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# Posttraumatic Outcomes Among Veterans: The Predictive Role of Exposure to Interpersonal Trauma

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Posttraumatic Outcomes Among Veterans:  
The Predictive Role of Exposure to Interpersonal Trauma

By

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MSW Clinical Research Paper

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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

## **Abstract**

The purpose of this study was to better understand how historical experiences of interpersonal trauma may predict posttraumatic stress symptoms and posttraumatic growth (PTG) among combat veterans who have served in Operation Enduring Freedom (OEF, 2001-2014) and Operation Iraqi Freedom (OIF, 2002-2010). A better understanding of the full spectrum of experience related to trauma may have profound implications for treatment, particularly in aiding social workers in the treatment of posttraumatic stress symptoms and the facilitation of posttraumatic growth in treatment-seeking veterans. This quantitative study used secondary data ( $n = 110$ ), which was collected between 2005 and 2007 from a sample of veterans receiving medical care at a large Midwestern Veterans Affairs Medical Center who had returned from deployment in Iraq or Afghanistan in the six months prior to data collection. The results of this study demonstrated that a history of interpersonal trauma predicts higher posttraumatic stress scores among post-9/11 combat veterans. Additionally, this study found that a history of interpersonal trauma also predicted lower posttraumatic growth scores among this population. Also discussed are implications for clinical practice and future research.

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**Posttraumatic Outcomes Among Veterans:  
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**Introduction**

Humans have long demonstrated their resilience in the aftermath of traumatic experience. Most individuals who experience a traumatic event are able to return to their baseline state of functioning within a period of time, while others experience “profound and lasting changes in physiological arousal, emotion, cognition, and memory (Herman, 1997, p. 34).” Traumatic experiences can render a person helpless and may overwhelm an individual’s ordinary capacity to adapt and cope (Herman, 1997; Van der Kolk, 1996). The American Psychological Association [APA] Dictionary of Clinical Psychology (2007) defines trauma as “any disturbing experience that results in significant fear, helplessness, dissociation, confusion, or other disruptive feelings intense enough to have a long-lasting negative impact on a person’s attitudes, behavior, and other aspects of functioning.”

This definition also identifies that a traumatic event can be caused by both human behavior as well as by nature and can challenge how one views the world. The last 20 years have reflected a shift in how we conceptualize and understand the impacts of trauma. The shift in worldviews that many trauma survivors experience can be positive and negative, and the quality of the shifts are not necessarily mutually exclusive. This study will consider the spectrum of experiences and responses to trauma and how our understanding has shifted and grown over time.

Part of these shifts have been catalyzed when the public’s consciousness of the impact of trauma has grown during periods of war when returning soldiers were experiencing what was known historically as “shell shock” (Herman, 1997). For nearly a century, military service

members and veterans who are no longer actively serving in the armed forces have been the focus of extensive research into the pathological impacts of war trauma (Herman, 1997). The recent conflicts in Iraq and Afghanistan have again prompted researchers and mental health professionals to continue pursuing a deeper understanding of how combat impacts military service members and veterans and how best to intervene (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004). Reports of prevalence rates of various mental health diagnoses connected with combat trauma vary as a result of the populations sampled, research methods, and differences in diagnostic criteria and assessments (Thomas, Wilk, Riviere, McGurk, Castro, & Hoge, 2011). A recent report from the Department of Veterans Affairs (VA) found that of those veterans who had served in the Iraq and Afghanistan conflicts who had been seen for health care services at a VA facility or Vet Center, 405,915 were seen specifically for potential or provisional posttraumatic stress disorder (PTSD; Department of Veterans Affairs [VA], 2015). Considering that many service members and veterans are not seen at a VA for care, or may not receive a PTSD diagnosis, this number can be anticipated to be much higher in reality. In a critical review of existing PTSD research with this conflict era, RAND (2008) found that roughly five to 15 percent of service members meet diagnostic criteria for PTSD. A report by the VA estimates that this number may be as high as 20 percent for veterans of the conflicts in Iraq and Afghanistan (2015).

Given the high prevalence rates of PTSD among combat veterans of these conflicts and the significant distress caused by PTSD, further research should seek to contribute to the existing knowledge base of factors predicting the development of PTSD. Known risk factors for PTSD related to combat exposure in military personnel and veterans include: pre-trauma factors such as socio-demographic factors, characteristics of military service, drinking and smoking status, low

socioeconomic status, prior trauma and life events, and prior psychological issues; peri-trauma factors such as exposure to combat, discharging a weapon, experience of support from military unit, witnessing someone being killed or wounded, and severity of trauma; and post-trauma factors such as comorbid psychological issues, successive life and trauma events, and post-deployment support (Xue et al., 2015).

While much is known about risk factors for PTSD, little is known about how certain types of trauma may contribute to PTSD in veterans who are subsequently exposed to combat (Hassija, Jakupcak, Maguen, & Shipherd, 2012; Xue et al., 2015). Significant differences in lifetime experiences and trauma histories exist between those who enlist in the military and civilians, with military personnel reporting notably higher rates of adverse childhood experiences (ACEs) such as neglect, poverty, physical, and/or sexual abuse (Blosnich, Dichter, Cerulli, Batten, & Bossarte, 2014). A deeper understanding of the impacts of veterans' trauma histories and the types of trauma they experience can inform both PTSD treatment and prevention efforts, especially among military personnel who will be deployed to combat zones, which may increase the risk of PTSD (Blosnich et al., 2014).

Trauma experienced earlier in life may lead to perceiving future traumatic events as catastrophic and insoluble. An exploration of how different types of traumatic events may predict responses to future traumatization, has potentially significant implications for treatment. While the literature is not consistent in its definitions of different types of trauma, some basic consensus can be found in distinguishing between traumatic events that are more interpersonal in nature versus those that are not. A common definition of interpersonal violence (or trauma as it will be referred to in this study) is violence which takes place in the context of a relationship between victim(s) and perpetrator(s) (Weaver & Clum, 1995). For the purposes of their analysis, they



classified incidences of childhood physical abuse, rape, criminal assault, or domestic abuse in this category.

This study will broaden the definition of interpersonal trauma to include any significantly distressing event that involved an exchange between two or more people or an event that involved perpetration on an individual by one or more people. What distinguishes interpersonal from noninterpersonal trauma is the intent of some individual or individuals to cause harm to another. While the intent of this study is not to assign a value or to place various trauma types on a spectrum, it does seek to further understand how the experience of interpersonal trauma may prove to be a vulnerability when veterans are exposed to future traumas, more specifically combat. Traumatic experience causes a rupture in our previously held views of ourselves, others, and the world (Janoff-Bulman, 1992). This rupture may be worsened if the trauma was experienced as a result of another person causing harm to the individual as attempts to integrate or accommodate traumatic memories may not fit with previously held beliefs about how people are expected to treat one another.

In addition to contributing to existing research regarding the relationship between experiences of trauma prior to combat exposure and PTSD among veterans, this study will also seek to understand how the types of trauma experienced prior to combat (interpersonal versus noninterpersonal) may also predict posttraumatic growth. Posttraumatic growth refers to “positive change that the individual experiences as a result of the struggle with a traumatic event” (Calhoun & Tedeschi, 1999, p. 11). Research demonstrates that these positive changes are commonly experienced in five major domains: Appreciation of life, relating to others, new possibilities, personal strength, and spiritual change (Tedeschi & Calhoun, 1996).

The experience of positive change following a traumatic experience is a concept that has been contemplated and discussed for thousands of years. Recent research has contributed significantly to our understanding of how individuals may experience this kind of growth and change and has also demonstrated that posttraumatic growth is related to PTSD in that many who experience symptoms of PTSD also report growth and positive change (Shakespeare-Finch & Beck, 2014). Considering the high rates of PTSD among post-9/11 combat veterans, recent studies have helped to better explain the spectrum of posttraumatic experiences reported by this era of war veterans in an effort to not only more accurately capture the impacts of combat, but also to inform how those in the mental health field engage in preventive and treatment interventions (Currier, Lisman, Harris, Tait, & Erbes, 2013; Hijazi, Keith & O'Brien, 2015; Mitchell, Gallaway, Millikan, & Bell, 2013; Moran, Schmidt, & Burker, 2013; Ogden et al., 2011; Pietrzak et al., 2010; Prati & Pietrantonio, 2009; Tsai, El-Gabalawy, Sledge, Southwick, & Pietrzak, 2015).

Inclusion of posttraumatic growth in this study is not designed to imply that the mental health field should idealize trauma if growth takes place, but rather to further our understanding of how positive psychological, spiritual, and interpersonal change may happen as a result of these trying experiences. An understanding of the diverse spectrum of traumatic experiences and responses may inform competent clinical practice in how best to support and facilitate these positive changes in addition to the treatment of the deleterious effects of trauma and PTSD. Furthermore, consideration should be given to how an exclusive focus on PTSD symptoms may impede or retard recovery and conceal the potential for growth (Shakespeare-Finch & Lurie-Beck, 2014).

Social work ethical guidelines identify certain responsibilities that inform clinical social work practice. One of these core ethical responsibilities is competence as professionals and in our work with clients (National Association of Social Workers [NASW], 2008). Competent social work requires critical examination of emerging research as well as identifying gaps in the knowledge base that informs practice with clients (NASW, 2008). In order to ensure the most effective care for our veterans, social workers are called to engage in research, education, and training in emerging areas of practice that demonstrate efficacy, particularly in the treatment of trauma. Little research has been done to understand the potentially predictive role of interpersonal trauma histories among the most recent era of combat veterans in developing PTSD or experiencing posttraumatic growth.

In an effort to further inform social workers' treatment of trauma among today's veteran population, the purpose of this study is to better understand how historical experiences of interpersonal trauma may predict PTSD and posttraumatic growth (PTG) among post-9/11 combat veterans that have served in Operation Enduring Freedom (OEF, 2001-2014) and Operation Iraqi Freedom (OIF, 2002-2010; Torreon, 2015). A better understanding of the full spectrum of experience related to trauma may have profound implications for treatment, particularly in aiding social workers in the treatment of PTSD symptoms and the facilitation of posttraumatic growth in treatment-seeking veterans.

## **Literature Review**

In order to best serve veterans of the latest conflicts in Iraq and Afghanistan, it is important that we understand not only the unique life experiences of this era of veterans, but also how the distinctive circumstances of these conflicts have impacted them. This review of the literature will examine known psychological impacts experienced by a significant number of post-9/11 veterans and empirically-supported interventions for PTSD, specifically. Additionally, research that validates the concept of posttraumatic growth and its predictors will be reviewed.

### **The Wars in Iraq and Afghanistan**

On October 7, 2001, in response to the terrorist attacks on September 11, 2001, the United States began the war in Afghanistan, officially referred to as Operation Enduring Freedom (OEF) and in March 2003, the war in Iraq began, referred to as Operation Iraqi Freedom (OIF; Institute of Medicine [IOM]; 2010). The conflicts in Iraq and Afghanistan also include Operation New Dawn (OND), which began in 2010, although the data analyzed for the purpose of this research was collected prior to the beginning of OND and will include veterans of the OEF and OIF conflicts only, referred to collectively throughout this research as OEF/OIF. These conflicts are now the longest military combat operations since the war in Vietnam (U.S. Department of Veterans Affairs [VA], 2015). As of 2014, 2.6 million service members have served in these wars and that number is expected to increase to 3.6 million by 2019 (VA, 2015).

**The post 9/11 deployment experience.** Each generation of wartime military service members has experienced unique and distinguishing characteristics of war. The wars in Iraq and Afghanistan have been noted as being considerably different than previous wars due to their all-volunteer force (Baiocchi, 2013) and heavy dependence on the National Guard and reserve forces of the military (IOM, 2010). The significance of this will be discussed further in this

paper, so it is necessary to define the two components of the U.S. military: Active and reserve. The *active component* refers to military service members who are fulltime active duty forces and the *reserve component* includes reserve personnel of the Army, Navy, and Marine Corps as well as National Guard forces of the Army and Air Force (IOM, 2010). Additional unique characteristics of these conflicts include the “duration of deployments, the number of redeployments, the short dwell time between deployments, the type of warfare, the types of injuries sustained, and the effects on the service members, their families, and their communities (IOM, 2010, p. 17).”

Due to the length of these conflicts and a smaller number of active component troops than in past conflicts, service members have been required to deploy multiple times, often with short gaps in between deployments (IOM, 2010; Tanielian & Jaycox, 2008). The military operation in Iraq involved a 22-month deployment of the 1st Brigade Combat Team/34th Infantry Division of the Minnesota National Guard – the longest deployment of any U.S. military unit in history (Minnesota National Guard, n.d.). A report by RAND (Baiocchi, 2013) found that 68 percent of active component soldiers deployed to OIF/OEF have, cumulatively, spent more than one year deployed and there has been a significant increase in the percentage of troops who have spent two or more years cumulatively deployed between 2001 and 2011 (Baiocchi, 2013).

In addition to the long duration of these deployments, the amount of time back in the United States before redeploying has been less than in previous wars and, often times, combat units are spending time away from their home training and preparing to redeploy while they are back in the U.S. (Tanielian & Jaycox, 2008). Policy set by the Department of Defense (DoD) dictates that active component units receive two years of dwell time (time spent at the home station between deployments) for each year of deployment and five years of dwell time to each

year of deployment for reserve component units (Davis et al., 2005), however, the average dwell times during OEF/OIF are significantly shorter than is dictated in these policies (IOM, 2010).

This era of veterans is also unique in that it is comprised of an all-volunteer force (Hoge et al., 2004), greatly different than roughly 30 percent drafted forces during the Vietnam War (IOM, 2010). The average age of OEF/OIF service members is 33.4, which is older than in previous conflicts (Committee on the Assessment of the Readjustment Needs of Military Personnel, Veterans, and Their Families, 2013) and may be due to the larger number of National Guard and Reserve troops whose average age was 36 while deployed. They also more likely to be married (Tanielian & Jaycox, 2008; IOM, 2010) and 38.3% of troops have at least one child. Significantly more women have deployed than in past conflicts with 11% of all deployed military personnel being women (Tanielian & Jaycox, 2008; IOM, 2010). Also noteworthy is that a significantly higher percentage of deployed forces in service of these wars have been from Reserve and National Guard components. According to a study conducted by the Institute of Medicine (2010), as of 2009 more than 28 percent of deployed troops were National Guard and Reserve service members.

The combat experiences of these wars also differ greatly than in previous conflicts. A significantly lower number of troops have died in action due to improved body armor, improved convoy vehicle protection, “improved delivery of emergency medical care in theater, [and] swift evacuation to full-treatment trauma centers outside the conflict zone” (Tanielian & Jaycox, 2008, p. 27). For every nine service members wounded, there is only about one fatality – compared to fatality-to-wounded ratios of 1:2.4 in World War II and 1:3 in Vietnam (Fischer, Klarman, & Oboroceanu, 2007). A study of 2,530 Army troops and 815 Marines found that 80% reported having been shot at, having handled dead bodies, having known someone injured or killed, or

having killed an enemy combatant (Hoge et al., 2004). It has been noted that troops deployed to Iraq have experienced significantly greater amounts of exposure to combat versus those troops deployed to Afghanistan (Hoge et al., 2004). A common experience amongst OEF and OIF troops is blasts from improvised explosive devices (Tanielian & Jaycox, 2008; IOM, 2010), which have resulted in the most deaths, nonfatal injuries, traumatic brain injuries (TBI), amputation, chronic pain, and numerous other physical and mental injuries (IOM, 2010).

This section provides only a brief summary of the experience of service members and veterans of these conflicts, but points to some of the unique challenges faced as individuals and families readjust and heal from their impacts. The following sections will begin to look at research related to both the negative and positive psychological impacts of the wars in Iraq and Afghanistan.

**Psychological impacts of combat exposure in post-9/11 veterans.** Studies suggest that combat veterans are at greater risk than non-combat veterans and their civilian counterparts to screen positively for various mental health disorders, particularly posttraumatic stress disorder (PTSD), depression, and substance abuse (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004; Thomas, Wilk, Riviere, McGurk, Castro, & Hoge, 2010). The psychological toll of these wars has been attributed, in part, to the length and number of deployments experienced by many U.S. troops (Tanielian & Jaycox, 2008), as previously stated. Of those who have deployed three or four times, approximately 27% have received diagnoses of depression, anxiety, or acute stress as compared with 12% of those who deployed once (Mental Health Advisory Team V, 2008). Research conducted by RAND (Tanielian & Jaycox, 2008) designates PTSD and traumatic brain injury (TBI) as the “signature wounds” of these wars, noting that military service members are surviving intense combat that would have likely been lethal in previous wars, increasing the

likelihood of psychological injuries. Another concern of involvement in OEF and OIF is the increase in suicide rates among both active duty service members and veterans.

## **Responses to Trauma**

The following section will include a brief overview of literature that has documented the history of trauma theory, which includes research that has provided significant support for both negative and pathological responses to trauma and positive growth and change. Also reviewed is research that identifies the etiology of PTSD, its current diagnostic criteria, and empirically-supported treatments. In accordance with social work values, a more holistic understanding of trauma responses must include the various ways in which a veteran may experience the aftermath of trauma. As such, the theoretical base and evidence in support of posttraumatic growth is included, along with research that has identified known predictors of posttraumatic growth, especially among post-9/11 combat veterans. Finally, this paper also contains a review of what is known about the relationship between PTSD and posttraumatic growth, as well as how these trauma responses may be related to interpersonal and noninterpersonal trauma histories.

**History of trauma theory.** The study of psychological trauma can be traced back to the late 19<sup>th</sup> century when French neurologist Jean-Martin Charcot investigated traumatized women in the Salpetriere hospital (Herman, 1997; Ringel, 2012). The primary focus of Charcot's work was *hysteria*, a disease documented in women and believed to originate in the uterus (Herman, 1997). The symptoms of hysteria, while not systematically tracked and defined, included convulsions, amnesia, sensory loss, and sudden paralysis (Ringel, 2012). Charcot was the first to distinguish that the origin of hysteria was not physiological as was previously believed, but rather that its origin was psychological (Ringel, 2012). Charcot's findings were presented in front of audiences by means of live demonstrations in which women who had been traumatized



by rape, sexual abuse, and violence were placed under hypnosis and then prompted to recall their traumatic experiences (Herman, 1997).

Both Freud and Janet, influenced by Charcot's work, continued to study hysteria, in competitive pursuit of uncovering its cause. These investigators spent years in daily meetings with hysterical patients, often for hours at a time (Herman, 1997). In the mid 1890s, Janet and Freud arrived at similar conclusions, associating hysteria to experiences of psychological trauma (Herman, 1997). They theorized that intolerable emotions that resulted from traumatic experience produced an altered state of consciousness, coined "dissociation" by Janet (Herman, 1996). Further investigations resulted in the discovery that symptoms of hysteria could be alleviated when patients used words to describe their traumatic memories and the emotions that accompanied them (Herman, 1997). In the following years, Freud departed from the theory that hysteria was caused by traumatic experience, conversely suggesting that repressed, unacceptable sexual and aggressive desires were the cause (Ringel, 2012). This departure significantly influenced Freud's conceptualization of *psychoanalysis*, which focused on talking with patients in an effort to identify these intrapsychic forces (Herman, 1997).

A second wave of investigations into the origin of psychological trauma came about as a result of men returning from World War I and presenting with symptoms of memory loss, physical paralysis, a lack of responsiveness, muteness, and uncontrollable screaming and weeping (Herman, 1997). The issue was forced into the public consciousness as British and American soldiers returned from war in numbers that exceeded capacities at hospitals in both countries (Herman, 1997). Psychiatrists and psychologists attributed these symptoms to the "concussive effects of exploding shells and called the resulting nervous disorder 'shell shock'" (Herman, 1997, p. 20). As psychiatrists began to observe these same symptoms in soldiers who

had not been physically traumatized, they were forced to accept that the symptoms of shell shock were a result of psychological trauma (Herman, 1997). *Psychological first aid* was developed to help soldiers recover and return to war as soon as possible and was observed, if provided in close proximity to the war front and soon after soldiers deployed, to successfully treat shell shock symptoms and allow soldiers to return to active combat duty (Ringel, 2012).

Following the end of World War I, American psychiatrist Abram Kardiner began seeing men with combat neurosis in the psychiatric clinic of the Veterans' Bureau (Herman, 1997). Kardiner sought to develop a theory for combat trauma within the framework of psychoanalysis, however he failed at doing so (Herman, 1997). It wasn't until 1941 when Kardiner published *The Traumatic Neuroses of War*, that he was able to develop a theoretical framework for this traumatic syndrome, which provided the foundation for today's clinical understanding of psychological trauma (Herman, 1997).

The second World War brought with it a revival of interest in combat neurosis, prompting psychiatrists to reintroduce hypnosis as a treatment for trauma (Ringel, 2012). The cathartic effects of hypnosis were deemed sufficient techniques for treating combat neurosis in order to return soldiers to active duty, however Kardiner and Herbert Spiegel, a psychiatrist who had treated men on the frontlines, disagreed (Herman, 1997). Kardiner and Spiegel posited that hypnosis would not be successful unless the traumatic memories were integrated into consciousness (Herman, 1997). Little attention was paid to their critique of hypnosis as a sole intervention for combat neurosis and the long-term psychological effects of combat were largely ignored until after the Vietnam War (Herman, 1997).

Soldiers and veterans of the Vietnam War returned with psychological symptoms that often developed into chronic problems affecting their ability to adapt and function in a civilian

context (Ringel, 2012). Psychiatrists Robert Jay Lifton and Chaim Shatan conducted “rap groups” with antiwar veterans during which they shared their traumatic experiences of war and received support from fellow veterans (Herman, 1997). Lifton and Shatan’s observations during these groups resulted in the identification of 27 common symptoms of psychological trauma (Ringel, 2012). These symptoms contributed to the development of the diagnosis of posttraumatic stress disorder which was formally recognized when the third edition of the DSM was published in 1980 (Herman, 1997; Ringel, 2012).

Also influential in the development of trauma theory was the women’s liberation movement of the 1970s, which called for the recognition of traumatic disorders not only being experienced by military veterans, but also by civilian women experiencing domestic and sexual violence (Herman, 1997). In the mid-1970s, the movement had influenced an explosion of research into the effects of sexual assault (Herman, 1997). The public awareness that resulted from findings that women were experiencing pervasive sexual assault prompted the opening of the first rape crisis center in 1971 (Herman, 1997). Ann Burgess, a psychiatric nurse, and Lynda Holmstrom, a sociologist, began studying the psychological impacts of sexual assault in 1972 (Herman, 1997). They observed patterns in psychological responses and symptoms of rape victims seen in the emergency room of a Boston hospital and went onto call this phenomena “rape trauma syndrome” (Herman, 1997). Burgess and Holmstrom’s contributions, along with the efforts of the women’s liberation movement, legitimized the posttraumatic stress disorder diagnosis and clarified that the disorder was seen not only in combat veterans, but also in survivors of sexual assault, domestic violence, and incest (Herman, 1997).

Research in the last 30 years has continued to inform our understanding of trauma, trauma responses, and the PTSD diagnosis. In the fourth and fifth editions of the *DSM*, changes

were made to diagnostic criteria for PTSD, the most recent of which will be reviewed in the following section of this paper. Some contemporary trauma theorists have called for further attention to be paid to the failure of the PTSD diagnosis to accurately and sufficiently address the influence of complex trauma histories, including the experience of trauma during childhood (Herman, 1997).

According to trauma researcher and psychiatrist Bessel Van der Kolk and colleagues (2012), the PTSD diagnosis does not fully capture the totality of traumatic experience because of the influence of developmental stage, temperament, and contextual factors on the individual choice of defense and coping mechanisms following trauma. He posits that the development of the PTSD diagnosis “created an organized framework for understanding how people’s biology, conceptions of the world, and personalities are inextricably intertwined and shaped by experience (Van der Kolk, McFarlane, & Weisaeth, 1996, p.4)”, a foundation for understanding some, but not all, of the spectrum of traumatic experience and responses. Further arguments are made for the development of a diagnosis for “complex posttraumatic stress disorder” to address the effects of repeated, prolonged trauma (also known as Type II trauma) as researchers suggest that symptomatic presentation differs in specific ways from single event (or Type I) traumas (Herman, 1997). Van der Kolk (2005) also calls for recognition of an additional diagnosis, which he calls developmental trauma disorder, for children with complex developmental trauma histories.

### **Posttraumatic stress disorder.**

**Diagnostic criteria.** In May of 2013, the fifth revision of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) was released (American Psychiatric Association [APA], 2013) and included changes to diagnostic criteria for PTSD. The diagnosis had previously been

included in the class of anxiety disorders and has now been moved to a new class of diagnoses: “trauma and stressor-related disorders” (APA, 2013). Additionally, PTSD symptoms were previously divided into three clusters and are now divided into four: intrusion, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity. Within these clusters, several new symptoms were added: persistent and distorted blame of self or others, persistent negative emotional state, and reckless or destructive behavior. An overview of PTSD diagnostic criteria according to the DSM-5 is provided in Table 1.

Table 1

*DSM-5 Diagnostic Criteria for Posttraumatic Stress Disorder*

<b>Diagnostic symptom cluster</b>	<b>Symptoms</b>
<p><b>A. Stressor</b></p> <p>The person was exposed to one or more of the following event(s): death or threatened death, actual or threatened serious injury, or actual or threatened sexual violation, in one or more of the following ways:</p>	<ul style="list-style-type: none"> <li>• Experiencing the event(s) him/herself.</li> <li>• Witnessing, in person, the event(s) as they occurred to others.</li> <li>• Learning that the event(s) occurred to a close relative or close friend; in such cases, the actual or threatened death must have been violent or accidental.</li> <li>• Experiencing repeated or extreme exposure to aversive details of the event(s); this does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.</li> </ul>
<p><b>B. Intrusion</b></p> <p>Intrusion symptoms that are associated with the traumatic event(s) (that began after the traumatic event(s)), as evidenced by one or more of the following:</p>	<ul style="list-style-type: none"> <li>• Spontaneous or cued recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).</li> <li>• Recurrent distressing dreams in which the content and/or affect of the dream is related to the event(s).</li> <li>• Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the event(s) were recurring.</li> <li>• Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).</li> <li>• Marked physiological reactions to reminders of the event(s).</li> </ul>
<p><b>C. Avoidance</b></p> <p>Persistent avoidance of stimuli associated with the traumatic event(s) (that began after the traumatic event(s)), as evidenced by efforts to avoid one or both of the following:</p>	<ul style="list-style-type: none"> <li>• Internal reminders (thoughts, feelings, or physical sensations) that arouse recollections of the traumatic event(s).</li> <li>• External reminders (people, places, conversations, activities, objects, situations) that arouse recollections of the traumatic event(s).</li> </ul>
<p><b>D. Negative cognitions and mood</b></p> <p>Negative alterations in cognitions and mood that are associated with the traumatic event(s) (that began or worsened after the traumatic event(s)), as evidenced by three or more of the following:</p>	<ul style="list-style-type: none"> <li>• Inability to remember an important aspect of the event(s).</li> <li>• Persistent and exaggerated negative expectations about one’s self, others, or the world.</li> <li>• Persistent distorted blame of self or others about the cause or consequences of the traumatic event(s).</li> <li>• Pervasive negative emotional state.</li> <li>• Markedly diminished interest or participation in significant activities.</li> <li>• Feeling of detachment or estrangement from others.</li> <li>• Persistent inability to experience positive emotions.</li> </ul>
<p><b>E. Arousal</b></p> <p>Alterations in arousal and reactivity that are associated with the traumatic event(s) (that began or worsened after the traumatic event(s)), as evidenced by three or more of the following:</p>	<ul style="list-style-type: none"> <li>• Irritable or aggressive behavior.</li> <li>• Reckless or self-destructive behavior.</li> <li>• Hypervigilance.</li> <li>• Exaggerated startle response.</li> <li>• Problems with concentration.</li> <li>• Sleep disturbance (for example, difficulty falling or staying asleep, or restless sleep).</li> </ul>

*PTSD in post-9/11 veterans.* Prevalence rates of PTSD among veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) vary widely across studies, which may be attributed to differences in measures used, access to and sampling of treatment seeking versus non-treatment seeking veterans, period of time since deployment, and exposure to combat (reference needed). Additionally, prevalence rates may vary due to the changes to PTSD diagnostic criteria in 2013, as studies of PTSD in OEF/OIF veterans span both the fourth and fifth revisions of the DSM.

In a sample of veterans one year postdeployment to Iraq, Hoge and colleagues. (2007) found rates of PTSD as high as 16.6%, while in another study it was reported that one in six Army and Marine veterans of OEF and OIF met criteria for PTSD depression, and generalized anxiety disorder after combat (Hoge et al., 2004). The VA (2013) reports that of veterans of these combats receiving health care at the VA from 2002 to 2012, 29.0% met criteria for PTSD. A recent study found that veterans of this war era using VA healthcare services more often screened positive (24.7%) for PTSD than veterans who did not (9.8%) (Dursa, Reinhard, Barth, & Schneiderman, 2014). Additionally, Thomas and colleagues (2010) found that active duty Army troops and National Guardsmen together had a prevalence rate of PTSD of 30.5% at 12 months following deployment, an increase from 20.7% found at three months postdeployment. When considering the impact of combat exposure on the development of PTSD, two longitudinal studies of OIF/OEF veterans found PTSD at rates two to three times higher among those exposed to combat versus those not exposed (Smith et al., 2008; LeardMann et al., 2009).

The literature has given much attention to the deleterious effects of PTSD in our current veteran population and research has facilitated the development and application of various evidence-based interventions to treat symptoms of PTSD. Veterans report flashbacks and

nightmares related to traumatic event(s) they have experienced and also frequently report experiencing intense states of hyperarousal, particularly in crowds or while driving (VA, 2015c). PTSD can also have significant negative effects on interpersonal relationships as veterans find themselves avoiding people and social situations in an effort to avoid trauma-related triggers (APA, 2013). A study by Koenen et al. (2008) found that veterans with more severe symptoms of PTSD were more likely to have been divorced. In a study of 272 Reservist/National Guard OEF/OIF veterans, those with PTSD were found to be more likely to use maladaptive coping behaviors such as worry, self-punishment, and social avoidance/isolation than veterans without PTSD (Pietrzak et al., 2010).

Because the scope of this research is focused PTSD and posttraumatic growth as it relates to traumatic experience and recovery, a thorough analysis of other adverse effects of combat exposure will not be included. Studies have found postdeployment prevalence rates of depression between 14 and 25 percent (Hoge et al., 2004; Vasterling et al., 2006). Furthermore, a number of studies discuss the frequency of comorbidity with substance abuse and PTSD and/or depression (Tanielian & Jaycox, 2008; Thomas et al., 2010; IOM, 2010). Consideration of the role of substance use and abuse cannot be neglected when discussing PTSD as substances may serve as a means for self-medicating or coping for veterans. Additional adverse effects of combat exposure have been found including: higher unemployment rates among post-9/11 veterans with PTSD; lower work productivity; risk for homelessness and current homelessness; higher rates of interpersonal violence; and higher rates of emotional turmoil and difficulties with intimacy and interpersonal relationships (IOM, 2010).

*Impact of previous exposure to trauma.* The prevalence of PTSD among post-9/11 veterans also requires consideration of how veterans who have previously experienced trauma



may be affected by combat exposure. In a nationwide study comparing childhood experiences of 60,598 non-institutionalized adults, Blossnich and colleagues (2014) found that of those sampled, those who had served in the military reported higher rates of adverse childhood experiences (ACEs) such as neglect, poverty, physical or sexual abuse. This may be explained by the motivation for individuals to join the military to distance themselves from or escape from ACEs, other family problems, or broken relationships (Ginexi, Miller, & Tarver, 1994). This study also found that men with military experience during the all-volunteer era following the Vietnam draft era had a higher prevalence of ACEs, including reporting being twice as likely to have experienced forced sex before the age of 18, as compared to men without a history of military service (Blossnich, Dichter, Cerulli, Batten, & Bossarte, 2014).

Gender has also been found to be a factor in trauma exposure prior to military enlistment. Of 520 female veterans receiving health care in the VA system, more than half reported experiencing physical or sexual abuse before enlisting – the majority of those surveyed (86%) also indicated that escaping an abusive or distressing environment motivated their military enlistment (Sadler, Booth, Mengeling, & Doebbeling, 2004). Blossnich and colleagues also reported that women who served in the military during the all-volunteer era had higher rates of emotional abuse, sexual abuse, domestic violence and physical abuse than women without a history of military service (2014). Another study comparing women who had served in the military to those who had not found that of those who reported experiencing childhood sexual abuse, 90 percent of those who had military experience cited parents as perpetrators compared with 10 percent of those without military backgrounds (Schultz, Bell, Naugle, & Polusny, 2006). Female military personnel are also more likely to have a history of sexual trauma than their male counterparts (Stretch, Knudson, & Durand, 1998) as well as poorer family environments in

childhood due to greater childhood abuse (Rosen & Martin, 1996). These findings are noteworthy as sexual violence and childhood abuse are significant predictors of PTSD (Breslau, Chilcoat, Kessler, & Davis, 1999; King, King, Foy, Keane, & Fairbank, 1999). This point was demonstrated in a meta-analysis of 23 studies (combined  $n = 5,308$ ) by Ozer and colleagues (2003) which found that noncombat interpersonal violence (civilian assault, rape, domestic violence) was more strongly related to PTSD than combat exposure trauma or an accident.

***PTSD treatment.*** Evidence-based therapies demonstrated as effective in the treatment of PTSD include Prolonged Exposure (PE), cognitive therapies such as Cognitive Processing Therapy (CPT) and Cognitive Behavioral Therapy (CBT), Eye Movement Desensitization and Reprocessing (EMDR), and psychopharmacological treatments (Moran et al., 2013; VA, 2015c). While abundant research exists in support of these interventions in the treatment of PTSD, little research has looked specifically at how these treatments may be used not only in resolving the symptoms of PTSD, but also in facilitating growth in the aftermath of trauma (Moran et al., 2013; Pietrzak et al., 2010).

***Prolonged exposure.*** Prolonged exposure (PE) is widely used with veterans seeking treatment at a VA facility and is one of the most empirically-supported interventions for PTSD (Sharpless & Barber, 2011). The intervention is comprised of five main components, including: imaginal revisiting of traumatic memories; recounting traumatic memories aloud and discussing the experience; in vivo exposure to trauma related circumstances that the client fears and avoids; psychoeducation; and training in slow breathing techniques (Sharpless & Barber, 2011).

***Cognitive therapies.*** Empirical support also exists for cognitive therapies including Cognitive Processing Therapy (CPT) and Cognitive Behavioral Therapy (CBT; Sharpless & Barber, 2011). Both therapies entail the identification and challenging of automatic thoughts

associated with the trauma. CPT also involves an element of exposure through the writing of a trauma narrative including the thoughts, emotions, and sensations experienced by the trauma survivor. CPT addresses common issues reported by individuals with PTSD including safety, trust, power and control, intimacy, and self-esteem (Sharpless & Barber, 2011). In CPT, clients are asked to begin to identify the relationship between their thoughts and feelings and identify “stuck points” in their narratives related to the trauma. CBT, similarly to CPT, uses the tracking of automatic thoughts related to the trauma and also calls for the identification of core beliefs connected to the individual’s traumatic experience (Sharpless & Barber, 2011).

*Eye movement desensitization and reprocessing (EMDR).* EMDR is a manualized, structured therapy that combines elements of cognitive behavioral therapy, body-based trauma approaches, mindfulness, and person-centered therapies (Sharpless & Barber, 2011). There are eight phases of treatment, which include “desensitization and reprocessing (when clients hold distressing images in mind while tracking rhythmic finger movements of the clinician), installation of positive cognitions (during which fingers are tracked while holding positive cognitions in mind) and journaling. (Sharpless & Barber, 2011, p. 5).”

*Other therapies.* Additional empirical support exists for stand-alone and adjunctive therapies including dialectical behavior therapy (DBT), hypnosis, psychodynamic psychotherapy, interpersonal psychotherapy (IPT), and stress inoculation training (SIT) (Sharpless & Barber, 2011) – however, only the interventions with the most empirical support and most common use with combat veterans are reviewed here.

### **Posttraumatic growth.**

Relationships between traumatic experience in combat veterans and both positive and negative consequences have been documented and studied (Fontana & Rosenheck, 1998). The

primary focus of trauma research to date has been on classifying and identifying the causes of posttraumatic stress symptoms, however a more complete understanding of trauma has unfolded in research since the mid-1990s (Fontana & Rosenheck, 1998; Tedeschi & Calhoun, 2004). The foundations for this research is lie in ancient writings and teaching that identify how the profoundly disturbing experience of trauma may also generate positive changes (Tedeschi & Calhoun, 2004).

Philosophers and spiritual teachings have long considered the transformative power of suffering. The ideas and writings of the ancient Hebrews, Greeks, Christians, Hindus, Buddhists and Muslims have contained messages of finding strength and hope in the face of adversity. In the 1990s, the work of Tedeschi and Calhoun provided a framework for a modern-day understanding of how one may experience positive growth and change following traumatic and trying experiences (1996). They define posttraumatic growth (PTG) as a positive psychological response or change experienced as a result of difficult or traumatic life circumstances (Tedeschi & Calhoun, 1996). They distinctly identify that posttraumatic growth is not a direct result of trauma, but rather is a product of the struggle in the aftermath of traumatic experience (Tedeschi & Calhoun, 2004). The types of negative events that may produce posttraumatic growth include heart attacks, coping with medical problems of children, HIV, cancer, bone marrow transplantation, bereavement, rheumatoid arthritis, house fires, transportation accidents, sexual assault and sexual abuse, combat, refugee experiences, and being taken hostage (Tedeschi & Calhoun, 2004).

Tedeschi and Calhoun (2004) observe that posttraumatic growth is “likely a consequence of attempt at psychological survival, and it can coexist with the residual distress of trauma (p. 5)” and symptoms of distress and positive experiences of change are not mutually exclusive, but

rather co-exist on a spectrum. One explanation for this is that trauma threatens assumptions that we hold about the world and ourselves (Janoff-Bulman, 1992) and in an effort to restore or reconstruct worldviews or schemas, a survivor of trauma may experience growth. These reconstructed beliefs may become more nuanced and flexible in order to adapt to a new understanding of oneself or the world. The work of Janoff-Bulman (1992) introduces three growth processes as a result of coping with trauma: strength through suffering; existential reevaluation; and psychological preparedness. These processes involve the survivor challenging their assumptive world in order to find “new strengths and possibilities” (p. 86), greater appreciation and meaning in life, and resilience in the face of future adversity.

Tedeschi and Calhoun (2004) make an important distinction that the growth processes that occur following a traumatic experience indicate that the individual’s development has in some way or ways “surpassed what was present before the struggle with crises occurred” (p. 4) and that the growth is not simply indicative of a “return to baseline”, but in fact the experienced change may be “deeply profound” (p. 4). The experience of confronting a traumatic event or stressor may function to promote the development of new coping skills, broadening of perspectives, deepening of relationships, and the development of personal resources (Park & Fenster, 2004).

This concept does not insinuate that the person’s experience is any less traumatic nor does it hint at a minimization of the negative effects of trauma – rather it identifies that survivors of trauma often report a process of meaning-making in relation to their trauma in an effort to grow and cognitively adapt to a changed understanding of themselves and the world (Tedeschi & Calhoun, 2004; Janoff-Bulman, 1992). Tedeschi and Calhoun found five emergent themes in how trauma survivors classified their experiences of growth and adaptation. These themes include

a renewed appreciation for life, perceiving new possibilities for the future, recognizing one's personal strength, improved relationships with others, and change in spirituality.

***Domains of posttraumatic growth.*** A variety of methods exist to measure the negative symptoms of trauma, yet until Tedeschi and Calhoun developed the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) no valid measure existed to assess and quantify the trauma survivor's experience of growth. The PTGI includes five domains of growth:

Appreciation of life, new possibilities, personal strength, relating to others, and spiritual change.

*Appreciation of life.* The domain of Appreciation of Life refers to a philosophical shift in an individual's appreciation for life, particularly the more mundane or simple aspects of it (Tedeschi & Calhoun, 2004). This resulted for some in a changed sense of priorities with greater meaning attached to intrinsic priorities and less meaning attached to extrinsic priorities (Tedeschi & Calhoun, 2006) as was commonly reported by bereaved individuals, mothers of ill newborns, cancer and accident survivors (Tedeschi & Calhoun 1996).

An analysis of data collected from 3157 U.S. veterans of multiple war eras reported that one possible explanation for the relationship between posttraumatic growth and surviving a life-threatening injury or illness was that the experience itself may serve as a wake-up call – “alerting the survivor to the reality that life can be terminated in an instant. Such a ‘wake-up call’ might engender a greater appreciation for life...and stimulate a search for meaning and purpose” (Tsai, El-Gabalawy, Sledge, Southwick, & Pietrzak, 2015, p. 176). Another study of 167 veterans found that the most endorsed domain of posttraumatic growth was Appreciation for Life (Hijazi, Keith, & O'Brien, 2015). Maguen, Vogt, King, King, and Litz (2006) found in a sample of Gulf War I veterans that perceived threat while in a combat zone was the strongest predictor of a significant score on this domain.

*New possibilities.* The Posttraumatic Growth Inventory (PTGI) also assesses an individual's endorsement of identifying new possibilities in life. This may involve the development of new interests, participating in new activities, and embarking on significantly new or different paths in life (Tedeschi & Calhoun, 2006). An example provided in the literature was of a woman who had experienced a significant loss embarked on a new career as an oncology nurse in order to comfort and care for others in situations similar to what she had experienced (Tedeschi & Calhoun, 2004). In Maguen and colleagues' (2006) study of veterans of the first Gulf War (1990-1991), they found that minority status predicted significant scores in the New Possibilities domain. They hypothesized that this may be attributed to the military training and experience providing minorities who may otherwise have experienced discrimination and fewer educational and employment opportunities with an understanding of new possibilities that may face them upon return from their deployment.

*Personal strength.* Another domain of posttraumatic growth includes an increased sense of personal strength, or an acknowledgement of such strength (Tedeschi & Calhoun, 2004). This may include a sense of an increased ability to better able to handle things, such as the idea that "if I can handle this, I can handle just about anything" (Tedeschi & Calhoun, 2004, p. 6). In the aftermath of traumatic experience, the challenges that one faces may not carry the same weight or seem as overwhelming or fearful. Interesting findings in relation to this domain are that it is correlated with an increased sense of being vulnerable (Tedeschi & Calhoun, 2004) and is predicted by the survivor having a perceived network of social support (Maguen et al., 2006).

In Tedeschi and Calhoun's (1996) work that informed the framework for this domain of posttraumatic growth, they found that many trauma survivors reported that their experience provided them with information about self-reliance and an understanding of their own ability to

address life's difficulties. In the process of coping from their trauma, some discover that they are in fact stronger than they previously thought which may be helpful in other situations or in coping with future traumas (Tedeschi & Calhoun, 1996).

Research of posttraumatic growth among survivors of terrorist attacks showed that "terrorist attacks can lead to the development of different kinds of strength, at both a personal and a community level" (Vásquez, Pérez-Sales, & Hervás, 2008, p. 69). This finding speaks both to the individual and shared sense of strength that may be uncovered as individuals who have experienced the same or similar traumas cope and heal. Considering that veterans who are exposed to combat do so amongst fellow service members, this is a relevant and applicable finding. A study of 272 Reservist and National Guard veterans of the wars in Iraq and Afghanistan reported that nearly half (48.5%) of those surveyed reported being better able to handle difficulties (Pietrzak et al., 2010).

*Relating to others.* An individual's experience of posttraumatic growth may also include an improved sense and ability to relate with others. In their research, Tedeschi & Calhoun (1996) found that bereaved individuals were more likely than not to report "a deepening of their relationships with others as they realized how important these relationships are, and how quickly they can be lost (p. 456)." Another study noted that following a traumatic experience an individual may experience a loss of other relationships and may, in turn, view existing supportive relationship as more meaningful (Tedeschi & Calhoun, 2004). Survivors may find themselves reestablishing relationships with loved ones following a trauma and may also experience a greater sense of compassion and empathy for others (Tedeschi & Calhoun, 1996).

Studies of posttraumatic growth in veterans have inconsistent findings regarding the degree to which those surveyed have reported growth in the area of Relating to Others. One



study found that of veterans with PTSD who screened positive for posttraumatic growth, Relating to Others along with New Possibilities were the two most endorsed subscales (Tsai et al., 2015). In another multiwar study of Vietnam, OEF/OIF, and other veterans, Relating to Others was the least endorsed (22.8%; Hijazi et al., 2015). Another critical consideration is that a commonly reported symptom of PTSD is social avoidance which may negatively affect an individual's ability to feel a deeper sense of connection with others. Moran et al. (2013) reported that of those surveyed, veterans with PTSD were more likely to cope through social avoidance than veterans without PTSD. This indicates that it is important to reflect on the role of social support in facilitating posttraumatic growth in veterans who have experienced trauma.

*Spiritual change.* Trauma may challenge an individual's faith or relationship with their higher power as their experience may lead them to call the validity of their faith into question (Calhoun & Tedeschi, 1999). Conversely, it may also prompt the fostering of one's faith and religiosity in an effort to cope and make meaning of the traumatic experience. The struggle with one's faith may itself lend itself to posttraumatic growth (Calhoun & Tedeschi, 1999) as an individual calls into question aspects of their faith and in that process strengthens their connection to it. Some trauma survivors may lean into their faith as a way of coping and assigning meaning to their survival. Research regarding the relationship between spirituality and trauma is robust and points to an unquestionable relationship between the two.

One explanation for the spiritual domain of posttraumatic growth may be that one's faith becomes a space for individuals to make meaning of their experiences and their faith community may provide them with important social support and connection as they grapple with and heal from their experience. Hijazi et al. (2015) found that of veterans who reported at least a moderate level of posttraumatic growth, 38.9% endorsed growth in the area of Spiritual Change. This same

study also found that the most significant difference in scores of posttraumatic growth domains between Caucasian and minority veterans was in Spiritual Change. The authors hypothesized that this may be due to findings in other research which has identified the central role that religion may play in the lives of minority individuals (Hijazi et al., 2015).

A case study reviewing literature related to spiritual issues in veterans with PTSD reported consistent findings regarding the relationship between spiritual struggle and mental health outcomes. Sherman, Harris, and Erbes (2015) found that more severe symptoms of PTSD and poorer mental health outcomes are reported among trauma survivors who experience a rupture in their faith or spirituality. Certain religious functions such as positive religious coping and certain types of prayer have also found to be positively correlated with posttraumatic growth in individuals with trauma histories who attend church (Harris et al., 2008). This research will also seek to explore what factors may predict posttraumatic growth in the Spiritual Change domain among OEF/OIF veterans.

***Known predictors of posttraumatic growth.*** Trauma is an incredibly individual and complex experience, yet some significant common factors related to PTSD and posttraumatic growth have been found. Trauma research has primarily focused on predictors of pathology, yet very little research has been done looking at the predictors of posttraumatic growth. Research has looked at posttraumatic growth among a variety of populations such as cancer survivors, refugees, sexual assault survivors, bereaved individuals, and individuals with HIV, yet very few studies have looked specifically at military service members and veterans. To date, only four studies have specifically analyzed predictors of posttraumatic growth in OEF/OIF veterans (Pietrzak et al., 2010; Mitchell, Gallaway, Millikan, & Bell, 2013; Currier, Lisman, Harris, Tait, & Erbes, 2013; Ogden et al., 2011).

Symptoms of PTSD as well as posttraumatic growth factors may be conceptualized as two differing reactions (negative versus positive) to a traumatic experience, yet research demonstrates that a significant relationship exists between PTSD symptoms and posttraumatic growth (Cadell & Regehr, 2003; Dekel et al., 2011; Elder & Clipp, 1989; Fontana & Rosenheck, 1998; Pietrzak et al., 2010; Shakespeare-Finch & Lurie-Beck, 2014; Tsai et al., 2015). This relationship will be discussed further later in this paper.

Several personality and demographic factors are also associated with posttraumatic growth. Ethnic minorities report higher levels of posttraumatic growth (Hijazi et al., 2015). Certain personality traits, such as agreeableness (Linley & Joseph, 2004), extraversion and openness (Tedeschi & Calhoun, 2004; Linley & Joseph, 2004), and positive affect (Linley & Joseph, 2004; Erbes et al., 2005) are positively correlated with growth. In a meta-analysis of 103 studies, Prati and Pietrantonio (2009) found no association with gender and a moderate association with optimism (Linley & Joseph, 2004). Dekel et al. (2011) found a negative correlation between growth and anger, sociodemographic factors, and personality factors.

Various coping strategies such as spiritual or religious coping, coping through disclosure, support from others, and cognitive processing are related to both total posttraumatic growth and endorsement of individual posttraumatic growth domains. Cognitive flexibility (Hijazi et al., 2015) as well as adaptive cognitive processing (Silva et al., 2012; Linley & Joseph, 2004; Tedeschi & Calhoun, 2004; Currier et al., 2013) is positively related to growth. These findings are consistent with the theoretical perspective that cognitive processing is a necessary function in the restructuring of shattered assumptions and views following trauma (Calhoun & Tedeschi, 1998; Janoff-Bulman, 1992). Considering the empirical support for the Spiritual Change domain of posttraumatic growth (Tedeschi & Calhoun, 1996), it is not surprising that various spiritual

and religious factors predict growth, including: spirituality or intrinsic religiosity (Cadell & Regehr, 2003; Tsai et al., 2015; Prati & Pietrantonio, 2009; Linley & Joseph, 2004), religious coping (Prati & Pietrantonio, 2009), and seeking spiritual support (Ogden et al., 2011). Both social support (Tedeschi & Calhoun, 2004; Silva et al., 2012; Cadell & Regehr, 2003; Tsai et al., 2015; Prati & Pietrantonio, 2009; Erbes et al., 2008) and seeking social support (Nolen-Hoeksema, Larson, & Grayson, 1999; Silva et al., 2012; Prati & Pietrantonio, 2009) are positively correlated with posttraumatic growth. Greater growth scores were reported among individuals who disclosed about their trauma (Taku et al., 2009; Slavin-Spenny, Cohen, Oberleitner, & Lumley, 2011), had the urge to discuss their trauma (Currier et al., 2013), or perceived that their disclosure involved mutual disclosure versus confusion from the recipient (Taku et al., 2009).

***What is known about posttraumatic growth in veterans.*** Surprisingly little is known about factors that may be exclusive to service members and veterans in terms of their positive responses to their traumatic experiences considering the uniqueness of combat experiences. In a large national survey of U.S. war veterans of all eras, Tsai et al. (2015) found that veterans with moderate to significant posttraumatic growth reported better mental functioning and general health than those without posttraumatic growth. Considering this alone, it is crucial that social workers and other mental health professionals continue to explore how to facilitate posttraumatic growth in veterans beyond simply treating symptoms of PTSD. When considering that only 38 to 45 percent of OEF/OIF veterans indicated an interest in receiving mental health care, and only 23 to 40 percent reported having received professional help in the past year (Hoge et al., 2004), it may be helpful to identify ways in which veterans may be more attracted to seeking and receiving help. If empirical support existed for trauma treatments that effectively facilitated

growth, it may be possible that veterans would be more likely to not only see, but remain engaged in treatment.

Elements of the combat experience have also been shown to affect growth for veterans with PTSD. Amount and severity of combat exposure are positively correlated with posttraumatic growth in studies of veterans of multiple war eras including World War II, Korean War, Vietnam War, and OIF (Mitchell, Gallaway, Millikan, & Bell, 2013; Elder & Clipp, 1989; Aldwin, 1994). Unit cohesion (Mitchell et al., 2013) as well as perceived unit support (Pietrzak, 2010) also demonstrated significance in relation to growth. The act of killing in combat has been shown to be positively correlated with both PTSD and posttraumatic growth. Across war eras, no significant difference in posttraumatic growth was found between individuals who had killed versus those who had not, however, those who had killed and who had a self-perception of wrongdoing scored significantly higher on the Personal Strength domain (Hijazi et al., 2015). Fontana and Rosenheck found in a sample of 1198 Vietnam veterans, that a significant relationship exists between self-improvement and psychological benefit, and the combat duties or experiences of fighting, killing, perceived threat, and death of others (Fontana & Rosenheck, 1998). Contrarily, Maguen et al. (2011) found killing in combat to be positively associated with more severe PTSD symptoms, dissociation, violence, relationship issues, substance abuse, and other psychological impairments.

As this study seeks to better understand how social workers and other mental health professionals can support the growing population of OEF/OIF veterans with PTSD, more research is needed to understand what factors predict posttraumatic growth. Factors studied in previous research will be included along with additional factors related to spirituality, trauma history and severity, disclosure patterns, and coping strategies. Additionally, combat severity and

experiences such as killing will be reviewed as it is crucial to understand how perceived wrongdoing, guilt, shame, moral injury, and perpetration may relate to posttraumatic growth.

### **Relationship Between PTSD and Posttraumatic Growth**

A review of the literature has demonstrated support of a curvilinear relationship between PTSD and posttraumatic growth (Tsai et al., 2015; Dekel et al., 2011; Shakespeare-Finch & Lurie-Beck, 2014; Fontana & Rosenheck, 1998) with moderate levels of PTSD associated with the highest growth. Additional support exists for a positive correlation between severity of symptoms and posttraumatic growth (Pietrzak et al., 2010; Cadell & Regehr, 2003; Tsai et al., 2015; Elder & Clipp, 1989). Conversely, Hijazi et al. (2015) found no significant relationship between posttraumatic symptoms and posttraumatic growth.

A recent meta-analysis of 42 studies ( $n = 11,469$ ) examining the strength and linearity of the relationship between PTSD symptoms and posttraumatic growth produced further support for a relationship between PTSD and posttraumatic growth. Shakespeare-Finch and Beck (2014) report a significant linear relationship between PTSD symptoms and posttraumatic growth, but an even stronger curvilinear relationship was found. They also reported that the strength and linearity of relationships differed according to trauma type and age. When the traumatic event was sexual assault, no relationship was found, however significant relationships were detected between these outcome measures in survivors of natural disasters and civilians in conflict zones (Shakespeare-Finch & Beck, 2014). In cases where the reported traumatic event was serious illness of self or others, weak or non-existent relationships between PTSD symptoms and growth were reported (Shakespeare-Finch & Beck, 2014). These findings indicate that trauma type may also play a significant role among combat veterans with a history of interpersonal trauma in predicting posttraumatic growth.

**Relationships between trauma types, PTSD, and posttraumatic growth.** The complex dynamics of interpersonal versus noninterpersonal trauma have been found to influence PTSD and posttraumatic growth. Individuals who experience interpersonal traumas have been found to develop PTSD at higher rates than survivors of noninterpersonal traumas such as natural disasters (Stein, Van Der Kolk, Austin, Fayyad, & Clary, 2006). A theory to explain this relationship identifies that the nature of interpersonal trauma is likely to affect an individual's ability to use relational support (Harris et al., 2010). It has been found that interpersonal trauma survivors often have difficulty trusting and using social support (Harris et al., 2010) and may perceive social situations as threatening (Elwood, Williams, Olatunji, & Lohr, 2007), which may precipitate avoidant coping behaviors (Ford et al., 2006). The negative impacts on relationships may be attributed to survivors of interpersonal trauma reporting higher levels of negative cognitions about themselves and the world than survivors of noninterpersonal traumas (Elwood & Williams, 2007; Nixon & Nishith, 2005).

Further support for a relationship between interpersonal trauma and PTSD was reported in a study of 2,181 adults from the Detroit area. It was found that a history of experiencing assaultive violence in childhood was associated with a higher risk for PTSD in adulthood (Breslau et al., 1999). Incongruent with this finding and other research cited here, a study of 115 female veterans of Gulf War I and the conflicts in Iraq and Afghanistan presenting at a VA for healthcare services found that combat exposure was the only significant independent variable associated with posttraumatic symptoms, even after adding interpersonal assault exposure (Hassija, Jakupcak, Maguen, & Shipherd, 2012).

A more in depth understanding of the potentially predictive role of interpersonal trauma on posttraumatic growth in addition to PTSD is needed. Little research has been done that

investigates the relationship between this type of trauma and growth. Research in this area may have implications for the prevention and treatment of specific trauma types, particularly in the facilitation of growth as those who experience the detrimental effects of interpersonal trauma may have increased difficulty in connecting with and receiving support from others, a significant predictor of posttraumatic growth (Cadell & Regehr, 2003; Erbes et al., 2008; Nolen-Hoeksema & Larson, 1999; Prati & Pietrantonio, 2009; Silva et al., 2012; Tsai et al., 2015; Tedeschi & Calhoun, 2004).

In a study of the relationship between religious coping behaviors and posttraumatic distress and growth, no differences in posttraumatic growth scores based on type of trauma exposure were reported (Harris et al., 2010). However, in this sample of 327 trauma survivors from diverse, Midwestern Christian churches it was found that certain types of prayer, such as prayer for acceptance and assistance, were used less by interpersonal trauma survivors than survivors of noninterpersonal trauma (Harris et al., 2010). One explanation for this finding may be that perceived threat in relationships and patterns of self-blame for the traumatic event may cause an individual to be less likely to seek help from a Deity or spiritual figure (Harris et al., 2010).

Following a traumatic event of an interpersonal nature, it has been found that the likelihood of PTSD is higher than those who experience other types of trauma, as has been previously discussed. However, despite a known curvilinear relationship between PTSD symptoms and posttraumatic growth, research supports an exception if the trauma is interpersonal. Another study supporting this claim found in a sample of 132 adult Palestinians with high rates of multiple traumatization that interpersonal traumas – e.g., gender discrimination, sexual or physical abuse, being robbed, abandonment by mother and/or father – were not significantly



associated with PTG (Kira, Aboumediene, Ashby, Odenat, Mohanesh, & Alamia, 2013). Kira and colleagues (2013) also found that torture, while not associated with total posttraumatic growth scores, was significantly associated with the posttraumatic growth domains involving internal and spiritual growth. Other interpersonal traumas such as combat, refugee experiences, and physical assault were positively associated with individual growth domains as well (Kira et al., 2013). Conversely, domestic violence was not associated with any of the posttraumatic growth domains (Kira et al., 2013).

## **Conceptual Framework**

Definitions of psychological trauma and diagnostic criteria for trauma-related disorders provided by mental health governing bodies such as the American Psychological Association and the American Psychiatric Association, while clinically-relevant and critical in many cases to the conceptualization and treatment of trauma symptoms, do not wholly encompass the diverse spectrum of individual experiences of trauma. The individual ultimately dictates whether an event is understood and defined as traumatic or not based on their perception of the event. The impacts of such an experience, whether positive, negative, or both, relate to highly complex and individual factors such as the trauma survivor's subjective assessment of how threatened or helpless they feel and what meaning they attach to the event (Van der Kolk, 2012).

For the purposes of this study, empirically supported, reliable and valid measures of traumatic experience, PTSD, and posttraumatic growth will be used in an effort to align with and contribute to contemporary trauma research. Furthermore, because the assessment and treatment of trauma-related disorders for veterans often happens in the context of a health care setting with mental health professionals, clinically-accepted concepts and measures of trauma will be used. This study will conceptualize a traumatic event as exposure to death or threatened death, actual or threatened serious injury, or actual or threatened sexual violation in accordance with the DSM-5 diagnostic criterion A (APA, 2013). Using the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) will allow for the assessment of a veteran's history of trauma beyond exposure to combat. The TLEQ captures a broad range of potentially traumatic events and allows the respondent to indicate if they have experienced said event in their lifetime, how many times they may have experienced it, and also allows them to indicate if they experienced

intense fear, helplessness, or horror when it happened (however answering yes to this last question is not required for the event to be considered traumatic for the purposes of this study).

To conceptualize PTSD, this study will use the diagnostic criteria outlined in the DSM-5 (APA, 2013), which has been previously outlined in this paper. In order to assess for PTSD, the PTSD Checklist – Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993) will provide a framework for determining the degree to which a veteran may be experiencing posttraumatic stress symptoms. It is important to note that the PCL-C was developed based on PTSD criteria as outlined in the DSM-IV, not the DSM-5 as is the reference point for this research. The PCL-C was used in the original study that collected this data in order to allow veterans the ability to identify the most stressful experience from their lifetime (Currier et al., 2013). PCL-C scores can range from 17 to 85 with 44 being the recommended clinical cut-point score for veterans seen in a VA or civilian specialty mental health clinic (VA, 2012). PTSD in this study will be conceptualized according to this recommendation.

Although this study cannot feasibly capture the entire spectrum of responses to traumatic experiences, it will include an important framework for understanding how trauma does not result exclusively in negative and unpleasant reactions, as may be implied by the sole inclusion of PTSD symptoms. The theory of posttraumatic growth builds on ancient philosophy and literature that considers how the possibility for growth and transformation may come as a result of human suffering (Calhoun & Tedeschi, 2006). The inclusion of this concept captures positive changes reported by many trauma survivors, some of whom report that they would not wish to undo the trauma they experienced and return to the way things were previously, because these changes may have resulted in a deeper sense of meaning, connection, and strength for them (Calhoun & Tedeschi, 2006). This deepened experience comes about as a result of the struggle to

adapt to potentially seismic shifts in how one views the world as a result of the trauma. A trauma survivor may also seek to make meaning out of their experience and in the process of doing so may connect with other survivors, lean into existing or newly discovered social supports, and find other ways to transform a catastrophic event into something that becomes an important part of their life's narrative (Janoff-Bulman, 1992). For combat veterans, it has been reported that positive change may come about as a result of learning in the context of combat that one is stronger than they previously believed and that their connection to fellow soldiers is a meaningful one (Fontana & Rosenheck, 1998).

This study will use the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) as a means to measure how combat veterans report growth and positive change as a result of traumatic experience. Total scores as well as subscale scores will be assessed in order to capture combat veterans who may report growth in one, some, or all of the PTGI domains.

### **Professional Clinical Social Work Lens**

The primary mission of the social work profession is to promote the well-being of others, with particular attention to the needs and empowerment of people who are vulnerable and oppressed (NASW, 2008). To honor this mission, social workers are called to address the needs and support the healing and growth of those who have experienced trauma. The U.S. veteran population, as has previously been discussed, is a highly traumatized group in need of competent and empirically-supported assessment and treatment. My professional motivation for this research is based on my experience working with veterans with extensive trauma histories in both a community agency setting and within a VA facility. In hearing the disclosures of veterans who have experienced combat following past experiences of trauma, it has become apparent that in the pursuit of the social work profession's mission, clinicians and researchers will better serve

the well-being of our veterans if we are able to understand how not only to treat the pathology of trauma, but also how to facilitate growth.

### **Personal Lens**

My inspiration to work with veterans came about when a close friend of mine took his own life after his second tour in Iraq. Witnessing the sadness, pain, and hopelessness that he experienced as he struggled to reconnect with friends and family and to make sense of his experiences in combat moved me to work with other veterans who may be experiencing similar difficulties. Veterans, whether they have served in combat or not, have dedicated their lives in service of this country and I hope to demonstrate gratitude for their service and sacrifices by pursuing military social work and a more in depth knowledge of the experience of trauma. Additionally, in my work as a group therapist at a domestic abuse agency, I have seen the detrimental and cyclical effects of interpersonal violence. I am committed to developing greater knowledge of how interpersonal violence impacts victims and how social workers can support these individuals in healing and growing from their experiences.

## Methods

### Research Design

The purpose of this study is to examine if previous exposure to interpersonal trauma predicts posttraumatic growth and PTSD in a sample of OEF/OIF combat veterans. Quantitative methods will be used in a secondary analysis of available data (Ogden et al., 2011).

### Participants

The data analyzed for this study was collected between 2005 and 2007 from a sample of veterans receiving medical care at a large Midwestern Veterans Affairs Medical Center. This data was previously utilized to explore attitudes toward disclosure and cognitive processing of trauma (Currier, Lisman, Harris, Tait, & Erbes, 2013), religious functioning and trauma outcomes (Ogden et al., 2011), and prayer coping, disclosure of trauma, and mental health symptoms (Tait, Currier, & Harris, 2014). Veterans contacted for participation had returned from deployment in Iraq or Afghanistan in the six months prior to data collection. Veterans were contacted by phone and asked to participate in a study of post-deployment adjustment. Of those invited to participate, 182 agreed to receive questionnaires. Participants were mailed a survey consisting of multiple self-report measures assessing history of trauma, pre- and postdeployment adjustment, mental health functioning, depressive symptoms, deployment experiences, and other measures assessing posttrauma coping and adjustment. A total of 110 usable surveys were returned, yielding a 60% return rate.

Demographic characteristics of the sample are presented in Table 2. The sample was comprised primarily of men ( $n = 88$ , 80%), with 20 females (18%), and 2 participants did not provide their gender. The average age of the sample was 31.18 years ( $SD = 9.71$ ). According to the most recent military demographics report from the Department of Defense (DoD; 2014), this

sample is comparable to U.S. military as a whole, of which 84.9 percent of the Active Duty force and 81.2 percent of the Select Reserve force are male, and 15.1 percent and 18.8 percent are female, respectively. The average age is 28.6 years for the Active Duty force and 31.7 years for the Selected Reserve force (DoD, 2014). The majority of the sample identified themselves as Caucasian ( $n = 102$ , 92.7%), two as African-American, two as Hispanic, and four as Asian. While this is comparable to the region from which the sample was selected, it differs from the racial makeup of the U.S. military of which 31.2 percent of Active Duty forces and 25.6 percent of Selected Reserve forces identify as a minority (DoD, 2014). In regard to relationship status, 40 percent of the sample were married, 31.8 percent were single, 20 percent were in committed relationships, 6.9 percent were divorced, and one person was widowed. The average level of education was 14.2 years ( $SD = 2.35$ ), median income was \$35,000 to \$45,000 per year, and the majority did not have children (61.8%).

Participants represented multiple branches of service, including the Army (National Guard  $n = 61$  [55.5%], Reserve  $n = 16$  [14.5%], Active Duty  $n = 14$  [12.7%]), Navy ( $n = 8$ , 7.3%), Marines ( $n = 4$ , 4.5%), and Air Force ( $n = 2$ , 1.8%). Military occupational specialties were primarily combat-related, including combat arms (26.4%), and combat support (48.2%), with an additional 25.5 percent in service support roles. Nearly all of the sample (97%) had returned from deployment in 2005 or 2006, with the average length of deployments being 12-24 months. For most participants, this deployment was their first (70.9%) with another 10 percent reporting that this was their second deployment. All reported that they had been exposed to trauma during deployment, however information regarding the amount of time between the trauma exposure and data collection is not available.

Table 2

*Demographics of Survey Participants*

<i>n</i> = 110 (%)	
<b>Gender</b>	
Male	88 (80%)
Female	20 (18%)
Not specified	2 (1.8%)
<b>Race/ethnicity</b>	
Caucasian	102 (92.7%)
African American	2 (1.8%)
Hispanic	2 (1.8%)
Asian	2 (1.8%)
<b>Relationship status</b>	
Married	44 (40%)
Single	9 (31.8%)
Committed	22 (20%)
Divorced	8 (6.9%)
Widowed	1 (.9%)
<b>Military branch</b>	
Army National Guard	61 (55.5%)
Army Reserve	16 (14.5%)
Army (Active Duty)	14 (12.7%)
Navy	8 (7.3%)
Marines	4 (4.5%)
Air Force	2 (1.8%)
<b>Military occupational specialty</b>	
Combat arms	29 (26.4%)
Combat support	53 (48.2%)
Service support roles	28 (25.5%)

**Protection of Human Subjects**

Data analyzed for this study was provided to the researcher in an electronic format with all data having been de-identified prior to analyses. No identifying information such as name,



date of birth, or Social Security number was included in the data file received, and this information is not otherwise accessible to the researcher. Security of the electronic file has been maintained during all stages of this research. The file is securely stored on the Minneapolis VA's protected network and the folder containing this file is only accessible by the clinical investigator who collected this data, the researcher, the VA's Privacy Officer, and Information and Security Officer, and is only accessible to the researcher while at the VA facility.

As this is a secondary analysis of de-identified data with prior approval from the Minneapolis VA Health Care System's IRB and participants gave informed consent at the time the data were collected, informed consent was not needed from participants for the purposes of this research (Please see Appendix \_ for written documentation of approval). Upon completion of this research in May 2016, all de-identified data will remain securely stored according to VA research and privacy policies and will no longer be used by the researcher. There are no anticipated risks or direct benefits to participants in this research.

## **Measures**

The Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) was used to assess veterans' lifetime history of trauma. The TLEQ is a 23-item measure of potentially traumatic events including natural disasters, motor vehicle accidents, combat or warfare, sexual abuse or assault, physical abuse or assault, robbery, life threatening illness, stalking, miscarriage, abortion, and sudden death or life-threatening event of a loved one. A 23<sup>rd</sup> item is included and allows respondents to include a traumatic event not previously mentioned under the category of "other" traumatic event. For each event endorsed, veterans were asked to respond with the number of times this traumatic event occurred on a 7-point scale ranging from 0 (Never) to 6 (More than 5 times) and whether they experienced intense fear, helplessness, or horror during the

event (Yes/No). Additionally, for some events questions regarding relationship to the perpetrator, presence of injury, threat or use of force, and the characteristics of the event are included. Events were grouped as “interpersonal” or “noninterpersonal” based on whether the event involved an exchange between two or more people or if the event involved perpetration on an individual by one or more people. The TLEQ possesses solid psychometric properties with test-retest reliability demonstrating kappa coefficients higher than .40 for 14 items and higher than .60 for 8 of the items (Kubany et al., 2000). This measure has also garnered evidence for convergent and content validity (Kubany et al., 2000).

For the purposes of this study, the following item numbers were categorized as “interpersonal” trauma: 4 (combat or warfare), 8 (robbery with a weapon), 9 (assaulted by acquaintance/stranger), 10 (witnessed severe assault), 11 (threatened with death/serious harm), 12 (growing up: witnessed family violence), 13 (growing up: physically punished), 14 (physically hurt by intimate partner), 15/16/17/18 (unwanted sexual contact at any age), 19 (sexual harassment), and 20 (stalked). Items 1 (natural disaster), 2 (motor vehicle accident), 3 (other kind of accident), 5 (sudden death of friend/loved one), 6 (life-threatening/disabling event to loved one), 7 (life threatening illness), 21 (miscarriage), and 22 (abortion) were categorized as “non-interpersonal” trauma. Additionally, the TLEQ asks respondents to identify the single event which causes the most distress.

The Combat Experiences Scale (CES) from the Deployment Risk and Resilience Inventory (DRRI; King, King, Vogt, Knight, & Samper, 2006) was used to measure exposure to common combat-related experiences such as firing a weapon, being fired on, witnessing injury or death, being attacked or witnessing an attack, and going on special missions or patrols that involve such experiences. The scale includes 15 items scored dichotomously (0 = No, 1 = Yes)

with a potential total score range of 0 to 15. The CES has demonstrated strong internal consistency reliability ( $\alpha = .85$ ) for both OIF and Gulf War veterans (Vogt, Proctor, King, King, & Vasterling, 2008). Combat exposure-related scales in the DRRI have also demonstrated good convergent validity (Johnson & Stein, 2011).

The Posttraumatic Stress Disorder Checklist-Civilian version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993) was used to assess posttraumatic symptomology. The PCL-C is comprised of 17 items that correspond with known symptoms of PTSD as established in the DSM-IV (the latest version of the DSM released at the time of data collection). The PCL-C includes three subscales that correspond to the DSM-IV symptom clusters including re-experiencing, avoidance/numbing, and arousal (Shelby, Golden-Kreutz, & Andersen, 2005). In collecting this data, the original study chose the PCL-C as opposed to the military version of the PCL as to allow the veterans the ability to identify the most stressful experience from their lifetime and respond to these items accordingly. Veterans indicated on a 5-point scale ranging from 1 (not at all) to 5 (extremely) how much they had been bothered by a symptom over the past month. A total symptom severity score is calculated by summing the scores of all 17 items (range = 17-85). The PCL-C has demonstrated high internal consistency with a Cronbach's alpha coefficient of .94 and both discriminant and convergent validity have been supported (Ruggiero, Ben, Scotti, & Rabalais, 2003). Test-retest reliability is good with  $r = .88 - .92$  for 1-week retesters and immediate retesters, respectively (Ruggiero, Ben, Scotti, & Rabalais, 2003).

The Posttraumatic growth Inventory (PTGI; Tedeschi & Calhoun, 1996) assesses positive changes reported by individuals who have experienced traumatic events. It is a 21-item measure which is comprised of five domains of PTG including New Possibilities, Relating to Others, Personal Strength, Spiritual Change and Appreciation of Life. PTGI scores can be assessed as a

total score or as five individual subscale scores. Individual items are scored on a scale from 0 “no change” to 5 “very great change”. The PTGI has demonstrated moderate and positive correlations to optimism, extraversion, openness, and religious participation, is unrelated to social desirability, and is negatively correlated with neuroticism (Tedeschi & Calhoun, 1996). It also demonstrates some usefulness in determining to what degree individuals will be successful with coping following a trauma and in adapting or reconstructing their views of self, others and meaningfulness of events (Tedeschi & Calhoun, 1996). This scale has demonstrated strong internal consistency at an alpha of .90. The test-retest reliability was acceptable at  $r = .71$  (Tedeschi & Calhoun, 1996) and the scale has been found to have good concurrent, construct, and discriminant validity (Tedeschi & Calhoun, 1996).

### **Data Analysis**

Analysis of data was conducted using the Statistical Package for the Social Sciences (SPSS) Version 19 software with the support of the Clinician Investigator who collected the data. Descriptive statistics including frequency distributions, measures of central tendency and dispersion are provided for key demographic variables (Table 1) as well as for total PCL-C, PTGI, and CES scores, and noninterpersonal or interpersonal trauma histories. Preliminary analyses were conducted to examine the relationship between combat experience (CES), interpersonal trauma history, noninterpersonal trauma history, and PTSD (PCL-C), PTSD and posttraumatic growth (PTGI), and combat experience and posttraumatic growth using Pearson product-moment correlation coefficients. Additionally, further analyses were conducted using the PTGI subscales and PCL-C trauma symptom clusters. Alpha was set to  $p < .05$ .

Independent *t*-tests were conducted to determine if differences existed for respondents who identified an interpersonal index trauma versus those who identified a noninterpersonal

index trauma and their total PTGI scores, PTGI subscale scores, total PCL-C scores, and PCL-C symptom cluster scores.

To examine the contributions of combat exposure, noninterpersonal trauma, and interpersonal trauma in accounting for differences in PTSD and posttraumatic growth, a hierarchical multiple regression analysis was conducted. Combat exposure was entered in Step 1 and interpersonal and noninterpersonal trauma were entered as separate variables in Step 2. Separate regressions were run with PTSD as a criterion variable in one analysis and posttraumatic growth in another. Alpha was set at .01 to control for experiment-wise Type I error.

The purpose of this study is to better understand how historical experiences of interpersonal trauma may predict PTSD and posttraumatic growth (PTG) outcomes among post-9/11 combat veterans that have served in Operation Enduring Freedom and Operation Iraqi Freedom. Based on the aforementioned literature, this study hypothesizes that a negative relationship will exist between posttraumatic stress scores (PCL-C) and posttraumatic growth scores (PTGI; Hypothesis 1). Given the relational impact of interpersonal trauma, this study speculates that after controlling for combat exposure, respondents with a history of interpersonal trauma will report higher posttraumatic stress (Hypothesis 2). Conversely, this study hypothesizes that after controlling for combat exposure, respondents with a history of interpersonal trauma will report less posttraumatic growth (Hypothesis 3).

## Findings

### Relationship Between Posttraumatic Stress and Posttraumatic Growth

Table 3 shows the inferential statistics of the relationships between PCL-C subscale and total scores and PTGI subscale and total scores. Total posttraumatic growth scores as demonstrated by the PTGI and total posttraumatic stress scores as demonstrated by the PCL-C were not correlated as was hypothesized in this study, disproving Hypothesis 1 ( $r = -.072, p > .05$ ). A t-test was run to assess posttraumatic growth and posttraumatic stress scores as compared between respondents with interpersonal versus noninterpersonal trauma histories. This analysis also did not produce significant results, which would indicate a lack of relationship. Among the entire sample a moderate, negative correlation was found between the Relating to Others subscale and both the total PCL-C scores ( $r = -.254, p < .05$ ) and avoidance symptom cluster scores ( $r = -.367, p < .01$ ). The Appreciation of Life subscale was found to have a moderate, positive correlation with the reexperiencing symptom cluster scores ( $r = .266, p < .05$ ).

Table 3

*Relationship Between PTGI Subscales and PCL-C Subscales*

	PCL: Re- experiencing	PCL: Avoidance	PCL: Arousal	Total PCL
	All N= 63	All N= 63	All N= 63	All N= 63
PTGI: New Possibilities				
Pearson Correlation	.161	-.092	.043	.018
Sig. (2=tailed)	.207	.473	.736	.887
PTGI: Relating to Others				
Pearson Correlation	-.063	-.367	-.212	-.254
Sig. (2=tailed)	.626	.003	.096	.045
PTGI: Personal Strength				
Pearson Correlation	.049	-.058	.063	.004
Sig. (2=tailed)	.705	.649	.625	.976
PTGI: Appreciation of Life				
Pearson Correlation	.266	.086	.188	.182
Sig. (2=tailed)	.035	.501	.140	.153
PTGI: Spiritual Change				
Pearson Correlation	.123	-.221	-.065	-.084
Sig. (2=tailed)	.337	.082	.611	.513
Total PTGI				
Pearson Correlation	.094	-.195	-.032	-.072
Sig. (2=tailed)	.466	.126	.802	.575

### **Impact of Interpersonal Trauma History on Posttraumatic Outcomes**

Means and standard deviations found in this sample for interpersonal trauma, noninterpersonal trauma, combat experiences, posttraumatic stress and posttraumatic growth are listed in Table 4. The mean Combat Experiences Scale score for the 106 respondents who completed these items was 5.55 out of a total possible score of fifteen, with a standard deviation of 3.45. This finding indicates that respondents encountered, on average, 5.55 different combat experiences. Total PCL-C scores averaged 34.21 out of a possible 85 with a standard deviation of 13.57. According to the National Center for PTSD (VA, 2012), a score between 30 and 35 is an appropriate cut-point score in a civilian primary care, Department of Defense screening or general population samples. The cut-point range for specialized medical clinics (such as TBI or pain) or VA primary care is 36 to 44, and for VA or civilian specialty mental health clinics is 45

to 50 (VA, 2012). Out of a possible total of 105, respondents had an average PTGI total score of 54.53 with a standard deviation of 39.47.

Table 4

*Descriptive Statistics for Trauma Types, Combat Experiences, Posttraumatic Stress and Posttraumatic Growth*

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>
Interpersonal trauma history	107	7.75	8.49
Noninterpersonal trauma history	107	6.40	10.55
Combat Experiences Scale (DRRI)	106	5.55	3.45
Total PCL-C score	107	34.21	13.57
Total PTGI score	102	54.53	39.47

**Posttraumatic stress and posttraumatic growth outcomes.** Interscale correlations are presented in Table 5. Both interpersonal trauma history and combat experiences were positively correlated with posttraumatic stress symptoms. Neither of these variables was correlated with posttraumatic growth. No correlations were found between noninterpersonal trauma history and posttraumatic growth or posttraumatic stress symptoms.

Table 5

*Intercorrelations Between Major Variables*

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1. Interpersonal trauma history	--				
2. Noninterpersonal trauma history	.18	--			
3. Combat experiences (DRRI)	.01	.02	--		
4. Total PCL score	.33*	.18	.36*	--	
5. Total PTGI score	-.19	-.054	.064	-.03	--

*Note.* \*  $p < .01$

As previously stated, this study hypothesized an interpersonal trauma history will predict higher posttraumatic stress symptoms (Hypothesis 2) and lower posttraumatic growth



(Hypothesis 3). The relationships between trauma type and posttraumatic stress and posttraumatic growth were analyzed using hierarchical linear regression with PCL and PTGI scores as the dependent variables as shown in Table 6. For both Hypotheses 2 and 3 we controlled for combat experiences in Step 1 and entered interpersonal trauma in Step 2. For Hypothesis 2, both combat exposure ( $\beta = .358, p < .001$ ) and interpersonal trauma ( $\beta = .268, p = .012$ ) predicted higher PCL scores in Step 2. For Hypothesis 3, combat exposure ( $\beta = .074, p = .475$ ) did not predict PTGI, but interpersonal trauma ( $\beta = -.226, p = .029$ ) predicted lower levels of posttraumatic growth. In conclusion, both combat trauma and interpersonal trauma are associated with higher levels of PTSD symptoms. Interpersonal trauma predicts lower levels of posttraumatic growth.

Table 6

*Trauma Types as Predictors of Posttraumatic Stress and Posttraumatic Growth*

<i>Variable</i>	<i>Total PCL Score</i>		<i>Total PTGI Score</i>	
	$\beta$	<i>p</i>	$\beta$	<i>p</i>
<b>Step 1</b>				
Combat experiences (DRRI)	.365	.000	.074	.475
<b>Step 2</b>				
Combat experiences (DRRI)	.358	.000	.078	.440
Interpersonal trauma	.268	.012	-.226	.029
Noninterpersonal trauma	-.010	.922	-.031	.760

*Note.* Step 1 Adj.  $R^2 = .203$ , Step 2 Adj.  $R^2 = .060$ .

Of those respondents who indicated experiencing interpersonal trauma in their lifetime, moderate and positive correlations were found between the Appreciation of Life subscale and reexperiencing symptoms ( $r = .459, p < .05$ ), and the Spiritual Change subscale and reexperiencing symptoms ( $r = .425, p < .05$ ). Respondents who reported experiencing

noninterpersonal trauma in their life were found to have strong, positive correlations between: New Possibilities and reexperiencing symptoms ( $r = .961, p < .05$ ); Appreciation of Life and total PCL score ( $r = .954, p < .05$ ), reexperiencing symptoms ( $r = .952, p < .05$ ), and arousal symptoms ( $r = .987, p < .05$ ); total PTGI scores and reexperiencing symptoms ( $r = .970, p < .05$ ). Please see Table 7 for a comparison of posttraumatic stress and growth outcomes for respondents with interpersonal trauma histories versus those with noninterpersonal trauma histories.

***Outcomes by index trauma type.*** Additional analyses were conducted based upon respondents' indication of their index, or most distressing, trauma as being interpersonal or noninterpersonal in nature. Of the 110 valid survey responses, 101 (91.8%) provided a response to the question asking for the traumatic event that causes the respondent the most distress, and 9 (8.2%) did not provide a response. A total of 74 (67.3%) respondents identified an interpersonal trauma as their index trauma, and 27 (24.5%) identified a noninterpersonal index trauma.

Table 8 and Table 9 show the results of the t-test comparing posttraumatic outcomes for respondents identifying an interpersonal index trauma and respondents identifying a noninterpersonal index trauma. There is a statistically significant difference between respondents with an interpersonal versus noninterpersonal index trauma for the following posttraumatic outcomes: reexperiencing symptoms (PCL-C Cluster B), Personal Strength, and Appreciation of Life. The p-value for the reexperiencing symptoms t-test is .003 ( $t = -3.04$ ) indicating a statistically significant difference based on index trauma type. Those respondents with an interpersonal index trauma report more reexperiencing symptoms.

In examining differences in posttraumatic growth domains between trauma types, the results demonstrated a statistically significant difference between respondents with interpersonal

trauma histories versus those with noninterpersonal trauma histories for certain growth domains. Those with an interpersonal index trauma perceived more personal strength ( $p$ -value = .02,  $t = -2.36$ ), and greater appreciation of life ( $p$ -value = .007,  $t = -2.74$ ). Those with an interpersonal index trauma report more personal strength and appreciation for life than those with a noninterpersonal index trauma.

Table 7

*Relationship Between PTGI Subscales and PCL-C Subscales for Respondents With Interpersonal Versus Noninterpersonal Trauma Histories*

	PCL: Reexperiencing		PCL: Avoidance		PCL: Arousal		Total PCL	
	Inter-personal	Noninter-personal	Inter-personal	Noninter-personal	Inter-personal	Noninter-personal	Inter-personal	Noninter-personal
PTGI: New possibilities								
Pearson correlation	.348	.961	-.142	.627	.128	.893	.064	.845
Sig. (2=tailed)	.113	.039*	.529	.373	.570	.107	.777	.155
PTGI: Relating to others								
Pearson correlation	.247	.656	-.277	.019	-.056	.334	-.089	.316
Sig. (2=tailed)	.269	.344	.212	.981	.803	.666	.695	.684
PTGI: Personal strength								
Pearson correlation	.220	.480	-.342	.924	-.039	.743	-.128	.780
Sig. (2=tailed)	.324	.520	.119	.076	.864	.257	.572	.220
PTGI: Appreciation life								
Pearson correlation	.459	.952	.015	.817	.260	.987	.229	.954
Sig. (2=tailed)	.031*	.048*	.946	.183	.242	.013*	.304	.046*
PTGI: Spiritual change								
Pearson correlation	.425	.714	-.134	.144	.128	.562	.094	.454
Sig. (2=tailed)	.049*	.286	.551	.856	.570	.438	.677	.546
Total PTGI								
Pearson correlation	.352	.970	-.217	.645	.065	.899	.010	.858
Sig. (2=tailed)	.108	.030*	.333	.355	.774	.101	.964	.142

Note. \*  $p < .05$

Table 8

*Group Statistics for Index Trauma Type and Posttraumatic Outcomes*

	Index Trauma Type	N	Mean	Std. Deviation	Std. Error Mean
PCL Total	Noninterpersonal	25	31.04	10.16	2.03
	Interpersonal	72	36.25	15.53	1.83
PCL: Reexperiencing	Noninterpersonal	26	7.88	2.86	.56
	Interpersonal	73	10.38	5.14	.60
PCL: Avoidance	Noninterpersonal	25	12.60	4.68	.94
	Interpersonal	72	13.72	6.25	.74
PCL: Arousal	Noninterpersonal	25	10.48	4.02	.80
	Interpersonal	72	12.07	5.11	.60
PTGI Total	Noninterpersonal	24	46.46	24.69	5.04
	Interpersonal	70	58.54	43.91	5.25
PTGI: New possibilities	Noninterpersonal	25	10.40	6.17	1.23
	Interpersonal	70	17.06	38.80	4.64
PTGI: Relating to others	Noninterpersonal	24	15.96	9.33	1.90
	Interpersonal	70	15.27	8.74	1.04
PTGI: Personal strength	Noninterpersonal	25	9.08	5.35	1.07
	Interpersonal	70	11.96	5.20	.62
PTGI: Appreciation of life	Noninterpersonal	25	7.36	4.19	.84
	Interpersonal	70	9.69	3.44	.41
PTGI: Spiritual change	Noninterpersonal	25	3.36	3.34	.67
	Interpersonal	70	4.57	3.66	.44

Table 9

*Index Trauma Type and Posttraumatic Outcomes t-test*

	Equal variance	Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error of difference	95% Confidence interval of the difference	
									Lower	Upper
PTGI total	Assumed	.052	.819	-1.278	92	.205	-12.084	9.456	-30.866	6.697
	Not assumed			-1.661	71.773	.101	-12.084	7.276	-26.591	2.422
PTGI: Personal strength	Assumed	.231	.632	-2.359	93	.020*	-2.877	1.219	-5.299	-.455
	Not assumed			-2.327	41.293	.025	-2.877	1.236	-5.373	-.380
PTGI: Appreciation of life	Assumed	1.863	.176	-2.737	93	.007*	-2.325	.849	-4.013	-.638
	Not assumed			-2.491	36.181	.017	-2.325	.933	-4.218	-.432
PTGI: Spiritual change	Assumed	.538	.465	-1.452	93	.150	-1.211	.834	-2.868	.445
	Not assumed			-1.517	46.071	.136	-1.211	.798	-2.818	.396
PTGI: Relating to others	Assumed	.048	.827	.327	92	.745	.686	2.103	-3.491	4.865
	Not assumed			.316	37.784	.754	.686	2.172	-3.712	5.086
PTGI: New possibilities	Assumed	.562	.455	-.851	93	.397	-6.657	7.821	-22.188	8.874
	Not assumed			-1.387	77.996	.169	-6.65714	4.799	-16.211	2.896
PCL-C total	Assumed	4.718	.032	-1.562	95	.121	-5.210	3.334	-11.829	1.409
	Not assumed			-1.905	64.413	.061	-5.210	2.734	-10.672	.252
PCL-C: Reexperiencing	Assumed	10.533	.002	-2.348	97	.021	-2.498	1.064	-4.610	-.386
	Not assumed			-3.038	79.162	.003*	-2.498	.822	-4.136	-.861
PCL-C: Arousal	Assumed	2.537	.115	-1.410	95	.162	-1.589	1.127	-3.827	.648
	Not assumed			-1.582	52.813	.120	-1.589	1.004	-3.604	.425
PCL-C: Avoidance	Assumed	2.588	.111	-.820	95	.414	-1.122	1.368	-3.839	1.594
	Not assumed			-.942	55.720	.350	-1.122	1.191	-3.509	1.265

Note. \*  $p < .05$

## Discussion

This research was conducted to further develop an understanding of how experiencing interpersonal trauma in one's lifetime may influence or predict posttraumatic outcomes following exposure to combat among veterans. Data regarding survey respondents' demographic information, lifetime exposure to interpersonal and noninterpersonal traumas, combat experiences, posttraumatic stress, and posttraumatic growth were analyzed. Furthermore, this study sought to contribute to existing research by analyzing the relationship between posttraumatic stress symptoms and posttraumatic growth. This research defined interpersonal trauma as any trauma involving an exchange between two or more people, or if the event involved perpetration on an individual by one or more people. Examples of interpersonal trauma include physical or sexual assault, robbery, stalking, and domestic violence.

In a review of the literature it was found that extensive research has been done to examine posttraumatic stress outcomes among combat veterans, however little research has been done to explore experiences of posttraumatic growth among combat veterans. Additionally, few studies have sought to understand how exposure to interpersonal trauma prior to combat may predict posttrauma outcomes following combat experiences. This study sought to contribute to the existing body of research by exploring the spectrum of posttraumatic outcomes among post-9/11 combat veterans, especially how these outcomes may be predicted or influenced by a veteran's historical experiences of trauma.

The following discussion will review how findings of this research are both consistent and inconsistent with previous research. The discussion will also include implications for social work practice, future research, and strengths and limitations of this study.

## **Relationship Between Posttraumatic Stress and Posttraumatic Growth**

This research hypothesized that a negative relationship would exist between posttraumatic stress scores (PCL-C) and posttraumatic growth scores (PTGI; Hypothesis 1), however the findings did not support this hypothesis. Additionally, no significant relationship was found between posttraumatic growth and posttraumatic stress scores when compared amongst respondents with interpersonal versus noninterpersonal trauma histories. These findings are inconsistent with the literature, which largely indicates a curvilinear relationship between PTSD and posttraumatic growth (Tsai et al., 2015; Dekel et al., 2011; Shakespeare-Finch & Lurie-Beck, 2014; Fontana & Rosenheck, 1998). It is, however, consistent with research by Hijazi and colleagues (2015) of a sample of combat veterans from multiple war eras, which also found no significant relationship between posttraumatic symptoms and posttraumatic growth.

In Shakespeare-Finch and Lurie-Beck's (2014) meta-analysis of 42 studies, they reported differences in the strength and linearity of relationships depending on trauma type. The meta-analysis did not specifically compare interpersonal versus noninterpersonal traumas, but rather looked at specific types of trauma such as sexual assault and natural disasters. Because this study did not classify traumatic experiences in this way, this research is unable to compare its lack of significant findings for a relationship between posttraumatic outcomes based on trauma histories.

An important consideration for this study is the potential impact of the length of time following exposure to combat and the collection of data on posttraumatic growth outcomes. Due to the fact that data was collected 6 months following a return from a combat deployment (however, time since last direct exposure to combat may vary among respondents), some respondents may not yet be experiencing growth in the defined posttraumatic growth domains included in the PTGI. If data had been collected following a longer period of time since combat

exposure, more respondents may possibly report more growth, which could directly alter the relationship between posttraumatic stress and growth scores.

The average PCL-C score among this sample was 34.21 out of a possible 85. A score of 34.21 meets the PTSD cut-point for general or civilian populations, however it does not meet the cut-point range for VA primary care or specialty mental health clinic settings (VA, 2012).

Another possible explanation for the findings of this research being inconsistent with the majority of literature on this specific finding may be due to the fact that this sample demonstrates sub-threshold PTSD scores. Considering that PTSD symptoms may continue to appear or worsen in the months following a traumatic experience, collecting data at a date further from the time of combat exposure may produce different results.

### **Impact of Interpersonal Trauma History on Posttraumatic Outcomes**

**Posttraumatic stress and posttraumatic growth outcomes.** Due to the particularly detrimental nature of interpersonal trauma, this study hypothesized that post-9/11 combat veterans with an interpersonal trauma history will predict higher posttraumatic stress symptoms (Hypothesis 2) and lower posttraumatic growth scores (Hypothesis 3). Findings of this study supported both hypotheses.

This study's findings in support of Hypothesis 2 are consistent with the research, which has found that individuals who experience interpersonal traumas develop PTSD at higher rates than those who experience noninterpersonal traumas (Stein et al., 2006; Breslau et al., 1999), such as natural disasters or auto accidents. The average PCL-C score for respondents of this study who had experienced interpersonal traumas was higher than for those who had not. Across posttraumatic stress symptom domains, those who had experienced interpersonal traumas scored higher than those who experienced noninterpersonal traumas in each of the DSM-IV PTSD



symptom clusters: reexperiencing, avoidance, and arousal. It has been theorized in the literature that an individual's perceived inability to use relational support following an interpersonal trauma due to a rupture in trust with others (Harris et al., 2010) contributes to increased posttraumatic stress symptomology. Subsequently, avoidance of social situations may contribute to higher reports of avoidant symptoms among this group.

The literature consistently reports higher rates of PTSD among combat veterans than among civilians (VA, 2015). This may be partially attributable to the higher rates of adverse childhood experiences among those who enlist in the military (Blosnich et al., 2014), which subsequently increases one's risk for developing PTSD (VA, 2015). An additional area of concern for veterans who have experienced interpersonal traumas prior to their exposure to combat is their ability and likelihood to seek and receive social connection from others as a means of coping with and healing from their traumatic experiences. Trauma, as has been reflected in the addition of the PTSD symptom cluster of negative cognitions and mood in the DSM-5 (APA, 2013), has been demonstrated to directly alter one's conceptualization of self, others, and the world (Janoff-Bulman, 1992). Traumatic events of an interpersonal nature can sever binds of trust in relationship to others as the survivor is left to grapple with and attempt to make sense of their own experiences of pain and suffering at the hands of another human being.

This study found that post-9/11 combat veterans with interpersonal trauma histories experienced less posttraumatic growth. Little research has been done to date exploring the relationship between interpersonal trauma and posttraumatic growth in the general population, and no research exploring this topic specifically among combat veterans is known to this researcher. Findings of this study indicate an increased need for understanding how a veteran's

trauma history prior to combat exposure may predict their likelihood to experience growth in the various posttraumatic growth domains.

A moderate and positive relationship was found between both the Appreciation of Life and Spiritual Change domains of posttraumatic growth as outlined in the PTGI and reexperiencing symptoms of stress. As combat veterans are faced with reexperiencing their traumatic experiences through nightmares, flashbacks, and other intrusive memory symptoms, they may be reminded once the symptoms have subsided at least momentarily, of their gratitude for being alive and for no longer being in the traumatic circumstances of their past. Another potential explanation for this may be that coping with reexperiencing symptoms may include prayer and connection with a Higher Power in an effort to make sense of one's experience(s) and to make meaning of them. Harris and colleagues (2010) have found that use of prayer as a coping mechanism is positively correlated with posttraumatic growth. Reports of growth in the spiritual domain may be partially attributable to symptoms that serve as reminders to veterans of their life-changing experiences in combat.

***Outcomes by index trauma type.*** Respondents to this survey were asked to identify their index, or most distressing, trauma. Approximately 67% ( $n = 74$ ) identified an interpersonal trauma as their index trauma, and approximately 24% identified a noninterpersonal index trauma ( $n = 27$ ). Significant differences were found between index trauma types – most notably, those respondents who identified an interpersonal index trauma reported more reexperiencing symptoms, greater personal strength, and greater appreciation for life. A thorough review of existing literature indicates that no research has been done to explore posttraumatic symptoms and posttraumatic growth among military populations based on index trauma. Research has been done exploring posttraumatic outcomes among other populations and has found, as has been

previously discussed, that traumatic events of an interpersonal nature are correlated with higher rates of PTSD (Stein, Van der Kolk, Austin, Fayad, & Clary, 2006). Interpersonal trauma has, however, been found to lack a significant association with posttraumatic growth among a sample of Palestinian adults (Kira et al., 2013) and for interpersonal traumas such as combat, refugee experiences, and physical assault, a positive correlation has been found with certain individual posttraumatic growth domains (Kira et al., 2013).

A potential explanation for those veterans identifying an interpersonal trauma as causing them the most distress reporter greater personal strength may also relate to an explanation for why this group does not report growth in the area of relating to others. A sense of personal strength may be the result of surviving and continuing life after another person or persons have severely violated or ruptured this person's sense of trust – resulting in the individual developing a greater sense of self-reliance and agency. While a sense of personal strength is not undesirable, if this explanation were to be further explored and supported, it would also likely demonstrate a tendency for these veterans to avoid social support an connection, which may further contribute to posttraumatic symptoms and inhibit growth in the domain of relating to others.

Growth in the domain of appreciation for life may be explained by the traumatic experience serving as a "wake-up call," reminding the survivor of the inherent risk of death following combat and other interpersonal traumas (Tsai et al., 2015). In the aftermath of an interpersonal trauma, the veteran may be left to grapple with making sense and meaning out of their experience, particularly attempting to make sense and meaning of being traumatized by another human or humans. The intrinsic struggle in the meaning-making process could very well contribute to reports of more appreciation and gratitude for life as one attempts to integrate their experience(s) into the broader experience of their life.

## **Implications for Clinical Practice**

This study aimed to better understand the spectrum of experiences and responses to trauma among post-9/11 combat veterans in an effort to further inform clinical social work practice and research. Military service members have long served as catalysts for research and deeper understanding of traumatic responses and treatment as the field has grown from conceptualizing combat trauma as "shell shock" to today's diagnosis of PTSD (Herman, 1997). Each war era presents new and unique experiences which influence how clinical practice evolves to meet the needs of veterans. Post-9/11 combat era veterans are an all-volunteer force (Hoge et al., 2004), are older than in previous conflicts (Committee on the Assessment of the Readjustment Needs of Military Personnel, Veterans and Their Families, 2013), are deploying for longer periods of time and for multiple deployments (IOM, 2010), and are less likely to die in conflict due to improved body and vehicle protection (Tanielian & Jaycox, 2008).

As these and other factors are taken into consideration in clinical practice with veterans, the social work profession must continue to identify and explore how other factors, such as the experience of growth and meaning-making after trauma may be facilitated in treatment. The VA has identified Prolonged Exposure and Cognitive Processing Therapy as primary evidence-based interventions for PTSD (VA, 2015c), however these interventions are primarily designed to address single traumatic events and their impacts, and aim to return the veteran to baseline functioning through the effective treatment of posttraumatic stress symptoms. While these interventions are empirically-supported and provide important opportunities for healing and coping for veterans, future research should continue to explore trauma interventions that not only address the impacts of single event traumas, but also the injurious and long-term effects of complex trauma, particularly interpersonal trauma experienced prior to enlistment.

This study points to not only the increased likelihood of developing PTSD after combat exposure when a veteran has previously experienced interpersonal trauma, but also highlights that these individuals are less likely to report growth following these same experiences. Social work ethics identify competent practice and respect and protection of a person's dignity (NASW, 2008) as guiding principles in clinical practice. When research unearths a need in clinical practice to address veterans' historical experiences of trauma, the social work field is called to respond. This and other research has provided important information about the detrimental effects of earlier experiences of trauma, before exposure to combat or other traumatic events. Clinicians engaging with individuals who have enlisted in the military in any capacity should aim to thoroughly understand their clients' trauma histories, how these experiences have effected them, and should intervene whenever possible and appropriate. Intervening with service members prior to the potential exposure of further trauma may help in reducing the likelihood of developing PTSD and improving posttraumatic outcomes.

### **Implications for Research**

Comparative research requires consistency in use of measures and operationalized definitions. While this research utilized empirically supported, reliable and valid measures, its operationalization of interpersonal and noninterpersonal trauma is not wholly consistent with trauma research. Trauma researchers have struggled to collectively operationalize these concepts and while there are some key consistencies in definitions of these terms, a universal definition does not exist. This study defined interpersonal trauma as any significantly distressing event that involved an exchange between two or more people, or an event that involved perpetration on an individual by one or more people. What distinguishes interpersonal from noninterpersonal trauma in this definition is the intent of an individual or individuals to inflict or cause harm to

another. For the purposes of this study, interpersonal traumas included events such as physical or sexual assault which may or may not be perpetrated by someone who is known to the victim. The same reasoning applies for the inclusion of combat as interpersonal trauma in that it involves perpetration of a person or persons on another.

Weaver and Clum (1995) define interpersonal violence as violence which occurs in the context of a relationship between victim(s) and perpetrator(s) such as in incidences of childhood physical abuse, rape, criminal assault, or domestic abuse. This element of relationship in operationalizing interpersonal trauma or violence can be seen in other research that identifies emotional abuse, emotional neglect, physical abuse, physical neglect, and/or sexual abuse in childhood and/or adulthood (Mauritz, Goossens, Draijer, & van Achterberg, 2013). Forbes and colleagues (2014) further delineate interpersonal trauma or violence by distinguishing between nonintimate (physical assaults perpetrated by nonintimates) and intimate (physical or sexual assaults perpetrated by intimates or caregivers) interpersonal traumas. Future research should seek to continue clarifying and establishing a consistent definition of interpersonal and noninterpersonal trauma in an effort to make cross-research comparisons more accessible.

Another consideration for future research is to analyze posttraumatic outcomes among post-9/11 combat veterans through an attachment theory framework. Particularly when considering interpersonal traumas that occur in childhood and adolescence, it is critical to consider the impact on relationships with attachment figures such as parents and/or caregivers and the subsequent lifelong outcomes when exposed to further traumas during military service. Attachment theory provides a helpful framework for understanding how early assumptions regarding attachment and relationships are formed and also altered as a result of traumatic experience of an interpersonal nature (Janoff-Bulman, 1992). Considering the high prevalence of

ACEs among military enlistees (Blosnich et al., 2014), analyzing experiences of relational or interpersonal traumas and their effects on attachment style and posttraumatic outcomes thereafter is warranted.

### **Strengths and Limitations**

There were several strengths and limitations in the present study. Strengths include that the initial collection of data analyzed for this research was done using mailed surveys, which eliminated interviewer bias and ensured information came directly from respondents themselves, rather than third parties such as psychotherapists or other mental health clinicians. This method also allowed for respondents to remain anonymous, which may have elicited more honest and thorough responses. Additionally, the instruments used for the purposes of this research are widely used among clinicians and researchers, and have been demonstrated to be consistent, valid, and reliable measures. This allows for greater ease in comparison between the findings of this and other studies. A key strength to this study is its focus on a broad spectrum of responses to trauma among veterans. Abundant research has been conducted exploring rates of PTSD among combat veterans, but little research has been done to see how veterans may experience growth as a result of their traumas. It is also critical that veterans' trauma histories prior to exposure to combat be considered, particularly those traumas, which are interpersonal in nature as they are known to have more deleterious outcomes.

Limitations of this study include that it was cross-sectional and its analysis was correlational. Because data was not collected longitudinally, it is not possible to derive causal conclusions. Data was collected 6 months following return from deployment which further supports the need for future research to collect data longitudinally as the full spectrum of posttraumatic symptoms – including both stress symptoms and reports of growth – may not

wholly appear in this time frame. This research provides an important benchmark and indicator for significant relationships between trauma histories and posttraumatic outcomes following combat exposure in veterans, however to better serve our military service members and veterans, continued research in this area is warranted and will continue to build on the foundation that has been laid by this and other research.

Findings of this study may not be generalizable to certain groups of veterans due to the demographics of respondents. The sample was largely comprised of Caucasian men from the Midwest who served in the National Guard or Reserves. These findings may not be as consistent with more diverse combat veteran samples including more female veterans, veterans from more diverse ethnic and racial backgrounds, active duty service members, and veterans of non-post-9/11 war eras. Future research should seek to explore posttraumatic outcomes among veteran samples that are more representative of the general military population.

A key limitation to this research is that in the period of time between data collection and data analysis for the purposes of this study, a revised edition of the DSM was released and updates were made to the PTSD diagnosis. This study has previously discussed changes to the PTSD diagnosis, but it is important to note that the addition of a new cluster of PTSD symptoms in the DSM-5 (APA, 2013) was not analyzed in this study, as this cluster was not yet defined when the data was collected. PTSD measures, including the PCL-C used in this study, were developed according to DSM-IV criteria. While symptoms outlined in the DSM-IV have remained a part of the updated PTSD diagnosis, negative cognitions and mood were not directly analyzed as would be indicated by the DSM-5.

Continued contributions to posttraumatic growth research have posited the need for additional explorations of how respondents most accurately identify posttraumatic growth and



depreciation when asked. Baker and colleagues (2008) found that using the PTGI as a measure of growth may enhance the likelihood of a positive response bias as this measure does not allow for the report of negative experiences in addition to experiences of growth. They propose a solution may be to develop items for posttraumatic measures that provide bipolar response options – allowing for respondents to identify no change, positive change, or depreciation in symptom and growth domains (Baker, Kelly, Calhoun, Cann & Tedeschi, 2008).

### **Conclusion**

Interpersonal trauma has been shown to have particularly detrimental effects and is experienced more frequently in children and adolescents who later enlist in the military as adults (Blosnich et al., 2014). This study offers insight into how historical experiences of interpersonal trauma influence posttraumatic stress symptoms and posttraumatic growth among post-9/11 combat veterans. Findings of this study indicate that not only do post-9/11 combat veterans experience more interpersonal trauma than noninterpersonal trauma in their lifetimes, but the sample of post-9/11 combat veterans in this study that experienced interpersonal trauma also reported more posttraumatic stress and less posttraumatic growth.

Given the high prevalence rates of PTSD among veterans of the post-9/11 wars, it is imperative for clinical social workers to consider implications for treatment with this era of military service members. Evidence-based therapies indicated for the treatment of PTSD include Prolonged Exposure, cognitive therapies such as Cognitive Processing Therapy and Cognitive Behavioral Therapy, Eye Movement Desensitization and Reprocessing, and psychopharmacological treatments (Moran et al., 2013; VA, 2015c). While these interventions have been demonstrated as effective in treating the symptoms of PTSD,

arguments exist for the use additional interventions for individuals who have experienced complex and multiple traumas over the lifespan. These interventions also have not been measured or developed to specifically facilitate growth in the aftermath of trauma (Moran et al., 2013; Pietrzak et al., 2010).

Implications discussed in this study include addressing gaps that exist in the research which would aid clinicians in better understanding how veterans of the current war era are impacted by their lifetime experiences of trauma. Future research should focus on longitudinal designs which will delineate causal relationships between trauma types and outcomes and can further inform indicated interventions for post-9/11 combat veterans. Additionally, a qualitative understanding is needed regarding how interpersonal traumas have affected veterans in potentially motivating their enlistment as well as how they experience future traumas such as combat. Furthermore, as posttraumatic growth is a relatively new concept, future research and clinical work should seek to explore and address how veterans experience growth as a result of their traumas and how this growth may be supported and encouraged in the context of the clinical relationship.

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