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THE RELATIONSHIP BETWEEN MINDFULNESS AND POSTTRAUMATIC
GROWTH IN LAW ENFORCEMENT OFFICERS

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ABSTRACT

The study of posttraumatic stress in police officers has focused almost exclusively on the negative consequences. Studies examining the positive outcomes of trauma as experienced by police officers are almost nonexistent. The purpose of this study was to add to the empirical evidence in the important area of posttraumatic growth in police officers. Specifically, this study investigated the relationship between mindfulness and posttraumatic growth in police officers. This study also examined the relationship between posttraumatic distress and posttraumatic growth. Additionally, this study explored the relationship between posttraumatic growth and demographic variables including amount of effort put forth towards spiritual growth, amount of effort put forth towards relationship growth, length of time since last traumatic event, total number of traumatic experiences, and total number of years in law enforcement. One hundred eighty three police officers completed the Posttraumatic Growth Inventory, Kentucky Inventory of Mindfulness Skills, Impact of Events Scale-Revised, and a demographic questionnaire. Amount of effort put forth towards spiritual and relationship growth, posttraumatic distress, and the Kentucky Inventory of Mindfulness Skills Observe subscale were positively significantly related to posttraumatic growth. The Kentucky Inventory of Mindfulness Skills Accept without Judgment subscale was negatively significantly related to posttraumatic growth. These results have implications for clinical practice, theory, research, and counselor education and supervision.

DEDICATION

This dissertation is dedicated to my Mother Diane, Father Edward Jr., Grandfather Edward Sr., Brother Scott, Brother Greg, and Brother Jeff. This dissertation is also dedicated to the memory of my Grandmother Ann, Grandmother Placeda, and Grandfather Kenneth. This dissertation would not have been possible without their unconditional love and support.

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CHAPTER I

INTRODUCTION

Introduction to Police Stress and Trauma

Police officers commonly experience high levels of stress (Everly & Mitchell, 1999; Stinchcomb, 2004). Psychological issues commonly develop in officers who experience high levels of occupational and traumatic stress (Morash, Haarr, & Kwak, 2006; Territo & Sewell, 1999). Examples include anxiety (Foa & Rothbaum, 1998), substance abuse (Cross & Ashley, 2004), suicide (Violanti, 2004), job burnout (Stinchcomb, 2004), and memory problems (Beehr, Ivanitskaya, Glaser, Erofeev, & Canali, 2004). Physical problems also commonly develop and include cardiovascular, neurological, gastrointestinal, audiological, and pain symptoms (Van der Kolk, McFarlane, & Weisaeth, 1996). Law enforcement officers have more than double the rate of cardiovascular disease compared to the general population. Occupational stress experienced by police officers also contributes to reduced productivity and an increased injury rate, absenteeism, and number of citizen complaints against officers (Santiago, 2003).

In one police department study, the number of disabling conditions identified to be psychological in nature was zero among police officers on the job. However, compared to those leaving the job it was approximately 75%. The author who wrote this

is implying that psychological illness is not socially acceptable and many officers feel they must suffer in silence with the effects of occupational and traumatic stress (Santiago, 2003).

Posttraumatic Stress Disorder (PTSD) is one of the most extreme reactions to stress (Finch, 2003). A study by Karlsson and Christianson (2003) found police officers exposed to traumatic situations commonly experienced long-lasting depression, fear when reminded of the event, guilt, tension, feeling withdrawn, irritability, and nightmares. Feelings of powerlessness and despair were often reported by police officers when children were injured or killed. In many cases, PTSD is accompanied by another disorder such as depression, anxiety, or substance abuse (Van der Kolk et al., 1996). PTSD contributes to a high turnover rate in police departments and was ranked as the fifth most common referral to police psychologists (Mann & Neece, 1990).

Kop and Euwema (2001) and Zhao, He, and Lovrich (2002) identified two categories of potential stressors in police officers. One concerned the organizational aspects of the occupation such as a lack of confidence in management, lack of internal communication, and continuous organizational changes. The second category involved the nature of police work including physical threat, the use of force, exposure to danger, facing the unknown, and shift work. Police stress is prevalent in all areas of law enforcement, including local, county, state, and federal agencies. Urban, rural, and small-town officers are all prone to the job-related stressors described above (Scott, 2004).

Finn and Tomz (1997) discussed four stressors common to law enforcement. The first category related to aspects of law enforcement organization such as arbitrary or inconsistent internal disciplinary procedures, lack of career opportunities, and

unproductive management styles. The second stemmed from law enforcement work, such as fear and danger, critical incidents such as shootings, hostage situations, disasters, exposure to human suffering, and role conflict. The third stressor came from the criminal justice system and included lenient court rulings for offenders, premature release of offenders, and perceived lack of respect from judges and lawyers. The fourth category involved personal stress. Examples included fear of being second guessed, worry regarding competency to do the job well, and disrespect from the public. The authors also identified emerging sources of stress among law enforcement officers including increases in violent crime, perceived increase in negative publicity, lawsuits, fiscal uncertainty and lack of job security, fear of air-or-blood borne diseases, understanding cultural diversity, and political correctness.

Acute stress is a common type of stressor experienced by police officers. Acute stress derives from sudden events that may be of short duration and produces almost immediate psychological and physiological reactions. Traumatic or critical incidents are acute stressors that are dramatic, overwhelming, and can easily overcome a person's normal ability to cope (Mitchell & Bray, 1990). The acute stress of critical incidents or traumatic events can become the catalyst for the development of posttraumatic reactions including PTSD (American Psychiatric Association, 2000).

The reactions observed in persons exposed to trauma have been called a variety of names in the past century. These include shell shock (Southard, 1973), combat fatigue or exhaustion (Wilson, Harel, & Kahana, 1988), ,traumatic neuroses (Van der Kolk et al., 1996), and many others. Most recently, PTSD has been used to name severe posttraumatic reactions. Although PTSD can occur in response to a wide range of natural

and manmade traumas, the Vietnam War brought PTSD into awareness of the public and human service professions (Gilliland & James, 1997).

In order to meet the diagnostic criteria of PTSD (APA, 2000) a person must have first been exposed to a traumatic event involving actual or threatened death or serious injury, or a threat to self or others' physical well being. As part of the first criterion, the individual must also respond with intense fear, helplessness, or horror to the trauma. Examples of traumatic events include, but are not limited to, military combat, physical or sexual assault, kidnapping, being held hostage, severe motor accidents, natural disasters, being a refugee from a war zone, concentration camp detention, and life threatening illness (Gilliland & James, 1997). Second, the trauma is persistently re-experienced in at least one of the following ways: recurrent and intrusive distressing recollections of the event, nightmares of the event, flashback episodes of the event, and intense psychological distress and physiological reactivity upon exposure to cues that symbolize or resemble some aspects of the trauma. Third, the person experiences increased nervous system arousal such as difficulty falling or staying asleep, irritability or outburst of anger, difficulty concentrating, constantly being on watch for real or imagined threats, and exaggerated startle reactions. Fourth, the person persistently avoids thoughts, feelings, activities, people, or situations associated with the trauma. Inability to recall aspects of the trauma, diminished interest in significant activities, social and emotional detachment, restricted range of affect by numbing feelings, and a sense of foreshortened future are also elements of avoidance. The disturbance must also last for at least one month and cause significant distress in social, occupational, or other important areas of functioning

to fulfill diagnostic criteria (APA, 2000). Avoidance as described above was a central component in the rationale for this study.

Increased attention has been generated in the professional literature and media regarding the psychological aftermath that accompanies traumatic events as experienced by safety forces personnel. Police officers are especially vulnerable to experiencing traumatic events (Karlsson & Christianson, 2003; Lieberman et al., 2002). For example, an estimated 12-35% of police officers meet the diagnostic criteria for PTSD or suffer from posttraumatic distress (Boyle, 1987; Carlier, Lamberts, & Gersons, 1997; Maia et al., 2007). Although this group has always been subjected to traumatic situations, it is only recently that police administrators have begun to embrace the idea and act of providing assistance to these individuals in coping with the effects of the trauma.

Examples of traumatic events in which law enforcement officers are commonly exposed may include an officer-involved shooting, the death of a co-worker, serious injury while on duty, life-threatening incidents, hostage situations or negotiations, exposure to intense crime scenes, a police suicide, or any experience of abnormal intensity (Cross & Ashley, 2004). In addition to situations in which an officer is at risk of being injured or killed, they are often exposed to injured or dead persons resulting from traffic accidents, murders, suicides, and other accidents. Exposure to dead bodies has been found to be a significant psychological stressor. Police officers who handle dead bodies can be traumatized by visual, tactile, and olfactory sensations (Karlsson & Christianson, 2003).

Robbers and Jenkins (2005) studied the psychological impact of first-responding police officers to the 9/11 pentagon attacks. More than one third of officers sampled were found to meet the diagnostic criteria for PTSD. A study examining police officers who

had been involved in shootings was conducted by Stratton (1984). A variety of psychological reactions were reported such as disturbed time perception, sleep problems, fear of legal consequences, anger, elation, and crying. One third of the officers were found to be greatly affected, another third were moderately affected, and the last third reported little effect.

Coping with stressful incidents depends on factors such as an officer's past experience with trauma, appropriate development of coping strategies for stress, availability of support networks (e.g., family, friends, and colleagues), and awareness of the negative consequences of ignoring signs and symptoms of post-traumatic reactions. Avoiding, ignoring, or burying the emotional effects can lead to serious short- and long-term consequences (Cross & Ashley, 2004; Orsillo & Batten, 2005). A variety of treatments and crisis intervention programs have been developed to reduce the negative impact of a traumatic experience and promote positive coping among trauma survivors, including police officers. Many are designed to reduce avoidance of thoughts, emotions, and behaviors associated with the trauma.

The focus on avoidance reduction as a treatment intervention in modern times can be traced back to combat situations in World Wars I and II (Mitchell & Everly, 2001). Psychiatric treatment for war neurosis had the goal of enabling the soldier to re-experience the intense emotions originally associated with the traumatic battle experience that were kept in various stages of repression (Grinker & Speigal, 1945). Avoidance of thoughts and emotions regarding the trauma is reduced when the person purposely re-experiences the memory. Prior to this time, Native Americans also aimed to reduce avoidance as a mechanism for dealing with traumatic stress. Dreams and trance states

were produced by various techniques with the goal of creating altered states of consciousness to recall traumatic memories that had been stored in the unconscious (Wilson et al., 1988). This can be likened to the use of drugs to promote similar states utilized during treatment for traumatic stress in the World Wars era (Southard, 1973). Thus, early trauma treatments parallel the approaches used in mainstream psychotherapy, psychopharmacology, and hypnotherapy (Wilson et al., 1988).

A variety of treatments have been developed to assist those suffering from severe posttraumatic symptoms. Most treatment methods for posttraumatic stress direct the survivor to construct a personal narrative of the trauma at some time in his or her recovery (Shay, 1994). According to the author, severe trauma shatters existing worldviews. When a survivor discusses the trauma story, fully realized narratives are created that bring together the shattered knowledge of what happened, the emotions that were aroused by the meanings of the events, and the bodily sensations that the physical events created. In doing so, the person pieces back together the fragmentation of consciousness that the trauma has caused. Avoidance of painful traumatic memories can prevent this processing from occurring. A number of trauma survivors require professional intervention to move through the healing process (Foa & Rothbaum, 1998).

Psychological debriefings have become an increasingly popular form of crisis intervention for victims of trauma, especially police officers (Mitchell & Everly, 2001). According to the authors, Critical Incident Stress Debriefings (CISDs) are a commonly utilized type of debriefing that encourages verbal expression of the traumatic experience. Cognitive-behavioral therapies (CBTs) have gone through the greatest amount of controlled outcome studies. CBTs designed to treat traumatic reactions fall into three

general categories. The first, exposure therapies, includes treatments such as systemic desensitization and flooding. The second, anxiety management, includes techniques such as relaxation, controlled breathing, and self-distraction or thought stopping. Stress inoculation therapy (SIT) teaches behavioral and cognitive strategies to improve the emotional response to trauma. The third, cognitive therapies, identifies and challenges dysfunctional thoughts. Ultimately, the erroneous cognitions are replaced with functional and realistic thoughts. Cognitive processing therapy (CPT) includes elements of exposure therapy, anxiety management, and cognitive restructuring (Nemeroff et al., 2006).

Exposure therapy has the most empirical support of the CBTs. Prolonged exposure therapy (PE) utilizes repeated exposure to the traumatic memory and repeated in-vivo exposure to situations that had been avoided due to traumatized fear. Breathing retraining and psychoeducation are components of this therapy (Foa et al., 2005). Exposure therapy provides the opportunity to revisit the trauma through imagery and verbalization (Massad & Hulse, 2006).

Exposure and cognitive treatment modalities have proven effective in reducing PTSD symptoms with a variety of trauma victims (Davidson, 2001). These treatments have also shown to be effective for treating law enforcement officers exposed to trauma. For example, exposure therapy has been found to be effective in the treatment of police officers diagnosed with chronic PTSD following a work-related critical incident (Tolin & Foa, 1999). Similarly, Brief Eclectic Psychotherapy has been shown to improve PTSD symptomatology, work resumption, and some comorbid conditions in police officers (Lindauer et al., 2005). Finally, Eye Movement Desensitization and Reprocessing (EMDR) were found to reduce PTSD symptoms in a sample of police officers. The efficacy of this

treatment was also supported in its use as a stress management tool for highly stressed police officers who do not meet the diagnostic criteria for PTSD (Wilson, Tinker, Becker, & Logan, 2001).

Reducing avoidant thoughts, emotions, and behaviors are key components to many of the trauma therapies. Orsillo and Batten (2005) wrote “the key element across several successful PTSD treatment approaches involves prescribing the direct opposite of avoidance and escape and full exposure to and processing of trauma related internal and external cues” (p. 96). With experiential avoidance at the core of PTSD, strategies designed to increase the willingness to experience the present moment hold promise as interventions for trauma-related disorders (Batten & Hayes, 2005). Mindfulness is one such strategy that has gained recent interest by clinical researchers (Marlatt, 2002).

Introduction to Mindfulness

Mindfulness is commonly described as the state of being attentive to and aware of what is taking place in the present (Brown & Ryan, 2003). The roots of mindfulness stem from Eastern spiritual and philosophical traditions and have recently been applied to the treatment of several psychological and health related issues. Research has demonstrated treatments incorporating mindfulness principles show successful outcomes. Mindfulness seeks to increase acceptance strategies and skillful behavior. Both components are theoretically useful in the treatment of trauma-related disorder (Follette, Palm, & Pearson, 2006).

Current PTSD interventions such as cognitive therapy attempt to change the content of thoughts. Although these treatments and mindfulness strive to reduce avoidance, mindfulness is different in that no attempt is made to change thoughts. Efforts

to control and overcome negative experiences are abandoned and replaced with the acknowledgement that the emotions are present (Bishop et al., 2004). Mindfulness teaches to accept thoughts and feelings so they are not ignored, suppressed, analyzed, or judged for content. Instead, the experiences are noted and observed nonjudgmentally as they enter into awareness (Kabat-Zinn, 1990).

Individuals exposed to traumatic experiences may develop a narrowing of behaviors in response to aversive internal experiences. Psychological inflexibility develops as a result and an increase in avoidant strategies often occurs. This can be described as a state of being mindless (Follette et al., 2006). According to the authors, examples of avoidant behaviors include efforts to suppress intrusive thoughts, removal of oneself from situations that elicit negative private experiences, substance use, and emotional numbing. This becomes a persistent strategy that is maintained by conditioning processes. The attempt to suppress thoughts and emotions can have the opposite effect and actually intensify them. No amount of effort geared towards not thinking about the traumatic event can change the fact that the trauma occurred. Increasing the focus on the present moment releases the pain concerning the past and future. Enhanced mindfulness can theoretically break the cycle of avoidance and increase attention and purposeful behavior deficient in many exposed to traumatic events (Follette et al., 2006).

Several measures have been developed to measure mindfulness. The Kentucky Inventory of Mindfulness Skills (KIMS) includes characteristics not found in other scales. The KIMS was designed to measure tendencies to be mindful in daily life, to be understandable to general and clinical populations regardless of mindfulness training and experience, and to measure several components of mindfulness. The KIMS identifies four

components of mindfulness. The first, observing, involves the observing, noticing, or attending to internal stimuli such as bodily sensations, cognitions, and emotions as well as external stimuli such as sounds and smells. The second, describing, involves the labeling of observations. Describing is done without judgment or conceptual analysis. Acting with awareness, the third component, involves focusing with awareness on one thing at a time. The fourth, accepting without judgment, involves being nonevaluative about the present moment experience. Unwanted experiences are observed, labeled, and allowed to be present without self-criticism (Baer, Smith, & Allen, 2004).

Mindfulness has been incorporated into a variety of treatment interventions such as dialectical behavior therapy (DBT) (Huss & Baer, 2007), mindfulness-based stress reduction (MBSR) (Minor, Carlson, Mackenzie, Zernicke, & Jones, 2006), and acceptance and commitment therapy (ACT) (Batten & Hayes, 2005). Treatment interventions such as ACT aim not only to reduce symptoms but also to identify valued directions and goals and to commit to actions consistent with those goals (Orsillo & Batten 2005). The authors highlighted that treatment outcomes for the exposure, anxiety management, and cognitive interventions considered successful are based on variables such as symptom reduction. The success of most of the treatments for PTSD have been measured by their ability to reduce traumatic symptoms. Thus, changes pertaining to other aspects such as quality of life and growth are not considered in the evaluation of treatment effectiveness.

Introduction to Posttraumatic Growth and Mindfulness

Much of the trauma literature to date has focused on the presence or absence of trauma-related (e.g., PTSD-related) symptoms. The impact of trauma to the individual's

quality of life has only recently gained attention (Schorr, 2006). Exposure to traumatic events has the potential to create not only negative consequences but positive outcomes as well (Zoellner & Marchker, 2006). Posttraumatic growth (PTG) has been used to describe this aspect of trauma. PTG can be manifested in ways such as a greater appreciation for life, more meaningful interpersonal relationships, and an increased sense of personal strength (Tedeschi & Calhoun, 2004).

A measure of PTG, the Posttraumatic Growth Inventory (PTGI) as developed by Tedeschi and Calhoun (1996), measures five domains of growth including greater appreciation for life and changed sense of priorities, warmer and more intimate relationships with others, a greater sense of personal strength, recognition of new possibilities or paths for one's life, and spiritual development. Positive changes in these areas have been demonstrated in numerous populations such as children (Cryder, Kilmer, Tedeschi, & Calhoun, 2006), clinicians affected by vicarious trauma (Arnold, Calhoun, Tedeschi, & Cann, 2005), individuals living with chronic physical illness (Milam, 2004), violence survivors (Updegraff & Marshall, 2005), and disaster survivors (Tang, 2006).

PTG is defined as the positive change within a person that is the result of some event and is possible when an event disrupts one's view of the world. Re-evaluation of oneself and others takes place as a result of the trauma (Calhoun & Tedeschi, 1999). Cognitive processing and restructuring produce new schemas that incorporate the trauma into the world view of the individual. In this respect, growth does not occur as a result of the trauma per se. Instead, the new reality experienced by the individual in the aftermath of the trauma determines the degree of growth (Tedeschi & Calhoun, 2004).

Mindfulness and mindfulness-based treatment approaches have been theoretically described as a mechanism to reduce experiential avoidance in trauma survivors. The result may be a measurable reduction in PTSD symptoms (Batten & Hayes, 2005; Hayes & Strosahl, 2004). Following this rationale, the present author posited that reduced avoidance, associated with increased mindfulness, would allow for the increased cognitive processing and restructuring of the traumatic event necessary for PTG to occur. Literature addressing mindfulness related to PTG is almost nonexistent. This study attempted to fill this void.

Statement of the Problem and Need for the Study

Understanding the role of mindfulness and the development of posttraumatic growth has the potential to enhance treatment interventions designed to assist police officers in dealing with traumatic events. Reducing the symptoms of traumatic stress is vital to the treatment of trauma survivors. Nevertheless, enhancing the quality of life and posttraumatic growth requires more than symptom reduction. Consistent with the counseling profession's focus on human growth and development, and the fact that persons exposed to traumatic experiences may evidence symptom reduction without movement toward personal growth (L.G. Calhoun, personal communication, 2005), additional research in this area is warranted. Overlooking this aspect of recovery limits the potential for optimal psychological adjustment and well-being of the individual.

Theory exists supporting the efficacy of mindfulness in alleviating the symptoms of posttraumatic stress disorder. Almost no literature exists, however, examining the relationship between mindfulness and posttraumatic growth. In particular, no research to date has focused on how mindfulness can help police officers (or other first-line

responders) develop posttraumatic growth following trauma-related experiences. This research is important in order to advance both the theories of posttraumatic growth and mindfulness, as well as practical interventions clinicians can use with police officers (or similar clients) who hope to develop psychosocially beyond their trauma-related symptomatology (L.G. Calhoun, personal communication, 2005). Therefore, research is needed to examine the relationship between mindfulness and posttraumatic growth. This study attempted to fill this void. If theory can be expanded in this way, improved interventions can be implemented to better serve at-risk populations, such as police officers, prone to ongoing traumatic events.

Purpose of the Study

The general purpose of this study was to add to the empirical evidence in the important area of posttraumatic growth in police officers. Specifically, this study investigated the relationship between mindfulness and posttraumatic growth in police officers. This study also examined the relationship between posttraumatic distress and posttraumatic growth. Additionally, this study explored the relationship between posttraumatic growth and demographic variables including amount of effort put forth towards relationship growth, amount of effort put forth towards relationship growth, length of time since last traumatic event, total number of traumatic experiences, and total number of years in law enforcement.

Based on theory and limited research available on this topic, the writer hypothesized that:

1. The more police officers describe (as measured by the KIMS describe subscale) traumatic experiences, the more they may experience posttraumatic growth.

2. The more police officers observe (as measured by the KIMS observe subscale) their own experiences, the more they may experience posttraumatic growth.

3. The more police officers maintain mental focus and attention (as measured by the KIMS act with awareness subscale), the more they may experience posttraumatic growth.

4. The more police officers maintain nonjudgmental acceptance (as measured by the KIMS accept without judgment subscale) of their experiences, the more they may experience posttraumatic growth.

Based on existing research and theory, the writer hypothesized that posttraumatic symptoms and demographic variables, including amount of effort put forth towards relationship growth, amount of effort put forth towards spiritual growth, total number of traumas, length of time since last traumatic event, and number of years in law enforcement would be positively associated with posttraumatic growth.

General Research Questions

The study attempted to answer the following research questions:

1. Is posttraumatic growth among law enforcement officers significantly associated with specific job-related demographic factors?

2. Is posttraumatic growth among law enforcement officers significantly associated with trauma-related symptoms?

3. Is posttraumatic growth among law enforcement officers significantly associated with mindfulness?

Definition of Terms

Crisis: A response to an event wherein (a) an individual's psychological homeostasis is disrupted, (b) one's usual coping mechanisms have failed, and (c) there is evidence of distress and significant functional impairment (Everly & Mitchell, 1999).

Crisis Intervention: Psychological "first-aid." As physical first-aid is to surgery, crisis intervention is to psychotherapy. The functional goals of crisis intervention are: (a) symptom stabilization, i.e., to prevent the symptoms of distress/impairment from worsening; (b) symptom reduction; (c) re-establishment of functional capacity; or (d) further assessment and/or a higher level of care (Everly & Mitchell, 1999).

Critical Incident: An event which has the potential to engender a crisis response (Mitchell & Everly, 2001).

First-line Responder: A law enforcement officer, fire department employee, emergency medical technician, or any other emergency response professional trained to respond directly to emergency situations as they occur.

Mindfulness: The state of being attentive to and aware of what is taking place in the present (Brown & Ryan, 2003).

Police Officer or Law Enforcement Officer: A fully commissioned member of a village, township, city, county, state, or federal police department or law enforcement agency.

Posttraumatic Growth (PTG): The experience of positive change that occurs as a result of the struggle with highly challenging life events (Calhoun & Tedeschi, 2004).

Posttraumatic Stress Disorder (PTSD): A constellation of symptoms that include avoidance, hyperarousal, and re-experiencing resulting from exposure to a traumatic

event in which the person responded with intense fear, helplessness, or horror. PTSD is a diagnosable psychiatric disorder (American Psychiatric Association, 2000).

Stressor: A physical, chemical, or mental factor that causes bodily or mental tension and may be a factor in disease causation (Merriam-Webster, 2007)

Trauma, Traumatic Event, or Traumatic Incident: Event or events that involved actual or threatened death, serious injury, or a threat to the physical integrity of oneself or others (American Psychiatric Association, 2000).

Traumatic Stress: Any stress reactions that result from exposure to a traumatic event.

Overview of the Remainder of the Study

Chapter II includes a review of the literature regarding the theory and research related to trauma, mindfulness, and posttraumatic growth. This chapter also discusses the theoretical relationship between mindfulness and posttraumatic growth. Chapter III discusses the methodology of this study, including the general research design, null hypotheses, participants, instruments, and data analysis. Chapter IV provides the results of the statistical analyses used in this study, including descriptive and inferential statistics utilized to test the statistical hypotheses outlined in Chapter III. Finally, Chapter V includes a conclusion and summary of the statistical results found and a discussion of the results related to the proposed theoretical background. Limitations of the study and implications of results for mental health professionals, practice, and future research are also discussed.

CHAPTER II

REVIEW OF THE RELATED RESEARCH

Overview of Theory and Research of Mindfulness

This chapter addressed the theory and research related to mindfulness and posttraumatic growth. It also described the theoretical link between mindfulness and posttraumatic growth.

Theory of Mindfulness and Mental Health

Mindfulness is an element of consciousness commonly believed to promote well-being (Brown & Ryan, 2003). It is not a specifically defined term, rather it is a more general construct (Bishop et al., 2004). Mindfulness involves the awareness of emotions (Beitel, Ferrer, & Cecero, 2004). Kabat-Zinn (1990) defined mindfulness as contacting events nonjudgmentally in the here and now. Brown and Ryan (2003) defined the construct of mindfulness as the increased attention and awareness of current experiences or present reality. Mindfulness does require that an individual observe what he or she is experiencing. “The quality of awareness sought by mindfulness practice includes openness or receptiveness, curiosity, and a nonjudgmental attitude. An emphasis is placed on seeing and accepting things as they are without trying to change them” (The Melbourne Academic Mindfulness Interest Group, 2005, p. 286). Mindfulness is, however, most commonly described as the state of being attentive to and aware of what is taking place in the present (Brown & Ryan, 2003). Mindfulness is rooted in Buddhist

philosophy and other traditions in which there is an active cultivation of attention and awareness including meditation (Brown & Ryan, 2003; Hanh, 1976; Shapiro, Carlson, Astin, & Freedman, 2006). The reduction of personal suffering was the original motive behind the development of mindfulness in these traditions.

Carson and Langer (2006) discussed mindfulness as a mechanism to gain unconditional self-acceptance. According to the authors, the inability to unconditionally accept oneself can lead to emotional difficulties including depression and anger. Mindlessness, in contrast to mindfulness, is a state of rigid adherence to a single mindset and acts with automatic reactivity. Individuals often become trapped into a single perspective, unaware of alternate perspectives. The adoption of a unitary mindset often stems from the teaching of an authority figure or early life experiences that become immutable truth. They begin to think and behave the way others think they should think and behave. In doing so, one becomes distanced from one's genuine feelings.

Cognitive commitment to a single manner of perceiving and processing information leads to a reduction of reconsideration and reinterpretation of that information. Unconditional acceptance is gained when one learns to view oneself mindfully. Hamilton, Kitzman, and Guyotte (2006) proposed that the positive effects of mindfulness resulted from the strengthening of metacognitive skills and by the changing of schemas related to emotion, health, and illness. Metacognition is defined as the knowledge one possesses regarding cognitive processes and resulting products of that process. This is a process of self-monitoring that occurs in present experience and is incorporated with past experiences. The internal evaluation often occurs without awareness (Bernard, 2006). Mindfulness increases awareness to cognitive process.

Wells (2005) referred to two different pathways that have emerged leading to the clinical implementation of what the author termed detached mindfulness. One was born from Buddhist meditation practices. The second grew from an information processing theory of psychological disorder in which mindfulness is conceptualized as a mechanism for developing adaptive metacognitive monitoring and control over negative internal processes. Detached mindfulness is a desired state of inner-awareness in which the effortful processing of the self is absent. Conceptual analysis and goal directed responses are also eliminated. This is a state of high meta-awareness and being cognitively de-centered with the knowledge that thoughts are separate from reality.

Rothwell (2006) described two levels of mindfulness including scientifically-based behavior therapies and humanistic approaches, the first being information processing or a cognitive state. This level is related and overlapping with the second level considered an experiential aspect. Distinguishable types of interventions are produced by the two viewpoints. The author also emphasized the holistic nature of mindfulness in that there was no distinction made between mind and body. In this regard, mindfulness was not considered a therapy designed to treat a specific disorder. Instead, it is nonpathologizing and can be utilized to enhance performance as well as treating medical and psychological conditions.

Leary, Adams, and Tate (2006) emphasized how deliberate efforts to control thoughts, behaviors, and emotions often fail. Deliberate self-control has the potential to facilitate the formation of undesired thoughts and behaviors. For example, the deliberate attempt to suppress thoughts of traumatic events often has the paradoxical effect of

increasing the traumatic thoughts. The authors promoted mindfulness-based meditation in order to reduce efforts to monitor and control behavior.

In response to a need for a more specific operational definition of mindfulness, a series of meetings was held to define the various components of mindfulness (Bishop et al., 2004). The consensus on an operational definition resulted in a two-component model of mindfulness.

The first component involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance. (Bishop et al., 2004, p. 232)

According to the authors, self-regulation of attention involves the development of awareness by observing and attending to alternating thoughts, feelings, and sensations. Regulating the focus of attention leads to being fully present in the moment. Meditation practices are often taught in mindfulness treatment approaches. During meditation, the client is most commonly taught to focus on the somatic sensations experienced with each breath. The client is instructed to take notice of thoughts and feelings that arise but then let them go and return to a focus on breath. Thought suppression is not the goal of the meditation. Rather, one is taught to accept the thought that has entered into the mind, let it pass, and return to a focus on breathing. Each thought and feeling is acknowledged and accepted as is. In this way, mindfulness is not a practice of thought suppression, rather thoughts and feelings are accepted as mere events. Thus, eliminating negative habitual reactivity to thoughts is important. The return of focus to the here-and-now, once practiced during meditation, can be utilized in day-to-day functioning. The breath can be used as an anchor to focus wandered and worrisome thoughts.

The second component of the operational definition of mindfulness, as proposed by Bishop et al. (2004), involved a certain orientation to experience.

This orientation begins with making a commitment to maintain an attitude of curiosity about where the mind wanders whenever it inevitably drifts away from the breath, as well as curiosity about the different attitudes within one's experience at any moment. (Bishop et al., 2004, p. 233)

The client learns to remain open to experience and receptive to the here-and-now.

Acceptance is fostered regardless of whether the experience is unpleasant or painful.

Essentially, the subjective nature of the experience is altered, resulting in less unpleasant and painful reactions.

Shapiro et al. (2006) proposed an initial theory of the mechanisms involved in the process of mindfulness. Intention, attention, and attitude were identified as the building blocks of mindfulness. Intention referred to being cognizant as to the reason for practicing mindfulness. Intentions of meditation practitioners shifted along a continuum from self-regulation, through self-exploration, to ending in self-liberation, with continued practice. Attention was the core of mindfulness. Attitude referred to the quality one brought to the act of attention.

The authors suggested, building upon these components, that attending with an open and a nonjudgmental attitude leads to a shift in perspective termed re-perceiving. It was believed that re-perceiving was a meta-mechanism of action that leads to change and positive outcome. The authors also highlighted the mechanisms of self-regulation, values clarification, flexibility of cognition, emotion, and behavior, and exposure. These variables were nonlinear and were seen as potential mechanisms for outcomes such as psychological symptom reduction.

Ryback (2006) suggested that mindful practice, along with emotional connection and deep empathy, led not only to mental well-being but physiological changes in the brain. Emotions, thoughts, and brain structure mutually affected one another. Conscious awareness could have the effect of modifying brain structure by building stronger integrative fibers. Enhanced balance between right and left front cortical hemisphere was gained providing emotional balance and response flexibility. This improvement in the front cortical hemispheres also led to an enhanced connection between the prefrontal cortex, amygdala, and the cerebral-gastrointestinal connection. This resulted in greater capacity for empathy, intuition, and self-awareness. Mindfulness, along with nurturing and affection, also decreased inappropriate fears by nurturing the amygdala.

Review of Research on Mindfulness

A growing evidence base supporting the efficacy of mindfulness regarding a variety of problems has grown (Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004; Rothwell, 2006). Arch and Craske (2005) found that subjects instructed in mindfulness-based focused breathing responded more positively to negative images than an unfocused attention group. Bowen et al. (2006) found that incarcerated individuals who attended Vipassana meditation, a Buddhist mindfulness-based practice, showed significant reductions in alcohol, marijuana, crack cocaine, and alcohol use as well as psychiatric symptoms upon release. An increase in psychosocial outcomes was also observed.

A brief mindfulness-based stress reduction (MBSR) program was found to significantly reduce stress symptoms and mood disturbance in the caregivers of chronically ill children (Minor et al., 2006). A mindfulness-based mentoring intervention implemented to improve treatment team functioning in an adult inpatient psychiatric

hospital was shown to increase patient and staff satisfaction (Singh, Singh, Sabaawi, Myers, & Wahler, 2006). Bogels, Sijbers, and Voncken (2006) discovered severely socially phobic patients experienced reduced social phobia following nine 45-60 minute mindfulness and task concentration training. Results were maintained at a 2-month follow up.

An 8 week MBSR program reduced perceived stress and increased self-compassion in health care professionals. Stress inherent in health care work can lead to increased depression, decreased job satisfaction, and psychological distress (Shapiro, Astin, Bishop, & Cordova, 2005). MBSR was found to reduce symptoms of depression among individuals who sustained traumatic brain injuries. Greater improvements in quality of life were also reported. The improvements were maintained over time, adding to a growing body of evidence suggesting mindfulness-based interventions have lasting effects (Bedard et al., 2005).

Dalrymple (2006) examined acceptance and commitment therapy (ACT), a mindfulness-based therapy, in the treatment of Social Anxiety Disorder. The author found significant post-treatment improvements in social anxiety symptoms and social skills as well as ACT-specific measures of willingness, experiential avoidance, and valued action. Mindfulness-based ACT, in addition to “treatment as usual” (TAU) including psychopharmacology, case management, and psychotherapy was shown to be more effective in treating inpatient psychotic disorders than TAU alone. A reduction in affective symptoms, social impairment, and distress associated with hallucinations was reported by Gaudiano and Herbert (2006). An improvement in overall functioning was also reported.

The physiological changes that result from practicing mindfulness meditation were demonstrated by Telles, Mohapatra, and Naveen (2005). Vipassana was practiced by participants who experienced significant changes in autonomic response compared to a nonmeditation group. The breath awareness phase of Vipassana produced a shift in the cardiac sympathovagal balance with reduced sympathetic tone and an increase in white vagal tone. Takahashi et al. (2005) reported findings consistent with other studies that a shift to the higher power in frequencies of slower alpha and theta in the frontal cortex occurs during mindfulness meditation. Autonomic activities decrease in sympathetic activity and increase in parasympathetic activity during meditation.

A review and critical appraisal of research examining MBSR in cancer patients was conducted by Smith, Richardson, Hoffman, and Pilkington (2005). They found positive results, including improvements in mood, quality of sleep, and reduction of stress. Carlson and Garland (2005) also found that mindfulness meditation increased sleep quality in cancer patients accompanied by reductions in stress, mood disturbances, and fatigue. Surawy, Roberts, and Silver (2005) studied the effects of MBSR and mindfulness-based cognitive therapy used with a sample of patients suffering from Chronic Fatigue Syndrome. Significant improvements in anxiety and subjective levels of fatigue were discovered when compared to a control group. A second study by the authors replicated the findings of the first and also demonstrated an overall quality of life improvement. A third study by the authors indicated significant improvements in levels of fatigue, anxiety, depression, quality of life, and physical functioning.

Developing their study on a cognitively oriented model suggesting impaired attention is a core symptom of anxiety, Semple, Reid, and Miller (2005) examined

mindfulness and anxiety in children. Children aged 7 to 8 years old experiencing anxiety symptoms were provided with mindfulness-based treatments. Results indicated clinical improvements observed in the children may have been related to increased levels of attention resulting from the mindfulness training. Smith (2004) explored mindfulness training in elderly patients and found it useful for treating recurring depression in this population.

A study by Ramel, Goldin, Carmona, and McQuaid (2004) found improvements in affective symptoms (anxiety and depression), dysfunctional attitudes, and rumination following mindfulness meditation. The authors hypothesized that the primary changes resulted from reductions in ruminative tendencies, as a result of mindfulness meditation. Watkins and Teasdale (2004) also found the usefulness of mindfulness-based cognitive therapy in perpetuating experiential forms of self-awareness that reduce depression perpetuating rumination. In this study, analytical and experiential self-focus was found to produce different results. Experiential self-focus reduced over-general memory compared to analytical self-focus.

A positive relationship between level of mindfulness and marital satisfaction was reported by Burpee and Langer (2005). Mindful techniques, including drawing distinctions across situations, acknowledging the existence of alternate perspectives, and recognizing that disadvantages may be advantages from others' points of view, may facilitate marital satisfaction. A couple's perceptions about the congruence of their personalities was identified as a better predictor of marital satisfaction than actual congruence. Greater perceptual congruence as a result of mindfulness is gained by the reevaluation of perceptions about the other. Open-mindedness and flexibility is

developed, thereby reducing criticism, and rigidity is diminished. Carson, Carson, Gil, and Baucom (2004) reported mindfulness-based relationship enhancement training to be effective in increasing relationship satisfaction, autonomy, relatedness, closeness, acceptance of one another, and reducing distress.

A shortcoming of the research in this field has been a lack of an operational definition of mindfulness. As long as questions concerning construct specificity and operational definitions remain, it will be difficult to further investigate the role and mechanism of action behind mindfulness. The development of enhanced instruments, based on an operational definition is needed that allow such investigations. The field must therefore move to a definition that is more precise (Bishop et al., 2004).

Introduction to the Construct of Posttraumatic Growth

Recent literature in the area of trauma has shifted from a pathogenic to a salutogenic paradigm of posttraumatic changes (Morris, Shakespeare-Finch, Rieck, & Newberry, 2005). Exposure to traumatic events has the potential to create immense distress in those affected. Many, however, experience both negative and positive outcomes as a result of the trauma. Only recently has the phenomenon of posttraumatic growth (PTG) elicited interest from clinicians and researchers (Zoellner & Maercker, 2006). Interest in this area has proliferated despite its recent introduction in the mental health literature (Helgeson, Reynolds, & Tomich, 2006).

Although there are different perspectives of PTG, one of the most common and well-researched models has been developed by Calhoun & Tedeschi (1998a). The model of PTG as developed by Tedeschi and Calhoun was utilized in pursuit of the stated

research goals of the current study. A variety of names has been used to describe the phenomena of PTG, but is most commonly described as “posttraumatic growth,” “stress-related growth,” or “benefit finding” (Helgeson et al., 2006).” Tedeschi and Calhoun (2004) defined posttraumatic growth as the “experience of positive change that occurs as a result of the struggle with highly challenging life crises” (p. 1). Posttraumatic growth can be manifested in a variety of ways including an increased appreciation for life in general, more meaningful interpersonal relationships, and an increased sense of personal strength. Positive change has been observed following traumatic experiences such as chronic illness, heart attacks, breast cancer, bone marrow transplants, HIV disease, rape and sexual assault, military combat, maritime disasters, plane crashes, tornadoes, shootings, bereavement, injury, recovery from substance abuse, and in parents of children with disabilities (Linley & Joseph, 2004).

The model of PTG as developed by Tedeschi and Calhoun is a generalized description and there are likely different versions of growth, such as gradual versus abrupt changes. Growth can occur through many avenues. The concept of PTG addresses only one of these avenues, described as the emerging struggle with challenging life events. Thus, the model of PTG developed by Tedeschi and Calhoun is not complete and requires further development (Calhoun & Tedeschi, 2004).

Growth does not occur as the result of a trauma, rather, the new reality experienced by the individual in the aftermath of the trauma determines the degree of growth. Cognitive processing and restructuring produce new schemas that incorporate the trauma into the world views of the individual (Tedeschi & Calhoun, 2004). Tedeschi and Calhoun pointed out the distinction between PTG and related concepts including

resilience, hardiness, optimism, and sense of coherence. Resilience refers to an ability to continue living a purposeful life despite adversity. Hardiness includes maintaining and control in response to life events. Optimism involves keeping positive expectations and outcomes to events. Sense of coherence describes those most capable of managing stress because events are comprehensible. In contrast, posttraumatic growth goes beyond an ability to resist or be damaged by stress. The quality of transformation and change in functioning differentiates PTG from the other concepts.

Tedeschi and Calhoun (2004) proposed that the process of PTG begins with a major life crisis that shatters existing world views and the person's place in that world. Previously held beliefs, goals, and coping abilities are challenged. Coping mechanisms are engaged to manage the overwhelming emotions, but cognitive processing of the situation also occurs. Initial distress including negative intrusive rumination are considered necessary as part of the cognitive processing of the event required for PTG to develop. The degree of cognitive engagement of the event is considered a central component in the process of PTG. With time, automatic and negative ruminations are reduced and more deliberate and purposeful cognitive processing of the event occurs. The social system of the individual also appears to play a large role in PTG. New schemas related to growth are fostered through empathetic acceptance upon the sharing of the event and growth related themes. Narratives provide a mechanism for cognitive processing of the event such as confronting questions concerning the reconstruction of meaning. Personal qualities such as extraversion, openness to experience, and optimism make PTG more likely to occur. The development of general wisdom and modifications to life narratives are also connected to the development of PTG. Although the initial

psychological distress experienced following the trauma will usually be reduced with time, some enduring distress may accompany the maintenance and enhancement of PTG.

The Tedeschi and Calhoun (2004) model of PTG is displayed in Figure 1.

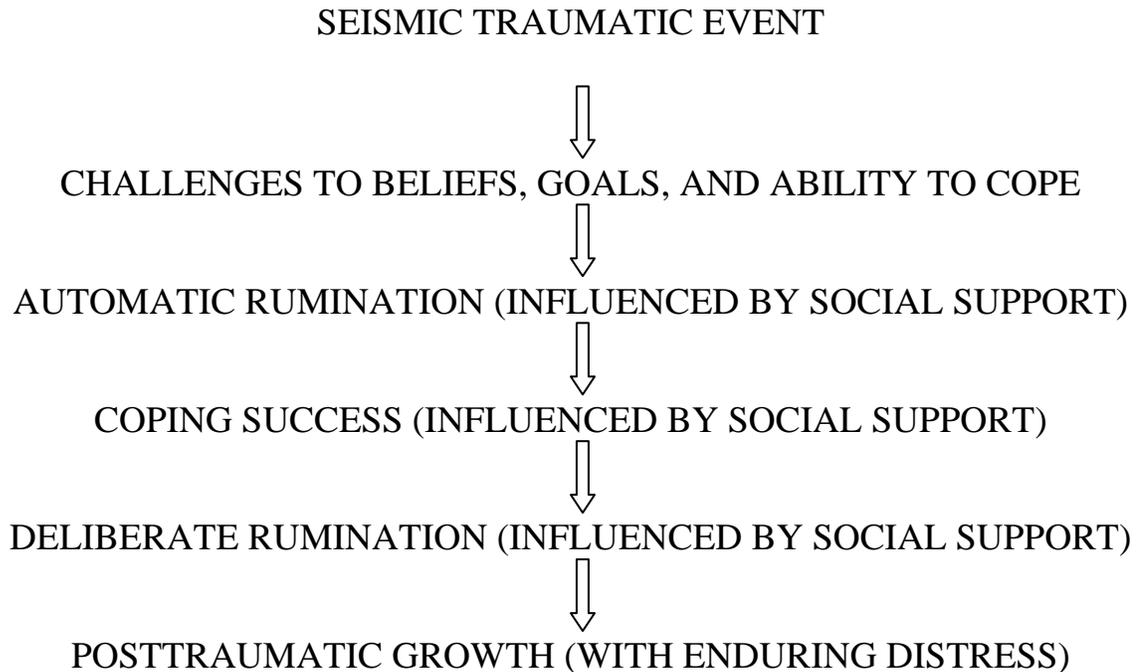


Figure 1. Model of posttraumatic growth (Tedeschi & Calhoun, 2004).

Tedeschi and Calhoun (1996) identified three dimensions of posttraumatic change including changes in self-perception, interpersonal relationships, and philosophy of life. From these dimensions, the authors developed the Posttraumatic Growth Inventory (PTGI), which measures five domains of growth including greater appreciation of life and changed sense of priorities, warmer and more intimate relationship with others, a greater sense of personal strength, recognition of new possibilities or paths for one's life, and spiritual development (Tedeschi & Calhoun, 1996). The authors highlighted the usefulness of considering the five factors of the PTGI separately in order to gain an

enhanced understanding of PTG. For example, the individual who reports personal strength as an aspect of PTG may be different from the person who reports spiritual development. The former may be able to cope with the trauma by exerting control and the latter may be faced with a greater need to acknowledge a lack of control (Calhoun & Tedeschi, 2004). Of the several domains in which positive change can occur, many are likely to be phenomenological (Calhoun & Tedeschi, 1998a).

Other models of PTG also exist. Salick and Auerbach (2006) developed a stage model of medical trauma and recovery leading to PTG. The stages are apprehension, diagnosis and devastation, choosing to go on, building a way to live, and integration of the trauma and expansion of self. The first theoretical construct, apprehension, occurs in a prediagnosis phase with a sense that something is wrong with physically. Many feel relief in learning exactly what is wrong with them. Inability to register, resulting in an ability to psychologically process the trauma is often experienced. The second construct of diagnosis and devastation entails diagnosis clarification with profound psychological impact resulting. A loss of physical self leads to devastation, consisting of psychic pain marked by hopelessness and withdrawal from the social world. The third construct of choosing to go on describes finding inner strength and an existential choice to go on. Formulating a plan was found to be a coping skill facilitating a mindset directed toward recovery. Building a way to live describes the actual coping mechanism used to carry out a decision to return to life. Reclaiming the body through alternative expressions of the physical self is an essential aspect of this construct. Developing a support system, finding personal meaning, locating hope, and using humor are also essential to building a way to live. Integration of the trauma and expansion of self includes moving forward, giving

something back, new empathy from one's own experience, and increased sense of purpose and meaning.

Janoff-Bulman (2004) discussed three models describing how coping processes help account for posttraumatic growth. Successful coping entails incorporating the traumatic experience into existing worldviews, as opposed to returning to earlier world assumptions. The first model, strength through suffering, involves uncovering strengths and developing new coping skills and resources in the face of extreme life circumstances. The redemptive value of suffering is readily available in cultural lore, especially as taught in many religions. Model two, psychological preparedness, includes challenges and changes in the assumptive world of the survivor. Knowing bad things happen but not believing they will happen contributes to being psychologically unprepared for extreme events. A new assumptive world belief is formed by realizing "it can happen to me," leading to an enhanced ability to withstand tragedy. Existential reevaluation, the third model, is exemplified by a newfound appreciation for life as a result of the trauma. Although much of the trauma literature focuses on loss and growth, it is important to note that outcomes of loss and trauma are not always positive or negative (Harvey, Barnett, & Overstreet, 2004; Holmes, 2005).

Introduction to Research on Posttraumatic Growth

Most of the trauma literature thus far has focused on the presence or absence of trauma-related symptoms. Few articles have addressed the degree to which these experiences impact the individual's daily functioning and quality of life (Schorr, 2006). An increased amount of interest in the research of posttraumatic growth is beginning to emerge.

Posttraumatic growth occurring in a nonadult population was observed in a study by Cryder et al., (2006). A supportive social environment and ruminative thinking were found to be associated with PTG children who experienced Hurricane Floyd. Calhoun, Cann, Tedeschi, and McMillan (2000) studied domains of cognitive processing including rumination, a quest orientation to religious beliefs, and religious participation as predictors of PTG. Rumination, in this context, refers to recurrent positive or negative thinking about a variety of aspects of the trauma. Negative and self-punitive thinking about the event may produce adverse psychological consequences. The more a person actively thinks about the event in order to make sense of the experience was associated with increased PTG. Although general religious participation did not predict growth in this study, openness to religious change was found to facilitate PTG, supporting the notion that thinking about meaning and significance of the event is conducive to PTG.

Pryzgoda (2005) tested the hypothesis that posttraumatic reflections such as future oriented thinking, search for meaning, problem solving, and acceptance of the event influence reported growth. The author also tested the hypothesis that rumination, unwanted thought suppression, and self-reflection influence posttraumatic reaction. Social support, approach, reappraisal, emotion regulation coping, and level of subjective distress were positively related to growth. Trait level rumination and thought suppression were positively related to each other and negatively related to symptoms.

Arnold et al. (2005) explored trauma-related psychotherapy and its impact on clinicians. The authors found several negative consequences but also positive outcomes. The positive sequelae described are similar to growth experienced from direct trauma experiences, attesting to the existence of vicarious posttraumatic growth. A physiologic

effect of posttraumatic growth was demonstrated by Rabe, Zollner, Maercker, & Karl, (2006). Increased relative left frontal activation was related to posttraumatic growth. Emotion and motivation related constructs have been linked to frontal brain asymmetry. Alday (1998) found that optimism, purpose, coherence, social support, and problem-focused coping correlated with enhanced functioning and growth following a traumatic event.

Salter and Stallard (2004) studied PTG in children involved in road traffic accidents and reported that 42% experienced aspects of traumatic growth. Yaskowich (2003) examined children with cancer and reported teacher's support, children's perceptions of increased diagnosis severity, children's awareness of their parents posttraumatic growth experience, and female gender were positively correlated with posttraumatic growth. Among a sample diagnosed with HIV disease, 57% reported at least moderate positive changes since diagnosis in a study by Milam (2004). Optimism and religiosity were found to be positively correlated with PTG. Additionally, the process of experiencing PTG was associated with lower levels of depression over time. Another study reported spirituality, social support, and stressors to have a positive relationship with growth in bereaved HIV disease caregivers (Cadell, Regehr, & Hemsworth, 2003).

Updegraff and Marshall (2005) examined predictors of perceived growth with physically injured survivors of community violence. Perceived growth was positively linked to situation-specific optimism, dispositional optimism, and initial symptoms of trauma-related distress. Holmes (2005) studied survivors of the September 11, 2001 terrorist attacks. The author found victims who are more optimistic and resilient, particularly with feelings of determination and willingness to seek meaning, had higher

levels of subjective well-being. Those who reported posttraumatic growth generally held a greater appreciation for and more satisfaction with their lives than before the trauma. Tang (2006) reported predictors of positive adjustment among adult survivors of the Southeast Asian earthquake-tsunami included pre-disaster employment, increased arousal, and frequent support seeking.

Little research has examined PTG specifically related to law enforcement officers. One of the few studies to address this population and positive outcomes of stress was conducted by Finch (2004). The author found that most officers were able to identify experiences of posttraumatic growth. Having a greater appreciation for life, better relationships with others, and greater self-understanding were reported in subjective reports by the officers. Age and the number of years an officer had worked in law enforcement were positively correlated with PTG. Both provide more opportunity to experience stress, thereby allowing growth to occur from the stress.

Introduction to Mindfulness Treatments and Trauma-Related Experiences

Contemporary psychology has applied mindfulness as a catalyst to increase awareness and respond to mental processes leading to emotional distress and maladaptive behavior (Bishop et al., 2004). The current clinical interest in mindfulness began with the introduction of Mindfulness-Based Stress Reduction (MBSR), a manualized program initially developed for the treatment of pain (Bishop et al., 2004; Ditto, Eclache, & Goldman, 2006). MBSR has been shown to be effective in the treatment of physical and psychological disorders (Bishop, 2002). Mindfulness has been incorporated into a variety of modern psychological treatments. Dialectical behavior therapy (DBT) incorporates

mindfulness and has been shown to reduce self-mutilation and suicidal behavior in suicidal patients with borderline personality disorder (Linehan, Armstrong, Saurez, Allmon, & Heard, 1991).

Lynch, Chapman, Rosenthal, Kuo, and Linehan (2006) identified behavioral exposure, emotion regulation, attentional control, and reducing literal beliefs in rules as the mindfulness-related mechanisms of change incorporated in DBT. Behavioral exposure involves the adoption of alternate responses to situations that elicit unpleasant internal experiences. The acceptance component inherent to mindfulness may work through nonreinforced exposure to emotions, thoughts, and sensations that had been previously avoided. The experience of emotions may be altered by mindfulness, including the changing of automatic response tendencies by observing emotional experiences without acting on them. Mindfulness does not change the intensity of the primary emotional experience but rather the secondary emotional response. Gaining attentional control has been suggested to improve emotion regulation. This is accomplished by being better able to observe, describe, and participate and decreases attachment to emotional stimuli, resulting in shorter emotional reactions. Reducing literal beliefs in rules is accomplished by learning to see thoughts as thoughts and not literally true. In this way, the world can be viewed, not as a dichotomous good or bad, but rather as it is.

Mindfulness has been shown to be effective in the treatment of a variety of issues, such as recurrent depression (Ma & Teasdale, 2004; Segal, Williams & Teasdale, 2002), to assist care givers in coping with the stressors of caring for seriously ill family members (Epstein-Lubow, Miller, & McBee, 2006), grief (Sagula & Rice, 2004) and relationship

enhancement (Carson et al., 2004). Mindfulness is not a relaxation or mood management technique, rather it is a “form of mental training to reduce cognitive vulnerability to reactive modes of mind that might otherwise heighten stress and emotional distress or that may otherwise perpetuate psychopathology” (Bishop et al., 2004, p. 231).

Mindfulness has also been utilized outside of the medical and psychological fields. Mindfulness has been used in the business field to foster collective attention with the goals for entrepreneurs to minimize errors, remain vigilant, and respond effectively to unexpected events (Rerup, 2005). Mindfulness-based interventions have been implemented to enhance athletic performance. Traditionally, cognitive-behavioral based skills training emphasize suppression of negative thoughts and emotions, with the result possibly having an opposite desired effect. Acceptance and attention to internal cues including thoughts, feelings, and physical feelings, as well as external cues, is being used to gain optimal athletic performance.

Although several modes of treatment utilize mindfulness, acceptance, and commitment therapy, (ACT) is the main form of Western therapy to explicitly incorporate mindfulness. ACT is an intervention approach based on Relational Frame Theory (RFT), which views human suffering as originating in psychological inflexibility fostered by cognitive fusion and experiential avoidance (Hayes & Strosahl, 2004). According to the authors, RFT asserts verbally mediated private events including cognitions, emotions, and memories do not directly influence behavior. Instead, they influence behavior through the context from which they occur.

Greater psychological flexibility is gained through the six core principles of ACT including acceptance, defusion, self as context, values, committed action, and contact

with the present moment. Mindfulness can be conceptualized as a combination of acceptance, defusion, self as context and contact with the present moment. Therefore, ACT is considered a mindfulness-based therapy at the process and technique level. ACT utilizes two components to promote contact with the present moment. The first of these includes training to observe what is present in the environment and in private experience. The second includes training to label and describe what is present without excessive judging.

Acceptance is taught as a means to reduce experiential avoidance. Private events are embraced without attempts to alter their frequency or form. Cognitive defusion also does not try to change the frequency or form of private events and thoughts; instead, it changes how one interacts or relates to them. The literal quality of thoughts is altered. For example, the thought that “I am no good” is replaced with “I am having the thought that I am no good.” The result is a decrease in believability and attachment to private events. Human language fosters a sense of self as a locus or perspective with statements such as “I versus you,” “now versus then,” and “here versus there.” Self as context allows one to be aware of experiences without becoming attached to them. Being present allows contact with internal and external events as they occur. Behavior becomes more flexible and actions are more consistent when the world is experienced more directly (Hayes, Luoma, Bond, Masuda, & Lillis, (2005).

ACT, while proving to be effective in the treatment of a variety of problems, is especially suited for the treatment of trauma-related disorders. Experiential avoidance is at the core of Posttraumatic Stress Disorder (Orsillo & Batten, 2005). Avoidance and cognitive fusion is targeted by ACT through acceptance and defusion techniques

including viewing thoughts as thoughts and not truths and observing personal emotive experience (Walser & Hayes, 2006). Follette et al. (2006) conceptualized trauma symptomology in terms of categories of behavior rather than a focus on a syndromal classification of symptoms. Their behavioral treatment approach involves influencing action by increasing both acceptance strategies and skillful behavior. Mindfulness addresses both of these areas. People with trauma symptoms alter behaviors and avoid thoughts and situations in response to aversive internal experiences. The psychological inflexibility that develops can be described as not being mindful or present. Mindfulness provides a mechanism by which people can experience thoughts and feelings that were previously avoided.

Critique of Recent Research and Rationale for the Approach

Avoidance is considered one of the core psychological processes in the development and maintenance of posttraumatic stress disorder. Exposure therapies have proven to be the most empirically supported treatments of PTSD. These treatments involve exposure to and processing of internal and external cues that had previously been avoided. However, treatment outcome has been measured primarily by narrowly defined outcome variables such as symptom reduction. The clinical significance of these changes such as quality of life and growth as a result has been given little attention (Orsillo & Batten, 2005).

Mindfulness-based treatment approaches such as ACT are directed at decreasing the use of avoidance in dealing with unwanted thoughts, emotions, and memories. This is accomplished by increasing willingness and acceptance to experience what had been previously avoided. In addition to symptom reduction, the goal of ACT is to improve the

components of a client's life that are deemed important to the client. ACT facilitates the examination of valued life directions and a commitment to behavior change (Orsillo & Batten, 2005). Although thoughtful consideration and rationale has been given to the use of ACT in the treatment of PTSD, little research has been conducted to provide empirical support for its use and is needed (Batten & Hayes, 2005; Hayes & Strosahl, 2004).

Mindfulness skills may improve the effectiveness of exposure treatments by increasing one's willingness to contact painful memories, thoughts, and memories. Follette et al. (2006) have found the basic principles of DBT and ACT with a focus on mindfulness acceptance as a primary goal, to be effective in the treatment of trauma-related problems. The authors believe mindfulness is useful in trauma therapy by increasing focus on the present moment, letting go of the fear in the past and future, and increasing psychological flexibility. Palm (2005) examined components of mindfulness including attention, cognitive flexibility, acceptance, and metacognitive awareness in relation to trauma. The author reported participants who reported trauma plus PTSD symptoms displayed less psychological flexibility. Preliminary research supports the use of affect-management strategies including mindfulness, crisis planning, and challenging distorted thinking in the treatment of trauma (Wolsdorf & Zlotnick, 2001).

Although the use of DBT to enhance trauma exposure therapy has not been empirically studied, Becker and Zayfert (2001) have examined mindfulness skills as based in DBT. The authors believe mindfulness incorporated into DBT leads to improved tolerance, reduced dropout, and increased effectiveness of exposure-based therapy as used to treat trauma-related disorders. Preliminary data from their clinic support this

notion; however, systematic clinical investigation is required to demonstrate this effect and explain underlying mechanisms.

Grossman, Niemann, Schmidt, and Walach (2003) conducted a meta-analysis of mindfulness-based studies covering a wide spectrum of clinical populations including physical, psychosomatic, and psychiatric disorders. The authors examined 64 empirical studies and found only 20 reports met criteria for acceptable quality. The majority of the research studies were found to yield low validity because of insufficient information about interventions, poor quantitative health evaluations, inadequate statistical analysis, mindfulness not being the central component of intervention, and the setting of intervention or sample composition deviating too widely from the health-related mindfulness programs. Baer (2003) also performed a meta-analysis on mindfulness-based interventions and found many methodological weaknesses. Limitations included low sample sizes and inadequate explanation of clinical significance.

Past research in the area of police officers and traumatic stress has focused almost exclusively on negative and pathological outcomes. Only one study was found that examined the ability of police officers to experience positive outcomes after stressful events. This study examined multiple types of police stress and was not solely focused on traumatic stress. The author found that police officers subjectively reported experiencing positive change as a result of stressful or traumatic events. Generalizability of the results was discussed as a limitation of the study. Although a cross-sample of police departments of different sizes and geographical locations was included in the sample, there may be differences between these departments and others around the country (Finch, 2003).

Police officers are clearly a group commonly affected by traumatic stress. Enhanced knowledge is needed to better assist these officers in not only reducing the symptoms of traumatic stress, but also to improve the quality of life following horrific experiences. Additional research in this area is clearly needed. The evidence that police officers may experience growth as the result of stressful or traumatic experiences highlights the need to further understand this process. If future research investigates factors related to growth among police officers, perhaps improved interventions may be developed to better assist police officers in dealing with the often devastating affects of traumatic stress.

This study attempted to investigate the relationship between mindfulness and posttraumatic growth. This study used a descriptive approach to study these constructs. That is, data were collected from a sample population at one point in time, rather than using an experimental approach. A descriptive research design to answer the research question is appropriate because the goal of the study was to observe the correlation between mindfulness and posttraumatic growth rather than manipulate the environment in a controlled manner.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine mindfulness, posttraumatic symptoms, and demographic variables as they relate to posttraumatic growth. Specifically, this study attempted to investigate whether mindfulness, posttraumatic symptoms, and demographic variables are correlated with posttraumatic growth in a sample of police officers. This goal was achieved by examining self-assessments administered to police officers from numerous police departments in a Midwestern State. This chapter provided an overview of the research questions, null hypotheses, and the research design for the study.

General Research Questions

1. Is posttraumatic growth among law enforcement officers significantly associated with specific job-related demographic factors?
2. Is posttraumatic growth among law enforcement officers significantly associated with trauma-related symptoms?
3. Is posttraumatic growth among law enforcement officers significantly associated with level of mindfulness?

Null Hypotheses

Null hypothesis 1: There is no statistically significant relationship between posttraumatic growth as measured by the Posttraumatic Growth Inventory (PTGI) and specific job-related demographic factors as measured by a demographic questionnaire.

Null hypothesis 2: There is no statistically significant relationship between posttraumatic growth as measured by the Posttraumatic Growth Inventory (PTGI) and trauma-related symptoms as measured by the Impact of Events Scale-Revised.

Null hypothesis 3: There is no statistically significant relationship between posttraumatic growth as measured by the Posttraumatic Growth Inventory (PTGI) and mindfulness as measured by the Kentucky Inventory of Mindfulness Skills (KIMS).

Research Design and Data Analysis

Descriptive statistics were examined for all variables and include means and standard deviations of information gathered from the sample of police officers.

Demographic variables included years of law enforcement experience, total number of traumas experienced, date of last trauma experienced, level of commitment to spiritual growth, and level of commitment to relationship growth. Additional information gathered included types of traumas experienced, age, rank, whether participants received past mental health treatment, assignment (e.g., homicide detective, vice detective), gender, race, number of years of education, relationship status, religious affiliation, and population of the city in which the officer works.

After descriptive statistics were reported for all demographic variables, an exploratory Pearson correlation matrix was conducted in which the Posttraumatic Growth Inventory total score and subscale scores were analyzed to determine if they correlated with the Impact of Events Scale-Revised full scale score, the KIMS full scale and subscale scores, and five demographic variables including total number of traumas, level of effort/commitment to spiritual growth, level of effort/commitment to personal relationship growth, date of last trauma, and years of law enforcement experience. Post-

hoc multiple regressions were run on those items found to be significant with an alpha level of $p < .01$.

Participants and Delimitations

Participants for this study included police officers accessed from city police departments across a Midwestern state. The police agencies used varied in size from approximately 30 to 1,800 officers employed by the department. One hundred eighty-six officers participated in the study. Of the 186 participants, three subjects were eliminated from the study due to a large amount of missing data.

A power analysis showed that with a total of seven independent variables, an alpha level of $p < .05$, and a hypothesized medium effect size, a power of at least .80 would be achieved with 85 participants (Cohen, 1992). The author explains that the power of a statistical test is the probability of rejecting the null hypothesis when the null hypothesis is false. Power should be set at a high level since the researcher is hoping to reject a null hypothesis that is not true and wants at the same time to have a high probability of doing so.

Demographic information was obtained by having the participants fill out the demographic questionnaire. Table 1 displays frequency distributions for demographic variables related to participants. Of the 183 participants in the study regarding current relationship status, 127 (69.4%) were married, 11 (6.0%) were separated, 16 (8.7%) were divorced, 19 (10.4%) were single, and 10 (5.5%) were involved in a committed relationship. One hundred seventy (92.9%) of the participants were male and 13 (7.1%) were female. Age of the participants ranged from 23 to 67 ($M = 37.9$, $SD = 8.4$). Race of the participants included 153 (83.6%) White, 24 (13.1%) African American, 2 (1.1%)

Asian American, 2 (1.1%) American Indian, and 1 (.5%) Other. Number of years of education ranged from 12 to 20 ($M = 14.7$, $SD = 2.0$).

Number of years in law enforcement ranged from 1 to 40 ($M = 12.6$, $SD = 7.8$).

Current rank included 147 (80.3%) patrol officer, 16 (8.7%) sergeant, 7 (3.8%) lieutenant, 3 (1.6%) captain, and 10 (5.5%) detective. Current assignment included 163 (89.1%) patrol, 4 (2.2%) homicide detective, 2 (1.1%) vice detective, 1 (.5%) SWAT, and 13 (7.1%) general detective. Population of the city in which the participants worked as police officers included 70 (38.3%) with 15,000 to 50,000 residents, 12 (6.6%) with 50,000 to 100,000 residents, 62 (33.9%) with 100,000 to 300,000 residents, 4 (2.2%) with 300,000 to 500,000 residents, and 35 (19.1%) with more than 500,000 residents. Thirty-six (19.7%) of the participants received past mental health treatment and 147 (80.3%) have not. Current religious affiliation includes 157 (85.8%) Christian, 1 (.5%) Jewish, 3 (1.6%) Agnostic, 3 (1.6%) Atheist, 16 (8.7%) Spiritual but not Religious, and 3 (1.6%) Other. The number of months since the last traumatic event ranged from less than 1 month to 123 months ($M = 9.1$, $SD = 18.5$).

Table 1

Frequency Distributions for Demographic Variables

Variable	Mean	Standard deviation	Categories	Frequencies	Percent
Gender			Male	170	92.9
			Female	13	7.1
Age	37.9	8.4			
Race			White	153	83.6
			Black	24	13.1
			Asian	2	1.1
			American Indian	2	1.1
			Other	1	.5

Table 1

Frequency Distributions for Demographic Variables (continued)

Variable	Mean	Standard deviation	Categories	Frequencies	Percent
Years of education	14.72	2.0			
Rank			Patrol officer	147	80.3
			Sergeant	16	8.7
			Lieutenant	7	3.8
			Captain	3	1.6
			Detective	10	5.5
Assignment			Patrol	163	89.1
			Homicide det.	4	2.2
			Vice detective	2	1.1
			SWAT	1	.5
			General detective	13	7.1
Population			15,500- 50,000	70	38.3
			50,000-100,000	12	6.6
			100,000-300,000	62	2.2
			300,000-500,000	4	19.1
			More than 500,000	35	
Past mental health treatment			Yes	36	19.7
			No	147	80.3
Relationship status			Married	127	69.4
			Separated	11	6.0
			Divorced	16	8.7
			Single	19	10.4
			Relationship	10	5.5
Religious affiliation			Christian	157	85.8
			Jewish	1	.5
			Agnostic	3	1.6
			Atheist	3	1.6
			Spiritual	16	8.7
			Other	3	1.6

The sample population was delimited to “frontline” police officers and police supervisors, meaning those officers that work primarily in the field, including detectives.

These officers are likely to have experienced more recent work-related traumatic events

than officers that spend the majority of their time working in an office setting. This allows for a diverse sample in terms of age, race, years of law enforcement experience, and greater generalizability of results.

Procedures

Approval was obtained from the Institutional Review Board at The University of Akron to conduct this study. Once granted, the Chief of Police or a senior ranking officer from the target police departments was contacted to ask for permission to recruit police officers for the study during roll call at the beginning of each shift. Target police departments were selected by convenience. The study was introduced to the police officers during roll call. The purpose, procedure, and the fact that participation in the study was voluntary were explained. Only those officers who agreed to participate in the study were given assessments to complete.

The officers were given an informed consent form containing researcher related contact information. This form also included the benefits the research may bring to the law enforcement community as well as describing how the confidentiality of records would be maintained including who would have access to the records. No signatures or identifying information were requested to protect the confidentiality of the respondents. The informed consent sheet stated that the participants would indicate their informed permission to participate in the study by completing the assessment packet.

The officers were requested to not discuss the assessments with other officers until they were finished. The officers completed the assessments at roll call. The finished assessment packets were collected as the officers completed them. In the event the officers did not have sufficient time to complete the assessments at roll call, they were

asked to complete them prior to the end of their shift. In this case, a supervising officer was selected to collect the assessment packet by the end of the shift. The completed assessments were collected from the supervising officer at the end of the shift. For those officers who did not have time to complete the assessments on that day an addressed envelope was provided so the officers could mail the completed assessment packet. The completed assessments were stored in a locked cabinet and inputted data into the Statistical Package for the Social Sciences (SPSS).

Instruments

The Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996), the Kentucky Inventory of Mindfulness Skills (KIMS) (Baer et al., 2004), and the Impact of Events Scale-Revised (IES-R) were the instruments used in this study.

Posttraumatic Growth Inventory

The Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996) is a 21-item survey designed to obtain an overall assessment of positive outcomes following traumatic stress (see Appendix B). The PTGI includes five subscales that include new possibilities, relating to others, personal strength, appreciation for life, and spiritual change. The PTGI was originally developed in 1996 with a 34-item questionnaire. The instrument was administered to approximately 600 college students who experienced significant trauma. Thirteen items from the original questionnaire were removed after a factor analysis was conducted (Finch, 2003).

The PTGI requires a response on a 6-point Likert-scale ranging from “I did not experience this change as a result of my crisis” (scored 0) to “I experienced this change to a very great degree as a result of my crisis” (scored 5). Intermediate scores include to a

very small degree (1), a small degree (2), a moderate degree (3), and a great degree (4). The PTGI yields a total score as well as scores on the five subscales (Tedeschi & Calhoun, 1996). The range of scores on the PTGI is 0 to 105. A score is obtained by summing the scores across all items. Higher scores indicate greater level of PTG (Sheikh & Marotta, 2005). The research participants were asked to answer the items based on their work-related traumatic experiences. "Trauma" was defined on the PTGI as an event in which the individual was confronted with an event that involved actual or threatened death or serious injury, or a threat to self or other's physical well being. Additionally, the event induced fear, helplessness, or horror.

Tedeschi and Calhoun (1996) reported a high Cronbach's alpha coefficient of .90 for the full scale. The subscales showed adequate internal consistency including New Possibilities (.84), Relating to Others (.85), Personal Strength (.72), Spiritual Change (.85), and Appreciation of Life (.67). Test-retest reliability for the full scale was performed over 2 months and was an acceptable $r = .71$. The stability reliability coefficients on the five subscales ranged from $r = .65$ to $r = .74$, except for Personal Strength ($r = .37$) and Appreciation for Life ($r = .47$) subscales. Research supporting the use of the subscale scores is an advantage. This allows for the testing of varying effects on specific growth domains as related to variables such as type of stressor and length of time since the stressor occurred (Tedeschi, Park, & Calhoun, 1998).

Reliability statistics for the PTGI administered in this study were satisfactory. Cronbach's Alpha = .96 for the full scale, .80 for the Personal Strength subscale, .90 for the Relating to Others subscale, .87 for the New Possibilities subscale, .82 for the Appreciation for Life subscale, and .91 for the Spiritual Change subscale. A Pearson

Correlation Coefficients matrix showed the full scale score and all subscale scores to be significantly correlated with each other at $p < .01$.

Kentucky Inventory of Mindfulness Skills

The Kentucky Inventory of Mindfulness Skills (KIMS) (Baer et al., 2004) measures a general tendency to be mindful in everyday life, is designed to be understandable to general and clinical populations, and measures several components of mindfulness (see Appendix C). The KIMS is a 39-item instrument developed to measure four facets of mindfulness including observing, describing, acting with awareness, and accepting without judgment. Items are measured on a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (almost always or always true) (Baer et al., 2004). Some of the items on the KIMS are reverse-scored. Higher scores indicate higher mindfulness. Scoring for the KIMS is not classified into groups such as low, moderate, or high levels of mindfulness (R.A. Baer, personal communication, May 5, 2007).

Initial components for the KIMS were identified from published descriptions by researchers in psychology, stress reduction, and mindfulness teachers in the Buddhist tradition. Preliminary portions of the inventory were sampled with college students. Internal consistency analysis and inter-item correlations culminated in an initial 77-item assessment and finally a 39-item assessment (Baer et al., 2004).

Content validity testing was supported using expert raters who found the items to be well written representations of mindfulness skills. Internal consistency reliability estimates ranged from .76 to .91 for the four subscales. Exploratory and confirmatory factor analyses supported the four-factor structure, and expected correlations with a variety of other constructs were obtained. Adequate to good test-retest reliability scores

were found with the subscales: Observe at .65, Describe at .81, Acting with Awareness at .86, and Accepting without Judgment at .83. Construct validity was supported by the expected relationships with other constructs to be significant. For example, mindfulness was found to be differentially related to aspects of personality and mental health including neuroticism, psychological symptoms, emotional intelligence, alexithymia, experiential avoidance, dissociation, and absorption (Baer et al., 2004).

Reliability statistics for the KIMS administered in this study, except for the Act with Awareness subscale, were satisfactory. Cronbach's alpha = .73 for the full scale, .86 for the Observe subscale, .80 for the Describe subscale, .88 for the Accept without Judgment subscale, and .66 for the Act with Awareness subscale. A Pearson Correlation Coefficients matrix showed most of the KIMS full scale score and subscale scores to be significantly correlated with each other at $p < .01$. An exception includes the Describe subscale which was not significantly correlated to the Act with Awareness subscale and the Accept without Judgment subscale.

Impact of Events Scale-Revised

The Impact of Events Scale-Revised (IES-R) is a 22-item self-report survey designed to measure subjective distress after experiencing a traumatic event (attached to Demographic Questionnaire; see Appendix A). The original Impact of Event Scale was a 15-item questionnaire that tapped the intrusion and avoidance clusters of symptoms. The IES-R was designed to include the assessment of hyperarousal symptoms. The IES-R assesses hyperarousal, intrusion, and avoidance symptoms that parallel the DSM-IV criteria for PTSD. Numerous studies have shown robust reliabilities for the IES-R (Morris et al., 2005).

Respondents were asked to rate each item in the IES-R on a scale of 0 (not at all), 1 (a little bit), 2 (moderately), 3 (quite a bit), and 4 (extremely) according to the past 7 days. The hyperarousal subscale has good predictive validity in regards to trauma. The avoidance and intrusion subscales have been shown to detect change in respondents' clinical status over time. In regards to content validity, the intrusion and avoidance subscales had high endorsements of up to 85%. Content validity has not been determined with the hyperarousal subscale. Internal consistency of the subscales were found to be high with intrusion alphas ranging from .87 to .92, avoidance alphas ranging from .84 to .86, and hyperarousal alphas ranging from .79 to .90. The IES-R full scale score is achieved by summing the subscale scores. Higher scores indicate higher levels of posttraumatic distress (Weiss & Marmar, 1997). Reliability statistics for the IES-R scale utilized in this study were satisfactory. Cronbach's alpha was .95 for the total score in this study.

Demographic Questionnaire

A demographic questionnaire (see Appendix A) was used to gather information. Questions 1 and 2 on the questionnaire asked for age and gender. Question 3 asked for race including White, Black, Hispanic, Asian American, American Indian, and other. Question 4 asked for number of years of education. Question 5 asked for number of years in law enforcement. Question 6 asked for current rank. Question 7 asked for job assignment. Question 8 asked for population of the city in which the respondent works as a police officer. Choices provided include populations below 15,000, 15,000 to 50,000, 50,000 to 100,000, 100,000 to 300,000, 300,000 to 500,000, and more than 500,000. Question 9 asked the respondent if he has ever received past mental health treatment.

Questions 10 asked for current relationship status including married, separated, divorced, single, widowed, and involved in a committed relationship.

Question 11 asked for amount of time/effort spent on growth and commitment in personal relationships on a scale from 0 to 10. Question 12 asked for current religious affiliation including Christian, Jewish, Muslim, Hindu, Agnostic, Atheist, spiritual but not religious, and other. Question 13 asked for amount of time/effort spent on spiritual growth and commitment on a scale of 0 to 10. Question 14 asked for the number of times the officer has experienced events including officer-involved shooting, being accidentally and severely injured while on duty, being seriously injured during an assault, seeing scene(s) involving terrible injury or death, recovering or handling dead bodies, hostage situations, incident involving threat or harm to children, and other. Question 15 asked for the month and year of the most recent event listed in question 14.

Question 16 asked the respondent to complete the IES-R regarding the most recent event listed in question 15 or the event that is currently causing the respondent the most distress. Reliability statistics for the IES-R scale utilized in this study were satisfactory. Cronbach's alpha was .95 for the total score in this study.

Summary of Methodology

The purpose of this research study was to examine the relationship between mindfulness and posttraumatic growth in law enforcement officers. Participants included police officers from city police departments in a Midwestern state. The officers completed the Kentucky Inventory of Mindfulness Skills (KIMS), the Posttraumatic Growth Inventory (PTGI), the Impact of Events Scale-Revised (IES-R), and a demographic questionnaire. Demographic information gathered included age, gender,

race, number of years of education, number of years in law enforcement, current rank, job title, previous mental health treatment, relationship status, number of previous marriages, religious affiliation, amount of effort put forth towards spiritual growth, amount of effort put forth towards growth in personal relationships, number of work-related traumas experienced, approximate date of the traumas, and type of the traumas. A correlation matrix was utilized to find significant correlations between hypothesis variables. Post hoc multiple regression analyses were used to test the relationship between factors found to be significant at $p < .01$.

CHAPTER IV

RESULTS

This chapter presented the results of the study. The chapter is organized into three sections: pre-analysis data screening, descriptive statistics, and inferential statistics. The pre-analysis data screening section tested for missing data. The descriptive statistics portion displayed frequency distributions for participants' demographic variables. Inferential statistics were utilized to test the research hypotheses. This chapter concluded with a summary of the results.

Pre-Analysis Data Screening

Before descriptive and inferential statistics were analyzed, pre-analysis data screenings were conducted in order to help ensure the accuracy and validity of the data. Although it was found that several subjects had significant amounts of missing data, these accounted for less than 5% of cases and were determined to be random in nature. Three cases were found to be missing a large amount of data and were eliminated from the study. Therefore, the new sample size was 183. For other subjects who had missing data, the missing values were estimated by calculation of the means using available data. The mean values were used to replace the missing data. Calculating the means is an appropriate method of handling missing data when the missing data are random in nature (Mertler & Vannatta, 2002).

Descriptive Statistics

Five demographic factors were utilized as independent variables and included total number of traumas, effort put forth towards spiritual growth and commitment, effort put forth towards growth and commitment in personal relationships, number of months since last traumatic experience, and number of years in law enforcement. The Kentucky Inventory of Mindfulness Skills (KIMS) full scale and subscale scores and the Impact of Events Scale-Revised (IES-R) full scale score were also included as variables. The Posttraumatic Growth Inventory (PTGI) full scale and subscale scores were included as dependent variables. Table 2 displays frequency distributions for independent and dependent variables in this study.

Table 2

Frequency Distributions for Independent and Dependent Variables

Variable	Mean	Standard deviation	Categories	Frequencies	Percent
Effort towards growth of personal relationships	6.8	2.2	No effort	2	1.1
			1	2	1.1
			2	4	2.2
			3	5	2.7
			4	13	7.1
			Moderate Effort	28	15.3
			6	16	8.7
			7	35	19.1
			8	35	19.1
			9	14	7.7
Ongoing Effort	29	15.8			

Table 2

Frequency Distributions for Independent and Dependent Variables (continued)

Variable	Mean	Standard deviation	Categories	Frequencies	Percent
Effort towards spiritual growth	4.1	2.8	No Effort	13	7.1
			1	25	13.7
			2	20	10.9
			3	29	15.
			4	23	12.6
			Moderate Effort	25	13.7
			6	3	1.6
			7	15	8.2
			8	13	7.1
			9	7	3.8
		Ongoing Effort	10	5.5	
Years in law enforcement	12.6	7.8			
Total number of traumas	124.2	189.2			
Number of months since last traumatic event	9.2	18.6			
Posttraumatic Growth Inventory (PTGI) full scale (1-6 scale)	2.9	1.1			
Appreciation for Life subscale	3.6	1.4			
New Possibilities subscale	2.4	1.2			

Table 2

Frequency Distributions for Independent and Dependent Variables (continued)

Variable	Mean	Standard deviation	Categories	Frequencies	Percent
Personal Strength subscale	3.3	1.3			
Spiritual Change subscale	2.6	1.6			
Relating to Others subscale	2.7	1.2			
Kentucky Inventory of Mindfulness scale (KIMS) (1-5 scale)	3.2	.31			
Observe subscale	2.4	.67			
Describe subscale	3.4	.67			
Act with Awareness subscale	3.2	.51			
Accept without Judgment subscale	3.8	.72			
Impact of Events scale (0-4 scale)	.76	.73			

As noted in Table 2, the PTGI full scale has a mean score of 2.9. The PTGI scores ranged from 1 to 6 with 1 experiencing no growth changes and 6 experiencing growth to a very great degree. Higher scores indicated a greater level of posttraumatic growth The

Appreciation for Life subscale, among the PTGI subscales, received the highest score with a mean of 3.6, and the New Possibilities subscale displayed the lowest of the subscale scores with a mean of 2.4.

The KIMS full scale score has a mean score of 3.2. The KIMS scores ranged from 1 to 5. Higher scores indicated a greater level of mindfulness. The Accept without Judgment subscale received the highest mean score, among the KIMS subscale scores, of 3.8, and the Observe subscale had the lowest mean score of 2.4. The Impact of Events full scale had a mean score of .76. The scores on the Impact of Events assessment ranged from 0 to 4. Higher scores indicated greater levels of current posttraumatic distress.

Inferential Statistics

This section reviewed the inferential statistical results as well as the findings in table form. The first phase of the data analysis procedure for inferential statistics involved generating a Pearson Correlation Coefficient matrix in order to determine the relationship among the variables for the three hypotheses. An initial alpha level of .05 was chosen to determine the significance of statistical results. Due to the number of Pearson correlations used in this study, it was determined that a Bonferroni correction was necessary before reporting results. Although many of the Pearson correlations shown in Appendix E did not directly relate to the research questions posed, a total of 136 individual Pearson correlations were conducted. Therefore, a Bonferroni corrected alpha level would have been less than .00001. Given that the Pearson correlations conducted in this study were done for exploratory purposes, this Bonferroni corrected alpha level was abandoned in favor of a conservative alpha level of .01. An alpha level of .01 was used only for the results of Pearson correlations. A follow-up multiple regression was conducted to

determine which statistically significantly ($p < .01$) correlated independent variables predicted posttraumatic growth. For the multiple regression analysis, an alpha level of .05 was used to determine statistical significance.

Appendix E displays the Pearson Correlation Coefficient Matrix for all of the independent and dependent variables. Significant correlations include total number of traumas and number of years in law enforcement ($r = .282, p < .01$), effort towards relationship growth and effort towards spiritual growth ($r = .445, p < .01$), effort towards relationship growth and the KIMS full scale score ($r = .249, p < .01$), the Describe subscale score ($r = .173, p < .05$), the Act with Awareness subscale score ($r = .158, p < .05$), and the Impact of Events full scale score ($r = -.168, p < .05$). Effort towards spiritual growth was correlated with the KIMS full scale score ($r = .175, p < .05$), the Observe subscale score ($r = .164, p < .05$), and the Describe subscale score ($r = .189, p < .05$). The Impact of Events full scale score was significantly correlated with the KIMS full scale score ($r = -.327, p < .05$), the Observe subscale score ($r = .293, p < .05$), the Describe subscale score ($r = -.161, p < .05$), the Act with Awareness subscale score ($r = -.262, p < .05$), and the Accept without Judgment subscale score ($r = -.527, p < .05$). The correlations for the hypotheses variables are discussed below.

Results Related to Hypothesis 1

Table 3 displays the Pearson Correlation Coefficient matrix for the five demographic factors included as independent variables in Hypothesis 1. The dependent variables include the Posttraumatic Growth Inventory (PTGI) full scale and subscale scores. The five demographic variables include total number of traumas, number of years

in law enforcement, number of months since last traumatic event, effort put forth towards growth in personal relationships, and effort put forth towards spiritual growth.

Table 3

Pearson Correlation Coefficients Matrix for Hypothesis 1

Independent variables	Dependent Variables					
	PTGI full scale	Appreciation for Life subscale	New Possibilities subscale	Personal Strength subscale	Spiritual Change subscale	Relating to Others subscale
Total number of traumas	.131	.048	.153*	.142	.107	.123
Number of years in law enforcement	.099	-.029	.180*	.078	.127	.079
Effort towards spiritual growth	.356**	.262**	.196**	.186*	.559**	.256**
Effort towards relationship growth	.212**	.170*	.132	.123	.214**	.268**
Number of months since last trauma	-.063	-.090	.009	-.058	-.068	-.052

Note. ** $p < .01$

* $p < .05$

The total number of traumas was significantly related to the New Possibilities subscale ($r = .153, p < .05$). The number of years in law enforcement was also significantly related to the New Possibilities subscale ($r = .180, p < .05$). Effort put forth towards spiritual growth was found to be significantly related to the PTGI full scale ($r = .356, p < .01$), the Appreciation for Life subscale ($r = .262, p < .01$), the New Possibilities

subscale ($r = .196, p < .01$), the Personal Strength subscale ($r = .186, p < .05$), the Spiritual Change subscale ($r = .559, p < .01$), and the Relating to Others subscale ($r = .256, p < .01$). Effort put forth towards relationship growth was significantly related to the PTGI full scale score ($r = .212, p < .01$), the Spiritual Change subscale ($r = .214, p < .01$), and the Relating to Others subscale ($r = .268, p < .01$).

Results Related to Hypothesis 2

Table 4 displays the Pearson Correlation Coefficient matrix for Hypothesis 2. The independent variable includes the Impact of Events full scale score. The dependent variables include the PTGI full scale and subscale scores. The Impact of Events full scale was found to be significantly related to the PTGI full scale score ($r = .267, p < .01$), the Appreciation for Life subscale score ($r = .360, p < .01$), the New Possibilities subscale score ($r = .193, p < .01$), the Personal Strength subscale score ($r = .232, p < .01$), the Spiritual Change subscale score ($r = .198, p < .01$), and the Relating to Others subscale score ($r = .148, p < .05$).

Table 4

Pearson Correlation Coefficients Matrix for Hypothesis 2

Independent variables	Dependent Variables					
	PTGI full scale	Appreciation for Life subscale	New Possibilities subscale	Personal Strength subscale	Spiritual Change subscale	Relating to Others subscale
Impact of Events scale (full scale)	.267**	.360**	.193**	.232**	.198**	.148*

Note. ** $p < .01$

* $p < .05$

Results Related to Hypothesis 3

Table 5 displays the Pearson Correlation Coefficient Matrix variables for Hypothesis 3. The independent variables include the Kentucky Inventory of Mindfulness Skills (KIMS) full scale and subscale scores. The dependent variables include the PTGI full scale and subscale scores. The KIMS full scale score was not significantly related to any of the dependent variables. The KIMS Act with Awareness subscale score was also not significantly related to any of the dependent variables. However, the KIMS Observe subscale was significantly related to all of the dependent variables including the PTGI full scale score ($r = .274, p < .01$), the Appreciation for Life subscale score ($r = .228, p < .01$), the New Possibilities subscale score ($r = .270, p < .01$), the Personal Growth subscale score ($r = .230, p < .01$), the Spiritual Change subscale score ($r = .234, p < .01$), and the Relating to Others subscale score ($r = .218, p < .01$).

The KIMS Accept without Judgment subscale score was significantly negatively related to all of the dependent variables including the PTGI full scale score ($r = -.300, p < .01$), the Appreciation for Life subscale score ($r = -.313, p < .01$), the New Possibilities subscale score ($r = -.233, p < .01$), the Personal Strength subscale score ($r = -.306, p < .01$), the Spiritual Change subscale score ($r = -.229, p < .01$), and the Relating to Others subscale score ($r = -.198, p < .01$). The KIMS Describe subscale score was significantly related to the PTGI full scale score ($r = .158, p < .05$), the New Possibilities subscale score ($r = .154, p < .05$), and the Relating to Others subscale score ($r = .175, p < .05$).

Table 5

Pearson Correlation Coefficients Matrix for Hypothesis 3

Independent variables	Dependent Variables					
	PTGI full scale	Appreciation for Life subscale	New Possibilities subscale	Personal Strength subscale	Spiritual Change subscale	Relating to Others subscale
KIMS full scale	.028	-.030	.066	-.035	.024	.113
Observe subscale	.274**	.228**	.270**	.230**	.234**	.218**
Describe subscale	.158*	.102	.154*	.127	.127	.175*
Act with Awareness subscale	-.077	-.073	-.065	-.131	-.094	.046
Accept without Judgment subscale	-.300**	-.313**	-.233**	-.306**	-.229**	-.198**

Note. ** $p < .01$

* $p < .05$

As exploratory follow-up analyses, Pearson correlations were conducted related to the relationship between age and the PTGI full scale ($r = .047$), the Appreciation for Life subscale ($r = -.060$), the New Possibilities subscale ($r = .141$), the Personal Strength subscale ($r = .035$), the Spiritual Change subscale ($r = .061$), and the Relating to Others subscale ($r = .038$). The accumulation of life experiences that result from aging may alter how subjects view and respond to trauma. Thus, the possibility exists that participants who are older may for various reasons experience increased posttraumatic growth compared to younger participants. The results, however, indicated age is not significantly

correlated with the PTGI full scale and subscale scores. Therefore, age was not included as an independent variable in additional inferential analyses.

Summary of Results Related to Hypotheses 1, 2, and 3

Hypothesis 1 was not supported in this study. The relationship between the dependent variables including the Posttraumatic Growth Inventory (PTGI) and five demographic variables including total number of traumas, number of years in law enforcement, number of months since last traumatic event, effort put forth towards growth in personal relationships, and effort put forth towards spiritual growth were examined. Effort put forth towards spiritual growth was found to be significantly related to the PTGI full scale, the Appreciation for Life subscale, the New Possibilities subscale, the Personal Strength subscale, the Spiritual Change subscale, and the Relating to Others subscale. Effort put forth towards relationship growth was significantly related to the PTGI full scale score, the Spiritual Change subscale, and the Relating to Others subscale.

Hypothesis 2 was not supported in this study. The independent variable includes the Impact of Events-Revised full scale score. The dependent variables include the PTGI full scale and subscale scores. The Impact of Events full score was found to be significantly related to the PTGI full scale score and all subscale scores.

Hypothesis 3 was also not supported in this study. The independent variables included the Kentucky Inventory of Mindfulness Skills (KIMS) full scale and subscale scores. The dependent variables included the PTGI full scale and subscale scores. The KIMS Observe subscale was significantly positively related to all of the dependent variables. The KIMS Accept without Judgment subscale score was significantly negatively related to all of the dependent variables

Exploratory Inferential Statistics

In order to investigate the amount of variance that certain independent variables contributed to the prediction of PTG, an exploratory follow-up standard multiple regression was conducted. All independent variables that were found previously to be statistically significantly correlated with the dependent variable (i.e., PTGI full scale score) at a $p < .01$ level of significance were included in the multiple regression analysis. These independent variables were effort towards spiritual growth, effort towards relationship growth, Impact of Events Scale-Revised full scale score, KIMS Observe subscale score, and the KIMS Accept without Judgment subscale score. Results indicated that the overall model accounts for 24.1% of variance in posttraumatic growth (i.e., PTGI total score), $R^2 = .241$, $R^2_{adj} = .219$, $F(5,172) = 10.94$, $p < .001$. A summary of regression coefficients is presented in Table 6 and indicates that three of the seven variables (i.e., Impact of Events Scale-Revised full scale score, effort towards spiritual growth, and effort towards relationship growth) significantly contributed to the model.

Finally, in order to gain information about a model that may help in the prediction of PTG, an exploratory follow-up stepwise multiple regression analysis was also conducted. The same independent variables (i.e., effort towards spiritual growth, effort towards relationship growth, IES-R full scale score, KIMS Observe subscale score, and the KIMS Accept without Judgment subscale score) were included in the analysis to determine if these variables made meaningful contributions to the overall prediction of

Table 6

Summary of Standard Multiple Regression Analysis

Variable	B	β	<i>t</i>	<i>p</i>
(Constant)	2.381		3.082	.002
KIMS Observe subscale	.141	.087	1.085	.279
KIMS Accept without Judgment subscale	-.253	-.165	-1.840	.067
Impact of Events full scale	.254	.166	2.118	.036*
Effort towards relationship growth	.076	.157	2.068	.040*
Effort towards spiritual growth	.099	.254	3.387	.001*

Note. Predictors: (Constant), Effort towards spiritual growth, Effort towards religious growth, Impact of Event full scale score, KIMS Observe subscale score, KIMS Accept without Judgment subscale score

* $p < .05$

the dependent variable (i.e., PTGI full scale score). Table 7 displays the results of the stepwise regression. Results showed that effort towards spiritual growth and the PTGI Accept without Judgment subscale were the only two variables included in the final model $R^2 = .198$, $R^2_{adj} = .189$, $F(2, 175) = 21.65$, $p < .001$.

Table 7

Summary of Stepwise Regression Analysis for Variables Predicting Posttraumatic Growth

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	Sig.
Step 1					
(Constant)	2.284	.138		16.6	.000
Effort towards spiritual growth	.139	.027	.357	5.1	.000
Step 2					
(Constant)	3.929	.438		9.0	.000
Effort towards spiritual growth	.129	.026	.331	4.9	.000
Accept without Judgment subscale	-.412	.105	-.268	-3.9	.000

Note. a. Predictors: (Constant), effort towards spiritual growth

b. Predictors: (Constant), effort towards spiritual growth, Accept without Judgment subscale.

Summary of Results

Hypotheses 1, 2, and 3 were not supported in this study. For hypothesis 1, effort put forth towards spiritual growth was found to be significantly related to the Posttraumatic Growth Inventory (PTGI) full scale, the Appreciation for Life subscale, the New Possibilities subscale, the Personal Strength subscale, the Spiritual Change subscale, and the Relating to Others subscale. Effort put forth towards relationship growth was significantly related to the PTGI full scale score, the Spiritual Change subscale, and the Relating to Others subscale.

Hypothesis 2 was not supported in this study. Posttraumatic distress as measured by the Impact of Events-Revised full score was found to be significantly related to the PTGI full scale score and all subscale scores. Hypothesis 3 was also not supported in this study. The Kentucky Inventory of Mindfulness Skills (KIMS) Observe subscale was significantly positively related to the PTGI full scale and all subscale scores. The KIMS Accept without Judgment subscale score was significantly negatively related to the PTGI full scale and all subscale scores.

In order to investigate the amount of variance that certain independent variables contributed to the prediction of PTG, an exploratory follow-up standard multiple regression was conducted. All independent variables that were found previously to be statistically significantly correlated with the dependent variable (i.e., PTGI full scale score at a $p < .01$ level of significance) were included in the multiple regression analysis. The Impact of Events Scale-Revised full scale score, effort towards spiritual growth, and effort towards relationship growth significantly contributed to the model.

An exploratory follow-up stepwise multiple regression analysis was also conducted. Results showed that effort towards spiritual growth and the PTGI Accept without Judgment subscale were the only two variables included in the final model. These results may have important implications for theory, counseling education and supervision, and clinical practice.

CHAPTER V

DISCUSSION

This chapter discusses the results of the study. This chapter is organized into four sections: descriptive summary and interpretation of statistical results, discussion of results compared to related research and theory, implications of results applied to counselor education/supervision and clinical practice, and limitations of study and recommendations for future research.

Descriptive Summary and Interpretation of Statistical Results

The present study was designed to examine mindfulness, posttraumatic distress symptoms, and demographic variables as they related to posttraumatic growth among police officers. Most participants in this study were male, white, married, and assigned to patrol duty. A wide range of ages and number of years in law enforcement were represented in the sample. This sample appeared to be generalizable to white, male, city patrol officers.

Correlation analyses were used to examine the relationship among the variables which included mindfulness, posttraumatic symptoms, and demographic variables as they related to posttraumatic growth. Correlations were considered significant with an alpha level of $p < .01$. The demographic variables included total number of traumas, number of years in law enforcement, number of months since the last traumatic experience, effort put forth towards spiritual growth, and effort put forth towards relationship growth.

Among these, amount of effort put forth towards spiritual growth was significantly positively related to the PTGI full scale and all of the subscales except for the Personal Strength subscale. Amount of effort put forth towards relationship growth was significantly positively related to the PTGI full scale score and the Personal Strength and Spiritual Change subscales. Total number of traumas, number of years in law enforcement, and number of months since the last traumatic experience were not significantly related to the PTGI full scale or subscale scores.

Posttraumatic distress as measured by the Impact of Events-Revised full scale score was significantly positively related to the PTGI full scale and all of the subscale scores. The results also revealed that KIMS full scale was not significantly related to the PTGI full scale or the subscale scores. However, the KIMS Observe subscale was significantly positively correlated with the PTGI full scale and all of the subscales. The KIMS Accept Judgment subscale was significantly negatively correlated to the PTGI full scale and all of the subscales.

Those variable that were found to be significant were entered into a standard and stepwise multiple regression analysis to determine statistical significance. Results of the standard multiple regression showed that increased posttraumatic symptoms as measured by the Impact of Events Scale- Revised (IES-R), amount of effort put forth towards relationship growth, and amount of effort put forth towards spiritual growth are all important factors which independently positively correlated with posttraumatic growth in police officers. Specifically, amount of effort put forth towards spiritual growth was shown to be the most strongly associated variable related to posttraumatic growth.

Results of the stepwise multiple regression analysis indicated that a two-factor model including (1) a greater amount of effort put forth towards spiritual growth and (2) a greater amount of judgment was in general the most significant model predicting increased posttraumatic growth. Based on the results reported above, hypothesis 1 was not supported, hypothesis 2 was not supported, and hypothesis 3 was also not supported.

Results Compared to Past Research

For hypothesis 1, the most significant finding was that the amount of effort put forth towards spiritual growth and development was most significantly related to the PTGI full scale and subscale scores except the Personal Strength subscale. This finding was consistent with research conducted by Laufer and Soloman (2006) that found religiosity to be strongly associated with posttraumatic growth among Israeli youth exposed to terror incidents. Linley and Joseph (2004), in a review of empirical studies, also found that religious activities and intrinsic religiousness to be positively associated with posttraumatic growth. Similarly, Shaw, Joseph, and Lindley (2005) also reviewed published literature examining links between religion, spirituality, and PTG. The authors reported three main findings. The first that religion and spirituality are often, but not always, beneficial to people in dealing with traumatic experiences. Second, that traumatic experiences can lead to a deepening of religion or spirituality. Third, that positive religious coping, religious openness, readiness to face existential questions, religious participation, and intrinsic religiousness are typically associated with PTG.

Calhoun et al. (2000) studied domains of cognitive processing including rumination, a quest orientation to religious beliefs, and religious participation as

predictors of PTG. Religious participation was measured by asking respondents how often they attend religious services, if they are currently attending religious services, and how important religion was in their lives. While general religious participation did not predict growth in this study, openness to religious change was found to facilitate PTG. The authors contend that significant thinking about meaning and significance of the event is conducive to PTG.

The amount of effort put forth towards personal relationship growth was significantly related to the PTGI full scale, the Spiritual Change subscale, and the Relating to Others subscale. Enhanced communication skills played a role in the relationship between PTG and effort towards relationships growth (Tedeschi & Calhoun, 1996). Cordova, Cunningham, Carlson, and Androykowski (2001) found that cognitive processing appeared to be inhibited, resulting in reduced PTG, in cancer patients whose families and friends did not wish to discuss their illness. The authors noted that self-disclosure in supportive environments may aid in the cognitive processing of trauma into growth, especially when self-disclosure in supportive environments remains stable and consistent over time.

Total number of traumas experienced, number of years in law enforcement, age, and number of months since last traumatic event were not significantly related to PTG in this study. These results are in contrast to a study conducted by Finch (2003) that found age and number of years in law enforcement were positively significantly related to PTG as measured by the PTGI in law enforcement officers. Past research has found that time since the trauma occurred was positively correlated with PTG (Cordova et al., 2001) The authors believed more opportunities to engage in cognitive, affective, and interpersonal

processes that promote growth occur with increased time. The findings of the present study did not necessarily contradict the findings of past research. Police officers, as was supported by this study, experience many traumatic situations throughout their career. The mean score in this study for total number of traumatic experiences during career was 124. This study recorded length of time since the last traumatic event only and not those that may have caused more initial or current distress. Growth recorded may have occurred from traumatic experiences that occurred many years ago, allowing sufficient time for processing to occur. It must be noted that other researchers (e.g., Morris et al., 2005) did not find a significant correlation between overall levels of PTG and length of time since the traumatic event in undergraduate Australian students while examining the multidimensionality of PTG. Number of years since the traumatic event ranged from 0 to 35 years in the study.

Also contrary to past research that has suggested those who experience more traumatic events experience more growth and benefits (Cordova et al., 2001; Helgeson et al., 2006; Laufer & Soloman, 2006), this study did not find total number of traumas experienced to be related to PTG. Based on this finding, it was not surprising that number of years in law enforcement was also not related to PTG, as total number of traumas and number of years in law enforcement were significantly correlated in this study ($r = .282$, $p < .01$). While many studies support the theory of PTG in the context of a single traumatic event, additional research is needed to explore if, when, and how the process of PTG occurs for persons experiencing repeated threats (Sattler, Glower, Van Male, Zetino & Vega, 2006).

Hypothesis 2 was not supported in this study. Distress as measured by the Impact of Events Scale was significantly positively correlated with the PTGI full scale and all subscale scores. Although some past studies have found no significant positive relationship between distress and PTG (Tedeschi & Calhoun, 2004), the finding of this study was consistent with other research that found a significant positive relationship between distress and PTG. For example, Laufer and Soloman (2006) reported a positive correlation between posttraumatic symptoms and PTG among Israeli youth exposed to terror incidents. Linley and Joseph (2006) in a sample of disaster workers indicated that PTG was associated with subjective appraisals of fear, helplessness, horror, and cognitive intrusions. Helgeson et al. (2006) found that benefit finding, or posttraumatic growth, was related to intrusive and avoidant thoughts:

Experiencing intrusive thoughts about a stressor may be a signal that people are working through the implications of the stressor for their lives, and those implications could lead to growth. In fact, some might argue that a period of contemplation and consideration of the stressor is necessary for growth to occur. (Helgeson et al., 2006, p. 810)

Researchers suggested that intrusive thoughts about a traumatic event may be indicators of cognitive processing (Park & Helgeson, 2006; Pryzgod, 2005; Updegraff & Marshall, 2005). During the early stages of trauma, cognitive processing likely occurs automatically in the form of intrusive thoughts, images, and negative intrusive ruminations. Disengagement from previous assumptions occurs as it becomes clear past views no longer apply, leading to new ways of looking at the world. The period of time in which distress persists may be required for the maximum degree of PTG to develop. Quick recovery from the traumatic event may prevent cognitive processing of the

experience to occur, allowing for the assumptive world of the individual to remain the same as before the trauma (Tedeschi & Calhoun, 2004).

The Tedeschi and Calhoun model of PTG does not predict PTG being accompanied by a reduction in distress (Tedeschi & Calhoun, 2004). Growth and psychological distress may be two independent dimensions of well-being instead of opposites (Park & Helgeson, 2006). In a meta-analysis by Park and Helgeson (2006) growth may have been a response to distress, whereas in other studies, growth may have led to a reduction in distress, and in still other studies, growth and well-being may have been independent outcomes. Posttraumatic growth was most reported when at least two years had passed since the trauma.

Hypothesis 3 was not supported in this study. The KIMS Observe subscale was significantly positively correlated with the PTGI full scale and all subscale scores and the KIMS Accept without Judgment was significantly negatively related to the PTGI full scale and all subscale scores. The negative correlation between the Accept without Judgment subscale of the KIMS and the PTGI full scale and subscale scores appears to not support hypothesis 3. This finding, however, did support the findings of past research that substantial cognitive processing and a change in world assumptions and schemas are required for PTG to occur (Tedeschi & Calhoun, 2004). That is, accepting without judgment, as measured by the Kentucky Inventory of Mindfulness Skills, includes items involving the act of making judgments or evaluations and common examples of judgment or self-criticism about one's experiences. Acceptance without judgment is a state of accepting, allowing, or being non-judgmental, or non-evaluative about what is being experienced in the present. This skill involves accepting the experience without

immediately rushing to change or eliminate what is being experienced (Baer et al., 2004). However, evaluation and appraisal may be necessary to change world assumptions and allow PTG to occur (Tedeschi & Calhoun, 2004).

Linley and Joseph (2004), in a review of empirical studies, found cognitive appraisal variables including awareness and controllability of the event to be generally associated with increased growth following traumatic experiences. Pryzgoda (2005) found that reappraisal, as well as social support and subjective level of distress were positively related to PTG. While negative thinking about events indicates lower acceptance without judgment, Calhoun et al. (2000) found negative rumination or self-punitive thoughts may produce aversive psychological consequences and stunt the development of PTG. On the other hand, Park, Cohen, and Murch (1996) found that positive reappraisal was significantly positively correlated with reported personal growth. Positive reappraisal may therefore be crucial for successful adaptation to traumatic events and could be required for personal growth to occur (Calhoun & Tedeschi, 1998b). Re-appraisal and evaluation even when positive, indicates low acceptance without judgment, possibly explaining the negative correlation between the PTGI scores and the KIMS Accept without Judgment subscale found in this study.

Implications for Theory

Mindfulness is a multifaceted concept. Facets examined by the Kentucky Inventory of Mindfulness Skills (KIMS) subscales included observe, describe, act with awareness, and accept without judgment (Baer et al., 2004). Based on the results of this study, some aspects of mindfulness appear to be related to the development of PTG, while other components appear to be counterproductive to PTG. The KIMS Observe

subscale was significantly positively related to PTG in this study. This result indicated that observing, noticing, or attending to a variety of stimuli may be necessary for the occurrence of, or at least related to, PTG. Attention is the core of mindfulness and includes observing one's moment to moment internal and external experiences (Shapiro et al., 2006). According to the authors, repeated observation of aversive thoughts and feelings may function as exposure to the experience leading to reduced emotional reactivity and fewer maladaptive escape and avoidance behaviors. A reduction in the avoidance of the traumatic memory may allow for the cognitive processing of the life-altering event to occur. The finding in this study of increased observation being positively related to PTG is consistent with the Tedeschi and Calhoun (2004) model of posttraumatic growth.

During the process of PTG development, basic assumptions held prior to the traumatic experience are abandoned as attempts to build new schemas, goals, and meaning are made. This occurs because the prior basic assumptions cannot accommodate the reality presented by the traumatic experience; thus new goals and worldviews are formulated to compensate for the change in perspectives. This is part of the cognitive process that leads to PTG (Tedeschi & Calhoun, 2004). Increased attention towards, and observation of, the traumatic memory is theoretically necessary for the revision of schemas that allows PTG to occur.

Theoretical models of posttraumatic cognitive processing have explicitly suggested that the more an individual ruminates, "chews the cud," about what happened, actively thinking about the circumstances and ways to make sense out of them, the more likely it is that posttraumatic growth will be experienced. (Calhoun et al., 2000, p. 522)

The finding in this study that acceptance without judgment was negatively correlated with PTG was also consistent with the Tedeschi and Calhoun (2004) model of posttraumatic growth. Accepting that a traumatic event occurred is proposed to be an important factor in the development of PTG and acceptance coping has been positively related to PTG (Zoellner & Maercker, 2006). However, acceptance without evaluation may not produce sufficient cognitive processing of the event. According to the Calhoun and Tedeschi (1998a) model of PTG, accepting or focusing on emotions surrounding the trauma alone is not enough. Deliberate cognitive processing of the event is crucial to growth outcomes. Acceptance, in the mindfulness tradition, involves taking a mindset of nonjudgmental awareness and welcoming the experience of thoughts, feelings, and bodily sensations as they occur, regardless if they are positive or negative in nature. Clients are taught to relinquish attempts to change or alter what is being experienced. In this way, control is considered part of the problem and not the solution (Hayes & Strosahl, 2004).

However, possessing a sense of, and exerting control regarding the traumatic experience may facilitate the development of PTG. Those who manage crises utilizing approach coping appear to experience far more PTG than those using avoidance coping (Schaefer & Moos, 1998). Approach coping involves trying to analyze the crisis in a logical way, reappraising the crisis in a more positive light, seeking support, and taking actions to solve the problems. In contrast, avoidance coping includes trying to minimize the problem, deciding that nothing can be done to solve the problem itself, seeking alternative rewards, and venting emotions. Mere acceptance of the thoughts and beliefs associated with the trauma without attempts at evaluation and/or revision may hinder PTG progression. According to Schaefer and Moos (1998), “Individuals who appraise a

life crisis as a challenge that they can master may cope more actively with the problem and thus may be more apt to grow from the experience” (p. 115).

The results of this research indicated some facets of mindfulness may be counterproductive to the development of PTG. Although mindfulness-based therapies such as acceptance and commitment therapy (ACT) are recommended by some to treat and reduce posttraumatic symptoms with further research needed to determine their efficacy (Hayes & Strosahl, 2004; Orsillo & Batten, 2005), ACT may be contraindicated for PTG. Greater psychological flexibility is thought to be gained through the six core principles of ACT including acceptance, defusion, self as context, values, committed action, and contact with the present moment. Mindfulness can be conceptualized as a combination of acceptance, defusion, self as context, and contact with the present moment. Therefore, ACT is considered a mindfulness-based therapy at the process and technique level. Some aspects such as contact with the present moment may be beneficial for PTG. ACT utilizes two components to promote contact with the present moment. The first of these includes training to observe what is present in the environment and in private experience. The second includes training to label and describe what is present (Hayes & Strosahl, 2004). Other facets of ACT including accepting without judgment, however, may hinder PTG. Acceptance is taught as a means to reduce experiential avoidance and private events are embraced without attempts to alter their frequency or form (Hayes, Luoma et al., 2005). The lack of alterations to existing worldviews and schemas may prevent PTG from progressing.

Dialectical Behavior Therapy (DBT) also utilizes mindfulness skills including observation, description, and acceptance of current experiences such as sensations,

cognitions, and emotions without evaluation or self-criticism (Huss & Baer, 2007).

According to the authors “Participants learn to observe these phenomena without evaluating their truth, importance, or value and without trying to escape, avoid, or change them” (p. 17). As discussed earlier, this study suggests acceptance without judgment and evaluation may prevent cognitive processing that theoretically leads to PTG from occurring.

Additionally, mindfulness-based therapies such as ACT are not based in religious or spiritual practice (Hayes & Strosahl, 2004). Amount of effort put forth towards spiritual growth and development along with a negative relationship of acceptance without judgment was found to be the best model of PTG in this study. Focusing on spiritual and religious issues may be imperative to achieve greater PTG. Religious participation has been shown to be related to PTG, suggesting that either persons experiencing PTG seek out religious experiences, or that their religion primes them for spiritual growth (Tedeschi & Calhoun, 1996). Spirituality in the context of PTG can refer to a greater sense of the presence of God, increased commitment to one’s religion, a clearer understanding of one’s religious beliefs, a sense of being connected to something greater or transcendent and not thought possible before the trauma, or a spiritual quest to seek answers to existential questions produced in the midst of tragedy (Tedeschi et al., 1998).

Amount of effort put forth towards growth in personal relationships was also found to be significantly positively related to PTG in this study. More intimate, meaningful, and closer relationships with others often accompany the experience of PTG. People often develop a sense of the importance of other people in their lives and how

much they cherish others. Increased feelings of compassion for others, especially those who have been through similar or difficult circumstances often develop (Tedeschi & Calhoun, 2004). Many report better relationships with their spouses following a traumatic event (Tedeschi et al., 1998).

Supportive relationships with others is an integral part of Calhoun and Tedeschi's (1998a) model of PTG. A source of comfort is provided and opportunities to develop new schema and coping possibilities are presented. Some individuals learn to share their feelings or more openly express themselves. (Tedeschi et al., 1998). Discussing the event with others contributes to the cognitive processing of the event. The amount of self-disclosure about emotions and perspectives, and how others respond to the self-disclosure, may influence PTG. Narratives of the trauma allow survivors to confront questions of meaning and avenues of re-appraisal. During the narratives, emotional aspects of the trauma and the survivors are often shared, resulting in a heightened sense of intimacy (Tedeschi & Calhoun, 2004).

Based on the results of this study, and in combination with prior research and theory, an initial conceptual framework may be suggested (see Figure 2). While this framework was not specifically tested, empirical findings point to the following conceptual model as one possible pathway toward PTG. According to this conceptual model, the traumatic experience produces posttraumatic distress including hyperarousal, avoidance, and re-experiencing symptoms. Observation of the consequences of the traumatic experience allows for evaluation of the event and re-appraisal of world-views and schemas. Positive evaluation is hypothesized to lead to an increase in effort towards

spiritual and religious growth. This process is hypothesized to lead to posttraumatic growth.

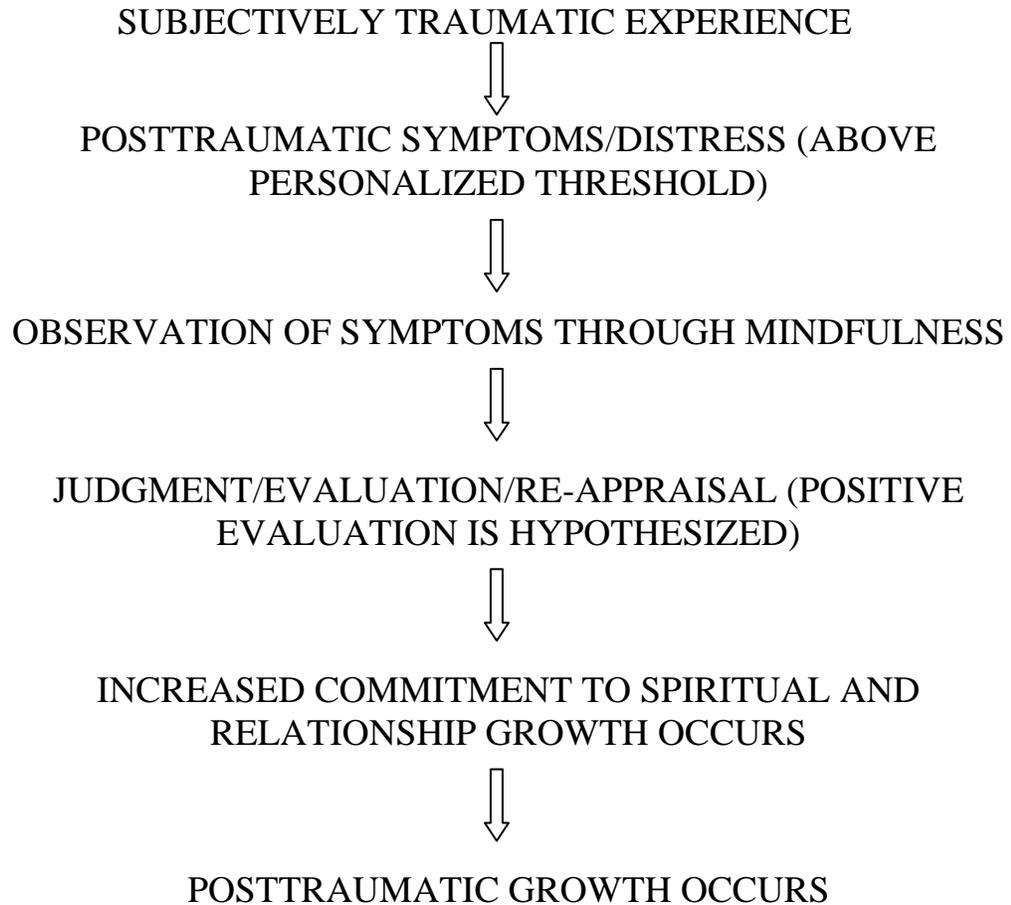


Figure 2. Conceptual model of posttraumatic growth.

Implications for Counselor Education and Supervision and Clinical Practice

Implications of the Research

As shown by the results of this study, educators and supervisors should emphasize to supervisees the importance of working through religious and spiritual issues in attempts to foster PTG. Benefits gained by focusing on religious and spiritual issues may include having an enhanced meaning in life, increased social support, acceptance of difficulties, and having a structured belief system (Shaw et al., 2005). However, psychotherapists have traditionally maintained an ambivalent attitude towards religious and spiritual concerns and many have not received the training or experience necessary to understand this important area of client diversity (Russell & Yarhouse, 2006). Some counselor trainees may feel uncomfortable discussing religious or spiritual beliefs in general or those that differ from their own. These issues should be addressed by supervisors and educators. It is imperative that educators emphasize therapy is client directed and train students to work within the client's spiritual or religious belief system. Counselors and counselor trainees should be aware that amount of effort put forth towards spiritual growth itself may not contribute to PTG as much as the sense of meaning, purpose, and coherence that the efforts provide for people (Shaw et al., 2005).

Also indicated by the results of this study, counselors should be trained to provide relationship guidance. Opportunities for enhanced relationships are often presented in wake of tragedy. Many report a deepening of their relationships as a result of realizing the importance of those relationships. Yet others learn they must make decisions in their best interest to remove themselves from unhealthy or abusive relationships (Tedeschi & Calhoun, 1996). Counselors may benefit by being prepared to assist clients in realizing

the potential for relationship growth. Counselors should also be cognizant of the new opportunities for growth initiated by the trauma and provide clients with the tools to achieve enhanced relationships. Self-disclosure to supportive others may be a mechanism by which trauma survivors cognitively process the event and ultimately grow from the experience. Encouraging dialogue and teaching improved communication skills, especially to those not used to discussing emotional or difficult issues, should be considered by clinicians. Counselors should also consider providing psychoeducation to the family members and supportive others of clients. Emphasizing the importance to supportive others of allowing the victim to talk about the trauma and its aftermath may be imperative to achieving greater PTG.

Making meaning of the traumatic event that results in growth appears to require evaluation of the event based on the results of this study. Acceptance that the event occurred is most likely required for PTG to occur; however, this may not be enough. Clinicians should focus on assisting the client with active positive evaluation of the event in order to disengage from certain assumptions and produce new schemas, goals, and meanings. Negative evaluation such as regret and wishing the event never occurred may be counterproductive to PTG (Calhoun & Tedeschi, 1998b). In the case of a victim of rape for example, evaluating oneself as being responsible for the trauma and focusing on why the rape occurred is likely to stunt the progression of PTG. Assisting the client to focus on positive evaluation such as seeing avenues towards prevention of future trauma for oneself or others allows for the possibility of choice, action, and growth (Tedeschi, 1999)

Although some facets of mindfulness may be counterproductive to the development of PTG, the mindfulness component of being present centered or observing appears to be positively related to PTG. In order to facilitate observation, clinicians may encourage the importance of attending to internal stimuli including bodily sensations and cognitions and external stimuli such as sights, sounds, and smells (Baer et al., 2004). Contact with the present moment and observation is a large part of the cognitive and behavioral exposure therapies designed to reduce posttraumatic symptoms (Foa et al., 2005). Building upon the emphasis on contact with the present moment, exposure therapies may provide an effective platform in which to launch a focus on PTG. Clinicians utilizing exposure therapies may consider incorporating a growth exploration and development component to the treatment protocol.

Related Implications Based on Literature and Theory

It is important for counselor educators to be knowledgeable about the impact of traumatic experiences in order to properly educate and train counselor students and supervisees. Counselors may benefit from being properly trained in trauma-related issues to provide effective therapeutic services to their clients. With a lifetime prevalence rate for Posttraumatic Stress disorder at approximately 8% of the adult population (American Psychiatric Association, 2000), many clients will present with severe posttraumatic reactions. Additionally, many clients who do not meet the diagnostic criteria for PTSD can be expected to present with significant posttraumatic related distress and/or potential to experience posttraumatic growth.

Clinicians should be aware that initial distress following a traumatic experience is a normal reaction (Van der Kolk et al., 1996). Psychotherapists should have an

understanding that symptoms including intrusive thoughts and images may be required for PTG to develop by initiating the process of schema reconstruction. Additionally, PTG and distress are essentially separate dimensions and an increase in growth is not always accompanied by a reduction in distress. Assisting the client to deliberately cognitively process the event while they are experiencing manageable distressing symptoms appears to be beneficial. Clinicians should not wait until symptoms diminish before focusing on PTG. Initiating deliberate cognitive processing of the event should, however, begin after shock and denial following the trauma have passed (Calhoun & Tedeschi, 1998b).

Counselor educators and supervisors may consider emphasizing an existential approach in addition to other theoretical orientations that counselor trainees are learning. Existential therapy is a process of searching for the value and meaning in life. A basic goal of existential therapy is to encourage clients to explore their options for creating a meaningful existence (Corey, 1996). Existential questions are often raised by trauma survivors (Shaw et al., 2005), and counselors must be prepared to assist clients in working through their search for new meanings in life following traumas. An existential focus may assist in the development of new philosophies and meanings of life by focusing on questions raised by the traumatic experience (Tedeschi et al., 1998). Educators may also emphasize Gestalt therapy. Gestalt focuses on the present moment and is an existential/phenomenological approach that has the initial goal for the client to gain awareness of what they are experiencing and doing. Enhanced self-understanding and the knowledge that one can change grows from increased awareness (Corey, 1996). Gestalt therapy promotes direct experiencing which is similar to the mindfulness concept of observing.

Counselor educators can better prepare counselor students and supervisees for trauma-work by teaching about vicarious trauma, secondary traumatic stress, and vicarious posttraumatic growth. Secondary traumatic stress refers to a set of symptoms similar to PTSD. Psychotherapists have the potential for developing these symptoms through indirect exposure to horrific events as a result of working with traumatized clients. Vicarious trauma involves the cognitive schemas or core beliefs of the therapist and the way they may change as a result of exposure to traumatic stories shared by the client. Counselors who work with trauma survivors may be prone to experiencing both of these phenomena (Bober & Regehr, 2005).

In addition to educating trainees about the possible negative reactions they may experience, a focus on the positive consequences of working with traumatized clients is also recommended. Counselors may experience vicarious posttraumatic growth similar to that experienced by direct trauma survivors (Arnold et al., 2005). The authors examined therapist responses to performing trauma work and found all study participants experienced some sort of intrusive thoughts and images of clients' trauma; emotional responses such as sadness, anger, fear, and countertransference avoidance; physical symptoms or pain, and concerns about their effectiveness as therapists. However, all participants reported their work with trauma victims also resulted in growth. The participants reported positive outcomes including increased sensitivity, compassion, insight, tolerance, empathy, a deepened appreciation for the resiliency of the human spirit, and an enhanced ability to understand, accept, and connect with others. Spiritual introspection was experienced by most of the subjects. Observing others on an existential and spiritual journey may cause some to examine their own spiritual path. Clinicians may

begin to ponder existential questions regarding their own life and the world in which they live. Neglecting to process these experiences may hinder psychotherapists from achieving their potential for personal and professional growth.

Various models of clinical supervision promote focus on the supervisee's enhancement of self-awareness. For example, the discrimination model allows for the supervisor to assume the roles of teacher, consultant, and counselor (Bernard & Goodyear, 2004). Supervisors providing the role of counselor may provide the trainee with opportunities for introspection in an attempt to foster personal and professional growth. Based on the results of this study, and while counselor trainees were not a focus of this research, supervisors may consider processing with supervisees their spiritual and relationship beliefs and behaviors that are impacted as a result of providing trauma counseling.

Limitations and Recommendations

This study has several limitations that need to be addressed. First, the sample used in the study was a sample of convenience. While achieving true random selection is difficult in the social sciences, efforts to broaden external validity are recommended for future research (Heppner, Kivlighan, & Wampold, 1999). Although individual officers will inevitably refuse to participate in research studies, making the sample less than random in nature, the departments selected to seek volunteers may be randomly selected. Second, the generalizability of the study's findings is primarily limited to white, male patrol officers who work in the Midwest area of the United States. Differences between the police departments examined in this study and departments across the country may exist.

Third, due to low variability in certain sample characteristics between-group differences for variables such as race, religion, and gender could not be examined in this study. These variables may influence reactions to trauma and the development of PTG. As an example, the rate for amnesia following a trauma is three times as high for Hispanics and two times as high for African Americans as it is for whites (Elliot & Briere, 1995). Differences in cognitive processing of traumatic events may also be influenced by demographic factors. Men from European countries tend to be linear in their thinking processes and are outcome and achievement oriented which may differ from men of other cultures and many women (Sweeney, 1998). Differences in religious and spiritual beliefs may also affect the trauma experience. Hinduism and Islam teach that the future is pre-determined by God or Allah and fate cannot be changed (Van der Kolk et al., 1996). A spiritual or religious view that destiny can be altered by action may differently affect PTG.

According to Van der Kolk et al. (1996, "Culture plays a key role in how individuals cope with potentially traumatizing experiences by providing the context in which social support and other positive and uplifting events can be experienced" (p. 400). The authors also wrote "cultural customs and rituals help individuals control their emotions, order their behavior, link the sufferers more intimately to the social group, and serve as symbols of continuity" (Van der Kolk et al., 1996, p. 406). Thus, further research is needed to examine the effect of demographic variables such as race, gender, religious, and spiritual beliefs on PTG.

Fourth, this study was not able to investigate many of the potential mechanisms and processes that affect posttraumatic growth in police officers. Specifically, the effect

size (i.e., R^2) in this study indicates that the variables accounted for only 24% of the variance in posttraumatic growth. The results indicate a moderately strong effect (between a medium and large effect size) (Cohen, 1992). However, when interpreting the relationship among demographic variables, symptoms, mindfulness, and PTG, clearly other possible influential variables must also be considered. Variables such as relationship status and religious affiliation should be examined to determine how much they account for the variance in posttraumatic growth. Future research should also consider examining variable such as individual characteristics in police officers. For example, Tedeschi and Calhoun (2004) found personality characteristics including extraversion and openness to experience to be related to PTG. Level of stress may also be examined. A relationship between levels of perceived stress and Gestalt contact styles such as introjection, projection, and retroreflection was found in past research (Myers, 1990, 1996). The author stated the results may indicate that stress actually affects and changes aspects of personality. Future research may consider examining how personality changes due to perceived stress affect PTG.

The findings of this study also have significant implications for future research. The present study attempted to establish an empirical link between mindfulness, distress, demographic variables, and posttraumatic growth among police officers. Based on the literature review, no previous studies have explored the relationship between mindfulness and posttraumatic growth in any population. Additionally, research examining posttraumatic growth specifically in police officers is almost nonexistent. Therefore, the field can benefit by acknowledging the relationship and the complexities of the variables studied. Given the significant findings involving mindfulness, symptoms/distress,

demographic variables, and posttraumatic growth, additional studies should be conducted to further examine these factors.

Several recommendations are made for future research. First, the avoidance, hyperarousal, and intrusion subscales of the IES-R, or similar posttraumatic stress symptom assessment should be examined to investigate differences among specific types of symptoms and PTG. Rumination in the form of intrusive thoughts are thought to be a form of cognitive processing that leads to PTG (Calhoun & Tedeschi, 1998a). Avoidance symptoms, however, may include avoidance of thinking of the event (American Psychiatric Association, 2000) possibly hampering deliberate cognitive processing of the event. The type of intrusive thoughts should also be explored to compare automatic and more deliberate ruminations on the progression of PTG. Automatic ruminations refer to the unwanted and distressing thoughts while deliberate ruminations involve the active surrender, acceptance, and consideration of alternative beliefs and goals (Calhoun & Tedeschi, 1998a). Better understanding the time frame in which automatic ruminations turn into deliberate ruminations and where in this process PTG is most likely to develop may aid in the development of enhanced clinical interventions.

Second, the results are correlational and do not imply causation. Determining causal relationships are needed to develop more accurate models of PTG. Longitudinal pre-post designs are recommended for future research. Relationship and spiritual growth should be examined pre- and post-trauma to identify their developmental course. Pre-existing spiritual beliefs and/or the pre-trauma quality of relationships with others may predispose one towards greater PTG. Perhaps PTG is initiated by the traumatic event with little influence of pre-trauma factors. Questions should be answered as to whether

traumatic experiences initiate a spiritual quest that leads to PTG or is a strengthening of preexisting spiritual beliefs occurring (Calhoun & Tedeschi, 1998b). The amount of effort put forth towards spiritual and relationship growth before the trauma should be compared to amount of effort put forth towards spiritual and relationship growth after the trauma.

Third, as shown in this study, police officers are typically exposed to a variety of traumatic events that number in the hundreds during their career. Police officers as a group experience greater amounts of traumatic events than many other populations of trauma survivors examined by researchers. This study did not differentiate which traumatic events experienced during their career produced the growth measured. Future research could explore whether specific types of traumatic experiences are more conducive to PTG development in police officers. Understanding if officers experience PTG differently from witnessing the suffering or death of others compared to events in which their own safety is threatened may be beneficial to theory and practice, as one example. It would be helpful to better understand if specific traumas are the most influential or if it is the accumulation of many traumas that most facilitate PTG. Police officers can be expected to begin experiencing traumatic events soon after the start of their career. Future research could examine the length of time following the start of their career that police officers may begin experiencing PTG and any patterns of post-trauma change that occurs over time.

Fourth, positive judgments and evaluations of police officers regarding their traumas should be examined to explore the relation to or impact on PTG. Both positive and negative judgment and evaluation, or lack of, was examined in this study with no

differentiation between the two. Positive evaluation of traumatic events explored and compared to negative evaluation and lack of evaluation in police officers could also enhance theory and practice. If positive evaluation was found to produce greater PTG than other types of cognitive processing, than the development of positive evaluation skills could be included as part of a treatment program for police officers.

Fifth, the terms religion and spirituality were used interchangeably in this study. A recent trend has emerged separating these as two different constructs (Russell & Yarhouse, 2006). Future research may benefit from exploring differences such as traditional versus nontraditional beliefs. Posttraumatic growth should be examined to investigate differences in those who adhere to traditional and organized religious viewpoints and those who claim a spiritual but not religious stance, as one example.

Summary of Discussion and Implications

The present study was designed to examine mindfulness, distress, and demographic factors as they relate to posttraumatic growth in police officers. The results of the study indicated that amount of effort put forth towards relationship and spiritual growth, distress, and the Kentucky Inventory of Mindfulness Skills (KIMS) Observe subscale were positively related to posttraumatic growth in police officers. The KIMS Accept without Judgment subscale was found to be negatively related to posttraumatic growth in police officers. These results are consistent with previous studies that found relationship and spiritual experiences to be important components of posttraumatic growth. The findings supported previous research that increased posttraumatic distress is related to increased posttraumatic growth, possibly indicating increased cognitive

processing of the event. This study also supported the theory that deliberate judgment and evaluation is necessary for posttraumatic growth to occur.

This study has several implications. This study suggested counselor educators and supervisors should provide training in spiritual and religious dynamics to counselor trainees. Additionally, counselors should be prepared to provide relationship counseling with a focus on communication skills. Clinicians utilizing exposure therapy in the treatment of posttraumatic symptoms may optimize therapeutic benefits by incorporating a PTG component to treatment.

In sum, the field can benefit by acknowledging the complexity and relationship between demographic variables, distress, mindfulness, and posttraumatic growth in police officers. Therefore, additional studies need to be conducted to examine the variables that influence posttraumatic growth in future research.

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APPENDICES

APPENDIX A

DEMOGRAPHIC INFORMATION

Instructions: Please circle or write your response

1. Age: _____

2. Gender (circle one): M F

3. Race (circle one): White/Caucasian

Black/African American

Hispanic/Latin American

Asian American

Native American

Other _____

4. Number of years of education: _____ (High School = 12 years)

5. Number of years in law enforcement: _____

6. Current rank: _____
(examples - patrol officer, sergeant, lieutenant, captain, detective, etc.)

7. Assignment: _____
(examples – patrol, homicide detective, vice detective, SWAT, etc.)

8. Please circle the population of the city in which you work as a police officer:

Under 15,000

100,000 to 300,000

15,000 to 50,000

300,000 to 500,000

50,000 to 100,000

More than 500,000

9. Have you ever received mental health treatment: Y N

10. Current relationship status (circle one):
Married
Separated
Divorced
Single
Widowed

Involved in a committed relationship

11. Please circle the amount of time/effort you spend focused on growth and commitment of your personal relationships, on a scale of 0-10:

[0= no time/effort, 5= moderate time/effort, 10= ongoing and consistent time/effort]

0 1 2 3 4 5 6 7 8 9 10

12. Current religious Affiliation (circle one): Christian

Jewish

Muslim

Hindu

Agnostic

Atheist

Spiritual but not religious

Other _____

13. Please circle the amount of time/effort you spend focused on spiritual growth and commitment, on a scale of 0-10:

[0= no time/effort, 5= moderate time/effort, 10= ongoing and consistent time/effort]

0 1 2 3 4 5 6 7 8 9 10

Questions 14, 15, and 16 ask about events that you might have experienced during your duties as a police officer. During these events you may have 1) experienced or witnessed actual or threatened death or serious injury and 2) felt fear, helplessness, or horror.

(Examples include officer-involved shootings, witnessing someone killed, being seriously injured in an automobile accident, recovering dead bodies, etc.)

14. Please write the number of times you have personally experienced **each** of the events listed below. If an event falls into more than one category below, list it in only one category (whichever you think is the best fit):

Event:

Officer involved shooting. _____

Being accidentally and severely injured while on-duty _____

Being seriously injured during an assault _____

Seeing scene(s) involving terrible death or injuries _____

Recovering or handling dead bodies _____

Hostage situations _____

Incident involving threat or harm to children _____

Other _____

15. Please list the month/year of the most recent event among those you listed above:

16. Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then circle how distressing each difficulty has been for you **during the past seven days** regarding the **most recent event you indicated in question # 15 or the event which is currently causing you the most distress**, how much were you bothered or distressed by these difficulties?

Not at all	A little bit	Moderately	Quite a bit	Extremely
0	1	2	3	4

- | | | | | |
|--|---|---|---|---|
| 1. Any reminder brought back feelings about it.....0 | 1 | 2 | 3 | 4 |
| 2. I had trouble staying asleep.....0 | 1 | 2 | 3 | 4 |
| 3. Other things kept making me think about it.....0 | 1 | 2 | 3 | 4 |
| 4. I felt irritable and angry.....0 | 1 | 2 | 3 | 4 |
| 5. I avoided letting myself get upset when I thought about it or was reminded of it.....0 | 1 | 2 | 3 | 4 |
| 6. I thought about it when I didn't mean to.....0 | 1 | 2 | 3 | 4 |
| 7. I felt as if it hadn't happened or wasn't real.....0 | 1 | 2 | 3 | 4 |
| 8. I stayed away from reminders about it.....0 | 1 | 2 | 3 | 4 |
| 9. Pictures about it popped into my mind.....0 | 1 | 2 | 3 | 4 |
| 10. I was jumpy and easily startled.....0 | 1 | 2 | 3 | 4 |
| 11. I tried not to think about it.....0 | 1 | 2 | 3 | 4 |
| 12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.....0 | 1 | 2 | 3 | 4 |
| 13. My feelings about it were kind of numb.....0 | 1 | 2 | 3 | 4 |
| 14. I found myself acting or feeling as though I was back at that time.....0 | 1 | 2 | 3 | 4 |

15. I had trouble falling asleep.....0	1	2	3	4
16. I had waves of strong feelings about it.....0	1	2	3	4
17. I tried to remove it from my memory.....0	1	2	3	4
18. I had trouble concentrating.....0	1	2	3	4
19. Reminders of it caused me to have physical reactions such as sweating, trouble breathing, nausea, or a pounding heart.....0	1	2	3	4
20. I had dreams about it.....0	1	2	3	4
21. I felt watchful or on-guard.....0	1	2	3	4
22. I tried not to talk about it.....0	1	2	3	4

APPENDIX B

THE POSTTRAUMATIC GROWTH INVENTORY (PTGI)

Instructions

Circle the number that best indicates the degree to which each change listed below occurred in your life as a result of the traumas you indicated in the demographic questionnaire, using the following scale. (If you have not experienced any work-related traumas, please answer the following based on the most stressful incidents you have experienced as a police officer that you indicated in the demographic questionnaire)

- 1 = I did not experience this change as a result of my trauma
- 2 = I experienced this change to a very small degree as a result of my trauma
- 3 = I experienced this change to a small degree as a result of my trauma
- 4 = I experienced this change to a moderate degree as a result of my trauma
- 5 = I experienced this change to a great degree as a result of my trauma
- 6 = I experienced this change to a very great degree as a result of my trauma

- 1. My priorities about what is important in life.....1 2 3 4 5 6
- 2. I'm more likely to try to changing things which need changing.....1 2 3 4 5 6
- 3. An appreciation for the value of my own life.....1 2 3 4 5 6
- 4. A feeling of self-reliance.....1 2 3 4 5 6
- 5. A better understanding of spiritual matters.....1 2 3 4 5 6
- 6. Knowing that I can count on people in times of trouble.....1 2 3 4 5 6
- 7. A sense of closeness with others.....1 2 3 4 5 6
- 8. Knowing I can handle difficulties.....1 2 3 4 5 6
- 9. A willingness to express my emotions.....1 2 3 4 5 6
- 10. Being able to accept the way things work out.....1 2 3 4 5 6

11. Appreciating each day.....1 2 3 4 5 6
12. Having compassion for others.....1 2 3 4 5 6
13. I'm able to do better things with my life.....1 2 3 4 5 6
14. New opportunities are available which wouldn't have been
otherwise.....1 2 3 4 5 6
15. Putting effort into my relationships.....1 2 3 4 5 6
16. I have a stronger religious faith.....1 2 3 4 5 6
17. I discovered that I'm stronger than I thought I was.....1 2 3 4 5 6
18. I learned a great deal about how wonderful people are.....1 2 3 4 5 6
19. I developed new interests.....1 2 3 4 5 6
20. I accept needing others.....1 2 3 4 5 6
21. I established a new path for my life.....1 2 3 4 5

APPENDIX C

THE KENTUCKY INVENTORY OF MINDFULNESS SKILLS (KIMS)

Instructions

Please rate each of the following statements using the scale provided. Circle the number that best describes your own opinion of what is generally true for you.

1	2	3	4	5
Never or very rarely true	Rarely True	Sometimes True	Often True	Very often or always true

1. I notice changes in my body, such as whether my breathing slows down or speeds up.....1 2 3 4 5
2. I'm good at finding words to describe my feelings.....1 2 3 4 5
3. When I do things, my mind wanders off and I'm easily distracted.....1 2 3 4 5
4. I criticize myself for having irrational or inappropriate emotions.....1 2 3 4 5
5. I pay attention to whether my muscles are tense or relaxed.....1 2 3 4 5
6. I can easily put my beliefs, opinions, and expectations into words.....1 2 3 4 5
7. When I'm doing something, I'm only focused on what I'm doing, nothing else.....1 2 3 4 5
8. I tend to evaluate whether my perceptions are right or wrong.....1 2 3 4 5
9. When I'm walking, I deliberately notice the sensations of body moving.....1 2 3 4 5

10. I'm good at thinking of words to express my perceptions, such as how things taste, sound, or smell..... 1 2 3 4 5
11. I drive on "automatic pilot" without paying attention to what I'm doing.....1 2 3 4 5
12. I tell myself that I shouldn't be feeling the way I'm feeling.....1 2 3 4 5
13. When I take a shower or bath, I stay alert to the sensations of water on my body.....1 2 3 4 5
14. It's hard for me to find the words to describe what I'm thinking.....1 2 3 4 5
15. When I'm reading, I focus all my attention on what I'm reading.....1 2 3 4 5
16. I believe some of my thoughts are abnormal or bad and I shouldn't be thinking that way.....1 2 3 4 5
17. I notice how foods and drinks affect my thoughts, bodily sensations and emotions.....1 2 3 4 5
18. I have trouble thinking of the right words to express how I feel about things.....1 2 3 4 5
19. When I do things, I get totally wrapped up in them and don't think about anything else.....1 2 3 4 5
20. I make judgments about whether my thoughts are good or bad.....1 2 3 4 5
21. I pay attention to sensations, such as the wind in my hair or sun on my face.....1 2 3 4 5
22. When I have sensations in my body, it's difficult for me to describe it because I can't find the right words.....1 2 3 4 5
23. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.....1 2 3 4 5
24. I tend to make judgments about how worthwhile or worthless my experience are.....1 2 3 4 5
25. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.....1 2 3 4 5

26. Even when I'm feeling terribly upset, I can find a way to put it into words.....1 2 3 4 5
27. When I'm doing chores, such as cleaning or laundry, I tend to daydream or think of other things..... .1 2 3 4 5
28. I tell myself that I shouldn't be thinking the way I'm thinking.....1 2 3 4 5
29. I notice the smells and aromas of things.....1 2 3 4 5
30. I intentionally stay aware of my feelings.....1 2 3 4 5
31. I tend to do several things at once rather than focusing on one thing at a time.....1 2 3 4 5
32. I think some of my emotions are bad or inappropriate and I shouldn't feel them.....1 2 3 4 5
33. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadows.....1 2 3 4 5
34. My natural tendency is to put my experience into words.....1 2 3 4 5
35. When I'm working on something, part of my mind is occupied with other topics, such as what I'll be doing later, or things I'd rather be doing.....1 2 3 4 5
36. I disapprove of myself when I have irrational ideas.....1 2 3 4 5
37. I pay attention to how my emotions affect my thoughts and behavior.....1 2 3 4 5
38. I get completely absorbed in what I'm doing, so that all my attention is focused on it.....1 2 3 4 5
39. I notice when my moods begin to change.....1 2 3 4 5

APPENDIX D

THE UNIVERSITY OF AKRON INFORMED CONSENT

Title of Study: The Relationship between Mindfulness and Posttraumatic Growth in Law Enforcement Officers

Introduction: You are invited to participate in a research project being conducted by Brian A. Chopko, a doctoral student in the Department of Counselor Education and Supervision at The University of Akron.

Purpose: The purpose of this project is to explore ways to better assist police officers in coping with work-related traumatic experiences. Specifically, this study will explore factors that lead to positive growth in police officers that may result from being exposed to traumatic events.

Procedures: Participants will be given a packet that will include demographic information and two assessments to be filled out. The assessments use a Likert type scale in which participants just have to circle their ratings of each item. The packet will take approximately 30 minutes to complete.

Exclusion: Only police officers that spend the majority of their time working in the field will be included in this study.

Risks and Discomforts: There are no known physical, social, legal, or economic consequences or risks for completing the research packet. The psychological risk may be bringing up emotions or discomfort from the questions based on personal experiences. The

researcher will provide referral information for hotlines along with crisis and counseling centers for all participants, in case emotional distress occurs.

Benefits: The benefits from this study may be a better understanding of ways to assist the law enforcement community in coping with traumatic stress. However, you may receive no benefit from participating in this study.

Right to refuse or withdraw: Your participation in this research is voluntary and you may refuse to participate, or may discontinue participation at any time, without penalty or loss of benefits to which you are otherwise entitled.

Anonymous Data Collection: No identifying information will be collected, and your anonymity is further protected by not asking you to sign and return the informed consent form.

Confidentiality of Records: The data will be entered into a password protected computer and written protocols will be locked in a filing cabinet.

Who to Contact with Questions: If you have any questions about this study, you may email Brian A. Chopko at bac16@uakron.edu or Robert C. Schwartz, Ph.D. at rcs@uakron.edu or call at 330 972-8155.

Acceptance: I have read the information provided above and all of my questions have been answered. I voluntarily agree to participate in this study. My completion and return of this packet will serve as my consent. I have been given a copy of this consent form for future reference.

APPENDIX E

PEARSON COEFFICIENTS CORRELATION MATRIX FOR ALL
INDEPENDENT AND DEPENDENT VARIABLES

Variables	1	2	3	4	5	6
1. PTGI full scale	--	.858**	.876**	.878**	.833**	.850*
2.. Appreciation for Life subscale		--	.628**	.742**	.661**	.624**
3. New Possibilities subscale			-	.745**	.651**	.791**
4. Personal Strength subscale				--	.599**	.703**
5. Spiritual Change subscale					-	.588**
6. Relating to Others subscale						--
7. Total number of traumas						
8. Number of years in law enforcement						
9. Effort towards relationship growth						
10. Effort towards spiritual growth						
11. Number of months since last traumatic event						
12. KIMS full scale						
13. Observe subscale						
14. Describe subscale						
15. Act with Awareness subscale						
16. Accept without Judgment subscale						
17. Impact of Events full scale						

Pearson Coefficients Correlation Matrix for All Independent and Dependent Variables

Variables	7	8	9	10	11	12
1. PTGI full scale	.131	.099	.212**	.356**	-.058	.028
2. Appreciation for Life subscale	.048	-.029	.170*	.262**	-.085	-.030
3. New Possibilities subscale	.153*	.180*	.132	.196**	.012	.066
4. Personal Strength subscale	.142	.078	.123	.186*	-.085	-.035
5. Spiritual Change subscale	.107	.127	.214**	.559**	-.065	.024
6. Relating to Others subscale	.123	.079	.268**	.256**	-.052	.113
7. Total number of traumas	--	.282**	.043	-.028	-.099	.038
8. Number of years in law enforcement		--	-.066	.000	.102	.076
9. Effort towards relationship growth			--	.445**	-.089	.249**
10. Effort towards spiritual growth				--	-.064	.175*
11. Number of months since last traumatic event					--	.88
12. KIMS full scale						--
13. Observe subscale						
14. Describe subscale						
15. Act with Awareness subscale						
16. Accept without Judgment subscale						
17. Impact of Events full scale						

Pearson Coefficients Correlation Matrix for All Independent and Dependent Variables

Variables	13	14	15	16	17
1. PTGI full scale	.274**	.158*	-.077	-.300**	.267**
2. Appreciation for Life subscale	.228**	.102	-.073	-.313**	.360**
3. New Possibilities subscale	.270**	.154*	-.065	-.233**	.193**
4. Personal Strength subscale	.230**	.127	-.131	-.306**	.232**
5. Spiritual Change subscale	.234**	.127	-.094	-.229**	.198**
6. Relating to Others subscale	.218**	.175*	.046	-.198	.148*
7. Total number of traumas	.072	.094	-.025	-.069	.024
8. Number of years in law enforcement	-.024	.035	.010	.119	-.047
9. Effort towards relationship growth	.019	.173*	.158*	.154*	-.168*
10. Effort towards spiritual growth	.164*	.189*	.093	-.084	.013
11. Number of months since last traumatic event	.044	-.011	.067	.074	-.054
12. KIMS full scale	.286**	.706**	.550**	.471**	-.327*
13. Observe subscale	--	.276**	-.208**	-.538**	.293*
14. Describe subscale		--	.038	.045	-.161*
15. Act with Awareness subscale			--	.431**	-.262*
16. Accept without Judgment subscale				--	-.527*
17. Impact of Events full scale					--

Note. ** $p < .01$
 $*p < .05$

APPENDIX F

INSTITUTIONAL REVIEW BOARD LETTER



Office of Research Services and Sponsored Programs

Akron, OH 44325-2102
(330) 972-7666 Office
(330) 972-6281 Fax

May 8, 2007

Brian Chopko
2737 Owaisa Road
Cuyahoga Falls, Ohio 44221

Mr. Chopko:

Your protocol entitled "*The Relationship between Mindfulness and Posttraumatic Growth in Law Enforcement Officers*" was determined to be exempt from IRB review on May 8, 2007. The IRB application number assigned to this project is 20070501. The protocol represents minimal risk to subjects and matches the following federal category for exemption:

- Exemption 1 - Research conducted in established or commonly accepted educational settings, involving normal educational practices.
- Exemption 2 - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior.
- Exemption 3 - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior not exempt under category 2, but subjects are elected or appointed public officials or candidates for public office.
- Exemption 4 - Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens.
- Exemption 5 - Research and demonstration projects conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or benefits.
- Exemption 6 - Taste and food quality evaluation and consumer acceptance studies.

Annual continuation applications are not required for exempt projects. If you make changes to the study's design or procedures that increase the risk to subjects or include activities that do not fall within the approved exemption category, please contact the IRB to discuss whether or not a new application must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. If the research is being conducted for a master's thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

Sincerely,

Sharon McWhorter
Associate Director

Approved consent form attached

Cc: Robert Schwartz, Advisor
Rosalie Hall, IRB Chair