Understanding Combat Veteran Adaptation via Social-Cognitive Factors: Testing Relationships among Emotion Dysregulation, Coping Self-Efficacy Appraisals, and Negative Worldview

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ABSTRACT

Background. The current study was conducted to increase understanding of factors that promote or deter post-combat adaptation. In total, five research questions were posed and tested, leading to examination of how difficulties with emotion regulation, post-deployment coping self-efficacy (PDCSE), and disrupted worldview work in-concert to influence post-combat adaptation (as measured by PTSD severity, depression severity, and quality of life perceptions). **Methods.** The final sample included cross-sectional data for 123 OEF/OIF veterans who were referred for assessment and/or treatment in an outpatient clinic in a Veterans Affairs Medical Center. Path analysis, employing bootstrapping re-sampling, was used to test hypotheses, yielding metrics for model fit, direct effects, and hypothesized indirect effects. **Results.** Overall findings demonstrated that each of the models tested were a good fit for explaining post-combat adaptation outcomes, with the final integrated model (including combat exposure, difficulties with emotion regulation, PDCSE, and negative worldview) explaining 49% of the variance in PTSD, 60% of the variance in depression severity, and 42% of the variance in quality of life, respectively. Findings across all models demonstrated that emotion dysregulation played a significant role in promoting worse post-combat adaptation, and that this effect primarily worked through alterations in PDCSE and negative worldview. **Conclusions.** This study concludes with interpretation of findings via theory and the extant literature. Future research and intervention implications are discussed, including the need to focus post-combat therapies on altering PDCSE and negative worldview, and more broadly, on factors that diminish meaningful life for combat veterans.

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Chapter 1

Introduction

Coping self-efficacy (CSE; belief in ability to manage posttraumatic recovery demands) is supported as a mechanism for adaptation among trauma survivors across a variety of traumatic event types (Benight & Bandura, 2004; Luszczynska, Benight, & Cieslak, 2009). The current literature, however, has only preliminarily examined the relationship between CSE and combat veteran functioning (Glasner-Edwards et al., 2007; Ginzburg, Solomon, Dekel, & Neria, 2003; Smith, Benight, & Cieslak, 2013; Solomon, Benbenishty, & Mikulincer, 1991). Further, no research has examined CSE for managing obstacles that combat veterans specifically struggle with in the process of re-integrating into society following combat deployments, thus failing to capture the explanatory power that may otherwise be possible (see Bandura, 2006; Forsyth & Carey, 1998; Smith & Anderson, unpublished manuscript).

The current study intends to examine post-deployment coping self-efficacy (PDCSE; beliefs about one's ability to manage specific demands that accompany life after deployment) in the process of understanding veteran self-regulatory functioning at the time of referral for mental health treatment services. Specifically, the current study seeks to test PDCSE as a predictor that works in concert with emotion regulation difficulties and negative worldview to explain combat veteran functioning (measured by PTSD severity, depression severity, and quality of life perceptions). The foundation of the current study is built upon hypotheses implicit in social cognitive theory (SCT) of posttrauma adaptation (Benight & Bandura, 2004) and anxiety buffer disruption theory (Pyszczynski & Kesebir, 2011; see also Smith, Abeyta, Hughes, and Jones, 2015). Additionally, the current study seeks to extend recent findings from the first published study to examine PDCSE in the process of understanding mental health functioning among

university attending combat veterans (see Smith et al., 2013) by testing this construct among treatment seeking OEF/OIF veterans.

Background and Significance

Military deployment statistics estimate that 73% of the Army's active component force deployed in OEF/OIF, wherein it was common to deploy 2 or 3 times for 12 months at a time (Baiocchi, 2013). High deployment numbers are juxtaposed to the largest active-duty downsizing since World War II (e.g., Army force reduction of 80,000 soldiers by 2017). As such, discharging combat veterans entering the civilian sector will continue to have societal implications unlike any time in the last 60 to 70 years.

Research clearly supports the relationship between combat exposure and mental health dysfunction across a number of psychiatric diagnoses and concerns. Combat exposure predicts high levels of first-time onset depression (Wells et al., 2010), posttraumatic stress disorder (PTDS; Smith et al., 2008), and co-occurring trauma spectrum disorders (PTSD, depression, and anxiety disorders; Ginzburg, Ein-Dor, & Solomon, 2010). Further, a significant proportion of OEF/OIF veterans screen positive for PTSD and depression diagnoses (Dursa, Reinhard, Barth, & Schneiderman, 2014; Milliken, Auchterlonie, & Hoge, 2007) and experience elevated suicide risk (see editorial review by Friedman, 2014; Nock et al., 2014; Schoenbaum et al., 2014).

Mental health difficulties among combat veterans negatively influences social/interpersonal relationship functioning (Tsai, Harpaz-Rotem, Pietrzak, & Southwick, 2012), with evidence suggesting that veteran social networks become impoverished across time (King, Taft, King, Hammond, & Stone, 2006). The post 9/11 war era, which has been characterized by repeated/lengthy deployments, generates particularly high stress levels within service-members' families and social networks, increasing vulnerability to interpersonal

relationship deterioration (Interian, Kline, Janal, Glynn, & Losonczy, 2014; Milliken et al., 2007) and high rates of divorce (MHAT, 2008). Veteran difficulties with overcoming combat exposure and sequelae can introduce mental health difficulties into the lives of family members (Mansfield et al., 2010), perhaps via transmission of secondary traumatization (see Dekel & Solomon, 2007). Considering these findings, it is not surprising that low social support among veterans is a particularly prominent predictor of mental and physical health problems (see review by Brewin, Andrews, & Valentine, 2000; Cigrang et al., 2014; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009; Pietrzak, Russo, Ling, & Soutwick, 2010; Pietrzak, Russo, Ling, & Southwick, 2011).

Altogether, the evidence base is calling out: A significant proportion of veterans are struggling to navigate post-combat obstacles. Albeit that veterans would benefit from seeking mental health services that meet post-deployment needs, high rates of treatment drop-out and non-response remain problematic among combat veterans who actually seek services (e.g., Goodson, Lefkowitz, Helstrom, & Gawrysiak, 2013); these rates have not objectively improved in recent years (see review by Imel, Laska, Jakupcak, & Simpson, 2013; Steenkamp, Litz, Hoge, & Marmar, 2015). Reasons behind treatment response and/or drop-out remain elusive, albeit that limited inquiries have been made to uncover factors that drive this problem (e.g., Rizvi, Vogt, & Resick, 2009). All of this evidence converges on the notion that more must be understood about veteran functioning and difficulties upon referral of veterans into mental health services. Recent evidence and advocacy suggests that much more work must be done to improve provider capacity to deliver effective intervention (see Tanielian et al., 2014).

The current study poses PDCSE as a self-regulatory gauge that serves as an indicator of coping-capacity across a number of obstacles specifically akin to post-deployment experience,

with the promise of improving practitioner understanding of veteran ego-strength at time of veteran referral, treatment selection, and treatment efficacy. In doing so, the current study aims to examine whether PDCSE is an important factor for understanding post-combat functioning. The following section offers theory, from general SCT related to self-efficacy appraisals (Bandura, 1997), to specific application of CSE in post-combat settings.

Social Cognitive Theory and Self-Evaluative Coping Appraisals

SCT is built on the heuristic of human agency: Human beings are capable of being producers of their fates rather than mere products of uncontrollable forces (Bandura, 1997). When individuals are better able to predict/control personal ability to respond to environmental demands, environments lose their power to alter/disrupt the pursuit of goal directed behavior and goal achievement. SCT highlights self-efficacy appraisals, which are predicated on self-evaluation of coping capacity as the primary driver of agentic functioning. Self-efficacy appraisals are formed through reciprocal interactions among behavioral, personal, and environmental characteristics (Bandura, 1997).

In posttraumatic contexts, CSE appraisals (domain specific self-efficacy appraisals pertaining to one's belief in his/her ability to engaging in adaptive coping behaviors) play a prominent role as an emotion regulation gauge through the following cascading effect: (1) high CSE reduces primary threat appraisals associated with objects in extra-personal space; (2) benign primary threat appraisals, in turn, yield reduced emotional activation and would-be cognitive pre-occupation, and as a result; (3) individuals with high CSE retain cognitive/emotional resources that are necessary to plan and attain goals (e.g., earning a degree; maintaining a healthy family environment) rather than being overwhelmed and depleted by persistent symptom level demands (Benight & Bandura, 2004).

Conversely, diminished CSE appraisals can be detrimental in the trauma recovery process (Benight & Bandura, 2004). By their very nature, traumatic events and posttraumatic stress symptoms are experienced as unpredictable, dangerous, and/or uncontrollable, and may reduce one's perceptions of personal agency/efficacy in posttraumatic environments, thereby increasing vulnerability to psychopathology onset and persistence (Smith, Abeyta et al., 2015). CSE appraisals that are diminished by traumatic and posttraumatic experiences no longer provide emotional regulatory benefits, thus increasing the severity of primary threat appraisals (i.e., environmental objects are perceived as more threatening). This may yield higher and longer duration of sympathetic nervous system reactivity and cognitive preoccupation with increasingly severe, frequent, and generalized appraisals of threat and fear. In turn, and in order to manage increased emotional activation and cognitive preoccupation, resources must be allocated towards self-regulating/managing symptoms rather than conserving resources for allocation towards higher level task demands (e.g., performing on the job; taking one's family on vacation; earning a college degree).

Classic research conducted under the guise of Lazarus and Folkman's (1987) transactional theory of stress and coping highlights self-evaluative coping appraisals (characterized as secondary appraisals that occur in response to primary threat appraisals [secondary coping appraisals are very similar in concept to CSE appraisals]) as mediating mechanisms through which coping is enabled (e.g., Folkman, Lazarus, Dunkel-Schetter, Delongis, & Gruen, 1986; see Lazarus, 1981; Folkman & Lazarus, 1988;). More recent systematic and meta-analytic reviews support CSE appraisals as a primary mechanism for adaptation following trauma (Benight & Bandura, 2004; Luszczynska et al., 2009). Luszczynska and colleagues (2009) specifically reviewed 27 studies that examined CSE in medical contexts

among individuals recovering from myriad traumatic experiences (i.e., natural disasters, war-related violence, and mass violence). Findings revealed CSE as a prominent determinant of healthy outcomes, yielding medium to large effects on psychopathology, treatment and recovery, substance-abuse, and health related-outcomes. Despite findings and theory that suggests the potential for CSE as a final common pathway to explain posttrauma functioning, theoretical and empirical application of CSE in military and post-military contexts has not been fully considered.

Self-Evaluative Coping Appraisals in Application to Military and Post-Military Contexts

CSE may have a particularly important application to military service and post-combat reintegration. By the very nature of military service and organizational structure, individual soldiers yield personal choice and well-being to a hierarchical, bureaucratic system. Organizational decisions that are made for the good of the mission can occur at the peril of the individual service-member, with potential to yield a sense of profound inability to exert personal choice and control of one's own fate in warzones (Litz & Orsillo, 2004). Further, reasons for orders can be easily lost in the bureaucratic hierarchy that transmits information through many people in the chain of command. For those closer to the bottom of the chain of command, such bureaucratic/hierarchical decision making decreases appraisals of personal choice and can increase uncertainty/ambivalence about how/whether orders relate to the mission.

The intersection of military hierarchical bureaucracy and loss of perceived personal control/choice among service-members is exemplified in the Stop Loss policy. Implemented in the military as a means of maintaining the necessary troop census for combat operations, when a soldier is 'Stop-Lossed,' his/her contractually agreed upon discharge date is altered, resulting in (a) retaining that soldier for an upcoming deployment, or (b) extension of an ongoing deployment. Anecdotal responses to policies such as this require the service-member to "suck-it-

up and drive-on." The frequently repeated response to soldiers who object to orders that come down through the chain of command via administrative policies like Stop Loss is that the individual has "signed up for this" (referring to the volunteer nature of service), therefore forfeiting personal rights and choice to the organization.

Beyond understanding aspects of military organizational structure that reduce perceptions of personal choice/control during military service, cultural aspects of the military may have important implications for the primacy of PDCSE in post-combat re-integration settings. Dyed-in-the-wool facets of military culture surrounding the "suck-it-up" mentality plays out in post-combat contexts as a barrier to treatment seeking, demonstrated by research showing that soldiers do not seek treatment due to military stigma against those who express vulnerability by seeking treatment (Hoge et al., 2004; Kim, Thomas, Wilk, Castro, & Hoge, 2010; Sayer et al., 2009; Vogt, 2011; Vogt et al., 2014). Active duty soldiers who are more firmly embedded in military culture (i.e., on a daily basis, whether deployed or not) than national guard soldiers, show lower levels of post-combat treatment utilization and higher levels of negative stigma around seeking treatment and fellow soldiers who seek treatment (Kim et al., 2010). The confluence of military culture and hierarchical organizational structure may lead soldiers to internalize losses of personal choice and control during and after combat (Litz & Orsillo, 2004) and to negatively evaluate those who exert such personal choice (e.g., by seeking treatment), even under circumstances wherein mental/physical health is at risk.

Altogether, there is an important and unexamined interplay between (a) reduced personal choice/control that occurs as a byproduct of military culture and organizational structure, and (b) coping appraisal processes that the individual veteran employs when no longer embedded within military cultures in which personal agency and choice is a requisite for thriving (e.g., after

discharge from military service, when the military is no longer making decisions for the soldier). As such, understanding individual coping appraisals as they relate to post-deployment obstacles (PDCSE) may provide insight into how post-combat self-regulatory capacity, based on perceptions of personal control/agency, is involved in combat veteran functioning.

The existing research on CSE and post-combat outcomes. Research that examines self-efficacy appraisals in relation to post-combat outcomes provides preliminary promise for moving knowledge of PDCSE forward. The lion's share of self-efficacy research specifically applied to post-combat adaptation is available through an ongoing series of studies conducted among Israeli survivors of the Yom Kippur Wars (Ginzburg et al., 2003; Solomon et al., 1991; Solomon, Weisenberg, Schwarzwald, & Mikulincer, 1988; Weisenberg, Schwarzwald, & Solomon, 1991). The most recent study from this line of research demonstrated that low levels of peri-combat self-efficacy (retrospective belief in ability to exert personal control over the environment *during the battle*) predicted higher levels of future negative cognitive attributions (i.e., beliefs about the self in relation to the world) and functional adaptation approximately 20-years post-combat (Ginzburg et al., 2003). Undoubtedly, these are important findings. However, self-efficacy measurement was focused on retrospective reports of self-efficacy appraisals related to battlefield capability and performance. As such, these findings do not address/measure CSE for managing current and future post-deployment obstacles.

In addition to research among Yom Kippur War veterans, two additional studies have examined CSE among combat veterans (de Vries, Soetekouw, van der Meer, & Bleijenberg, 2001; Glasner-Edwards et al., 2007). De Vries and colleagues (2001) demonstrated support for CSE as a strong predictor of combat fatigue severity across time. Glasner-Edwards and colleagues (2007) conducted a longitudinal study with a target sample of combat veterans

seeking treatment for comorbid depression and substance-use disorders. General self-efficacy was applied and supported in its classical stance as a self-regulatory gauge, predicting longer periods of abstinence from substance use. Neither of these studies, however, considered self-efficacy perceptions in a manner that specifically tailored item content to capture the obstacles that combat veterans struggle in the process of re-integrating post-combat.

One recently published study was the first to consider/measure CSE appraisals as they pertain to specific post-deployment obstacles (PDCSE) in order to explain post-deployment adaptation among OEF/OIF combat veterans reintegrating into a university setting (Smith et al., 2013). Results were promising, showing that PDCSE mediated between perceived social support, received social support, and distress (i.e., PTSD and depression symptom severity). This study identified PDCSE as an important potential pathway through which classic and large-effect size producing risk factors (e.g., social support dimensions) influence healthy post-combat functioning. It is important to note that study findings and implications were limited (in part) by the sample characteristics (i.e., non-clinical higher education seeking sample).

In summary, the power of losing perceived personal choice and control amidst dangerous combat environments may play out in post-combat adaptation problems, as evidenced by research that supports low battlefield self-efficacy as a predictor of poorer outcomes ~20 years post-combat (Ginzburg et al., 2003). Recent research (Smith et al., 2013) supports PDCSE as a potential pathway through which large-effect size producing, posttrauma risk factors influence healthy post-combat adaptation. The evidence suggests the potential primacy of PDCSE as a driver of adaptation in post-combat settings, although there have been no empirical attempts to address this question among treatment seeking veterans (see Smith et al., 2013). What remains

untested is whether and how PDCSE is involved in the prediction of mental health functioning among combat veterans seeking PTSD treatment.

The Current Study

Several of the limitations discussed throughout the literature review will be addressed through the current study. First, the current study employs a measure of PDCSE, allowing for understanding self-regulatory capacity as it relates to present and future coping appraisals for managing post-deployment obstacles. Preliminary empirical evidence suggests that PDCSE predicts more variance in post-combat outcomes than general self-efficacy measures (Smith & Anderson, unpublished manuscript in preparation), providing support for claims that contextually sensitive self-efficacy measures that address environmentally salient obstacles provide a more precise measure of self-regulation in a given context (see Bandura, 2006; Forsyth & Carey, 1998). Additionally, several limitations illustrated in the Smith et al. (2013) study will be addressed in the current study by examining PDCSE among OEF/OIF veterans seeking mental health treatment services.

In addition to the current study's purpose to generally test whether PDCSE helps to explain post-combat outcomes among treatment seeking OEF/OIF veterans, several overarching research questions are posed with the purpose of forming the basis for future PDCSE research and clinical application:

1. Is PDCSE a gauge for self-regulatory functioning (as is suggested in SCT of posttraumatic adaptation; Benight & Bandura, 2004) following combat exposure in the prediction of post-combat adaptation (i.e., PTSD severity, depression severity, quality of life)?

2. How does PDCSE work in-concert with negative post-combat beliefs (i.e., about the self, world, and others) in order to predict post-combat adaptation?

3. How do emotion regulation difficulties, PDCSE, and negative post-combat beliefs work in an integrated model to predict post-combat adaptation?

Research question 1: Examining the emotion regulation gauge hypothesis. Is PDCSE a gauge for self-regulatory functioning following combat exposure in the prediction of post-combat adaptation (i.e., PTSD severity, depression severity, quality of life)? As explained previously, SCT of posttraumatic adaptation poses CSE appraisals as a gauge for self-regulatory functioning (Benight & Bandura, 2004). The theoretical means through which self-efficacy beliefs bolster recovery occurs through (a) primary and secondary appraisal process (see Lazarus, 1981; Lazarus & Folkman, 1987) that (b) allows for retention of cognitive and emotional resources needed to overcome higher-level obstacles rather than (c) being overwhelmed/frozen in a resource depleting cycle of symptom management and avoidance.

Whereas the logic of this hypothesis is both theoretically meaningful and follows from a rich research tradition in SCT (Benight & Bandura, 2004) and transactional theory of stress and coping (Lazarus, 1981; Lazarus & Folkman, 1987), and whereas evidence eludes to CSE as a self-regulatory gauge in post-combat contexts (e.g., predicting longer duration of substance-use abstinence; Glasner-Edwards et al., 2007), there are no explicit empirical tests of CSE as a self-regulatory gauge in post-combat contexts. In order to test this theory explicitly, the current study hypothesizes that emotion regulation difficulties will (a) strongly, directly predict PDCSE, and (b) that emotion regulation difficulties will indirectly predict outcomes in through PDCSE (see Figure 1 [*Appendix B*]).

Research question 2: Examining the interplay between post-combat worldview and self-efficacy. How does PDCSE work in-concert with negative post-combat beliefs (i.e., about the self, world, and others) in order to predict post-combat adaptation? Anxiety buffer disruption theory (Pyszcynzki & Kesebir, 2011) and related evidence (Kesebir, Luszcynzka, Pyszczynski, & Benight, 2011; Smith, Abeyta et al., 2015) provide a basis for the interconnection between self-efficacy appraisals and worldview processes in the prediction/understanding of post-combat functioning. Prior to fully describing anxiety buffer disruption theory, it is important to briefly examine the concept of worldview as it relates to posttrauma functioning, and the origins of posttrauma-belief-systems-theories from which current thinking on posttrauma worldviews is derived.

Traumatic experiences and worldviews. The 'worldview' concept was first described in the stress and coping literature by Parkes (1971), a view that is consistent with Bowlby's (1980) identification of worldviews as an environmentally alterable, internal structure that provides bases for (a) expectations for the self and others, as well as (b) goal setting and emotion regulation. Horowitz (1986) brought the concept of assumptive worldviews into the forefront of the stress and coping field through his stress response syndromes theory, considering that belief systems and healthy functioning are founded on assumptions about the self in relation to the world and others (i.e., worldviews). Janoff-Bulman (1992) applied a more culturally palatable social cognitive theory framework (i.e., shattered assumptions theory), building on Horowitz's approach by unpacking three core worldview assumptions that provide meaning and security: (a) the world as meaningful, (b) the self as invulnerable, and (c) others as capable of benevolent motives. According to Janoff-Bulman, traumatic events alter and perhaps even shatter core world assumptions. In turn, negatively altered core assumptions may negatively influence one's

ability to navigate posttraumatic obstacles and/or diminish the quality of relationships and functioning across a number of dimensions (e.g., finding meaning in life and work).

Recently, anxiety buffer disruption theory (Pyszczynski & Kesebir, 2011) has expanded knowledge and application related to posttraumatic worldview processes by extending hypotheses associated with shattered assumptions theory (Janoff-Bulman, 1992). As an application of terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986), anxiety buffer disruption theory is built on the notion that anxiety arises when individuals are reminded of death (i.e., mortality salience). According to TMT, protection from anxiety occurs through embedding oneself in a meaningful cultural worldview. TMT research conducted over several decades shows that when reminded of mortality, individuals defend, affirm, and validate worldviews in order to remain protected from anxiety (see review by Greenberg, Solomon, & Arndt, 2008).

According to anxiety buffer disruption theory (Pyszczynski & Kesebir, 2011), traumatic events can leave one's worldview impotent to protect against anxiety. That is, a worldview that was previously capable of providing meaning, security, and anxiety palliation no longer serves these purposes. When worldviews are negatively altered by traumatic events and posttraumatic experiences, individuals no longer maintain protection from anxiety. In turn, un-palliated anxiety leaves trauma survivors vulnerable to psychopathology development. To date, four experimental studies (Abdollahi, Pyszczynski, Maxfield, & Luszczynska, 2011; Chatard et al., 2012; Edmondson, 2009; Kesebir et al., 2011) and one correlational study (Smith, Abeyta et al., 2015) have demonstrated support for the notion that traumatic events disrupt worldviews and leave individuals vulnerable to persistent psychopathology.

In combat settings, negative cognitive biases are shaped through culture and training (Smith & Jones, under review). In combat zones, such biases promote affective arousal and adaptive vigilance for malevolent enemy out-groups in combat zones, forming the basis of an effective worldview that provides efficient accessibility to cognitive structures (see Higgins, 1999) that produce "quick-shoot," survival-promoting, instinctive behaviors (see Grossman, 2009; see Smith & Jones, under review). However, in post-combat contexts, the utility and accuracy of negative worldviews that are biased towards viewing the self, world, and others through a malevolent lens may no longer be accurate or useful for survival and thriving. Indeed, the trauma literature clearly depicts that negative belief alterations that occur as a byproduct of traumatic event exposure (Janoff-Bulman, 1992; Herman, 1997; Horowitz, 1986) are a key driver of persistent psychopathology (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Foa & Rothbaum, 1998; Pyszczynski & Kesebir, 2011; Resick & Schnicke, 1993; Smith & Jones, under review).

In order to understand combat veteran functioning, it is essential to examine the interplay between self-regulation and post-combat worldview functioning. The next sub-section reviews evidence from two studies that provide preliminary understanding of how posttraumatic worldview/belief alterations (in the form of negative cognitions/beliefs about the self and the world) and CSE appraisal processes may work together in determining post-combat functioning.

The intersection of self-efficacy appraisals and negative posttraumatic worldviews. Internal-cognitive-structures/beliefs (akin to one's worldview) that are shaped through experience (e.g., expectations/beliefs about the self in relation to the world and others) may dynamically interact with self-regulatory functioning, with potential consequences for goal setting, goal achievement, and psychopathology (e.g., Bowlby, 1980; Hafer, 2000; Higgins,

1999). Two studies have explicitly examined the intersection of SCT and anxiety buffer disruption theory (Kesebir et al., 2011; Smith, Abeyta et al., 2015).

Kesebir and colleagues (2011) specifically examined worldview defense strategies among individuals with PTSD and differing levels of CSE. Results suggested that when primed to mortality salience (i.e., primed to experience existential anxiety that comes with the conscious knowledge of one's mortality), participants with higher CSE responded to existential anxiety with intact anxiety defense via an effective and cohesive worldview. Conversely, those with lower CSE displayed atypical, disrupted worldview defense strategies that do not protect from anxiety. These findings highlighted potential dynamic interactions between PTSD symptom severity, self-efficacy appraisals, and the enabling of cognitive processing of worldview discrepant traumatic events that requires further investigation. Further, this study implicitly places CSE in the path to predicting worldview disruptions en-route to determining psychopathology.

Smith, Abeyta and colleagues (2015) examined the possible dynamic relationship between self-efficacy appraisals and worldview disruption as mediators between PSTD and grief symptoms among survivors of a mass-school-shooting. Evidence showed that reduced self-efficacy maintained higher levels of worldview disruption, which in turn disabled survivors from processing trauma-caused grief reactions, thus leading to more severe grief symptoms. This study highlighted a need to further understanding the interplay between self-regulation and cognitive processing in the form of trauma altered worldviews in order to understand posttrauma functioning (Smith, Abeyta et al., 2015). Further, and in similar fashion to the Kesebir et al. (2011) study, this evidence demonstrated support for reduced self-efficacy as a predictor of disrupted worldview in the process of predicting negative posttrauma outcomes.

Additional research has examined the interplay between self-efficacy and negative posttrauma beliefs to explain mental health functioning (Cieslak, Benight, & Lehman, 2008). Cieslak and colleagues (2008) tested hypotheses posing CSE as a mediator between posttraumatic cognitions (about the self and world) and posttraumatic distress among (a) adult women who were victims of childhood sexual abuse, and (b) motor vehicle accident survivors. Findings supported self-efficacy as a mediator between negative beliefs and distress severity, again providing evidence for the interconnectedness of CSE appraisals and negative posttrauma beliefs in predicting functioning. However, this research also supports competing evidence (in comparison to Kesebir et al., 2011 and Smith, Abeyta et al., 2015) for the causal directionality of how self-efficacy and negative posttraumatic beliefs work to influence outcomes, specifically posing CSE as a mediator between negative beliefs and outcomes.

Altogether, it is unclear how self-efficacy appraisals and worldview processes influence one another in the determination of posttrauma functioning. No research to date, however, has examined competing models to test the interplay/directionality between CSE and negative post-combat beliefs. Smith, Abeyta and colleagues (2015) propose that higher self-efficacy appraisals allow individuals to process higher level demands (i.e., making meaning of worldview discrepant events/expectation violations), suggesting that self-efficacy enables more intact/flexible worldviews in the wake of traumatic events, thereby predicting improved posttraumatic functioning (see Figure 2). However, theoretical argument from Cieslak and colleagues (2008) suggests that CSE appraisals can mediate between negative posttraumatic beliefs in the process of intervening and promoting better functioning (e.g., see Figure 3). As such, the current study proposes to explore the interconnections between PDCSE and worldivew, testing competing

models to examine directionality of the effect of worldview disruption and self-efficacy appraisals (see Figures 2 and 3).

Research question 3: Integrated model testing the cultivating hypothesis. Is PDCSE the final common pathway (Luszynska et al., 2009; Cieslak et al., 2008), or does it work dynamically through influence on other cognitive/emotional structures (e.g., worldview) as has been identified in previous research conducting in traumatized (but not combat veteran) samples (e.g., Kesebir et al., 2011; see Schwarzer & Knoll, 2007; Smith, Abeyta et al., 2015)? See Figures 4 and 6 for a visual depiction of the integrated conceptual model to be tested in the current study that explores potential dynamics among emotion regulation difficulties, PDCSE, and worldview disruption in the prediction of post-combat functioning.

Chapter 2

Methods

Research Setting

The current research project was conducted in collaboration between the Salem Veterans Affairs Medical Center (VAMC) and the Virginia Tech Psychology Department, approved by both the Virginia Tech IRB (#14-370) and Salem VAMC R & D Committee (#DRH-0011) under principal investigator Dr. Dana R. Holohan.

Participants & Procedure

Data were collected among OEF/OIF veterans seeking treatment in an outpatient mental health clinic at the Salem VAMC specializing in evidence supported treatment (EST) of trauma spectrum disorders (i.e., the Center for Traumatic Stress [CTS]). As part of routine clinical care, participants completed an intake packet comprised of demographic information and questionnaires. For inclusion in the study, participants must (a) have served in recent wars (OEF or OIF) within the past 10 years, and (b) be seeking assessment and/or treatment for outpatient mental health treatment services within CTS.

A total of 150 unique participants were included in the initial data set upon removal of redundant cases (i.e., participants who had completed measures more than once based on multiple referrals to the Center for Traumatic Stress during the data collection period). Upon chart review, 27 cases were removed, yielding a final sample of 123 participants for analyses (final $N = 123$). The following were reasons that each of the 27 cases were removed: thirteen participants reported no history of combat deployment or a pattern of responses that made combat deployment un-confirmable during chart review; eight participants had served in wars prior to OEF/OIF (i.e., Vietnam or Gulf War Veterans); three participants were missing data on

the combat exposure measure, and were deleted upon missing data analysis demonstrating randomly distributed missingness (Little's test of MCAR, $\chi^2_{[7]} = 3.56$, $p = .83$; see Enders, 2010; Graham, 2009); two participants completed one-or-fewer items on the PDCSE scale; one participant's chart was unavailable for review of an anomalous score on the BDI-II that exceeded the possible range of BDI total score.

Among the final sample of 123 participants, age ranged from 23 to 55 (*Mdn* = 33; *M* = 35.05, *SD* = 7.93). Approximately 89% of the sample were male (*n* = 109), with 11% female respondents (*n* = 14). Race was distributed as follows: White (78%, *n* = 96), Black (11%, *n* = 14), Hispanic (4%, *n* = 5), American Indian or Alaskan (2%, *n* = 3), Other (4%, *n* = 5). Marital status was distributed as follows: never married (20%, *n* = 24), married (42%, *n* = 52), divorced (23%, *n* = 28), separated (6%, *n* = 6), re-married (7%, *n* = 8), widow (1%, *n* = 1), living together (2%, *n* = 2), unknown (1%, *n* = 1).

Mean number of combat deployments was 1.83 (*SD* = 1.58, *Mdn* = 1), with mean number of cumulative months deployed throughout military service at 17.75 months (*SD* = 14.24, *Mdn* months deployed = 13). Consistent with previous research conducted among treatment seeking combat veterans (e.g., Held, Owens, Chumm, Chard, & Hansel, 2011), 50% of the sample (*n* = 62) reported combat exposure as their most traumatic experience. The next most frequently endorsed 'worst traumatic event' included 'witnessing the death or serious injury of another' (11%, *n* = 14) and serious accident or disaster (4%, *n* = 5).

Measures

See *Appendix C* for a record of questions and questionnaires utilized in the current study. As discussed during the proposal meeting, limitations associated with the study setting precluded having individual item level data for the measures, prohibiting psychometric property testing

with the current sample, with the exception of the PDCSE scale (internal consistency reported below). The validity and reliability of the measures used in the current study is based on extensive previous research that supports the psychometric soundness of these measures.

Dependent variable measures.

PTSD severity. PTSD severity was assessed through the Posttraumatic Stress Disorder Checklist- Specific (PCL-S, Weathers, Litz, Herman, Huska, & Keane, 1993) derived from DSM-IV symptom criteria. Respondents answered 17-items on a 5-point rating scale (1 = *Not at all*, 5 = *Extremely*) based on their most traumatic event experienced. Good psychometric properties have been demonstrated in previous research (Weathers et al., 1993). As per recommended use, these 17-items were aggregated into a continuous score for the current study (possible range from 0 to 85), with higher scores indicative of more severe PTSD symptoms.

Depression severity. The Beck Depression Inventory-II (BDI-II) includes 21-items answered on a 4-point (0 to 3) rating scale (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Beck, Steer, & Brown, 1996). Clinical norms and good psychometric properties for this measure are well established. For the current study, the BDI-II was operationalized as a continuous variable through aggregation of all 21-items (possible range from 0 to 63), with higher scores indicative of worse depression severity.

Quality of life enjoyment and satisfaction. The Quality of Life Enjoyment and Satisfaction Questionnaire Short-Form (Q-LES-Q-SF) was utilized to assess quality of life (Endicott, Nee, Harrison, & Blumenthal, 1993). This scale included 12-items answered on a 5-point rating scale (1 = *Very poor*, 5 = *Very good*). Good reliability and validity have been demonstrated in previous research (Endicott et al., 1993). As per recommended use, total quality of life scores are calculated and compared to normative samples, yielding a range of quality of

life percentiles (ranging in this study from the 13th percentile to the 98th percentile); higher percentile scores indicated better quality of life.

Independent variable measures.

Post-deployment coping self-efficacy (PDCSE). PDCSE was measured with an 18-item questionnaire answered on a 7-point rating scale (1 = *I'm not at all capable* to 7 = *I'm totally capable*). Participants were asked to rate their perceived capability to successfully manage myriad demands in the post-combat reintegration process. Example items include: "get back to a normal routine now that I'm back home," and, "think optimistically about my future." This measure was developed by the proposal author, and has been preliminarily empirically tested among veterans in a university setting (Smith et al., 2013), demonstrating high internal reliability and uni-dimensional factor structure. In the current sample, the PDCSE scale demonstrated good internal consistency ($\alpha = .94$). The 18 PDCSE items were aggregated into a continuous score (possible range from 13 to 126), with higher scores indicative of more adaptive PDCSE appraisals.

Disrupted worldview. Disrupted worldview was measured with a subscale of the Posttraumatic Cognitions Inventory (PTCI) that assesses negative cognitions about others and the world with 7-items answered on a 7-point rating scale (1 = *Totally disagree*, 7 = *Totally agree*; Foa et al., 1999). This subscale demonstrates good internal reliability, convergent validity, and discriminant validity (Foa et al., 1999). As per recommended use, the 7-items were aggregated into a continuous score (possible range from 7 to 49), employed in the current study as a continuous measure of 'disrupted worldview' (i.e., negative cognitions about the world and others), with higher scores indicating more severely disrupted worldview.

Difficulties in Emotion Regulation Scale (DERS). The DERS includes 36-items answered on a 5-point rating scale (1 = *Almost never*, 5 = *Almost always*) (Gratz & Roemer, 2003). This scale measures emotion regulation difficulties across a number of dimensions (non-acceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity). Good internal reliability and construct validity aspects have been demonstrated in previous research, including evidence for using this scale as a total, unitary construct that aggregates each of the sub-dimensions of the DERS into a total score (Gratz & Roemer). For the current study, the 36-items in this scale were aggregated into a total score (possible range from 36 to 180), with higher scores indicative of higher severity of difficulty with emotion regulation (i.e., more severe emotion dysregulation).

Combat exposure. Combat exposure severity was answered with 4-items answered in a yes/no, dichotomous format: (1) During combat operations, did you ever become wounded or injured? (2) During combat operations, did you personally witness a unit member, ally, enemy, or civilian being killed? (3) During combat operations, did you see the bodies of dead soldiers or civilians? (4) During combat operations, did you kill others in combat (or have reason to believe others were killed as a result of your actions)? These 4-items were aggregated into a continuous measure of combat exposure severity (ranging from 0 to 4), for inclusion as a covariate control in all models predicting PTSD severity, depression severity, and quality of life.

Analytic Strategy

The current research questions and hypotheses were tested through path analysis using Mplus 6.0 (Muthen & Muthen, 2010), with the exception of Adjunctive Analyses 2, which were conducted via SPSS 23.0 using Hayes (2013) PROCESS Model 8 (i.e., allowing for testing

potential moderation and moderated-mediation effects). For each of the research questions tested via Mplus, path models yielded metrics for model fit, direct effects, and hypothesized indirect effects. Model fit was determined and reported using a two-index strategy (Hu & Bentler, 1998), employing fit indices appropriate for smaller samples, including standardized root mean square residual (SRMR), comparative fit index (CFI), and Tucker-Lewis Index (TLI), and chi-square test of model fit. As suggested by Hu and Bentler (1998), good model fit is demonstrated by SRMR below .09, paired with a CFI that exceeds .95, and; TLI above .95, paired with a non-significant chi-square test of model fit. Notably, all analyses utilized bootstrapping re-sampling (with 1,000 iterations) to estimate standard errors and confidence intervals in the determination of statistical significance associated with both direct and indirect effects (see Hayes, 2013). Notably, combat exposure severity was included as a covariate control in each model predicting post-combat adaptation outcomes (i.e., controlling for potential effects on PTSD severity, depression severity, and quality of life). See *Appendix D* for a complete record of Mplus code that was developed and utilized to test each of the path models.

Strategy for testing Research Question 1. To test Research Question 1, three path models were employed, examining whether (a) PDCSE explained variance in post-combat adaptation outcomes uniquely-and-in-addition-to the effects of difficulties with emotion regulation (i.e., in direct effects models), and (b) difficulties with emotion regulation indirectly predicted post-combat adaptation outcomes by way of reducing PDCSE appraisals (i.e., working as a potential mediator between difficulty with emotion regulation and outcomes). These specific path models allowed for testing (a) the direct effect of difficulty with emotion regulation on both the proposed mediator (i.e., PDCSE); (b) direct effects of difficulty with emotion regulation, PDCSE, and combat exposure severity (as a covariate control) predicting post-

combat adaptation outcomes (PTSD severity, depression severity, and quality of life), and; (c) the indirect effect of difficulty with emotion regulation working through PDCSE to predict outcomes.

Strategy for testing Research Question 2. To test Research Question 2, a total of six path models were conducted, enabling exploration of questions surrounding directionality of the relationship between disrupted worldview and PDCSE (posed in Research Question 2). Three path models were dedicated to examining the potential for disrupted worldview to mediate between PDCSE and each of the three outcomes; conversely, three path models were dedicated to testing the potential for PDCSE to mediate between disrupted worldview and each of the three outcomes. Model fit, direct effects (predicting the proposed mediators; predicting each of the three post-combat adaptation outcomes [PTSD severity, depression severity, and quality of life]), and indirect effects pathways were tested and reported for each of the six models.

Strategy for testing Adjunctive Research Question 1. Prior to testing Research Question 3, an adjunctive set of three path models were tested, a decision that was made following the lack of clarification yielded in the testing of Research Question 2. Specifically, results from Research Question 2 analyses demonstrated that that the competing model configurations were equally effective in predicting post-adjustment outcomes (i.e., competing models characterized by alternation of the directionality between PDCSE and disrupted worldview in the prediction of post-combat adaptation). Thus, in preparation for testing Research Question 3, this adjunctive set of path models was used to test whether difficulties regulating emotion predicted post-combat adaptation by influencing worldview (i.e., working as a potential mediator between difficulty with emotion regulation and outcomes). Specifically, this set of analyses allowed for testing (a) the direct effect of difficulty with emotion regulation on both the

proposed mediator (i.e., disrupted worldview) and outcomes; (b) the direct effects of difficulty with emotion regulation, disrupted worldview, and combat exposure severity (as a covariate control) predicting post-combat adaptation outcomes (PTSD severity, depression severity, and quality of life), and; (c) the indirect effect of difficulty with emotion regulation working through disrupted worldview to predict outcomes.

Notably, these adjunctive path analyses tested the adjunctive hypothesis that higher levels of emotion regulation difficulties would predict worse post-combat adaptation outcomes (higher PTSD severity, higher depression severity, and lower quality of life) indirectly by increasing the severity of disrupted worldview (see Figure 5). Theoretically, considering that difficulties regulating emotion can alter coping appraisals associated with one's PDCSE, difficulties regulating emotions can also alter information processes associated with beliefs about the world and others. Indeed, this notion is the foundation of the conceptual framework developed in a recent theoretical and empirical review, proposing that post-combat emotion regulation difficulties perpetuate psychopathology by promoting negative worldviews (Smith & Jones, under review).

Strategy for testing Research Question 3. In order to test Research Question 3, six competing path models were conducted (alternating the position of PDCSE and disrupted worldview; see Figures 4 and 6). The first set of three path models were conducted in congruence with the Figure 4, testing difficulty with emotion regulation as a predictor of post-combat adaptation working through PDCSE and disrupted worldview in serial order. The competing set of three path models were conducted in congruence with Figure 6, testing difficulty with emotion regulation as a predictor of post-combat adaptation working through disrupted worldview and PDCSE as mediators in competing serial order. Each model included

tests model fit and direct effects (predicting mediators and post-combat adaptation outcomes). Further, with regard to indirect effects, each model included test of both simple indirect effects (i.e., difficulty with emotion regulation predicting outcomes through PDCSE alone; difficulty with emotion regulation predicting outcomes through disrupted worldview alone) and serial indirect effects (i.e., difficulty with emotion regulation predicting outcomes through PDCSE and disrupted worldview working in this specific serial order [see Figure 4]; difficulty with emotion regulation predicting outcomes through disrupted worldview and PDCSE in this specific serial order [see Figure 6]).

Strategy for testing Adjunctive Research Question 2: Testing moderation and moderated-indirect effects. As per questions raised during the proposal meeting by the committee, this adjunctive set of analyses was conceptualized and conducted to test PDCSE as (a) a potential moderator of the direct effect that difficulties with emotion regulation have upon post-combat adaptation outcomes, as well as (b) a potential moderator of the indirect effect that difficulties with emotion regulation have upon post-combat adaptation outcomes through influencing worldview disruption (i.e., working as a mediator between difficulties with emotion regulation and post-combat adaptation outcomes).

Considering the influence that coping self-efficacy has on post-combat adaptation (supported both theoretically [see Benight & Bandura, 2004] and empirically [see Smith, Benight, & Cieslak, 2013]), and considering that factors other than emotion regulation difficulties are capable of altering coping self-efficacy appraisals (e.g., see Schwarzer & Knoll, 2007; Smith et al., 2013; Smith, Donlon et al., 2015), it is possible that higher levels of PDCSE may protect veterans from the ill-effects of emotion regulation difficulties. Thus, Adjunctive Analyses 2 tested the adjunctive hypothesis that PDCSE would moderate both the direct and

indirect effects pathways linking difficulties with emotion regulation to post-combat adaptation, such that higher levels of PDCSE are predicted to protect against the negative effects that higher levels of emotion dysregulation have on worldview and post-combat pathology and quality of life (i.e., effects that were supported by results from testing both Research Question 3 and adjunctive hypotheses tested via Adjunctive Analyses 1). The strategy for testing Adjunctive Analyses 2 involved Hayes (2013) PROCESS Model 8, a path model template that allows for testing the proposed moderation and moderated-mediation effects described above. To maintain parallel structure with previous analyses, bootstrapping re-sampling with 1,000 iterations was used to estimate standard errors and indirect effects. See Figure 7 for a visual depiction of the conceptual model tested through Adjunctive Analyses 2.

Chapter 3

Results

Combat Exposure/Mental Health Functioning & Correlations

Combat exposure severity and mental health. Mean combat exposure severity was 2.65 on a scale ranging from 0 to 4 (*SD* = 1.25, *Mdn* = 3.00). PTSD severity ranged from 0 to 85, and on average, fell within 'clinically significant' diagnostic range of severity (*M* = 59.47, *SD* = 14.76, *Mdn* = 62.00); a mean PCL-S score of 59.47 exceeds the diagnostic cutoff score (56) among veterans seeking treatment in mental health clinics that specialize in PTSD (US Department of Veterans Affairs, 2010; see also Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). Depression severity ranged from minimal (0) to severe (52), with mean and median scores (*M* = 28.01, *SD* = 12.21, *Mdn* = 27.00) indicative of moderate-to-severe depression in the current sample (see Beck et al., 1996). Scores on the Q-LES-Q-SF indicated average quality of life in the 47th percentile (Mean percentile score = 47.18, *SD* = 14.61, *Mdn* = 45).

Correlations among primary study variables. For a complete summary of correlations and descriptive statistics among demographic and primary study variables, see Table 1 (*Appendix A*). Correlations among the primary study variables were in expected directions. Regarding correlations between demographic variables (age and gender) with primary study variables, age was significantly correlated with depression (i.e., being younger related to lower depression levels, $r = .27$, $p < .001$) and quality of life (i.e., being younger related to higher quality of life, $r = -.30$, $p < .001$). Further, age significantly correlated with PDCSE ($r = -.26$, $p = .005$), such that being younger was related to having higher PDCSE levels. Gender did not

demonstrate a significant relationship with other study variables, perhaps a byproduct the small number of female veterans in this study (n = 14).

Examination of multicolinearity concerns. Multicolinearity concerns arose based on the high correlation between the DERS (i.e., Difficulty with Emotion Regulation Scale) and PDCSE (r = -.69, p < .001). As per guidance from Allison (1999), the extent to which multicoliniarity problematically increases standard errors is tested by calculating the variance inflation factor (VIF). In order calculate the VIF, PDCSE was first regressed simultaneously onto each of the other predictors that will appear in final statistical models; in this case, PDCSE was regressed on the difficulty with emotion regulation, disrupted worldview, and combat exposure severity. Obtaining the variance explained from this regression (adjR^2), the VIF equation was used (1/(1-adjR^2) to calculate as follows: *VIF* = 1/(1-.49) = 1.96. According to Allison's recommendation that problematic multicolinearity is suggested by a VIF score of 2.5 or above, the VIF associated with the current set of independent variables in the overall model is within an acceptable range, suggesting that multicolinearity is not problematic in the current analyses.

Testing Research Question 1 (see Figure 1)

Hypotheses associated with Research Question 1 are as follows: (a) PDCSE will explain variance in post-combat adaptation outcomes uniquely-and-in-addition-to the effects of difficulties with emotion regulation (i.e., in direct effects models), and (b) difficulties with emotion regulation will indirectly predict post-combat adaptation outcomes by way of reducing PDCSE appraisals (i.e., working as a potential mediator between difficulty with emotion regulation and outcomes). Three path models were conducted to test these hypotheses, each applied to predict a different outcome (PTSD severity, depression severity, quality of life). Path analysis first involves examination of model fit, followed by model building in stages, beginning

with examination of direct effects (i.e., direct effects that the independent variable[s] has on the mediator and outcome variables), followed by examination of indirect effects (i.e., independent variable influencing outcomes indirectly through the proposed mediator).

Predicting PTSD severity (model test congruent with Figure 1). Examination of model fit demonstrated that the simple mediation model (visually depicted in Figure 1) was a good fit for predicting PTSD severity (*SRMR* = .002; *CFI* = 1.00; *TLI* = 1.00; model fit $\chi^2_{[1]}$ = .008, p = .927; baseline model fit $\chi^2_{[5]}$ = 142.596, p < .001). See Table 2 for a summary of model fit indices.

Examination of direct effects revealed that the model including only difficulty with emotion regulation directly accounted for 48% of the variance in the proposed mediator (i.e., PDCSE; R^2 = .48, $F_{[1,121]}$ = 109.22, p < .001). Specifically, higher levels of difficulty with emotion regulation predicted reduced PDCSE appraisals (*B* = -.56, 95% CI [-0.665, -0.464]). The full direct effects prediction model (including combat exposure severity, difficulty with emotion regulation, and PDCSE) explained 40% of the variance in PTSD severity (R^2 = .40, $F_{[3, 119]}$ = 26.68, p < .001), and yielded the following specific effects: (1) higher combat exposure severity was a significant predictor of higher PTSD severity (*B* = 1.72, 95% CI [0.531, 3.001]); (2) higher levels of difficulty with emotion regulation was a significant predictor of higher PTSD severity (*B* = 0.13, 95% CI [0.029, 0.269]), and; (3) lower PDCSE was a significant predictor of higher PTSD severity (*B* = -0.30, 95% CI [-0.445, -0.154]). See Table 3 for a summary of direct effects.

The indirect effects test (examining whether difficulty with emotion regulation indirectly predicted PTSD severity by influencing PDCSE) was examined next. Findings demonstrated that higher levels of difficulty with emotion regulation was a significant, indirect predictor of higher

PTSD severity by way of reducing PDCSE appraisals (*B* = .17, 95% CI [0.092, 0.251]). See Table 4 for a summary of indirect effects.

Predicting depression severity (model test congruent with Figure 1). Examination of model fit demonstrated that the simple mediation model (visually depicted in Figure 1) was a good fit for predicting depression severity (*SRMR* = .002; *CFI* = 1.00; *TLI* = 1.00; model fit $\chi^2_{[1]}$ = .008, *p* = .927; baseline model fit $\chi^2_{[5]}$ = 184.33, *p* < .001). See Table 2.

Regarding direct effects, considering that the direct effects model predicting PDCSE was unchanged from previous analyses, this is not re-iterated here in-text (see Table 3). The full direct effects prediction model (including combat exposure severity, difficulty with emotion regulation, and PDCSE) explained 57% of the variance in depression severity (R^2 = .57, $F_{[3, 119]}$ = 53.54, *p* < .001), revealing the following individual effects: (1) higher combat exposure severity was a significant predictor of lower depression severity (*B* = -0.96, 95% CI [-1.947, -0.009]); (2) higher levels of difficulty with emotion regulation was a significant predictor of higher depression severity (*B* = 0.16, 95% CI [0.091, 0.224]), and; (3) lower PDCSE was a significant predictor of higher depression severity (*B* = -0.29, 95% CI [-0.376, -0.221]). See Table 3.

The indirect effects test (examining whether difficulty with emotion regulation indirectly predicted depression severity by influencing PDCSE) was examined next. Findings demonstrated that higher levels of difficulty with emotion regulation was a significant, indirect predictor of higher depression severity by way of reducing PDCSE appraisals (*B* = .17, 95% CI [0.120, 0.240]). See Table 4.

Predicting quality of life (model test congruent with Figure 1). Examination of model fit demonstrated that the simple mediation model (visually depicted in Figure 1) was a good fit

for predicting quality of life (*SRMR* = .002; *CFI* = 1.00; *TLI* = 1.00; model fit $\chi^2_{[1]}$ = .008, *p* = .927; baseline model fit $\chi^2_{[5]}$ = 140.614, *p* < .001). See Table 2.

Regarding direct effects, considering that the direct effects model predicting PDCSE was unchanged from previous analyses, this is not re-iterated here in-text (see Table 3). The full direct effects prediction model (including combat exposure severity, difficulty with emotion regulation, and PDCSE) explained 39% of the variance in quality of life (R^2 = .39, $F_{[3, 119]}$ = 25.64, p < .001), revealing the following individual effects: (1) combat exposure severity did not directly predict of quality of life (*B* = 0.03, 95% CI [-1.413, 1.624]); (2) difficulty with emotion regulation did not directly predict quality of life (*B* = -0.04, 95% CI [-0.117, 0.050]), and; (3) higher PDCSE was a significant predictor of higher quality of life (*B* = 0.42, 95% CI [0.313, 0.536]). See Table 3.

The indirect effects test (examining whether difficulty with emotion regulation indirectly predicted quality of life by influencing PDCSE) was examined next. Findings demonstrated that higher levels of difficulty with emotion regulation was a significant, indirect predictor of lower quality of life by way of reducing PDCSE appraisals (*B* = -.23, 95% CI [-0.319, -0.169]). See Table 4.

Summary of findings from testing Research Question 1. The direct effects results support the first hypothesis associated with Research Question 1 by demonstrating that PDCSE indeed explains significant, unique variance in post-combat outcomes in addition to the effect that emotion regulation difficulties have upon post-combat outcomes. In the specific prediction of quality of life, when PDCSE and difficulty with emotion regulation are entered into a direct effects model simultaneously, difficulty with emotion regulation does not yield a significant direct effect, whereas PDCSE does. Conversely, difficulty with emotion regulation maintained a

significant, direct effect alongside PDCSE in the models predicting PTSD and depression severity. The indirect effects findings support the second hypothesis embedded within Research Question 1 by revealing the significant indirect effects of higher difficulty with emotion regulation predicting worse post-combat adaptation (higher PTSD, higher depression, and lower quality of life) through reducing adaptive PDCSE appraisals.

Testing Research Question 2 (see Figures 2 and 3)

In Research Question 2, the current study proposed to explore the interconnections between PDCSE and worldview disruptions (i.e., negative worldview) in the prediction of post-combat adaptation, involving six competing path model tests. First, three path models were applied to test whether PDCSE predicts outcomes through disrupted worldview (working as a mediator; see Figure 2), followed by testing three competing path models posing disrupted worldview as a predictor of outcomes working through PDCSE (working as a mediator; see Figure 3). Together these analyses allowed for exploration of the question as to how PDCSE and negative post-combat beliefs about the world (i.e., disrupted worldview) may work in concert to predict post-combat adaptation.

Predicting PTSD severity (model test congruent with Figure 2). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 2) was a good fit for predicting PTSD severity (*SRMR* = .034; *CFI* = 0.99; *TLI* = 0.95; model fit $\chi^2_{[1]} = 2.03$, $p = .154$; baseline model fit $\chi^2_{[5]} = 113.998$, $p < .001$). See Table 5 for a summary of model fit indices.

The direct effects model demonstrated that PDCSE accounted for 23% of the variance in disrupted worldview ($R^2 = .23$, $F_{[1, 121]} = 35.97$, $p < .001$), specifically showing that lower levels of PDCSE predicted more severely disrupted worldview (*B* = -.03, 95% CI [-.037, -.016]). The

full direct effects prediction model (including combat exposure severity, PDCSE, and disrupted worldview) explained 49% of the variance in PTSD severity (R^2 = .49, $F_{[3, 119]}$ = 36.17, p < .001), and yielded the following individual effects: (1) higher combat exposure severity was a significant predictor of higher PTSD severity (*B* = 2.40, 95% CI [1.186, 3.619]); (2) lower PDCSE was a significant predictor of higher PTSD severity (*B* = -0.29, 95% CI [-.374, -.207]), and; (3) higher levels of disrupted worldview was a significant predictor of higher PTSD severity (*B* = 4.77, 95% CI [3.217, 6.437]). See Table 6 for a summary of direct effects models predicting disrupted worldview and PTSD severity.

The indirect effect test (examining whether PDCSE indirectly predicted PTSD severity by influencing disrupted worldview) was examined next. Findings demonstrated that lower levels of PDCSE indirectly predicted higher levels of PTSD severity through increasing the severity of disrupted worldview (*B* = -.13, 95% CI [-.194, -.076]). See Table 7 for a summary of indirect effects.

Competing model predicting PTSD severity (model test congruent with Figure 3). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 3) was a good fit for predicting PTSD symptom severity (*SRMR* = .036; *CFI* = 0.99; *TLI* = 0.95; model fit $\chi^2_{[1]}$ = 2.20, *p* = .198; baseline model fit $\chi^2_{[5]}$ = 114.163, *p* = .000). See Table 5.

The direct effects model demonstrated that disrupted worldview accounted for 23% of the variance in PDCSE (R^2 = .23, $F_{[1, 121]}$ = 35.97, *p* < .001), specifically showing that higher levels of disrupted worldview predicted lower levels of PDCSE appraisals (*B* = -8.72, 95% CI [-11.035, -6.331]). The full direct effects prediction model predicting PTSD severity (including

combat exposure severity, PDCSE, and disrupted worldview) was unchanged from previous analysis, and is not re-iterated here in-text (see Table 6).

The indirect effect test (examining whether disrupted worldview indirectly predicted PTSD severity by influencing PDCSE) was examined next. Findings demonstrated that higher levels of disrupted worldview indirectly predicted higher levels of PTSD severity through reducing PDCSE appraisals (*B* = 2.50, 95% CI [1.555, 3.742]). See Table 7.

Predicting depression severity (model test congruent with Figure 2). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 2) was a good fit for predicting depression symptom severity (*SRMR* = .031; *CFI* = 0.99; *TLI* = 0.96; model fit $\chi^2_{[1]} = 2.03$, $p = .154$; baseline model fit $\chi^2_{[5]} = 138.538$, $p = .000$). See Table 5.

The direct effects model predicting disrupted worldview is carried over, unchanged, from the previous analysis and is not re-iterated here in-text (see Table 6). The full direct effects prediction model (including combat exposure severity, PDCSE, and disrupted worldview) explained 57% of the variance in depression severity ($R^2 = .57$, $F_{[3, 119]} = 52.98$, $p < .001$), and yielded the following individual effects: (1) combat exposure severity did not predict depression severity (*B* = -0.44, 95% CI [-1.353, 0.552]); (2) lower PDCSE was a significant predictor of higher depression severity (*B* = -0.35, 95% CI [-0.419, -0.288]), and; (3) higher levels of disrupted worldview was a significant predictor of higher depression severity (*B* = 2.91, 95% CI [1.845, 4.001]). See Table 6.

The indirect effect test (examining whether PDCSE indirectly predicted depression severity by influencing disrupted worldview) was examined next. Findings demonstrated that lower levels of PDCSE indirectly predicted higher levels of depression severity through increasing the severity of disrupted worldview (*B* = -.08, 95% CI [-0.122, -0.044]). See Table 7.

Competing model predicting depression severity (model test congruent with Figure 3). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 3) was a good fit for predicting depression symptom severity (*SRMR* = .036; *CFI* = 0.99; *TLI* = 0.96; model fit $\chi^2_{[1]}$ = 2.20, *p* = .138; baseline model fit $\chi^2_{[5]}$ = 138.702, *p* = .000). See Table 5.

Direct effects predicting the proposed mediator (i.e., PDCSE) and depression severity were unchanged from previous analyses, and are thus not re-iterated here in-text (see Table 6).

The indirect effect test (examining whether disrupted worldview indirectly predicted depression severity by influencing PDCSE) was examined next. Findings demonstrated that higher levels of disrupted worldview indirectly predicted higher levels of depression severity through reducing PDCSE appraisals (*B* = 3.05, 95% CI [2.210, 4.188]). See Table 7.

Predicting quality of life (model test congruent with Figure 2). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 2) was a good fit for predicting quality of life (*SRMR* = .030; *CFI* = 0.99; *TLI* = 0.95; model fit $\chi^2_{[1]}$ = 2.03, *p* = .154; baseline model fit $\chi^2_{[5]}$ = 100.375, *p* = .000). See Table 5.

The direct effects model predicting disrupted worldview is carried over, unchanged, from previous analyses and is not re-iterated here in-text (see Table 6). The full direct effects prediction model (including combat exposure severity, PDCSE, and disrupted worldview) explained 42% of the variance in quality of life (R^2 = .42, $F_{[3, 119]}$ = 28.24, *p* < .001), and yielded the following individual effects: (1) combat exposure severity did not predict quality of life (*B* = -0.26, 95% CI [-1.631, 1.339]); (2) higher PDCSE was a significant predictor of higher quality of life (*B* = 0.38, 95% CI [0.306, 0.463]), and; (3) higher levels of disrupted worldview was a

significant predictor of lower levels of quality of life (*B* = -2.35, 95% CI [-4.177, -0.560]). See Table 6.

The indirect effect test (examining whether PDCSE indirectly predicted quality of life by influencing disrupted worldview) was examined next. Findings demonstrated that higher levels of PDCSE indirectly predicted higher quality of life through decreasing the severity of disrupted worldview (*B* = .06, 95% CI [0.015, 0.135]). See Table 7.

Competing model predicting quality of life (model test congruent with Figure 3). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 3) was a good fit for predicting quality of life (*SRMR* = .035; *CFI* = 0.99; *TLI* = 0.94; model fit $\chi^2_{[1]} = 2.20$, $p = .138$; baseline model fit $\chi^2_{[5]} = 100.539$, $p = .000$). See Table 5.

Direct effects predicting the proposed mediator (i.e., PDCSE) and quality of life were maintained, unchanged, from the previous analyses and are not re-iterated here in-text (see Table 6).

The indirect effect test (examining whether disrupted worldview indirectly predicted quality of life by influencing PDCSE) was examined next. Findings demonstrated that higher levels of disrupted worldview indirectly predicted lower quality of life through reducing PDCSE appraisals (*B* = -3.32, 95% CI [-4.609, -2.404]). See Table 7.

Summary of findings from testing Research Question 2. Altogether, tests of competing models demonstrate that both PDCSE and disrupted worldview are important in the prediction of post-combat adaptation, and that these facets may work independently, simultaneously, and/or by mediating one another en-route to exerting effects on such outcomes.

Adjunctive Research Question 1 (see Figure 5)

Results from Research Question 2 tests demonstrated that neither of the competing models tested were a significantly better fit in the prediction of post-combat adaptation outcomes. As a result the lack of clarity in the directionality between PDCSE and disrupted worldview, 'Adjunctive Analyses 1' were conducted in preparation for testing Research Question 3. This adjunctive set of three path models were used to test whether difficulties regulating emotion predicted post-combat adaptation by influencing worldview (i.e., working as a potential mediator between difficulty with emotion regulation and outcomes), with the specific hypothesis that higher levels of difficulty with emotion regulation would indirectly predict worse post-combat adaptation via increasing the severity of disrupted worldview (i.e., negative worldview).

Predicting PTSD severity (model test congruent with Figure 5). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 5), was a good fit (with the exception of one fit index) for predicting PTSD severity (*SRMR* = .041; *CFI* = 0.98; model fit $\chi^2_{[1]} = 3.08$, $p = .08$; baseline model fit $\chi^2_{[5]} = 106.13$, $p = .000$); the TLI (0.90) suggested a poor fitting model. See Table 8 for a summary of model fit indices.

The direct effects model predicting the proposed mediator demonstrated that difficulty with emotion regulation accounted for 24% of the variance in disrupted worldview ($R^2 = .24$, $F_{[1, 121]} = 39.03$, $p < .001$), specifically showing that higher levels of difficulty with emotion regulation predicted more severely disrupted worldview ($B = 0.02$, 95% CI [.016, .029]). The full direct effects model predicting PTSD severity (including combat exposure severity, difficulty with emotion regulation, and disrupted worldview) explained 44% of the variance in PTSD severity ($R^2 = .44$, $F_{[3, 119]} = 29.66$, $p < .001$), revealing the following individual direct

effects: (1) higher combat exposure severity was a significant predictor of higher PTSD severity (*B* = 2.34, 95% CI [.952, 3.695]); (2) higher difficulty with emotion regulation was a significant predictor of higher PTSD severity (*B* = 0.18, 95% CI [.102, .263]), and; (3) higher levels of disrupted worldview was a significant predictor of higher PTSD severity (*B* = 5.25, 95% CI [3.591, 6.802]). See Table 9 for a summary of direct effects models predicting disrupted worldview and PTSD severity.

The indirect effect test (examining whether difficulty with emotion regulation indirectly predicted PTSD severity by influencing disrupted worldview) was examined next. Findings supported the hypothesis by revealing that higher levels difficulty with emotion regulation indirectly predicted higher levels of PTSD severity by increasing severity of disrupted worldview (*B* = 0.12 95% CI [.073, .172]). See Table 10 for a summary of indirect effects.

Predicting depression severity (model test congruent with Figure 5). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 5) was a good fit (with the exception of one fit index) for predicting depression severity (*SRMR* = .038; *CFI* = 0.98; model fit $\chi^2_{[1]} = 3.08$, $p = .08$; baseline model fit $\chi^2_{[5]} = 125.15$, $p = .000$); the TLI (0.91) suggested a poor fitting model. See Table 8.

The direct effects model predicting the proposed mediator (i.e., disrupted worldview) was carried over, unchanged, from the previous analyses and is not re-iterated here in-text (see Table 9). The full direct effects model predicting depression severity (including combat exposure severity, difficulty with emotion regulation, and disrupted worldview) explained 51% of the variance in depression severity ($R^2 = .51$, $F_{[3, 119]} = 41.25$, $p < .001$), revealing the following individual direct effects: (1) combat exposure severity did not predict depression severity (*B* = -0.60, 95% CI [-1.633, .428]); (2) higher difficulty with emotion regulation was a significant

predictor of higher depression severity (*B* = 0.25, 95% CI [.190, .317]), and; (3) higher levels of disrupted worldview was a significant predictor of higher depression severity (*B* = 3.15, 95% CI [1.820, 4.311]). See Table 9.

The indirect effect test (examining whether difficulty with emotion regulation indirectly predicted depression severity by influencing disrupted worldview) was examined next. Findings supported the hypothesis by revealing that higher levels difficulty with emotion regulation indirectly predicted higher levels of depression severity by increasing severity of disrupted worldview (*B* = 0.07, 95% CI [0.037, 0.110]). See Table 10.

Predicting quality of life (model test congruent with Figure 5). Model fit indices were examined first, demonstrating that the simple mediation model (visually depicted in Figure 5) was a good fit (with the exception of one fit index) for predicting quality of life (*SRMR* = .038; *CFI* = 0.97; model fit $\chi^2_{[1]} = 3.08$, $p = .08$; baseline model fit $\chi^2_{[5]} = 76.65$, $p = .000$); the TLI (0.86) suggested a poor fitting model. See Table 8.

The direct effects model predicting the proposed mediator (i.e., disrupted worldview) was carried over, unchanged, from the previous analyses and is not re-iterated here in-text (see Table 9). The full direct effects model predicting quality of life (including combat exposure severity, difficulty with emotion regulation, and disrupted worldview) explained 28% of the variance in quality of life ($R^2 = .28$, $F_{[3, 119]} = 14.88$, $p < .001$), revealing the following individual direct effects: (1) combat exposure severity did not predict quality of life (*B* = -0.38, *SE* = 0.99, 95% CI [-1.887, 1.207]; (2) higher difficulty with emotion regulation was a significant predictor of lower quality of life (*B* = -0.19, 95% CI [-.275, -.114]), and; (3) higher levels of disrupted worldview was a significant predictor of lower quality of life (*B* = -3.65, 95% CI [-5.980, -1.496]). See Table 9.

The indirect effect test (examining whether difficulty with emotion regulation indirectly predicted quality of life by influencing disrupted worldview) was examined next. Findings supported hypotheses by revealing that higher levels difficulty with emotion regulation indirectly predicted lower quality of life by increasing severity of disrupted worldview (*B* = -0.08, 95% CI [-.157, -.031]). See Table 10.

Testing Research Question 3 (see Figures 4 and 6)

Research Question 3 was tested in consideration of findings from each of the previous analyses. Specifically, results from testing Research Question 1 supported the hypothesis that higher levels of difficulty with emotion regulation indirectly predicted worse post-combat adaptation via reducing PDCSE appraisals. Testing of Research Question 2 demonstrated that post-combat adaptation outcomes may be equally well predicted by simple mediation models (a) posing disrupted worldview as a mediator between PDCSE and post-combat adaptation outcomes, and (b) posing PDCSE as a mediator between disrupted worldview and post-combat adaptation. Findings from Research Question 2 led to Adjunctive Research Question 1, with subsequent analyses and results supporting the adjunctive hypothesis by revealing that higher levels of difficulty with emotion regulation indirectly predicted worse post-combat outcomes by increasing disrupted worldview severity.

Considering these collective findings, testing Research Question 3 involved competing model tests characterized by alternation PDCSE and disrupted worldview as mediators working in serial order, theoretically posed to mediate the effect of difficulty with emotion regulation on post-combat adaptation outcomes. The first set of three path models were tested in congruence with Figure 4, posing difficulty with emotion regulation as a potential indirect predictor of post-combat adaptation outcomes, first by reducing PDCSE appraisals, which is posed to, in-turn,

worsen the severity of negative post-combat worldview. The second set of three path models (i.e., the competing models) were tested in congruence with Figure 6, posing difficulty with emotion regulation as an indirect predictor of post-combat adaptation outcomes by first influencing more severely disrupted worldview, which was posed to, in-turn, reduce PDCSE appraisals.

Predicting PTSD severity (model test congruent with figure 4). Model fit indices were examined first, demonstrating that the serial mediation model (visually depicted in Figure 4) was a good fit for predicting PTSD severity (*SRMR* = .034; *CFI* = 0.99; *TLI* = 0.97; model fit $\chi^2_{[2]} = 3.170$, $p = .205$; baseline model fit $\chi^2_{[9]} = 204.207$, $p < .001$). See Table 11 for a summary of model fit indices.

The direct effects model predicting the first proposed mediator (PDCSE) demonstrated that difficulty with emotion regulation accounted for 48% of the variance in PDCSE ($R^2 = .48$, $F_{[1, 121]} = 109.219$, $p < .001$), with higher difficulty with emotion regulation predicting lower levels of PDCSE (*B* = -0.56, 95% CI [-.665, -.464]). The direct effects model predicting disrupted worldview demonstrated that difficulty with emotion regulation and PDCSE together explained 28% of the variance in disrupted worldview ($R^2 = .28$, $F_{[2, 120]} = 23.38$, $p < .001$), revealing the following individual direct effects: (1) higher difficulty with emotion regulation predicted higher severity of disrupted worldview (*B* = 0.01, 95% CI [.006, .022]), and; (2) lower PDCSE predicted higher severity of disrupted worldview (*B* = -0.02, 95% CI [-0.027, -0.002]). See Table 12 for a summary of direct effects congruent with model configuration 4 depicted in Figure 4.

The full direct effects model predicting PTSD severity (including combat exposure severity, difficulty with emotion regulation, PDCSE, and disrupted worldview) explained 49% of

the variance in PTSD severity (R^2 = .49, $F_{[4, 118]}$ = 27.59, p < .001), revealing the following, significant, individual, direct effects: (1) higher combat exposure severity predicted higher PTSD severity (*B* = 2.27, 95% CI [1.102, 3.590]); (2) lower levels of PDCSE predicted higher levels of PTSD severity (*B* = -0.24, 95% CI [-0.363, -0.111]), and; (3) higher severity of disrupted worldview predicted higher levels of PTSD severity (*B* = 4.43, 95% CI [2.865, 5.936]). Difficulty with emotion regulation did not predict PTSD severity (*B* = 0.07, 95% CI [-0.018, 0.197]) when entered into the direct effects model simultaneously (alongside combat exposure, PDCSE, and disrupted worldview). See Table 12 for a summary of direct effects congruent with model configuration depicted in Figure 4.

Indirect effects were tested next, first involving examination of two simple indirect pathways, followed by examination of the proposed serial indirect pathway congruent with Figure 4. Results for *simple indirect pathways* demonstrated that although difficulty with emotion regulation was not a significant direct predictor of PTSD severity, higher difficulty with emotion regulation indirectly predicted higher PTSD severity through reducing PDCSE (*B* = 0.14, *SE* = 0.04, 95% CI [0.068, 0.206]) and through increasing disrupted worldview (*B* = 0.06, *SE* = 0.03, 95% CI [0.027, 0.113]). Additionally, higher difficulty with emotion regulation indirectly predicted higher PTSD severity through the proposed *serial indirect effect*, first by reducing PDCSE appraisals, which in-turn increased severity of disrupted worldview (*B* = 0.04, *SE* = 0.02, 95% CI [0.010, 0.073]).

Competing model predicting PTSD severity (model test congruent with Figure 6). In the competing model predicting PTSD severity, the position of the mediators was altered, placing disrupted worldview ahead of PDCSE in the mediation pathway that hypothetically links

difficulty with emotion regulation to post-combat PTSD. See Figure 6 for a visual depiction of this 'competing' model configuration.

Model fit indices were examined first, demonstrating that the serial mediation model (visually depicted in Figure 6) was a good fit for predicting PTSD severity (*SRMR* = .034; *CFI* = 0.99; *TLI* = 0.97; model fit $\chi^2_{[2]} = 3.170$, $p = .205$; baseline model fit $\chi^2_{[9]} = 204.207$, $p < .001$). See Table 11.

The direct effects model predicting the first proposed mediator (disrupted worldview) demonstrated that difficulty with emotion regulation accounted for 24% of the variance in disrupted worldview ($R^2 = .24$, $F_{[1, 121]} = 39.03$, $p < .001$), with higher difficulty with emotion regulation predicting higher severity of disrupted worldview ($B = 0.02$, 95% CI [.016, .029]). The direct effects model predicting PDCSE demonstrated that difficulty with emotion regulation and disrupted worldview together explained 50% of the variance in PDCSE ($R^2 = .50$, $F_{[2, 120]} = 59.95$, $p < .001$), revealing the following individual direct effects: (1) higher difficulty with emotion regulation predicted lower PDCSE ($B = -0.49$, 95% CI [-.618, -.372]), and; (2) higher severity of disrupted worldview predicted lower PDCSE ($B = -3.35$, 95% CI [-5.811, -.679]). See Table 13 for a summary of direct effects predicting disrupted worldview and PDCSE in the competing model configuration depicted in Figure 6.

The full direct effects model predicting PTSD severity (including combat exposure severity, difficulty with emotion regulation, PDCSE, and disrupted worldview) was unchanged from the previous analysis, and is not re-iterated here in-text (see Table 12).

Indirect effects were tested next, first involving examination of two simple indirect pathways, followed by examination of the proposed serial indirect pathway congruent with Figure 6. Results for *simple indirect pathways* demonstrated that although difficulty with

emotion regulation was not a significant direct predictor of PTSD severity, higher difficulty with emotion regulation indirectly predicted higher PTSD severity through increasing severity of disrupted worldview (*B* = 0.09, *SE* = 0.03, 95% CI [.061, .148]) and through reducing PDCSE appraisals (*B* = 0.12, *SE* = 0.04, 95% CI [.060, .174]). Additionally, higher difficulty with emotion regulation indirectly predicted higher PTSD severity through the proposed *serial indirect effect*, first by increasing severity of worldview disruption, which reduced PDCSE appraisals (*B* = 0.02, *SE* = 0.01, 95% CI [.003, .048]).

Predicting depression severity (model test congruent with Figure 4). Model fit indices were examined first, demonstrating that the serial mediation model (visually depicted in Figure 4) was a good fit for predicting depression severity (*SRMR* = .031; *CFI* = 1.00; *TLI* = 0.98; model fit $\chi^2_{[2]} = 3.170$, $p = .205$; baseline model fit $\chi^2_{[9]} = 237.324$, $p < .001$). See Table 11 for a summary of model fit indices.

The direct effects models predicting the proposed mediators (in configuration congruence with Figure 4) were unchanged from previous analyses, and are not re-iterated here in-text (see Table 12). The full direct effects model predicting depression severity (including combat exposure severity, difficulty with emotion regulation, PDCSE, and disrupted worldview) explained 60% of the variance in depression severity ($R^2 = .60$, $F_{[4, 118]} = 45.28$, $p < .001$), revealing the following, significant, individual, direct effects: (1) higher difficulty with emotion regulation predicted higher levels of depression severity (*B* = 0.13, 95% CI [.059, .193]); (2) lower levels of PDCSE predicted higher levels of depression severity (*B* = -0.26, 95% CI [-.342, -.197]), and; (3) higher severity of disrupted worldview predicted higher levels of depression severity (*B* = 2.27, 95% CI [1.237, 3.388]). Combat exposure severity did not predict depression severity (*B* = -0.68, 95% CI [-1.603, .269]). See Table 12.

Indirect effects were tested next, first involving examination of two simple indirect pathways, followed by examination of the proposed serial indirect pathway congruent with Figure 4. Results for *simple indirect pathways* demonstrated that higher difficulty with emotion regulation indirectly predicted higher depression severity through reducing PDCSE (*B* = 0.15, *SE* = 0.03, 95% CI [.103, .201]) and through increasing disrupted worldview (*B* = 0.03, *SE* = 0.02, 95% CI [.013, .061]). Additionally, higher difficulty with emotion regulation indirectly predicted higher depression severity through the proposed *serial indirect effect*, first by reducing PDCSE appraisals, which in-turn increased severity of disrupted worldview (*B* = 0.02, *SE* = 0.01, 95% CI [.004, .042]).

Competing model predicting depression severity (model test congruent with Figure 6). In the competing model predicting depression severity, the position of the mediators was altered, placing disrupted worldview ahead of PDCSE in the mediation pathway that hypothetically links difficulty with emotion regulation to post-combat depression. See Figure 6 for a visual depiction of this 'competing' model configuration.

Model fit indices were examined first, demonstrating that the serial mediation model (visually depicted in Figure 6) was a good fit for predicting depression severity (*SRMR* = .031; *CFI* = 1.00; *TLI* = 0.98; model fit $\chi^2_{[2]} = 3.170$, $p = .205$; baseline model fit $\chi^2_{[9]} = 237.24$, $p < .001$). See Table 11 for a summary of model fit indices.

The direct effects models predicting the first proposed mediators was unchanged from previous 'competing' analyses, and are not re-iterated here in-text (see Table 13). Further the direct effects model predicting depression severity was unchanged from previous analyses, and is not re-iterated here in-text (see Table 12).

Indirect effects were tested, first involving examination of two simple indirect pathways, followed by examination of the proposed serial indirect pathway congruent with Figure 6. Results for *simple indirect pathways* demonstrated that higher difficulty with emotion regulation indirectly predicted higher depression severity through increasing severity of disrupted worldview (*B* = 0.05, *SE* = 0.08, 95% CI [.027, .083]) and through reducing PDCSE appraisals (*B* = 0.13, *SE* = 0.03, 95% CI [.083, .182]). Additionally, higher difficulty with emotion regulation indirectly predicted higher depression severity through the proposed *serial indirect effect*, first by increasing severity of worldview disruption, which in-turn reduced PDCSE appraisals (*B* = 0.08, *SE* = 0.01, 95% CI [.005, .041]).

Predicting quality of life (model test congruent with Figure 4). Model fit indices were examined first, demonstrating that the serial mediation model (visually depicted in Figure 4) was a good fit for predicting quality of life (*SRMR* = .031; *CFI* = 0.99; *TLI* = 0.97; model fit $\chi^2_{[2]}$ = 3.170, p = .205; baseline model fit $\chi^2_{[9]}$ = 189.101, p < .001). See Table 11.

The direct effects models predicting the proposed mediators (in configuration congruence with Figure 4) were unchanged from previous analyses, and are not re-iterated here in-text (see Table 12). The full direct effects model predicting quality of life (including combat exposure severity, difficulty with emotion regulation, PDCSE, and disrupted worldview) explained 42% of the variance in quality of life (R^2 = .42, $F_{[4, 118]}$ = 21.00, p < .001), revealing the following significant, individual, direct effects: (1) higher levels of PDCSE predicted higher quality of life (*B* = 0.38, 95% CI [.287, .508]), and; (2) higher severity of disrupted worldview predicted lower quality of life (*B* = -2.35, 95% CI [-4.086, -.364]). Neither combat exposure severity (*B* = -0.26, 95% CI [-1.686, 1.314]) nor difficulty with emotion regulation predicted quality of life (*B* = -

0.001, 95% CI [-.077, .084]) when included in the model simultaneously alongside PDCSE and worldview disruption. See Table 12.

Indirect effects were tested next, first involving examination of two simple indirect pathways, followed by examination of the proposed serial indirect pathway congruent with Figure 4. Results for *simple indirect pathways* demonstrated that higher difficulty with emotion regulation indirectly predicted lower quality of life through reducing PDCSE (*B* = -0.21, *SE* = 0.04, 95% CI [-.301, -.155]) and through increasing disrupted worldview (*B* = -0.03, *SE* = 0.02, 95% CI [-.076, -.008]). Additionally, higher difficulty with emotion regulation indirectly predicted lower quality of life through the proposed *serial indirect effect*, first by reducing PDCSE appraisals, which in-turn increased severity of disrupted worldview (*B* = -0.02, *SE* = 0.02, 95% CI [-.055, -.002]).

Competing model predicting quality of life (model test congruent with Figure 6). In the competing model predicting quality of life, the position of the mediators was altered, placing disrupted worldview ahead of PDCSE in the mediation pathway that hypothetically links difficulty with emotion regulation to post-combat quality of life. See Figure 6 for a visual depiction of this 'competing' model configuration.

Model fit indices were examined first, demonstrating that the serial mediation model (visually depicted in Figure 4) was a good fit for predicting quality of life (*SRMR* = .031; *CFI* = 0.99; *TLI* = 0.97; model fit $\chi^2_{[2]} = 3.170$, $p = .205$; baseline model fit $\chi^2_{[9]} = 189.101$, $p < .001$). See Table 11 for a summary of model fit indices.

The direct effects model predicting the first proposed mediators was unchanged from previous 'competing' analyses, and are not re-iterated here in-text (see Table 13). Further the

direct effects model predicting quality of life was unchanged from previous analyses, and is not re-iterated here in-text (see Table 12).

Indirect effects were tested, first involving examination of two simple indirect pathways, followed by examination of the proposed serial indirect pathway congruent with Figure 6. Results for *simple indirect pathways* demonstrated that higher difficulty with emotion regulation indirectly predicted lower quality of life through increasing severity of disrupted worldview (*B* = -0.05, *SE* = 0.03, 95% CI [-.106, -.012]) and through reducing PDCSE appraisals (*B* = -0.19, *SE* = 0.04, 95% CI [-.268, -.123]). Additionally, higher difficulty with emotion regulation indirectly predicted lower quality of life through the proposed *serial indirect effect*, first by increasing severity of worldview disruption, which in-turn reduced PDCSE appraisals (*B* = -0.03, *SE* = 0.02, 95% CI [-.063, -.009]).

Summary of findings from testing Research Question 3. Difficulties with emotion regulation did not directly predict PTSD or quality of life, but rather influenced worse PTSD and quality of life indirectly by way of reducing PDCSE and increasing severity of worldview disruption. Higher difficulties with emotion regulation did, however, maintain a direct depression-severity-increasing-effect in the final model, while also indirectly predicting depression severity through reducing PDCSE and increasing severity of worldview disruption. The simple indirect pathways across all models were significant, supporting higher difficulty with emotion regulation as an indirect predictor of worse post-combat adaptation outcomes through reducing PDCSE appraisals or through increasing severity of worldview disruption. Good model fit and support for competing serial indirect pathways (i.e., characterized by alternating the order of the proposed mediators [PDCSE and worldview disruption]) suggested

that both of the competing models (with regard to serial indirect effects) are viable means of explaining post-combat adaptation.

Adjunctive Research Question 2 (see Figure 7)

Based on suggestions from the dissertation committee, Adjunctive Analyses 2 were performed to test adjunctive hypotheses that PDCSE would moderate both the direct and indirect effects pathways linking difficulties with emotion regulation to post-combat adaptation, such that higher levels of PDCSE are predicted to protect against the negative effects that higher levels of emotion dysregulation have on worldview and post-combat pathology and quality of life (i.e., effects that were supported by results from testing both Research Question 3 and adjunctive hypotheses tested via Adjunctive Analyses 1). The strategy for testing Adjunctive Analyses 2 involved employment of Hayes (2013) PROCESS Model 8. Direct effects are reported first, and pending significant moderation effects, moderation probing is performed (i.e., probing moderation of the direct effect that emotion regulation difficulties may have upon psot-combat adaptation outcomes; probing moderation of the indirect effect of emotion regulation difficulties on post-combat adaptation outcomes through influencing worldview disruption).

Predicting PTSD severity (model test congruent with Figure 7). Direct effects predicting the proposed mediator (via direct effects model including difficulty with emotion regulation, PDCSE, and the moderation term [difficulty with emotion regulation * PDCSE]) revealed a model explaining 30% of the variance in disrupted worldview (R^2 = .30 $F_{[3, 119]}$ = 16.73, p < .001). Individual direct effects examination revealed that higher levels of PDCSE predicted lower levels of disrupted worldview (B = -0.04, p = .014), an effect qualified by the inclusion of the moderation term in the model. None of the other independent variables (i.e., difficulty with emotion regulation or the moderation term) were significant predictors of

disrupted worldview. See Table 14 for a summary of direct effects predicting disrupted worldview.

The full direct effects model predicting PTSD severity (including combat exposure, difficulty with emotion regulation, PDCSE, disrupted worldview, and the moderation term [difficulty with emotion regulation * PDCSE]) explained 48% of the variance in PTSD (R^2 = .48, $F_{[5, 117]}$ = 21.94, p < .001), and revealed the following significant individual direct effects: (1) higher combat exposure severity predicted higher levels of PTSD severity (B = 2.29, p = .005), and; (2) higher severity of disrupted worldview predicted higher levels of PTSD severity (B = 4.39, p < .001). None of the other independent variables (i.e., difficulty with emotion regulation, PDCSE, or the moderator) predicted PTSD severity. Considering the non-effects of the proposed moderation, probing of the proposed simple moderation and the moderated-mediation effects was not supported. These findings do not support the hypothesis posing PDCSE as a moderator (protector against) the ill-effects of emotion regulation difficulties on post-combat worldview and PTSD severity. See Table 14 for a summary of direct effects predicting PTSD severity.

Predicting depression severity (model test congruent with Figure 7). Direct effects predicting the proposed mediator (i.e., disrupted worldview) were unchanged from the previous analysis, and are not re-iterated here in-text (see Table 14). The full direct effects model predicting depression severity (including combat exposure, difficulty with emotion regulation, PDCSE, disrupted worldview, and the moderation term [difficulty with emotion regulation * PDCSE]) explained 61% of the variance in depression severity (R^2 = .61, $F_{[5, 117]}$ = 35.93, p < .001). Only higher levels of disrupted worldview predicted more severe depression (B = 2.29, p = .003). None of the other independent variables (including combat exposure, difficulties with

emotion regulation, PDCSE, or the moderator) predicted depression severity. Considering the non-effects of the proposed moderation, probing of the proposed simple moderation and the moderated-mediation effects was not supported. These findings do not support the hypothesis posing PDCSE as a moderator (protector against) the ill-effects of emotion regulation difficulties on post-combat worldview and depression severity. See Table 14 for a summary of direct effects predicting depression severity.

Predicting quality of life (model test congruent with Figure 7). Direct effects predicting the proposed mediator (i.e., disrupted worldview) were unchanged from the previous analysis, and are not re-iterated here in-text (see Table 14). The full direct effects model predicting quality of life (including combat exposure, difficulty with emotion regulation, PDCSE, disrupted worldview, and the moderation term [difficulty with emotion regulation * PDCSE]) explained 42% of the variance in quality of life (R^2 = .42, $F_{[5, 117]}$ = 16.67, p < .001), revealing the following significant individual direct effects: (1) higher levels of disrupted worldview predicted lower quality of life (B = -2.33, p = .036), and (2) higher PDCSE predicted higher quality of life (B = 0.41, p = .031; an effect qualified by inclusion of the moderator). None of the other independent variables (combat exposure, difficulty with emotion regulation, or the moderator) predicted quality of life. Considering the non-effects of the proposed moderation, probing of the proposed simple moderation and the moderated-mediation effects was not supported. These findings do not support the hypothesis posing PDCSE as a moderator (protector against) the ill-effects of emotion regulation difficulties on post-combat worldview and quality of life. See Table 14 for a summary of direct effects predicting quality of life.

Chapter 4

Discussion

The current study was conducted with a sample of 123 combat veterans of OEF/OIF seeking outpatient treatment in a VAMC clinic, with broad interest in understanding whether PDCSE helps to explain post-combat adaptation. Post-combat adaptation was indicated by three dependent variables: PTSD severity, depression severity, and quality of life perceptions.

In addition to this broad aim, five specific research questions were examined (i.e., three questions posed at the time of the study proposal, and two adjunctive questions added based on data performance and suggestions from the dissertation committee):

Research Question 1. Is PDCSE a gauge for self-regulatory functioning?

Research Question 2. How does PDCSE work in-concert with disrupted worldview (i.e., negative beliefs about others and the world) to predict post-combat adaptation?

Research Question 3. How do emotion regulation difficulties, PDCSE, and disrupted worldview work in an integrated model to predict post-combat adaptation?

Adjunctive Research Question 1. Does emotion dysregulation influence post-combat adaptation through altering and increasing severity of disrupted worldview?

Adjunctive Research Question 2. Does PDCSE serve as a moderator, protecting against the ill-effects of emotion dysregulation on post-combat adaptation outcomes?

The following sections begin with a description of study limitations, followed by a summary of findings from each research question tested, followed by interpretations of primary findings via theory, relationship to the extant literature, future research directions, and treatment implications.

Study Limitations

The current study should be interpreted amidst six primary limitations. First, and perhaps the most limiting factor, the cross-sectional research design prohibited true test of 'dynamic' relationships across time. This specifically prohibited (a) effective tests of model fit differences for comparing models with competing mediation pathways, and (b) causal inference, typically made possible in correlational research through manipulation of temporal precedence. In absence of longitudinal data and the ability to test causal hypotheses involving temporal dynamics, the current study utilized theory as the primary means through which to pose dynamic relationships. Nonetheless, future research is needed to go about testing, supporting, and/or refuting current study findings through longitudinal designs. Additionally, experimental design is an important future research application in the understanding of causation associated with the current study variables.

Second, this study was limited by use of self-report measures (see Poskadoff & Organ, 1986). This was a byproduct of the naturalistic study design, wherein this study was conducted in an outpatient clinic as part of routine clinical care, wherein the clinic (like many) uses questionnaires in the 'intake' process as screening tools that may indicate the need for follow-up, in-depth clinical assessment. Whereas the current study was not focused on predicting diagnoses (rather, severity of symptoms associated with diagnoses), and whereas the self-report measures used to measure dependent variables in the current study are well normed with both clinical and non-clinical samples, future research with applications for predicting diagnosis should seek to utilize more reliable clinical interviews (e.g., the Anxiety Disorders Interview Schedule for DSM-5; Brown & Barlow, 2013).

Third, true tests of mediation were limited by the lack of a comparison/control group (e.g., comparing treatment seeking vs. non-treatment seeking veterans). A recent review suggests the importance of multi-group comparisons, especially when attempting to understand how emotion regulation and cognitive-appraisal processes may work differentially to predict psychopathology and/or well-being (see Aldao, Nolen-Hoeksema, & Scheizer, 2010).

Fourth, the sample used in the current study was relatively small in comparison to samples that employ path analysis, a problem that was partially addressed by use of fit indices appropriate for small samples (Hu & Bentler, 1998). Considering this limitation alongside the lack of a comparison/control group, the stability of the current study findings is questionable, and requires future research to be conducted with larger samples employing longitudinal designs.

Fifth, the current study did not employ a validated combat exposure measure, a function of a naturalistic study design (i.e., conducted with IRB imposed limitations among veterans seeking routine clinical care). This limitation suggests that caution be used when interpreting findings associated with how combat exposure related to and predicted other study variables. Future research should employ validated measures of trauma exposure (e.g., the Trauma Life Events Questionnaire, Kubany et al., 2000).

Sixth, external generalizability of results is largely limited to treatment seeking, male OEF/OIF veterans, considering that only 11% of the sample was comprised of female veterans (*n* = 14). Bearing in mind the disproportionate distribution of men who serve in military roles (compared to women), this is not a limitation that is unique to this study. However, with recent legislation that expands the role of women into front-line 'combat-arms' positions, research that attends to gender differences is increasingly important. Testing the same questions posed in the current study in a VAMC women's clinic, for example, may be a useful future research

application. Additionally, external generalizaiblity is limited by racial homogeneity, with tests of differences between racial groups limited by the small cell population among each of the non-white racial groups.

Summary and Interpretation of the Effect of Combat Exposure Severity on Post-Combat Adaptation

Combat exposure severity was controlled for as *the* covariate in each model that predicted post-combat PTSD severity, depression severity, and quality of life. Combat exposure severity performed consistently across the majority of analyses, generally demonstrating a significant direct effect only on PTSD severity when included with simultaneous effects of the independent variables of interest (difficulties with emotion regulation, PDCSE, and disrupted worldview). This finding is consistent with the requisite 'trauma exposure' experience as the primary etiological factor for developing PTSD symptoms (APA, 2013), longstanding theory regarding the etiology of PTSD as resultant from fear conditioning that occurs during and after trauma exposure (cf. Foa & Kozak, 1986), and combat-veteran-specific evidence demonstrating that combat exposure increases the likelihood of developing PTSD (cf. Gilbertson et al., 2010).

In only one of the models tested (i.e., testing Research Question 1), combat exposure exerted a significant direct effect on depression severity. However, this effect performed in a counter-intuitive manner, with higher combat exposure severity predicting lower depression levels. The literature is unclear as to whether combat exposure severity is important for predicting depression severity, with ample literature suggesting that combat exposure does not predict depression (e.g., Grieger et al., 2006), juxtaposed by research suggesting that combat exposure does predict depression (e.g., Maguen et al., 2010; Wells et al., 2010). However, no empirical precedent supports the counter-intuitive directionality (i.e., higher combat exposure

severity predicting lower depression levels). This counter-intuitive effect suggests involvement of a moderator (e.g., problems with post-deployment mental health despite perceived lack of legitimacy in one's combat experience [if veterans perceive not to have experienced legitimate combat 'action']), although no such moderation was tested in the current study. The counter-intuitive nature of this effect should be interpreted with extreme caution, amidst the combat exposure measurement limitation, and with the knowledge that combat exposure severity did not predict depression severity in any of the subsequent analyses.

Summary of Findings Associated with Research Question 1

Research Question 1 and associated path models used to test this question are congruent with conceptual Figure 1. Hypotheses proposed that: (a) PDCSE would explain variance in post-combat adaptation outcomes uniquely-and-in-addition-to the effects of difficulties with emotion regulation (i.e., in direct effects models), and (b) difficulties with emotion regulation would indirectly predict post-combat adaptation outcomes by way of reducing PDCSE appraisals (i.e., working as a potential mediator between difficulties with emotion regulation and outcomes).

Initial examination of model fit indices demonstrated that the simple mediation model depicted in Figure 1 was a good fit for predicting each of the outcomes. The models tested in Research Question 1 explained 48% of the variance in PDCSE, 40% of the variance in PTSD severity, 57% of the variance in depression severity, and 39% of the variance in quality of life, respectively.

The direct effects analyses supported the first hypothesis associated with Research Question 1 by demonstrating that PDCSE indeed explained significant, unique variance in post-combat PTSD, depression, and quality of life in addition to the concurrent effects of difficulties with emotion regulation. In the models predicting PTSD and depression severity, difficulties

with emotion regulation maintained a direct, psychopathology-severity-increasing effect, even when included in the model simultaneously along with PDCSE. These findings suggested that both difficulties with emotion regulation and PDCSE are unique, individual, direct contributors to post-combat psychopathology. Conversely, in the direct effects model predicting quality of life, only PDCSE was a significant predictor (i.e., higher PDCSE predicting better quality of life), with the effect of difficulties with emotion regulation relegated to non-significance. This finding provided initial support for the notion that PDCSE appraisals, rather than emotion dyregulation, may be more pertinent in the prediction of quality of life. Additionally, the indirect effects findings supported the second hypothesis embedded within Research Question 1, demonstrating that more severe difficulties with emotion regulation predicted worse post-combat adaptation through reducing PDCSE appraisals.

Summary of Findings Associated with Research Question 2

Research Question 2 and associated path models used to test this question are congruent with conceptual Figures 2 and 3. In Research Question 2, the current study proposed to explore the interconnections between PDCSE and worldview disruptions in the prediction of post-combat adaptation. Model fit indices demonstrated that both sets of competing path models (the first set of analyses posing disrupted worldview as the mediator between PDCSE and post-combat adaptation outcomes [see Figure 2]; the second, competing set of analyses posting PDCSE as the mediator between post-combat adaptation and outcomes [see Figure 3]) were a good fit for the current data in the prediction of all three post-combat adaptation outcomes. The models tested in Research Question 2 explained 23% of the variance in disrupted worldview (consistent with model configuration in Figure 2) or PDCSE (consistent with model

configuration in Figure 3), 49% of the variance in PTSD severity, 57% of the variance in depression severity, and 42% of the variance in quality of life severity, respectively.

Specific direct effects findings demonstrated that both PDCSE and disrupted worldview were significant, unique predictors of post-combat adaptation indicators. Specifically, higher levels of PDCSE predicted better outcomes (i.e., lower PTSD and depression severity; higher quality of life), whereas higher levels of disrupted worldview predicted worse outcomes (i.e., higher PTSD and depression severity; lower quality of life).

Indirect effects analyses demonstrated that higher PDCSE exerted a significant, indirect effect that promoted better post-combat adaptation outcomes via reducing severity of negative worldview. Conversely, competing models demonstrated that higher levels of negative worldview exerted a significant, indirect effect that promoted worse outcomes via reducing PDCSE appraisals. Altogether, whereas these competing model tests do not provide clarity on the directionality of the relationship between PDCSE and post-combat worldview disruptions, results suggested that the direct and indirect effects from PDCSE and disrupted worldview working independently and in-concert are important in the prediction of post-combat adaptation.

Summary of Findings Associated with Adjunctive Research Question 1

Adjunctive Research Question 1 and associated path models used to test this question are congruent with conceptual Figure 5. In preparation for testing Research Question 3, an adjunctive set of path models was used to test whether difficulties with emotion regulation predicted post-combat adaptation by influencing worldview (i.e., working as a potential mediator between emotion dysregulation and outcomes). Specifically, this set of analyses allowed for testing the adjunctive hypothesis that more severe difficulties with emotion regulation would

predict worse post-combat adaptation outcomes indirectly by increasing the severity of disrupted worldview.

Model fit indices generally demonstrated that the simple mediation model associated with Adjunctive Research Question 1 was a good fit for predicting post-combat adjustment, albeit that one of the fit indices (TLI) suggested poor fit across each of the prediction models. The models tested via Adjunctive Analyses 1 explained 24% of the variance in disrupted worldview, 44% of the variance in PTSD severity, 51% of the variance in depression severity, and 28% of the variance in quality of life, respectively.

Direct effects models demonstrated that both difficulties with emotion regulation and disrupted worldview were significant predictors of post-combat adaptation indicators. Specifically, higher severity of difficulties with emotion regulation and disrupted worldview predicted worse post-combat adaptation. These findings demonstrate that more severe difficulties with emotion regulation and higher levels of disrupted worldview are unique, individual, direct contributors to promoting higher levels of post-combat psychopathology severity and reduced quality of life. Further, results from the indirect effects tests supported the hypothesis associated with Adjunctive Research Question 1 by showing that more severe difficulties with emotion regulation indirectly predicted worse post-combat adaptation outcomes via increasing the severity of worldview disruption.

Summary of Findings Associated with Research Question 3

Research Question 3 and associated path models used to test this question are congruent with Figures 4 and 6. Research Question 3 and associated path models represent the integration of ‘full models’ that incorporate each of the independent variables of interest (difficulties with emotion regulation, PDCSE, and disrupted worldview) in the prediction of post-combat

adaptation outcomes. Testing Research Question 3 involved competing model tests characterized by alternating PDCSE and disrupted worldview as potential mediators working in serial order, theoretically posed to mediate the effects that difficulties with emotion regulation had upon post-combat adaptation outcomes.

Model fit indices demonstrated that the full models associated with Research Question 3 were a good fit for predicting each of the post-combat adjustment outcomes. The models tested via Research Question 3 (including combat exposure severity [covariate control], difficulties with emotion regulation, PDCSE, and disrupted worldview) explained 49% of the variance in PTSD severity, 60% of the variance in depression severity, and 42% of the variance in quality of life, respectively. The direct effects model associated with Figure 4 explained 48% of the variance in PDCSE, and 28% of the variance in disrupted worldview, respectively. The direct effects from the competing model configurations depicted in Figure 6 explained 24% of the variance in disrupted worldview, and 50% of the variance in PDCSE, respectively.

Direct effects models demonstrated that more severe difficulties with emotion regulation predicted lower PDCSE appraisals and higher severity of disrupted worldview problems. Lower levels of PDCSE and higher severity of disrupted worldview were direct, concurrent predictors of worse post-combat adaptation outcomes. Notably, difficulties with emotion regulation did not directly predict PTSD or quality of life severity when included in prediction models along with PDCSE, disrupted worldview, and combat exposure severity (covariate control). However, more severe difficulties with emotion regulation maintained a significant, direct, depression severity exacerbating effect in the same prediction models that were also characterized by simultaneous inclusion of PDCSE, disrupted worldview, and combat exposure severity (covariate control).

Indirect effects analyses demonstrated that higher severity of difficulties with emotion regulation predicted worse post-combat adaptation through simple indirect pathways: (a) by reducing PDCSE appraisals (consistent with results from testing Research Question 1), and (b) by increasing severity of disrupted worldview (consistent with results from testing Adjunctive Research Question 1). Tests of serial indirect pathways demonstrated that, in both configurations, more severe difficulties with emotion regulation predicted worse outcomes by (a) directly reducing PDCSE appraisals, which in-turn increased the severity of negative worldview (see Figure 4), and (b) by directly increasing the severity of negative worldview, which in turn reduced PDCSE appraisals (see Figure 6).

Summary of Findings Associated with Adjunctive Research Question 2

Adjunctive Research Question 2 and associated path models are congruent with Figure 7. Adjunctive Research Question 2 posed PDCSE as a potential moderator of the ill-effects that higher severity of difficulties with emotion regulation had upon disrupted worldview and post-combat outcomes. Results from testing Adjunctive Research Question 2 did not support PDCSE as a moderator of these pathways.

Interpretation of Study Findings

Findings across all models demonstrated that emotion dysregulation, a component considered foundational in posttrauma psychopathology development (cf. Ehlers & Clark, 2000), plays a significant role in promoting worse post-combat adaptation. In the current study, the effects of emotion dysregulation on post-combat adaptation primarily occurred through negatively influencing coping appraisals and beliefs about the dangerousness and trustworthiness of the world. Study findings emphasize the importance of PDCSE and negative worldview in the

process of understanding post-combat adaptation. Specific pathways to predicting post-combat adaptation supported in the current study are interpreted below.

Coping self-efficacy as a mediator between emotion dysregulation and post-combat adaptation. Results from testing Research Questions 1 and 3 supported higher levels of emotion dysregulation as a predictor of worse psychopathology and quality of life through reducing PDCSE appraisals. This finding supports long-held theories, namely social cognitive theory (Bandura, 1997; Benight & Bandura, 2004) and the transactional theory of stress and coping (Lazarus, 1981; Lazarus & Folkman, 1987), which posit that stressful experiences can tax emotion regulatory resources, which can in-turn reduce well-being through negatively altering coping appraisals. The general finding that PDCSE serves as a mechanism (i.e., mediator) predicting posttrauma functioning is consistent with recent studies conducted among combat (Smith et al., 2013) and non-combat trauma samples (Smith, Abeyta et al., 2015), systematic review (Benight & Bandura), and meta-analytic evidence (Luszczynska et al., 2009).

With regard to novel contributions to the literature, this is the first study to test the PDCSE construct (domain specific coping-self-efficacy appraisals for managing post-deployment obstacles) among treatment seeking veterans, extending the evidence beyond the only previous study to test the PDCSE construct (i.e., among a sample of OEF/OIF veterans in a university setting; Smith et al., 2013). The current study is also the first to specifically test self-reported difficulties with emotion regulation as a predictor of posttrauma outcomes through alteration of coping self-efficacy appraisals. Current study findings support a primary assumption of social cognitive theory of traumatic stress adaptation (Benight & Bandura, 2004), and further, validates research that employs theory in the absence of evidence to make the conceptual linkage

between emotion dysregulation and coping appraisals (e.g., as is the case in each of the studies cited in the previous paragraph).

Negative worldview as a mediator between emotion dysregulation and post-combat adaptation. Results from testing Adjunctive Research Question 1 and Research Question 3 supported higher severity of emotion dysregulation as a predictor of worse post-combat adaptation through increasing negative worldview severity. This finding supports the notion that emotion dysregulation influences negative cognitive appraisals about objects in extrapersonal space (e.g., cognitive appraisals about the dangerousness and untrustworthiness of people and the world) in the process of influencing worse post-combat psychopathology and quality of life. This finding is consistent with theory (see Pyszczynski & Kesebir, 2011) and evidence (demonstrated via both experimental [Kesebir et al., 2011] and longitudinal/correlational study designs [Smith, Abeyta et al., 2015]) for how trauma influences vulnerability to psychopathology—that is—by generating emotion regulation problems that deplete cognitive-affective resources that are necessary for piecing back together meaningful, protective posttraumatic worldviews. Additionally, these findings are consistent with—and provide insight into— (a) evidence that emotional activation originating in the right cerebral hemisphere (i.e., posterior 'limbic' structures) produces cognitive appraisals to suppress negative emotion (i.e., associated with right prefrontal activations; Beauregard, Levesque, & Bourgouin, 2001), alongside (b) complementary evidence that such right prefrontal, cognitive-affective activations are characterized by cynical ruminations (Kelley, Hortensius, & Harmon-Jones, 2013).

Emergent theory for how OEF/OIF veterans may struggle to adapt in post-combat contexts (Smith & Jones, under review) provides an interpretive lens for these findings and connection of these findings to both anxiety buffer-disruption theory (Pyszczynski & Kesebir,

2011) and neurobiological evidence (Beauregard et al., 2001; Kelley et al., 2013). Smith and Jones (under review) posit that that combat veterans are trained and reinforced to employ cynical cognitive appraisals as a 'response-focused' emotion suppression strategy. Accordingly, cynical appraisals prove useful by (a) promoting mission completion and survival via emotion suppression benefits that enables soldiers to direct cognitive-affective resources into extra-personal space (e.g., to neutralize an enemy threat), through (b) preventing the diversion of cognitive-affective resource for management of emotion regulatory demands.

Notwithstanding short-term emotion suppression (see Gross, 1998) and behavioral action benefits gained, costly long-term consequences of such 'response-focused' suppression strategies involves prevention of positive emotion and interruption of developing positive, adaptive, antecedent-focused regulation strategies (Gross & John, 2003). When one considers that (a) treatment seeking veterans are especially likely to inhabit cognitive biases characterized by cynicism when under emotional duress (Todd et al., 2015), alongside (b) the current study evidence that emotion dysregulation predicts worse post-combat outcomes via increasing severity of negative worldview, it serves reason that such cynical appraisals may be an ultimately costly, self-protective strategy with implications for, at minimum, unresolved psychopathology (PTSD and depression symptoms) and diminished quality of life.

Dynamics among emotion dysregulation, PDCSE and negative worldview predicting post-combat adaptation. As per findings associated with Research Questions 1, 2, 3, and Adjunctive Research Question 1, the current study supports that PDCSE and negative worldview are (a) predicted by emotion dysregulation, (b) predictors of one another in the promotion of post-combat psychopathology and reduced quality of life, and (c) direct predictors of post-combat adaptation outcomes—independent-from-and-concurrent-with—one another. As such,

the current study supports the importance of future research, intervention, and clinical formulations that consider both PDCSE and negative worldviews in understanding posttraumatic functioning. It is also important to note that in the full models, emotion dysregulation did not directly predict PTSD severity and quality of life, rather predicting these outcomes *only* through indirect effects via PDCSE and disrupted worldview.

Social cognitive theory (Bandura, 1997; Benight & Bandura, 2004) provides a useful lens in interpreting the 'full model' findings. Trauma can negatively alter intra-individual emotional processing (e.g., producing emotion dysregulation), which may in-turn alter one's self-evaluative appraisals of control over both (a) intra-individual functioning and (b) agency in a posttrauma world that may be characterized by dangerousness and unpredictability. As human beings, we experience and are then left to interpret our experience; emotional experience is accompanied by self-and-other evaluations ("How am I managing this stress?"; "How is my fellow soldier managing this stress"). If one's experience results in negative self-evaluation ("I am not managing this stress well"), appraisals may be characterized by pre-occupation and rumination about lack of control over intra-individual functioning, thereby increasing emotional arousal, reducing PDCSE appraisals, and necessitating depletion of cognitive-affective resources for managing resultant emotional reactivity (see Muraven & Baumeister, 2000).

Likewise, when primary threat appraisals are high in accompaniment with emotion dysregulation and diminished PDCSE appraisals (through the above described process), response-focused appraisals (e.g., cynical appraisals) may be employed as a means of attaining emotional relief (through suppression) and/or enablement of behavioral activation for managing potential environmental threats (see Smith & Jones, under review). Consequently, when a veteran lives in a world that is perceived to be full of dangerous, untrustworthy people,

environmental predictability and agency may be diminished, thereby diminishing secondary appraisals of one's capacity to manage obstacles (i.e., PDCSE). It is perhaps through these theorized dynamics that exposure to combat trauma, emotion regulatory functioning, coping self-efficacy appraisals, and negative beliefs about others and the world work in concert, thereby explaining a large portion of variance in post-combat adaptation outcomes in the current study.

Notably, the current study is not helpful in determining directionality between coping self-efficacy and negative worldview-related processes, an attempt that was limited from the outset by cross-sectional research design. The lack of clarity in the directionality between PDCSE and negative worldview is consistent with competing findings in the related longitudinal literature. Specifically, with a sample of adult victims of childhood trauma and a separate sample of motor vehicle accident survivors, Cieslak and colleagues (2008) supported coping self-efficacy as a mediator between negative posttraumatic cognitions (about the world) and posttraumatic distress. Conversely, with a community sample exposed to mass-violence, Smith, Abeyta and colleagues (2015) supported negative worldview as a mediator between coping self-efficacy and posttraumatic grief symptoms. Whereas these studies were conducted with different measures, different samples characterized by distinct trauma-typologies, and predicted different outcomes, they were conducted based on overlapping social-cognitive heuristics. Moreover, neither of these studies (Cieslak et al., 2008; Smith, Abeyta et al., 2015) conceptualized or tested competing models; whereas the current study conceptualized competing models, testing model fit differences (through chi-square differences test) was limited by cross-sectional research design. Nonetheless, the current study adds support to the significance of both worldview disruptions and coping self-efficacy beliefs as important predictors that work in-concert to predict outcomes in a novel posttrauma context (i.e., among treatment seeking combat veterans).

Additionally, only in the full model predicting depression severity (not in full models predicting PTSD or quality of life), difficulties with emotion regulation maintained a significant direct effect predicting higher depression severity—in-addition-to-and-concurrent-with—the simultaneous effects of PDCSE and negative worldview. The maintenance of this effect may relate to dynamics for how chronic failure experience with self-regulation may increase cognitive rumination over helplessness to control emotions, in-turn promoting depression symptoms (see Gross, 2002; see Martin & Dahlen, 2005). Such assumptions require testing through longitudinal or experimental designs.

Future Treatment and Research Implications

Emotion dysregulation is implicated as a key driver to psychopathology (cf. Sheppes, Suri, & Gross, 2015), and understanding factors that alter the effects of emotion dysregulation on coping self-efficacy appraisals (i.e., factors that either reduce or enhance such appraisals), worldview (i.e., factors that improve context-specific flexibility in one's worldview), psychopathology, and quality of life has important implications for intervention. Clearly, the current study did not provide an extensive test of possible mediation or moderation among the pathways hypothesized and supported, with the exception of findings that (a) PDCSE did not serve as a moderator of the relationship between emotion dysregulation, disrupted worldview, and outcomes (findings yielded through testing Adjunctive Research Question 2), and (b) PDCSE may serve as a mediator between emotion dysregulation and negative worldview, and vice-versa (that negative worldview may serve as a mediator between emotion dysregulation and PDCSE). As such, future research is tasked with addressing possible mediation and moderation of the pathways among emotion dysregulation, coping self-efficacy, worldview, and outcomes as a means of informing treatment strategy and targets.

For example, the enabling hypothesis (Schwarzer & Knoll, 2007; Smith et al., 2013; Smith, Donlon et al., 2015) suggests that social resources alter coping appraisals. Consistent with enabling hypothesis, perhaps positive social support perceptions can modify the impact of emotion dysregulation on PDCSE, and may also yield positive social appraisals that challenge negative worldviews, albeit that these hypotheses were not the focus of the current study. Likewise, negative social transactions may produce problems with posttrauma psychopathology (see Lepore, 2001) by reducing coping self-efficacy appraisals and fulfilling negative post-combat beliefs about the world and others, with implications for producing increased cognitive inflexibility and social isolation (see Smith & Jones, under review). Additionally, considering evidence for the adaptive nature of antecedent-focused reappraisals aimed at emotion regulation (e.g., PDCSE appraisals; see Benight & Bandura, 2004) juxtaposed to the maladaptive nature of response-focused strategies aimed at emotion suppression (e.g., cynical cognitions about the world and others; see Smith & Jones), it may be clinically useful to consider factors that alter these pathways to adaptation (see Gross, 1998; Gross & John, 2003), regardless of directionality of the relationship between coping appraisals and negative worldview.

Whereas the current findings suggest the potential for bi-directionality of the relationship between PDCSE and negative worldview, future research must be conducted to test this notion. This will require longitudinal research designs, which are essential to understanding dynamics among difficulties with emotion regulation and the possible intermittent effects that may exist among these constructs over time. Inherent to the notion that emotion regulation produces cognitive-affective responses aimed at emotion regulation (PDCSE) or suppression (negative worldviews) is that these cognitive-affective processes, in-turn, dynamically alter emotional

experience. With cross-sectional data, this notion was not testable in the current study, and should be addressed in future research.

Notwithstanding limitations, several targets for treatment are suggested by the current study findings. Specifically, the current study supports the value in targeting emotion dysregulation and negative worldviews in the process of positively altering PDCSE beliefs, reducing posttraumatic psychopathology, and improving quality of life. Notably, evidence based treatments exist for targeting posttraumatic problems with emotion regulation (e.g., Prolonged Exposure; Foa, Hembree, & Rothbaum, 2007) and negative worldview (e.g., Cognitive Processing Therapies, Resick & Schnicke, 1992; existential components of acceptance-and-mindfulness based treatments [e.g., Acceptance and Commitment Therapy, Hayes, Strosahl, & Wilson, 1999; Dialectical Behavioral Therapy, Linehan, 1993]), although emerging evidence suggests that even our most 'evidence-supported' treatments have, at best, questionable therapeutic efficacy among military populations (see Steenkamp et al., 2015); clearly a topic that requires extensive empirical inquiry beyond the scope of this study.

Conversely, no therapies exist specifically for targeting coping self-efficacy appraisals in the treatment of trauma-spectrum disorders. This is particularly problematic when considering the significant role that coping self-efficacy appraisals serve in the determination of posttrauma outcomes, whether among combat veterans (supported by current study findings; de Vries et al., 2001; Glasner-Edwards et al., 2007; Ginzburg et al., 2003; Smith et al., 2013), or survivors of other trauma typologies (e.g., see Benight & Bandura, 2004; Luszczynska et al., 2009). This study adds to the evidence that innovation in the treatment of post-combat psychopathology and quality of life problems should be considered through a social-cognitive theory lens via development of interventions (and operationalization of existing therapies) with a specific focus

on measuring and improving coping self-efficacy appraisals. Perhaps future interventions can be built upon facets that are theorized and supported to alter coping self-efficacy appraisals, including experiences with/appraisals of (a) mastery, (b) emotion and physiology, (c) modeling (e.g., witnessing successful coping of like-experienced others) and (d) social relationships (see Bandura, 1997; Benight & Bandura).

The current study also supports the potential value in considering emotion dysregulation and PDCSE in therapeutic targeting of negative post-combat worldviews in the treatment of problems with PTSD, depression, and quality of life. Group-based therapies, for example, may be helpful in altering PDCSE appraisals, which may in-turn alter inflexible cynical worldviews through manipulating the effects of vicarious modeling and social transactions (see Bandura, 1997). Further, perhaps by altering appraisals of emotion/physiology (e.g., via Prolonged Exposure Therapy; Foa, Hembree, & Rothbaum, 2007), veterans may have increased cognitive-affective resources that may lend to higher PDCSE and increased efficacy of techniques operationalized to challenge inflexible cynical worldviews.

More broadly, moving towards interventions that consider the organism holistically and away from mere 'symptom reduction' focused therapies that are built on medical-model conceptualizations (see Benight, 2012) is imperative for treating the generation of OEF/OIF veterans struggling to adapt in post-combat contexts (Smith and Jones, under review). Identifying, measuring, and tracking facets that promote meaningful life— such as emotion regulation, PDCSE, worldviews, and quality of life— is crucial to this type of approach, in which such facets may be considered treatment outcomes in-and-of themselves. Targeting cynical worldviews in therapy, for example, may be considered a valid treatment aim when the following notions are taken into account: (a) over time, cynicism alters pro-social thinking, and

impairs thriving by diminishing one's 'social purpose' (see Ford & Smith, 2007; Smith & Jones), and; (b) robust, replicated evidence that inflexible cynicism (as a factor in trait hostility) has a large effect on interpersonal dysfunction and physical disease processes alike (e.g., diabetes; heart disease; cf. Glazer-Baron et al., 2007; cf. Miller et al., 1996; cf. Mommersteeg & Pouwer, 2012; cf. Smith, Glazer, Ruiz, & Gallo, 2004).

Targeting holistic functioning by considering problems that diminish meaningful life is also important for addressing well-documented problems that are poised affect OEF/OIF veterans in the decades to come, such as veteran vs. non-veteran economic disparities (e.g., Bureau of Labor Statistics, 2014; Elbogen, Johnson, Wagner, Newton, & Beckham, 2012) and suicide (cf. Friedman, 2014). Therapeutic innovations (e.g., developing treatments that target PDCSE) are important for shifting the focus away from mere symptom reduction and towards therapies that work to improve meaningful life. Application of existing therapies that are founded on acceptance-and-mindfulness-based heuristics (ACT; Hayes et al., 1999; DBT, Linehan, 1993) may also be useful for approaching veteran functioning from a holistic perspective, based primarily on explicit dedication to promoting effective and meaningful living amidst (and through acceptance and mindfulness of) traumatic pasts, social relationship dysfunction, and psychopathology symptoms.

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Appendix A

Tables

Table 1. Descriptive Statistics and Correlations among Primary Study Variables

	PTSD	DEP	QOL	DWV	PDCSE	DERS	EXP	Age	*M*	*SD*	Skewness	Kurtosis
PTSD	-								59.47	14.76	-.78	1.17
DEP	.65**	-							28.01	12.21	-.05	-.45
QOL	-.52**	-.66**	-						47.18	14.61	.38	.49
DWV	.54**	.56**	-.44**	-					5.45	1.13	-.99	1.55
PDCSE	-.59**	-.72**	.63**	-.48**	-				68.93	20.55	.33	.48
DERS	.54**	.66**	-.46**	.49**	-.69**	-			106.09	25.17	.20	-.41
EXP	.21*	-.02	-.05	-.07	-.08	.13	-		2.65	1.25	-.68	-.63
Age	.17	.27**	-.30*	.15	-.26**	.09	.05	-				
Gender	.04	.05	-.08	.01	.04	.06	-.13	.05				

PTSD = posttraumatic stress disorder severity (range = 0 – 85); DEP = depression measured via BDI-II (range = 0 – 52); QOL = quality of life (range = 13th percentile – 98th percentile); DWV = disrupted worldview as measured via the PTCI-world subscale (mean range = 1 - 7); PDCSE = post-deployment coping self-efficacy (range = 13 – 126); DERS = difficulty with emotion regulation scale (range = 50 – 167); EXP = combat exposure severity (range = 0 – 4); Gender was coded 0 = male, 1 = female; *M* = Mean; *SD* = standard deviation.

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

Table 2. Model Fit Indices Associated with Research Question 1 (congruent with Figure 1)

	SRMR	CFI	TLI
Model Predicting PTSD	.002	1.00	1.00
Model Predicting DEP	.002	1.00	1.00
Model Predicting QOL	.002	1.00	1.00

SRMR = standardized root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis Index; PTSD = posttraumatic stress disorder; DEP = depression; QOL = quality of life

Table 3: Direct Effects from Path Models Associated with Research Question 1 (congruent with Figure 1)

Direct effects predicting PDCSE (R^2 = .48, $F_{[1, 121]}$ = 109.22 p < .001)			
	B	*SE*	95% CI
Constant	128.40*	6.76	117.213, 139.632
DERS	-0.56*	0.06	-0.665, -0.464
Direct effects predicting PTSD symptom severity (R^2 = .40, $F_{[3, 119]}$ = 26.68, p < .001)			
	B	*SE*	95% CI
Constant	61.84*	13.21	37.575, 81.104
[a]Combat Exposure	1.72*	0.78	0.531, 3.001
DERS	0.13*	0.07	0.029, 0.269
PDCSE	-0.30*	0.09	-0.445, -0.154
Direct effects predicting depression symptom severity (R^2 = .57, $F_{[3, 119]}$ = 53.54, p < .001)			
	B	*SE*	95% CI
Constant	33.60*	7.24	22.798, 46.513
[a]Combat Exposure	-0.96*	0.59	-1.947, -0.009
DERS	0.16*	0.04	0.091, 0.224
PDCSE	-0.29*	0.05	-0.376, -0.221
Direct effects predicting quality of life (R^2 = .39, $F_{[3,119]}$ = 25.64, p < .001)			
	B	*SE*	95% CI
Constant	22.25*	6.76	5.379, 36.481
[a]Combat Exposure	0.03	0.94	-1.413, 1.624
DERS	-0.04	0.05	-0.117, 0.050
PDCSE	0.42*	0.07	0.313, 0.536

PDCSE = post-deployment coping self-efficacy; DERS = Difficulty with Emotion Regulation Scale

* = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

[a] = covariate control

Table 4. Indirect Effects Pertaining to Research Question 1 Predicting Post-combat Adaptation (congruent with Figure 1)

Model	Indirect Effect	SE	95% CI
DERS ⟶ PDCSE ⟶ PTSD severity	0.17*	0.05	0.092, 0.251
DERS ⟶ PDCSE ⟶ DEP severity	0.17*	0.03	0.120, 0.240
DERS ⟶ PDCSE ⟶ QOL	-0.23*	0.05	-0.319, -0.169

Indirect effects analyzed via Mplus, testing whether difficulties with emotion regulation (DERS) indirectly predict post-combat adaptation through post-deployment coping self-efficacy (PDCSE); PTSD = posttraumatic stress disorder; DEP = depression; QOL = quality of life; Standard errors and confidence intervals are estimated via bootstrapping re-sampling (1,000 repeated tests).
* = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

Table 5. Fit Indices for Models Associated with Research Question 2 (congruent with Figures 2 and 3)

	SRMR	CFI	TLI
Models Posing Disrupted Worldview as the Mediator Between PDCSE and Post-combat adaptation Outcomes (visually depicted in Figure 2)			
Model Predicting PTSD	.034	0.99	0.95
Model Predicting DEP	.031	0.99	0.96
Model Predicting QOL	.030	0.99	0.95
Models Posing PDCSE as the Mediator Between Disrupted Worldview and Outcomes (visually depicted in Figure 3)			
Model Predicting PTSD	.036	0.99	0.95
Model Predicting DEP	.036	0.99	0.96
Model Predicting QOL	.035	0.99	0.94

PDCSE = post-deployment coping self-efficacy; SRMR = standardized root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis Index; PTSD = posttraumatic stress disorder; DEP = depression; QOL = quality of life

Table 6. Direct Effects Associated with Research Question 2, Predicting the Proposed Mediators and Post-combat Adaptation (congruent with Figures 2 and 3)

Direct effects predicting disrupted worldview (R^2 = .23, $F_{[1, 121]}$ = 35.97, p < .001)			
	B	*SE*	95% CI
Constant	6.22*	0.41	6.584, 7.931
PDCSE	-0.03*	0.01	-0.037, -0.016
Direct effects predicting PDCSE (R^2 = .23, $F_{[1, 121]}$ = 35.97, p < .001)			
	B	*SE*	95% CI
Constant	116.422*	7.99	102.716, 128.843
Disrupted worldview	-8.72*	1.44	-11.035, -6.331
Direct effects predicting PTSD severity (R^2 = .49, $F_{[3, 119]}$ = 36.17, p < .001)			
	B	*SE*	95% CI
Constant	46.93*	8.85	32.190, 61.748
[a]Combat Exposure	2.40*	0.72	1.186, 3.619
Disrupted worldview	4.77*	0.99	3.217, 6.437
PDCSE	-0.29*	0.05	-0.374, -0.207
Direct effects predicting depression severity (R^2 = .57, $F_{[3, 119]}$ = 52.98, p < .001)			
	B	*SE*	95% CI
Constant	37.43*	5.94	27.63, 47.25
[a]Combat Exposure	-0.44	0.58	-1.353, 0.552
Disrupted worldview	2.91*	0.67	1.845, 4.001
PDCSE	-0.35*	0.04	-0.419, -0.288
Direct effects predicting quality of life (R^2 = .42, $F_{[3, 119]}$ = 28.24, p < .001)			
	B	*SE*	95% CI
Constant	34.36*	8.46	20.794, 48.454
[a]Combat Exposure	-0.26	0.90	-1.631, 1.339
Disrupted worldview	-2.35*	1.12	-4.177, -0.560
PDCSE	0.38*	0.05	0.306, 0.463

PDCSE = post-deployment coping self-efficacy

* = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

[a] = covariate control

Table 7. Indirect Effects Pertaining to Research Question 2 Predicting Post-combat Adaptation (congruent with Figures 2 and 3)

Model	Indirect Effect	SE	95% CI
PDCSE → DWV → PTSD severity	-0.13*	-0.04	-0.194, -0.076
PDCSE → DWV → DEP severity	-0.08*	-0.02	-0.122, -0.044
PDCSE → DWV → QOL	0.06*	0.04	0.015, 0.135
DWV → PDCSE → PTSD severity	2.50*	0.65	1.555, 3.742
DWV → PDCSE → DEP severity	3.05*	0.59	2.210, 4.188
DWV → PDCSE → QOL	-3.32*	0.66	-4.609, -2.404

Indirect effects analyzed via Mplus testing competing models; DWV = disrupted worldview; PDCSE = post-deployment coping self-efficacy; PTSD = posttraumatic stress disorder severity; DEP = depression severity; QOL = quality of life; Standard errors and confidence intervals are estimated via bootstrapping re-sampling (1,000 repeated tests). * = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

Table 8. Model Fit Indices Associated with Adjunctive Research Question 1 (congruent with Figure 5)

	SRMR	CFI	TLI
Model Predicting PTSD	.041	0.98	0.90
Model Predicting DEP	.038	0.98	0.91
Model Predicting QOL	.038	0.97	0.86

SRMR = standardized root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis Index; PTSD = posttraumatic stress disorder; DEP = depression; QOL = quality of life

Table 9: Direct effects from Path Models Associated with Adjunctive Research Question 1 (congruent with Figure 5)

Direct effects predicting disrupted worldview (R^2 = .24, $F_{[1, 121]}$ = 39.03, p < .001)			
	B	*SE*	95% CI
Constant	3.09*	0.49	2.249, 3.843
DERS	0.02*	0.004	0.016, 0.029
Direct effects predicting PTSD severity (R^2 = .44, $F_{[3, 119]}$ = 29.66, p < .001)			
	B	*SE*	95% CI
Constant	5.20	0.49	-3.181, 14.729
[a]Combat Exposure	2.34*	0.83	0.952, 3.695
DERS	0.18*	0.05	0.102, 0.263
Disrupted worldview	5.25*	0.99	3.591, 6.802
Direct effects predicting depression severity (R^2 = .51, $F_{[3, 119]}$ = 41.25, p < .001)			
	B	*SE*	95% CI
Constant	-14.55*	3.54	-20.599, -8.783
[a]Combat Exposure	-0.60	0.64	-1.633, 0.428
DERS	0.25*	0.04	0.190, 0.317
Disrupted worldview	3.15*	0.77	1.820, 4.311
Direct effects predicting quality of life (R^2 = .28, $F_{[3, 119]}$ = 14.88, p < .001)			
	B	*SE*	95% CI
Constant	87.685*	7.52	75.216, 99.073
[a]Combat Exposure	-0.38	0.99	-1.887, 1.207
DERS	-0.19*	0.05	-0.275, -0.114
Disrupted worldview	-3.65*	1.34	-5.980, -1.496

DERS = Difficulty with Emotion Regulation Scale

* = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

[a] = covariate control

Table 10. Indirect Effects Pertaining to Adjunctive Research Question 1 (congruent with Figure 5)

Model			Indirect Effect	SE	95% CI
DERS ⟶	Disrupted worldview ⟶	PTSD severity	0.12*	0.03	0.073, 0.172
DERS ⟶	Disrupted worldview ⟶	DEP severity	0.07*	0.02	0.037, 0.110
DERS ⟶	Disrupted worldview ⟶	QOL	-0.08*	0.04	-0.157, -0.031

Indirect effects analyzed via Mplus, testing whether difficulties with emotion regulation (DERS) indirectly predict post-combat adaptation outcomes through influencing disrupted worldview (i.e., the proposed mediator); PTSD = posttraumatic stress disorder; DEP = depression; QOL = quality of life; Standard errors and confidence intervals are estimated via bootstrapping re-sampling (1,000 repeated tests).

* = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

Table 11. Fit Indices for Models Associated with Research Question 3 (congruent with Figures 4 and 6).

Models Posing PDCSE and disrupted worldview (in that order) as mediators working in serial between difficulties with emotion regulation and post-combat adaptation outcomes (visually depicted in Figure 4)			
	SRMR	CFI	TLI
Model Predicting PTSD	0.034	0.99	0.97
Model Predicting DEP	0.031	1.00	0.98
Model Predicting QOL	0.031	0.99	0.97
Models Posing disrupted worldview and PDCSE (in that order) as mediators working in serial between difficulties with emotion regulation and post-combat adaptation outcomes (visually depicted in Figure 6)			
	SRMR	CFI	TLI
Model Predicting PTSD	0.034	0.99	0.97
Model Predicting DEP	0.031	1.00	0.98
Model Predicting QOL	0.031	0.99	0.97

PDCSE = post-deployment coping self-efficacy; SRMR = standardized root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis Index; PTSD = posttraumatic stress disorder; DEP = depression; QOL = quality of life

Table 12: Direct effects from Path Models Associated with Research Question 3

	B	*SE*	95% CI
Direct effects predicting PDCSE (congruent with Figure 4) (R^2 = .48, $F_{[1, 121]}$ = 109.219 p < .001)			
Constant	128.65*	6.76	117.213, 139.632
DERS	-0.56*	0.06	-0.665, -0.464
Direct effects predicting disrupted worldview (congruent with Figure 4) (R^2 = .28 $F_{[2, 120]}$ = 23.38, p < .001)			
Constant	4.97*	0.93	3.376, 4.968
DERS	0.01*	0.01	0.006, 0.022
PDCSE	-0.02*	0.01	-0.027, -0.002
Direct effects predicting PTSD severity (R^2 = .49, $F_{[4, 118]}$ = 27.59, p < .001)			
Constant	38.78*	12.89	15.852, 59.571
[a]Combat Exposure	2.27*	0.74	1.102, 3.590
DERS	0.07	0.06	-0.018, 0.197
PDCSE	-0.24*	0.08	-0.363, -0.111
Disrupted worldview	4.43*	0.94	2.865, 5.936
Direct effects predicting depression severity (R^2 = .60, $F_{[4, 118]}$ = 45.28, p < .001)			
Constant	21.81*	6.75	11.433, 34.238
[a]Combat Exposure	-0.68	0.57	-1.603, 0.269
DERS	0.13*	0.04	0.059, 0.193
PDCSE	-0.26*	0.04	-0.342, -0.197
Disrupted worldview	2.27*	0.65	1.237, 3.388
Direct effects predicting quality of life (R^2 = .42, $F_{[4, 118]}$ = 21.00, p < .001)			
Constant	34.44*	10.91	15.488, 51.366
[a]Combat Exposure	-0.26	0.91	-1.686, 1.314
DERS	-0.001	0.05	-0.077, 0.084
PDCSE	0.38*	0.07	0.287, 0.508
Disrupted worldview	-2.35*	1.15	-4.086, -0.364

Testing DERS as a predictor of post-combat adaptation by working through PDCSE and disrupted worldview in that specific serial order (congruent with Figure 4); Direct effects models predicting PTSD severity, depression severity, and quality of life severity are identical in testing models congruent with Figures 4 and 6; DERS = Difficulty with Emotion Regulation Scale; PDCSE = post-deployment coping self-efficacy

* = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

[a] = covariate control

Table 13: Direct effects from Path Models Associated with Research Question 3 (congruent with Figure 6, competing models tests)

Direct effects predicting disrupted worldview (see Figure 6) (R^2 = .24, $F_{[1, 121]}$ = 39.03, p < .001)			
	B	*SE*	95% CI
Constant	3.09*	0.49	2.249, 3.843
DERS	0.02*	0.004	0.016, 0.029
Direct effects predicting PDCSE (see Figure 6) (R^2 = .50, $F_{[2, 120]}$ = 59.95, p < .001)			
	B	*SE*	95% CI
Constant	139.01*	6.97	127.561, 149.362
DERS	-0.49*	0.08	-0.618, -0.372
Disrupted worldview	-3.35*	1.56	-5.811, -0.679

Direct effects predicting the mediators in the competing order posed in Figure 6; DERS = Difficulty with Emotion Regulation Scale; PDCSE = post-deployment coping self-efficacy

* = significant as a function of 95% bias corrected, bootstrapping estimated confidence intervals not crossing 0.

[a] = covariate control

Table 14: Path Models Testing Moderation and Moderation-Mediation Effects Associated with Adjunctive Research Question 2 (congruent with Figure 7)

Direct effects predicting disrupted worldview (see Figure 4) **(R^2 = .30 $F_{[3, 119]}$ = 16.73, p < .001)**			
	B	*SE*	*p*
Constant	6.56***	1.28	.000
DERS	-0.001	0.01	.899
PDCSE	-0.04**	0.02	.014
Moderator: DERS * PDCSE	0.0002	0.00	.100
Direct effects predicting PTSD severity **(R^2 = .48, $F_{[5, 117]}$ = 21.94, p < .001)**			
	B	*SE*	*p*
Constant	42.84**	16.03	.009
[a]Combat Exposure	2.29**	0.80	.005
DERS	0.03	0.12	.804
PDCSE	-0.30	0.18	.094
Disrupted worldview	4.39***	1.05	.000
Moderator: DERS * PDCSE	0.0006	0.00	.720
Direct effects predicting depression severity **(R^2 = .61, $F_{[5, 117]}$ = 35.93, p < .001)**			
	B	*SE*	*p*
Constant	20.56	11.59	.079
[a]Combat Exposure	-0.69	0.58	.235
DERS	0.14	0.09	.107
PDCSE	-0.24	0.13	.059
Disrupted worldview	2.29**	0.76	.003
Moderator: DERS * PDCSE	-0.0002	0.00	.886
Direct effects predicting quality of life **(R^2 = .42, $F_{[5, 117]}$ = 16.67, p < .001)**			
	B	*SE*	*p*
Constant	32.76	16.87	.055
[a]Combat Exposure	-0.27	0.84	.753
DERS	0.02	0.13	.903
PDCSE	0.41**	0.19	.031
Disrupted worldview	-2.33**	1.10	.036
Moderator: DERS * PDCSE	-0.0002	0.00	.884

Model congruent with Figure 7, PDCSE as a moderator of the potential direct and indirect effects that DERS has upon post-combat adaptation outcomes. DERS = Difficulty with Emotion Regulation Scale; PDCSE = post-deployment coping self-efficacy

** = p < .05; *** = p < .001

[a] = covariate control

Appendix B

Figures

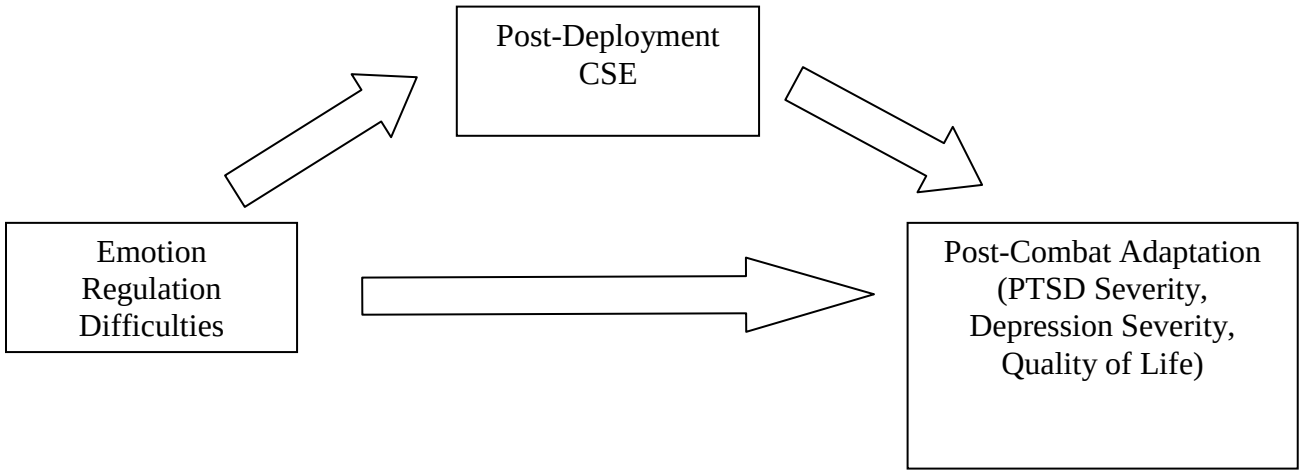

Figure 1. Conceptual model testing Research Question 1, in which it was hypothesized that difficulties regulating emotion would indirectly influence outcomes through influencing PDCSE. Combat exposure severity is controlled for as a covariate predicting PTSD severity, depression severity, and quality of life.

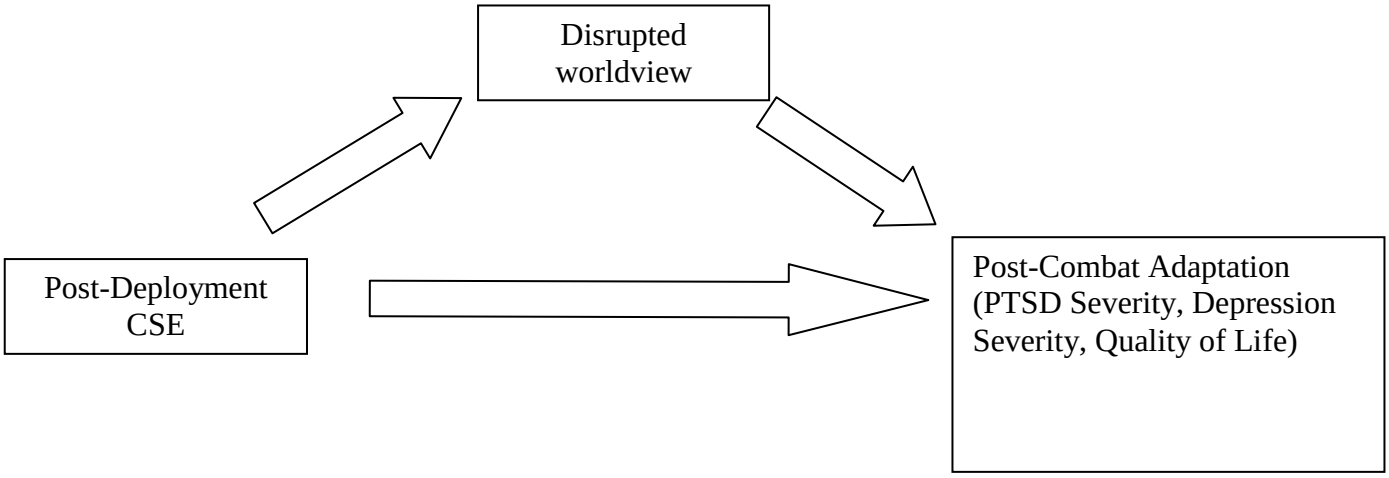

Figure 2. Conceptual model testing Research Question 2: How does PDCSE work in-concert with negative post-combat beliefs (i.e., about the self, world, and others) in order to predict post-combat adaptation? In this version of the model, consistent with findings from Kesebir et al. (2011) and Smith, Abeyta et al., (2015), worldview disruption is posed as a mediator between PDCSE and post-combat adaptation. beliefs (i.e., about the self, world, and others) in order to predict post-combat adaptation? Combat exposure severity is controlled for as a covariate predicting PTSD severity, depression severity, and quality of life.

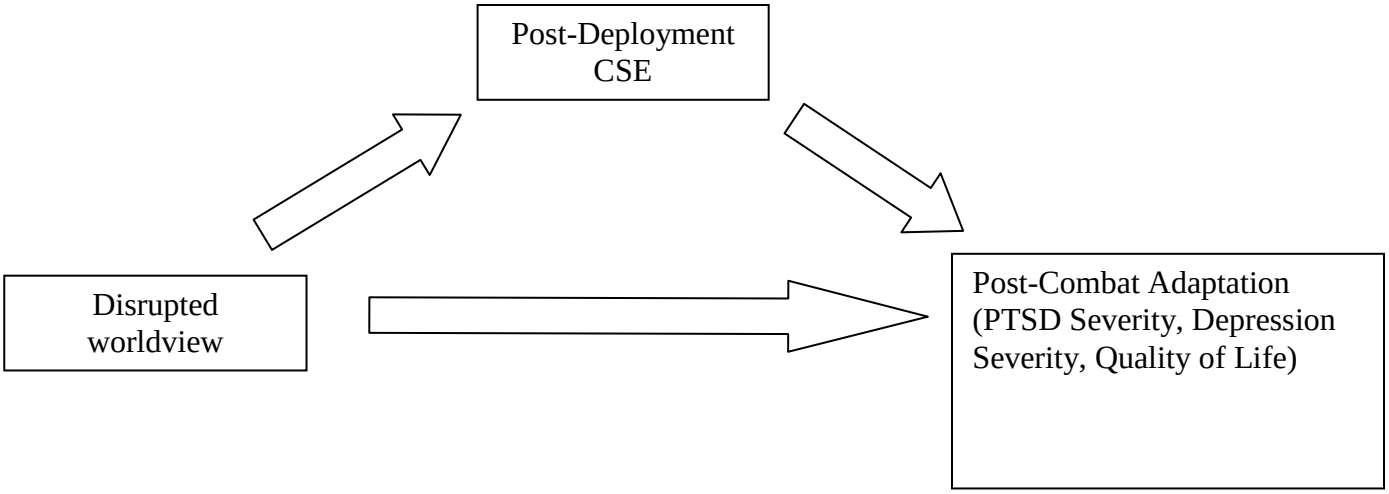

Figure 3. Conceptual competing model testing Research Question 2: How does PDCSE work in-concert with negative post-combat beliefs (i.e., about the self, world, and others) in order to predict post-combat adaptation? In this competing version of the model, consistent with findings from Cieslak et al. (2008) and Luszczynska et al. (2009), PDCSE is posed as a mediator between worldview disruption and post-combat adaptation. Combat exposure severity is controlled for as a covariate predicting PTSD severity, depression severity, and quality of life.

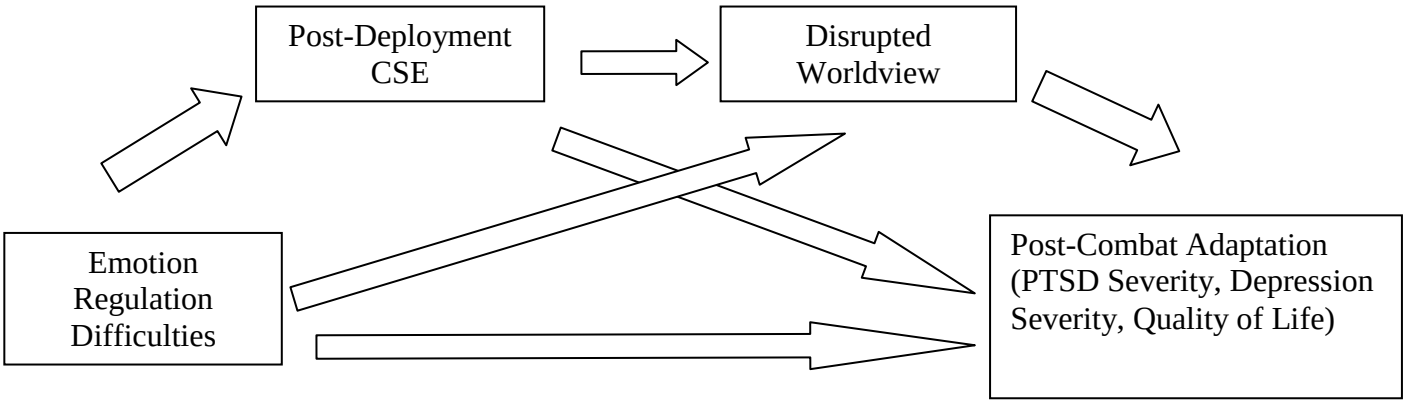

Figure 4. Conceptual model testing Research Question 3: Is PDCSE the final common pathway (Luszynska et al., 2009; Cieslak et al., 2008), or does it work dynamically through influence on other cognitive/emotional structures (e.g., worldview) as has been identified in previous research conducting in traumatized (but not combat veteran) samples (e.g., Kesebir et al., 2011; Smith, Abeyta et al., 2015)? Combat exposure severity is controlled for as a covariate predicting PTSD severity, depression severity, and quality of life.

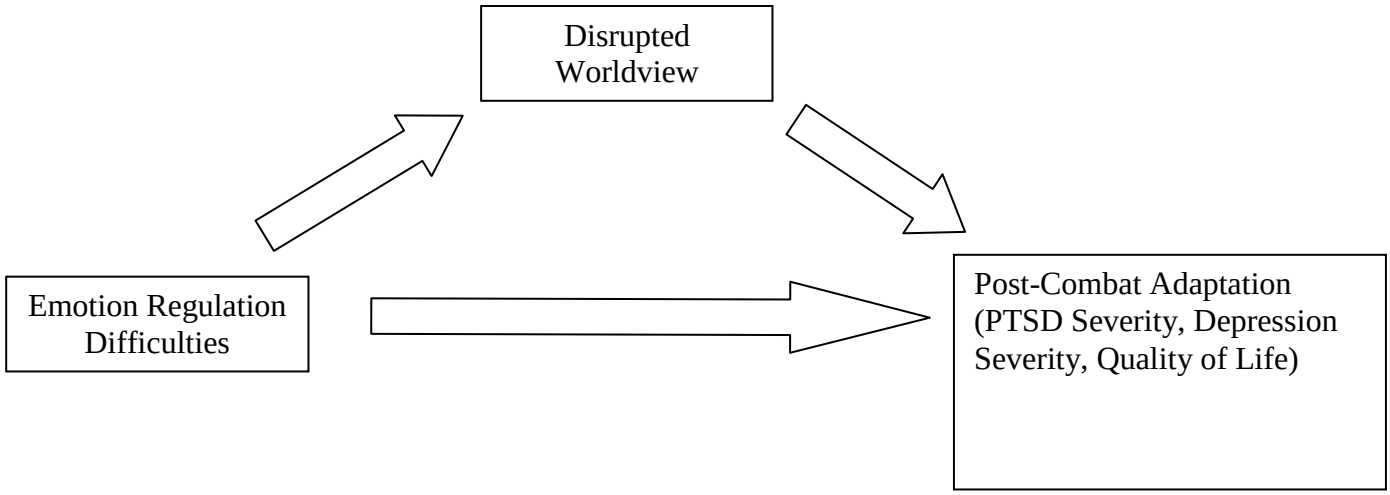

Figure 5. Model associated with Adjunctive Research Question 1. In this adjunctive model, disrupted worldview was tested in two ways: (1) as a variable that adds incrementally significant validity to the prediction of post-combat adaptation, and (2) as a potential mediator between difficulties regulating emotion and post-combat adaptation. Combat exposure severity is controlled for as a covariate predicting PTSD severity, depression severity, and quality of life.

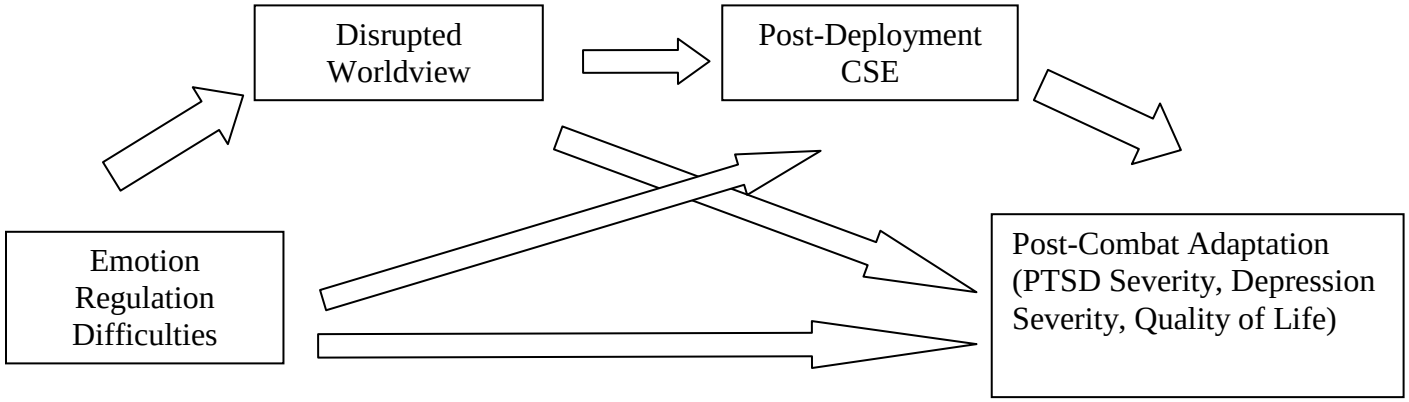

Figure 6. Competing model added adjunctively to test Research Question 3: Is PDCSE the final common pathway (Luszynska et al., 2009; Cieslak et al., 2008), or does it work dynamically through influence on other cognitive/emotional structures (e.g., worldview) as has been identified in previous research conducting in traumatized (but not combat veteran) samples (e.g., Kesebir et al., 2011; Smith, Abeyta et al., 2015)? Combat exposure severity is controlled for as a covariate predicting PTSD severity, depression severity, and quality of life.

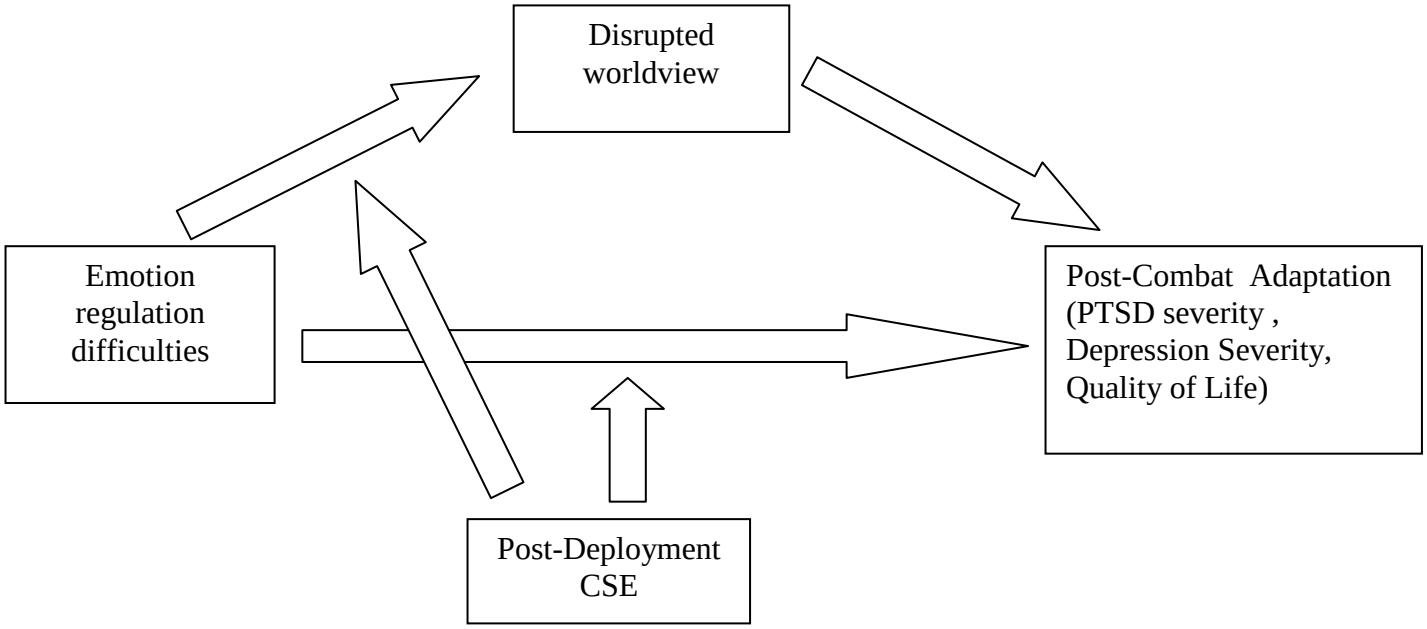

Figure 7. As per Adjunctive Research Question 2, post-deployment coping self-efficacy was tested as a potential moderator of the direct pathway between difficulties regulating emotion and post-combat adaptation outcomes, as well as the direct pathway between emotion regulation difficulties and disrupted worldview, with potential implications for moderating the indirect effect of emotion regulation difficulties working through disrupted worldview to predict post-combat adaptation (i.e., moderated mediation). Combat exposure severity is controlled for as a covariate predicting PTSD severity, depression severity, and quality of life.

Appendix C

Questionnaires for the Current Study

Demographics, Military Service, and Combat Information

Date _____ **Name:** _____ **Last 4**: _____

Age: _____ **Gender:** Male (1) ___ Female (2) ____ Transgender (3) ___

Dates of Military Service: _____

Military Era of Service (e.g., Vietnam, OIF/OEF) (circle all that apply):

1- Before-WWII 2 – WWII 3-Before the Korean War 4-The Korean War

5- Between the Korean War and Vietnam 6- Vietnam 7- After Vietnam

8-Persian Gulf War 9-OEF/OIF/OND

Number of Combat Deployments: _____ **Total Length of Time Deployed (in months):** _____

Race / Ethnicity:

_____ White (not Hispanic) (1)
_____ Black (not Hispanic) (2)
_____ Hispanic, White (3)
_____ Hispanic, Black (4)
_____ American Indian / Alaskan (5)
_____ Asian (6)
_____ Pacific Islander (7)
_____ Unknown, Other (8)
_____ Multiple ethnicity, please list:_____(9)

Marital Status:

_____ Married (1)
_____ Re-Married (2)
_____ Widowed (3)
_____ Separated (4)
_____ Divorced (5)
_____ Never Married (6)
_____ Unknown (7)
_____ Living together, common law marriage (8)

Sexual Orientation (heterosexual, homosexual, bisexual):_____

Demographics, Military Service, and Combat Information (2)

Combat

Have you ever deployed to a combat zone? No (0) ____ Yes (1) ____

If no, please skip the remaining questions on this page.

If yes, please answer the following questions:

1. During combat operations, did you ever become wounded or injured?
   No (0) ____ Yes (1) ____
2. During combat operations, did you personally witness a unit member, ally, enemy, or civilian being killed?
   No (0) ____ Yes (1) ____
3. During combat operations, did you see the bodies of dead soldiers or civilians?
   No (0) ____ Yes (1) ____
4. During combat operations, did you kill others in combat (or have reason to believe others were killed as a result of your actions)?
   No (0) ____ Yes (1) ____

Quality of Life Enjoyment and Satisfaction (Q-LES-Q-SF)

This questionnaire is designed to help assess the degree of enjoyment and satisfaction experienced **during the past week**. For each question, please make one rating using the following scale:

1 (Very Poor) 2 (Poor) 3 (Fair) 4 (Good) 5 (Very Good)

Taking everything into consideration, during the past week, how satisfied have you been with your:

_____ 1. Physical health?
_____ 2. Mood?
_____ 3. Work?
_____ 4. Household activities?
_____ 5. Social relationships?
_____ 6. Family relationships?
_____ 7. Leisure time activities?
_____ 8. Ability to function in daily life?
_____ 9. Sexual drive, interest and/or performance?
_____ 10. Economic status?
_____ 11. Living and housing situation?
_____ 12. Ability to get around physically without feeling dizzy or unsteady or falling?

Posttraumatic Stress Disorder Checklist-Stressor (PCL-S)

Many people have lived through or witnessed **very stressful and traumatic events** at some point in their lives. Below is a list of some examples of traumatic events.

PLEASE circle whether the following events have happened to you or you have witnessed:

1- Serious accident or disaster (e.g., plane crash, serious fire, major earthquake)	YES	NO
2- Military combat or war zone	YES	NO
3-Physical assault (e.g., being mugged, held at gunpoint, serious physical attack)	YES	NO
4-Sexual assault, rape, or attempted rape after the age of 18	YES	NO
5-Sexual assault, inappropriate contact, rape, or attempted rape prior to age 18	YES	NO
6-Witnessing the death or serious injury of another	YES	NO
7-Any other traumatic event (list): _____	YES	NO

IF YOU ANSWERED NO TO ALL ITEMS ABOVE SKIP TO NEXT QUESTIONNAIRE (BDI-II)

PCL-S:
Which is **the most stressful** experience you have experienced (write in # from above)_____ Approximately **when** did this occur? (month/year)_____

Instructions: Here is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each item carefully, and then indicate, using the numbers to the right, how much you have been bothered by that problem **in the past month.**

	Not At all	**A little bit**	**Moderately**	**Quite a bit**	**Extremely**
1. Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?	1	2	3	4	5
2. Repeated, disturbing dreams of a stressful experience from the past?	1	2	3	4	5
3. Suddenly acting or feeling as if a stressful experience from the past were happening again (as if you were reliving it)?	1	2	3	4	5
4. Feeling very upset when something reminded you of a stressful experience from the past?	1	2	3	4	5
5. Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience from the past?	1	2	3	4	5

6. Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it?	1	2	3	4	5
7. Avoiding activities or situations because they reminded you of a stressful experience from the past?	1	2	3	4	5
8. Trouble remembering important parts of a stressful experience from the past?	1	2	3	4	5
9. Loss of interest in activities that you used to enjoy?	1	2	3	4	5
10. Feeling distant or cut off from other people?	1	2	3	4	5
11. Feeling emotionally numb or being unable to have loving feelings for those close to you?	1	2	3	4	5
12. Feeling as if your future somehow will be cut short?	1	2	3	4	5
13. Trouble falling or staying asleep?	1	2	3	4	5
14. Feeling irritable or having angry outbursts?	1	2	3	4	5
15. Having difficulty concentrating?	1	2	3	4	5
16. Being “super alert” or watchful or on guard?	1	2	3	4	5
17. Feeling jumpy or easily startled?	1	2	3	4	5

Post-deployment Coping Self-Efficacy (PDCSE)

This assessment is designed to have you think about important issues related to the dealing with your post-deployment adjustment. For each of the situations described below, you are asked to ***rate how capable you are*** that you can successfully deal with them. Because people differ from each other in the way that they are dealing with the stresses of post-deployment adjustment there is no single correct response. Please think about yourself **currently.**

Using the following scale, please rate how capable you are to....

1	2	3	4	5	6	7
I'm Not At All Capable			**I'm Moderately Capable**			**I'm Totally Capable**

___ **1.** Get back to a normal routine now that I'm back home.
___ **2.** Handle frustration over people in my life not understanding what it was like for me during my deployment.
___ **3.** Meet the demands of both my family life and my unit (or work, or school) at the same time.
___ **4.** Deal with feelings of loneliness.
___ **5.** Cope with the changes in my family relationships since I've returned.
___ **6.** Manage distressing thoughts about how I performed while on deployment.
___ **7.** Deal with feelings of sadness related to missing important events while I was gone (e.g., children learning to walk or talk, births or deaths in the family, etc.)
___ **8.** Do a job skillfully.
___ **9.** Manage feelings of irritability and restlessness.
___ **10.** Deal with all the details related to being at home again (e.g., paying bills, taking care of children, taking care of my house, etc.)
___ **11.** Not lose my temper while trying to deal with everything.
___ **12.** Think optimistically about my future.
___ **13.** Control distressing thoughts about my deployment.
___ **14.** Deal with thoughts about the difficulties my loved ones had while I was gone.
___ **15.** Cope with images of what I saw during my deployment.
___ **16.** Handle feeling on the edge of losing emotional control.
___ **17.** Be strong emotionally.
___ **18.** Cope with feelings of many things being out of my control.

Posttraumatic Cognitions Inventory (PTCI)
We are interested in the kind of thoughts which you may have had after a traumatic experience. Below are a number of statements that may or may not be representative of your thinking. Please read each statement carefully and tell us how much you Agree or Disagree with each. People react to traumatic events in many different ways. There are no right or wrong answers.

1 – Totally Disagree 2- Disagree Very Much 3-Disagree Slightly 4-Neutral
5 – Agree Slightly 6 – Agree Very Much 7 – Totally Agree

_____ 1. People can't be trusted.
_____ 2. I have to be on guard all the time.
_____ 3. You can never know who will harm you.
_____ 4. I have to be especially careful because you never know what can happen next.
_____ 5. The world is a dangerous place.
_____ 6. I can't rely on other people.
_____ 7. People are not what they seem.

(These items correspond to items number 7, 8, 10, 11, 18, 23, and 27 from the larger 36 item PTCI, supported as a subscale to measure negative posttraumatic cognitions about the world and others).

Difficulties in Emotion Regulation Scale (DERS)

Please choose from the following:

1= Almost never (0-10%) 2= Sometimes (11-35%) 3=About half the time (36-65%)

4= Most of the time (66 – 90%) 5=Almost always (91-100%)

_____ 1. I am clear about my feelings.
_____ 2. I pay attention to how I feel.
_____ 3. I experience my emotions as overwhelming and out of control.
_____ 4. I have no idea how I am feeling.
_____ 5. I have difficulty making sense out of my feelings.
_____ 6. I am attentive to my feelings.
_____7. I know exactly how I am feeling.
_____8. I care about what I am feeling.
_____9. I am confused about how I feel.
_____10. When I'm upset, I acknowledge my emotions.
_____11. When I'm upset, I become angry with myself for feeling that way.
_____12. When I'm upset, I become embarrassed for feeling that way.
_____13. When I'm upset, I have difficulty getting work done.
_____14. When I'm upset, I become out of control.
_____15. When I'm upset, I believe that I will remain that way for a long time.
_____16. When I'm upset, I believe that I'll end up feeling very depressed.
_____17. When I'm upset, I believe that my feelings are valid and important.
_____18. When I'm upset, I have difficulty focusing on other things.
_____19. When I'm upset, I feel out of control..
_____20. When I'm upset, I can still get things done.
_____21. When I'm upset, I feel ashamed with myself for feeling that way.
_____22. When I'm upset, I know that I can find a way to eventually feel better.
_____23. When I'm upset, I feel like I am weak.
_____24. When I'm upset, I feel like I can remain in control of my behaviors.
_____25. When I'm upset, I feel guilty for feeling that way.
_____26. When I'm upset, I have difficulty concentrating.
_____27. When I'm upset, I have difficulty controlling my behaviors.
_____28. When I'm upset, I believe there is nothing I can do to make myself feel better.
_____29. When I'm upset, I become irritated with myself for feeling that way.
_____30. When I'm upset, I start to feel very bad about myself.
_____31. When I'm upset, I believe that wallowing in it is all I can do.

DERS (2)

_____32. When I'm upset, I lose control over my behaviors.
_____33. When I'm upset, I have difficulty thinking about anything else.
_____34. When I'm upset, I take time to figure out what I'm really feeling.
_____35. When I'm upset, it takes me a long time to feel better.
_____36. When I'm upset, my emotions feel overwhelming.

Beck Depression Inventory-II (BDI-II)

This questionnaire consists of 21 groups of statements. Please read each group of statements carefully. Pick out the one statement, in each group, that best describes the way you have been feeling **during the past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seen to apply equally well, circle the highest numbered statement of that group. Be sure that you do not choose more than one statement for any group, including statement 16 (Changes in Sleeping Pattern) and statement 18 (Changes in Appetite).

1. Sadness
0 I do not feel sad.
1 I feel sad much of the time.
2 I am sad all of the time.
3 I am so sad or unhappy that I can't stand it.

2. Pessimism
0 I am not discouraged about my future.
1 I feel more discouraged about my future than I used to be.
2 I do not expect things to work out for me. happens.
3 I feel that my future is hopeless and will only get worse.

3. **Past Failure**
0 I do not feel like a failure.
1 I have failed more than I should have.
2 As I look back, I see a lot of failures.
3 I feel I am a total failure as a person.

4. **Loss of Pleasure**
0 I get as much pleasure as I ever did from things I enjoy.
1 I don't enjoy things as much as I used to.
2 I get very little pleasure from the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

5. **Guilty Feelings**
0 I don't feel particularly guilty.
1 I feel guilty over many things I have done or should have done.
2 I feel guilty most of the time.
3 I feel guilty all of the time.

6. **Punishment Feelings**
0 I don't feel like I am being punished.
1 I feel I may be punished
2 I expect to be punished.
3 I feel I am being punished.

7. **Self-Dislike**
0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

8. **Self-Criticalness**
0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to
2 I criticize myself for all my faults.
3 I blame myself for everything bad that

9. **Suicidal Thoughts or Wishes**
0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. **Crying**
0 I don't cry any more than I used to.
1 I cry more than I used to.
2 I cry over every little thing.
3 I feel like crying but I can't.

11. **Agitation**
0 I am no more restless or wound up than usual.
1 I feel more restless or wound up than usual.
2 I am so restless or agitated that it's hard to stay still.
3 I am so restless or agitated that I have to keep moving or doing something.

12. **Loss of Interest**
0 I have not lost interest in other people/activities
1 I am less interested in other people or things than before.
2 I have lost most of my interest in other people or things.
3 It's hard to get interested in anything.

B D I - I I (2)

13. **Indecisiveness**
0 I make decisions about as well as ever.
1 I find it more difficult to make decisions than usual.
2 I have much greater difficulty in making decisions than I used to.
3 I have trouble making any decisions.

14. **Worthlessness**
0 I do not feel I am worthless.
1 I don't consider myself as worthwhile and useful as I used to.
2 I feel more worthless as compared to other people.
3 I feel utterly worthless.

15. **Loss of Energy**
0 I have as much energy as ever.
1 I have less energy than I used to have.
2 I don't have enough energy to do very much.
3 I don't have enough energy to do anything.

16. **Changes in Sleeping Pattern**
0 (0) I have not experienced any change in my sleep pattern.
1 (1a) I sleep somewhat more than usual.
2 (1b) I sleep somewhat less than usual.
3 (2a) I sleep a lot more than usual.
4 (2b) I sleep a lot less than usual.
5 (3a) I sleep most of the day.
6 (3b) I wake up 1-2 hours early and can't get back to sleep.

17. **Irritability**
0 I am no more irritable than usual.
1 I am more irritable than usual.
2 I am much more irritable than usual.
3 I am irritable all the time.

18. **Changes in Appetite**
0 (0) I have not experienced any change in my appetite.
1 (1a) My appetite is somewhat less than usual.
2 (1b) My appetite is somewhat greater than usual.
3 (2a) My appetite is much less than before.
4 (2b) My appetite is much greater than usual
5 (3a) I have no appetite at all
6 (3b) I crave food all the time

19. **Concentration Difficulty**
0 I can concentrate as well as ever.
1 I can't concentrate as well as usual.
2 It's hard to keep my mind on anything for very long.
3 I find I can't concentrate on anything.

20. **Tiredness of Fatigue**
0 I am no more tired or fatigued than usual.
1 I get tired or fatigued more easily than usual.
2 I am too tired or fatigued to do a lot of the things I used to do.
3 I am too tired or fatigued to do most of the things I used to do.

21. **Loss of Interest in Sex**
0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

Appendix D

Code Developed and Used to Conduct Path Analyses

Study Variable Acronym Key:

EXP = Combat exposure severity
DERS = Difficulties with emotion regulation
PDCSE = Post-deployment coping self-efficacy
PTCIW = negative posttraumatic cognitions about the world (i.e., disrupted worldview)
PTSD = posttraumatic stress disorder severity
DEP = depression severity
qol = quality of life

```
TITLE: Research Question 1 Predicting PTSD Severity (model test congruent with Figure 1);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE PTSD;

Analysis: BOOTSTRAP = 1000;

MODEL:
     PDCSE ON DERS (b2);

     PTSD ON PDCSE (b1)
     DERS
     EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
       STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 1 Predicting Depression Severity (model test congruent with Figure 1);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE DEP;
```

```
Analysis: BOOTSTRAP = 1000;

MODEL:
     PDCSE ON DERS (b2);

     DEP ON PDCSE (b1)
     DERS
     EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
       STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 1 Predicting Quality of Life (model test congruent with Figure 1);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE qol;

Analysis: BOOTSTRAP = 1000;

MODEL:
     PDCSE ON DERS (b2);

     qol ON PDCSE (b1)
     DERS
     EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
       STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 2 Model Predicting PTSD Severity (model test congruent with Figure 2);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;
```

```
VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP PTCIW PDCSE PTSD;

Analysis: BOOTSTRAP = 1000;

MODEL:
    PTCIW ON PDCSE (b2);

    PTSD ON PTCIW (b1)
    PDCSE
    EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 2 Competing Model Predicting PTSD Severity (model test congruent with Figure 3);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP PTCIW PDCSE PTSD;

Analysis: BOOTSTRAP = 1000;

MODEL:
    PDCSE ON PTCIW (b2);

    PTSD ON PDCSE (b1)
    PTCIW
    EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 2 Model Predicting Depression Severity (model test congruent with Figure 2);
```

SOCIAL COGNITIVE FACTORS AND POST-COMBAT ADAPTATION

```
DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP PTCIW PDCSE DEP;

Analysis: BOOTSTRAP = 1000;

MODEL:
     PTCIW ON PDCSE (b2);

     DEP ON PTCIW (b1)
     PDCSE
     EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
       STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 2 Competing Model Predicting Depression Severity (model test congruent with
Figure 3);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP PTCIW PDCSE DEP;

MISSING = .;

Analysis: BOOTSTRAP = 1000;

MODEL:
     PDCSE ON PTCIW (b2);

     DEP ON PDCSE (b1)
     PTCIW
     EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);
```

ANDREW J. SMITH
OUTPUT: CINTERVAL (bcbootstrap);
STANDARDIZED SAMPSTAT PATTERNS;

TITLE: Research Question 2 Model Predicting Quality of Life (model test congruent with Figure 2);

DATA: FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP PTCIW PDCSE qol;

Analysis: BOOTSTRAP = 1000;

MODEL:
PTCIW ON PDCSE (b2);

qol ON PTCIW (b1)
PDCSE
EXP;

MODEL CONSTRAINT:
new (ind1);
ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
STANDARDIZED SAMPSTAT PATTERNS;

TITLE: Research Question 2 Competing Model Predicting Quality of Life (model test congruent with Figure 3);

DATA: FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP PTCIW PDCSE qol;

MISSING = .;

Analysis: BOOTSTRAP = 1000;

MODEL:
PDCSE ON PTCIW (b2);

qol ON PDCSE (b1)
PTCIW
EXP;

```
MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Adjunctive Analyses 1 Predicting PTSD Severity (model test congruent with Figure 5);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PTCIW PTSD;
Analysis: BOOTSTRAP = 1000;

MODEL:
     PTCIW ON DERS (b2);

     PTSD ON PTCIW (b1)
     DERS
     EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Adjunctive Analyses 1 Predicting Depression Severity (model test congruent with Figure 5);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PTCIW DEP;

Analysis: BOOTSTRAP = 1000;

MODEL:
     PTCIW ON DERS (b2);

     DEP ON PTCIW (b1)
     DERS
     EXP;
```

```
MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Adjunctive Analyses 1 Predicting Quality of Life (model test congruent with Figure 5);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PTCIW qol;
Analysis: BOOTSTRAP = 1000;

MODEL:
     PTCIW ON DERS (b2);

     qol ON PTCIW (b1)
     DERS
     EXP;

MODEL CONSTRAINT:
   new (ind1);
   ind1 = (b2* b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 3 Model Predicting PTSD Severity (model test congruent with Figure 4);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE PTCIW PTSD;

Analysis: BOOTSTRAP = 1000;

MODEL:
      PDCSE ON DERS (b3);

      PTCIW ON PDCSE (b2);
```

```
SOCIAL COGNITIVE FACTORS AND POST-COMBAT ADAPTATION
      PTSD ON PTCIW (b1)
      PDCSE
      DERS
      EXP;

      PTSD ON pdcse (a1)
      EXP;

      PTCIW ON DERS (a3);

MODEL CONSTRAINT:
    new (ind1) (ind2) (ind3);
    ind1 = b3*a1;
    ind2 = a3*b1;
    ind3 = ((b3*b2)*b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 3 Competing Model Predicting PTSD Severity (model test congruent with Figure 6);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE PTCIW PTSD;

Analysis: BOOTSTRAP = 1000;

MODEL:
      PTCIW ON DERS (b3);

      PDCSE ON PTCIW (b2);

      PTSD ON PDCSE (b1)
      PTCIW
      DERS
      EXP;

      PTSD ON PTCIW (a1)
      EXP;

      PDCSE ON DERS (a3);

MODEL CONSTRAINT:
    new (ind1) (ind2) (ind3);
    ind1 = b3*a1;
```

```
    ind2 = a3*b1;
    ind3 = ((b3*b2)*b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 3 Model Predicting Depression Severity (model test congruent with Figure 4);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE PTCIW DEP;

Analysis: BOOTSTRAP = 1000;

MODEL:
      PDCSE ON DERS (b3);

      PTCIW ON PDCSE (b2);

      DEP ON PTCIW (b1)
      PDCSE
      DERS
      EXP;

      DEP ON pdcse (a1)
      EXP;

      PTCIW ON DERS (a3);

MODEL CONSTRAINT:
    new (ind1) (ind2) (ind3);
    ind1 = b3*a1;
    ind2 = a3*b1;
    ind3 = ((b3*b2)*b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 3 Competing Model Predicting Depression Severity (model test congruent with
Figure 6);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;
```

```
USEVARIABLES ARE EXP DERS PDCSE PTCIW DEP;

Analysis: BOOTSTRAP = 1000;

MODEL:
      PTCIW ON DERS (b3);

      PDCSE ON PTCIW (b2);

      DEP ON PDCSE (b1)
      PTCIW
      DERS
      EXP;

      DEP ON PTCIW (a1)
      EXP;

      PDCSE ON DERS (a3);


MODEL CONSTRAINT:
     new (ind1) (ind2) (ind3);
     ind1 = b3*a1;
     ind2 = a3*b1;
     ind3 = ((b3*b2)*b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 3 Model Predicting Quality of Life (model test congruent with Figure 4);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE PTCIW qol;

Analysis: BOOTSTRAP = 1000;

MODEL:
      PDCSE ON DERS (b3);

      PTCIW ON PDCSE (b2);

      qol ON PTCIW (b1)
      PDCSE
```

```
ANDREW J. SMITH
      DERS
      EXP;

      qol ON pdcse (a1)
      EXP;

      PTCIW ON DERS (a3);

MODEL CONSTRAINT:
    new (ind1) (ind2) (ind3);
    ind1 = b3*a1;
    ind2 = a3*b1;
    ind3 = ((b3*b2)*b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```

```
TITLE: Research Question 3 Competing Model Predicting Quality of Life (model test congruent with Figure 6);

DATA:  FILE IS C:\Users\psycuser\Desktop\Dissdata.csv;

VARIABLE: NAMES ARE EXP DERS PTCIW qol PDCSE PTSD DEP;

USEVARIABLES ARE EXP DERS PDCSE PTCIW qol;

Analysis: BOOTSTRAP = 1000;

MODEL:
      PTCIW ON DERS (b3);

      PDCSE ON PTCIW (b2);

      qol ON PDCSE (b1)
      PTCIW
      DERS
      EXP;

      qol ON PTCIW (a1)
      EXP;

      PDCSE ON DERS (a3);

MODEL CONSTRAINT:
    new (ind1) (ind2) (ind3);
    ind1 = b3*a1;
    ind2 = a3*b1;
```

```
    ind3 = ((b3*b2)*b1);

OUTPUT: CINTERVAL (bcbootstrap);
      STANDARDIZED SAMPSTAT PATTERNS;
```