4.	I don't take life for granted anymore.	P
5.	I value my relationships much more now.	P
6.	I'm a more understanding and tolerant person now.	P
7.	I no longer take people or things for granted.	P
8.	I have very little trust in other people now.	N
9.	I feel very much as if I'm in limbo.	N
10.	I have very little trust in myself now.	N
11.	I value other people more now.	P

Note. N = Negative subscale item; P = Positive subscale item.

Manipulation Check

Please answer the following questions about the story you read earlier in this study.

1. What was the *Christina* doing before she was approached by the stranger?
    a. leaving a bar
    b. talking on the phone
    c. running errands
    d. jogging

2. What did the *Christina* hand to the stranger?
    a. a purse
    b. food
    c. a wallet
    d. personal identification

3. What did the stranger do to the *Christina*?
    a. asked for help with his car
    b. kicked her repeatedly
    c. gave her his phone number
    d. gave her directions to a nearby restaurant

4. Two months after encountering the stranger, the *Christina*:
    a. could not remember the stranger at all
    b. moved to a new city with better job prospects
    c. had healed from her minor cuts and bruises
    d. called a friend to talk about the incident with the stranger

5. Two months after encountering the stranger, the *Christina*:
    a. felt more committed to living life and pursuing goals
    b. had learned how to navigate the city much better
    c. decided to pursue a new career
    d. felt confused about how to live life and no longer thinks much about pursuing goals

Note. Correct Answers: 1 (c), 2 (a), 3 (b), 4 (c), 5 (a & d). Participants had to correctly answer items 3-5 to be included in analyses.

Attention Check

Location		Statement	Correct Answer
Scale	Item Number		
BCQ	11	Select “I do this a lot”.	3
ATSPH	8	Select ‘partly disagree’ for this item.	1
ISS	5	Select ‘absolutely all of my questions’ for this item.	10
BFI	41	Select ‘disagree a little’ for this item.	2
HSPS	5	Select ‘moderately’ for this item.	4
RISC	7	Select ‘sometimes true’ for this item.	2
TEQ	9	Select “often” for this item.	3
CS	13	Select ‘almost never’ for this time	1
CIOQ	2	Select ‘somewhat disagree’ for this item.	3
VPTGI	3	Select ‘I experienced this change to a very great degree’.	5

Note. BCQ = Brief Coping Questionnaire; ATSPH = Attitudes Toward Seeking Professional Help; ISS = Intrinsic Spirituality Scale; BFI = Big Five Inventory; HSPS = Highly Sensitive Person Scale; CD-RISC = Connor-Davidson Resilience Scale; TEQ = Toronto Empathy Questionnaire; CS = Compassion Scale; CiOQ-S = Changes in Outlook Questionnaire – Short Form; VPTGI = Vicarious Posttraumatic Growth Inventory. Participants had to correctly answer at least 8 items to be included in analyses.

VITA

Tiphanie Gayle Sutton is a Clinical Psychology doctoral candidate at the Virginia Consortium Program in Clinical Psychology (jointly sponsored by Old Dominion University, Norfolk State University, and Eastern Virginia Medical School). She earned a B.A. in Psychology from the University of Virginia in 2010. Prior to pursuing her doctorate, Tiphanie completed research training at Loyola University Maryland from 2011 to 2014.

Her research experiences represent a spectrum of health behaviors, including sexual practices, substance use, disordered eating, and exercise. Tiphanie has completed HIV/AIDS prevention work among underserved populations and examined the psychological well-being, health behaviors, and body image of college women and sexual minorities. Her dissertation, the present project, reflects her interest in risk, protective, and growth factors related to trauma. She hopes to continue to expand vicarious posttraumatic growth literature in the future.

Clinically, Tiphanie has worked with diverse populations, including college student athletes, female veterans, adolescents, and active-duty naval personnel. She is currently completing internship training at Kaiser Permanente Oakland Medical Center, where she provides psychiatric crisis services. Her clinical expertise and interests include crisis intervention, interpersonal trauma, posttraumatic growth, and health behaviors. Tiphanie is passionate about fostering healing of the whole person and encouraging clients to become their most authentic and empowered selves. She has accepted a postdoctoral fellowship at Stanford University School of Medicine for the upcoming academic year where she will specialize in trauma intervention.

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