COMBAT EXPOSURE AND MILITARY VETERAN COUNTERPRODUCTIVE WORK BEHAVIOR: A MODERATED MEDIATION MODEL

by

JEREMIAH T. MCMILLAN

(Under the Direction of Kristen M. Shockley)

ABSTRACT

Previous research has found an association between combat exposure and posttraumatic stress (PTS) among military veterans and between PTS and aggressive behaviors. The present study examined if these relationships extend to the prediction of counterproductive work behavior (CWB). Such research is needed to identify solutions that benefit military veterans, their co-workers, and organizations. Participants were 392 employed Gulf War-era II military veterans. Results provided support for the association between combat exposure and PTS, the association between PTS and CWB, and the partial indirect effect of combat exposure on CWB via PTS. Although it was anticipated that warriorism would weaken the relationship between combat exposure and PTS, results did not support this hypothesis. However, results did suggest that workplace belongingness weakens the relationship between PTS and CWB, which I interpret in light of a curvilinear relationship between belongingness and CWB. Theoretical implications, practical implications, limitations, and future research directions are discussed.

INDEX WORDS:   Posttraumatic stress, Combat exposure, Counterproductive work behavior
COMBAT EXPOSURE AND MILITARY VETERAN COUNTERPRODUCTIVE WORK BEHAVIOR: A MODERATED MEDIATION MODEL

by

JEREMIAH T. MCMILLAN

B.A., Azusa Pacific University, 2008

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF SCIENCE

ATHENS, GEORGIA

2018
COMBAT EXPOSURE AND MILITARY VETERAN COUNTERPRODUCTIVE WORK BEHAVIOR: A MODERATED MEDIATION MODEL

by

JEREMIAH T. MCMILLAN

Major Professor: Kristen M. Shockley
Committee: Malissa A. Clark
                Lillian T. Eby

Electronic Version Approved:

Suzanne Barbour
Dean of the Graduate School
The University of Georgia
May 2018
DEDICATION

For my brother Zach, the bravest man I know.
ACKNOWLEDGEMENTS

First and foremost, I thank the military veterans who volunteered to participate in this research study. I would also like to thank my committee and advisor for their support and guidance and Yi Fan for her assistance in recruiting participants.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS .............................................................................................................. v

CHAPTER

1 INTRODUCTION ...................................................................................................................... 1
   Contributions of the Present Study .......................................................................................... 1
   Overview of the Present Study ............................................................................................ 5
   Combat Exposure and PTS: Theoretical Perspectives ......................................................... 6
   The Link between Combat Exposure and PTS: Literature Review ...................................... 13
   The Theoretical Link between PTS and CWB ................................................................. 15
   Empirical Support for the Link between PTS and CWB .................................................. 19
   The Indirect Effect of Combat Exposure on CWB ............................................................. 23
   Moderating Variables ......................................................................................................... 24

2 METHOD .................................................................................................................................. 31
   Participants & Procedure ................................................................................................... 31
   Measures ............................................................................................................................. 34
   Analyses .............................................................................................................................. 38

3 RESULTS ................................................................................................................................. 45
   Evaluation of Statistical Assumptions ................................................................................. 45
   Main Findings ....................................................................................................................... 49
   Alternative Model Results ................................................................................................. 52
4 DISCUSSION .............................................................................................................................57
  Overview of Findings ..............................................................................................................57
  Theoretical Implications ..........................................................................................................58
  Implications for Practice ..........................................................................................................62
  Limitations .................................................................................................................................63
  Future Directions ......................................................................................................................67
  Conclusion .................................................................................................................................70

REFERENCES ..................................................................................................................................71

APPENDICES

A PARTICIPANT ELIGIBILITY FLOWCHART ...........................................................................91
B DEMOGRAPHIC ITEMS ..........................................................................................................92
C DRRI-2: COMBAT EXPERIENCES SUBSCALE ...................................................................95
D POSTTRAUMATIC STRESS DISORDER CHECKLIST (PCL-5) ...........................................96
E COUNTERPRODUCTIVE WORK BEHAVIOR SCALE .........................................................98
F WARRIORISM SCALE ............................................................................................................100
G WORKPLACE BELONGINGNESS SCALE ............................................................................101
H PERSONAL STIGMA SCALE .................................................................................................102
CHAPTER 1

INTRODUCTION

Contributions of the Present Study

As many as one-third of recent military veterans may display heightened levels of aggression compared with their civilian counterparts (Elbogen et al., 2014). Previous research has also uncovered an association between military service, particularly combat exposure, and increased anger (Morland, Love, Mackintosh, Greene, & Rosen, 2012; Worthen, 2012), violent and non-violent criminality (Bouffard, 2005; Christopher, 2012; Culp, Youstin, Englander, & Lynch, 2013; Greenberg & Rosenheck, 2012), and antisocial behavior (Fontana & Rosenheck, 2005; Resnick, Foy, Donahoe, & Miller, 1989). Although the base rate of aggression per se is low, this phenomenon poses a significant threat to the health of veterans and American communities, considering that as of 2014 there are approximately 21.2 million military veterans in the United States. With the advent of the War on Terror and subsequent military operations in Iraq and Afghanistan, the size of the nation’s Armed Forces grew dramatically, resulting in a subsequent surge of retiring veterans in recent years. Indeed, approximately 3.2 million United States veterans are categorized as Gulf War-era II veterans (i.e., those who have served any time after September 11, 2001; U.S. Bureau of Labor Statistics, 2015). As such, the need to understand the impact of military service on aggressive and other counterproductive behavior is especially cogent currently.

Whereas the studies noted above have examined emotional and behavioral outcomes of military service, with a particular focus on posttraumatic stress disorder (PTSD) and aggression,
such research has not examined the civilian workplace domain. Despite considerable interest in the unemployment rate of military veterans (e.g., Adler et al., 2011; Burnett-Zeigler et al., 2011; Kleykamp, 2013), to my knowledge, examination of veteran’s experiences beyond the unemployment barrier in the civilian workplace has yet to occur. Thus, there exists a need to understand the extent to which readjustment issues witnessed in other domains might extend to the workplace context. With this in mind, the goal of the present study is to develop a model examining the relationship between combat exposure and veteran counterproductive work behavior (CWB) based on a sample of previously deployed veterans from Gulf War-era II. Additionally, the process through which this relationship occurs (through posttraumatic stress), as well as individual difference boundary conditions of the relationships (individual warriorism and workplace belongingness), will be explored.

This study represents an important contribution to the literature for several reasons. First, to date, the study of veteran aggression has largely centered around domestic issues, such as spousal abuse (Miller et al., 2013; Sayers, Farrow, Ross, & Oslin, 2009; Taft et al., 2009; Teten, Schumacher, et al., 2010), criminal behavior (Bouffard, 2005; Christopher, 2012; Culp et al., 2013; Greenberg & Rosenheck, 2012), or general aggressive tendencies (Beckham, Moore, & Reynolds, 2000; Booth-Kewley, Larson, Highfill-McRoy, Garland, & Gaskin, 2010; Elbogen et al., 2014; Holowka et al., 2012). To my knowledge, the association between military service experiences and CWB in the civilian workplace has received no attention from researchers.

The importance of understanding veteran aggression in the workplace context cannot be understated. Most individuals spend a substantial amount of time at work. Between impending deadlines, busy schedules, and heavy interactions with others, civilian employment may serve as an acute stressor for those military veterans who are already struggling with general reintegration
into civilian life and coping with traumatic past experiences. Furthermore, even prior to any aggression-related incident, veterans may experience stigma from civilians who view them as “different” from others or as psychologically unstable (Bordieri & Drehmer, 1984; MacLean & Kleykamp, 2014). Acting upon aggressive urges may lead to affirmation of civilian stereotypes and fears, resulting in increased veteran isolation from others. This in turn may exacerbate existing perceptions among veterans that they do not belong within civilian society (Harnett & DeSimone, 2011). Thus, gaining greater understanding of processes underlying veteran CWB may provide a roadmap to alleviate psychological suffering for these individuals.

Moreover, this is a worthwhile area of investigation because, clearly, not only the instigator but also the victim of aggressive actions may be harmed. Multiple studies have found that workplace aggression is associated with negative outcomes for victims, including direct physical harm, psychological distress, decreased job satisfaction, and increased job withdrawal (Cortina, Magley, Williams, & Langhout, 2001; Schat & Kelloway, 2003). The psychological stress of being harassed, bullied, or threatened chronically is also associated with negative physical health outcomes, including heightened cortisol levels, hypertension, cardiovascular disease, and somatic complaints (Hansen et al., 2006; Kivimäki et al., 2003; Vie, Glasø, & Einarsen, 2011). Aside from the direct impact on veterans and fellow organizational members, aggression may also influence the organization financially. Estimates suggest that in the United States alone, millions of dollars are lost annually due to aggression-related decrements in workplace productivity, destruction of property, and litigation costs (Bandow & Hunter, 2007; Corney, 2008; Pompili et al., 2008; Rospenda, Richman, & Shannon, 2009).

As a second contribution, this study expands the operationalization of aggression not only into the workplace but also beyond physical violence by focusing on CWB. CWB is
conceptually similar to aggression (Spector, 2010). However, CWB has been defined as any intentional activity which is perceived by the organization as fundamentally contrary to its goals (Gruys & Sackett, 2003). In this way, CWB encompasses aggressive acts but also includes additional behaviors that are harmful to the organization, including deviance, withdrawal, sabotage, and theft (Spector et al., 2006). Much extant research regarding military veterans has been geared toward the evaluation and prediction of physical violence (Elbogen et al., 2014; Gallaway, Fink, Millikan, & Bell, 2012). However, nonphysical aggression is much more common in the workplace than physical violence (LeBlanc & Kelloway, 2002). Therefore, the present study addresses a broader range of verbal and passive behaviors, allowing for a more nuanced understanding of the wide range of harmful actions against others within the organization, as well as harm to the organization itself. Furthermore, much of the organizational literature has focused upon current workplace antecedents of CWB (Fox, Spector, & Miles, 2001; Skarlicki & Folger, 1997) or dispositional factors, such as negative affectivity (Dalal, 2005; Hershcovich et al., 2007; Kaplan, Bradley, Luchman, & Haynes, 2009), the Big 5 (Berry, Ones, & Sackett, 2007; Salgado, 2002), and other personality traits (Spector, 2010). The present study examines a set of prior life experiences, potentially allowing for understanding of a heretofore understudied class of CWB antecedents.

As a third contribution, a unique aspect of this study is the focus on Gulf War-era II veterans, which consists of those who have served in Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND), collectively. As noted by Worthen (2012), much previous research has retrospectively evaluated Vietnam-era veterans (e.g., Beckham et al., 2000; Kulka et al., 1990; Rohlfs, 2010). Although it is conceivable that general psychological processes, as well as the effects of combat experience, generalize across
different wartime eras, the need for replication in present-day veterans is crucial. Specifically, there may be key dispositional differences in Gulf War-era II veterans because they are part of the “All Volunteer Force” compared to many enlistees of the Vietnam-era who were drafted. In addition to dispositional differences between past and current day veterans, combat conditions in which they served are also different (Harnett & DeSimone, 2011). Thus, military service in these conditions may lead to differential patterns of outcomes for those in the Gulf War-era II.

Fourth, this study examines not only the relationship between combat exposure and CWB, but also the process through which this relationship occurs. Specifically, the mediating role of posttraumatic stress symptoms between combat exposure and CWB will be explored. Tentative previous support has been found for the combat exposure-posttraumatic stress-aggression causal chain, but not specifically in the workplace (Taft, Vogt, Marshall, Panuzio, & Niles, 2007).

A final noteworthy strength of the study is that boundary conditions in the aforementioned mediated process model will be explored. Many individual differences are likely to play a role in the strength of the combat exposure – posttraumatic stress – CWB chain. In the present study, I focus on warriorism, or the degree to which an individual joins the military specifically to engage in combat and derives a sense of identity and satisfaction from doing so, and sense of workplace belongingness as potentially moderating variables.

**Overview of the Present Study**

Because the experience of combat during military service and the expression of CWB in the civilian workplace are two events that are separated both chronologically and psychologically, it stands to reason that the relationship between the two occurs via a complex psychological chain of events. In short, I propose below that the experience of combat is
associated with a fundamental upset to existing cognitive schemas regarding the relationship between oneself and the outside world. This upset is associated in turn with frequent and heightened experience of negative emotions and hypervigilance (i.e., post-traumatic stress symptoms), which leads to an increased propensity to engage in CWBs. Figure 1 illustrates the entire model tested in the present study.

Although research to date has not examined the association between combat exposure and CWB, much relevant work has examined the criteria that I refer to as non-work counterproductive behavior (NWCB), a construct that I describe in more detail in a later section. Theoretical frameworks and recent empirical research can be largely categorized into two traditions: (1) exploration of the relationship between combat exposure and posttraumatic stress (PTS) and (2) exploration of the relationship between PTS and NWCB. Thus, the present paper’s layout will reflect these two themes.

In the following sections, I begin by discussing the theory and empirical evidence linking combat exposure and PTS. Then, I discuss the theory and empirical evidence linking PTS and CWB, incorporating research on an array of counterproductive behaviors outside the workplace. Next, I make the argument for combining the above two streams of research into a mediation model linking combat exposure, PTS, and CWB and propose a set of hypotheses. The concepts of individual warriorism and workplace belongingness, as well as their respective impact on the primary relationships under study, are also discussed.

**Combat Exposure and PTS: Theoretical Perspectives**

In this section, I focus on the pathway between combat exposure and PTS in Figure 1, providing an overview of theoretical perspectives on the etiology of PTS and laying the
Figure 1. The relationship between combat exposure, posttraumatic stress, warriorism, workplace belongingness, and counterproductive work behavior. Path estimates are standardized regression coefficients. Paths pointing to another path are interaction terms. Dashed paths were not explicitly hypothesized.

*** $p < .001$. $ns$ = not significant.
framework for the important role of combat exposure. Prior to doing so, however, I describe the constructs of combat exposure and PTS, in turn.

**Defining combat exposure.** Combat exposure is ultimately a specific type of traumatic experience. The characteristic that defines “combat exposure” as such is simply the fact that these traumas—whether a threat to self or threat to others—occur within the context of deployment to a combat zone. Examples of such traumatic experiences may include firing a weapon, committing wartime atrocities, being fired upon by the enemy, seeing civilians or military personnel wounded or killed, personally sustaining an injury, or being a victim of biological or chemical warfare (King, King, Gudanowski, & Vreven, 1995). As seen by these examples, traumatic combat exposure might entail either actions of the victim or actions against the victim (for example, firing one’s weapon versus being fired upon). Thus, combat exposure is not any single event or circumstance, but rather any traumatic experience incurred while serving in combat.

The probability of experiencing combat exposure in the United States Armed Forces depends on several factors. Two of the most significant are specific branch and specific occupation within the military (Baker et al., 2009). Occupations within the military, commonly referred to as Military Occupational Specialties (MOS), can be broadly broken down into two main categories: combat-specific (e.g., infantry or artillery) and non-combat, or support (e.g., engineering, supply, administration, maintenance). In 2013, the percentage of enlisted personnel for each branch that were in combat-specific positions were as follows: 28.4% in the Army, 25.3% in the Marine Corps, 3.1% in the Navy, 2.0% in the Coast Guard, and 0.2% in the Air Force (U.S. Bureau of Labor Statistics, 2014).
Within each branch, those assigned to combat positions are naturally more likely to be exposed to combat. Indeed, one survey of combat personnel indicated that among combat Marines deployed to Iraq, 95% had been attacked or ambushed, 87% shot at or directed fire at the enemy, and 87% knew someone seriously injured or killed. For Army soldiers in Iraq, the respective percentages were 89%, 77%, and 43%, and for Army soldiers in Afghanistan, the figures were 58%, 27%, and 43% (Hoge et al., 2004). Despite the fact that level of combat exposure increases if in a combat position, those in support positions may still encounter incidental threats by virtue of working in a war zone (MacLean & Parsons, 2010). Thus, the exact level and nature of combat exposure may vary depending on branch, location, and job position, but many combat and support military personnel are potentially at risk when deployed.

**Defining PTS.** Approximately 25% of veterans are diagnosed with mental health difficulties upon return from deployment, including substance abuse disorders for 11%, anxiety disorders for 6%, depression for 5-10%, and, most notably, PTSD for 13-17%, although the sub-clinical experience of posttraumatic stress symptoms impacts as many as 37% of veterans (Adler et al., 2011; Hoge, Terhakopian, Castro, Messer, & Engel, 2007; Pew Research Center, 2011; Seal, Bertenthal, Miner, Sen, & Marmar, 2007; Seal et al., 2011).

According to the American Psychiatric Association (2013) DSM-V definition, PTSD must be precipitated by a traumatic event involving death or threat of death or serious injury to the self or others. This may be witnessed directly or second-hand. Subsequent symptoms must include (1) intrusive or re-experiencing thoughts, such as nightmares or flashbacks; (2) persistent avoidance of thoughts or physical artifacts that are associated with the trauma; (3) negative alterations in cognitions or affect, such as amnesia, depression, or distorted feelings of guilt; and
(4) increased arousal, such as hypervigilance, trouble sleeping, trouble concentrating, or irritability.

Despite the clinical requirement that patients must present with all the above symptoms to be diagnosed with PTSD, individuals may experience many varying degrees of these symptoms without “qualifying” for the disorder. Thus, going forward, the term PTS is used to denote varying levels and combinations of any of the above-mentioned PTSD symptoms, even if the individual does not qualify for a diagnosis of PTSD. In this way, PTS does not constitute a dichotomous “yes” or “no” evaluation but rather falls along a continuum.

**Etiology of PTS.** The etiology of PTS has been approached from numerous theoretical perspectives, none of which alone have been found to be fully sufficient (see Jones & Barlow, 1990). Two of these perspectives with more relevance to the present context, the completion principle and survival mode theory, are reviewed here.

**The completion principle.** Horowitz’s (1976, 1997) cognitive information processing framework stipulates that individuals are subject to a “completion tendency,” which refers to the need to match new information with pre-existing cognitive schemas. If new events (i.e., combat experiences) are not congruent with existing schemas (e.g., “I am a good person”, “I am safe in my environment”), the mind must work to resolve this state of dissonance. Individuals are thus constantly in a state of striving to assimilate new information into existing “cognitive maps.”

Normally, this process occurs automatically and with little effort, leading to modification of schemas based on new pieces of information; this is “the completion principle.” However, with trauma, changing existing schemas (e.g., “the world is a safe place”) is extremely threatening. The cognitive processing necessary to modify existing cognitive maps to bring them in line with the trauma is often blocked by intense emotional responses such as fear and anger,
thus forestalling the healthy integration of this information into a cohesive set of new beliefs. As
a result of this integration blockage, stressful cognitions are retained in “active memory,”
signifying that they are in a state of high cognitive accessibility and salience until they have been
fully assimilated into existing cognitive maps (Horowitz, 1976).

A feedback loop then ensues. Intrusive cognitions of the event enter a state of conscious
information processing from active memory. Then information processing inhibitions are put in
place to stop the anxiety-provoking cognitions. Once anxiety is effectively reduced, information
processing resumes, and the process repeats. Each time the traumatic events are accessed and re-
processed, temporary working cognitive models of the events are modified slightly. This
continues until working models are congruent with pre-existing schemas, at which point they can
be removed from active memory and permanently stored. The completion principle helps to
explain the avoidant behaviors found in those with PTS, which occur as a way to cognitively or
behaviorally avoid the unpleasant emotions brought about by memories of the trauma. The
model also readily explains re-experiencing symptoms, which include intrusive thoughts about
the trauma, as the mind’s attempt to work through the trauma (Horowitz, 1976).

To tie in the above model with the current study’s focus, combat exposure represents an
activating trauma that blocks the completion tendency. In other words, combat exposure is
experienced by many, if not most, individuals as incongruent with existing, pre-combat schemas.
It is important at this juncture to very specifically define pre-combat schemas. Whereas many
service members anticipate that they may experience traumatic events during the course of
service and are trained for these experiences (Jackson, Thoemmes, Jonkmann, Ludtke, &
Trautwein, 2012; Johansen, Laberg, & Martinussen, 2013; Kellett, 1982), the actual experience
may still violate deeply held core beliefs. These core beliefs are both innate to human survival as
well as socially constructed. For example, despite the recognition that one’s life may be put in danger during combat prior to deployment, this surface-level acknowledgement may still not be sufficient to adequately prepare one for the reality of being mortally threatened, which violates a very basic human need for safety (Maslow, 1943). Thus the actual experience of coming close to death may be appraised so strongly as aversive and threatening that previous preparation may not serve as a sufficient buffer. This is not to say that previous preparation cannot partially protect against the development of PTS, as will be discussed further in the section on warriorism below.

**Survival mode.** Although the completion principle provides a cogent argument for the events leading up to the symptoms of re-experiencing and avoidance in those with PTS, it generally fails to directly explain how these individuals may also experience unpleasant emotions, distorted thinking, and hypervigilance to threats. Thus, it is instructive here to review an alternate theoretical perspective to complement the above discussion: survival mode theory (Chemtob, Novaco, Hamada, Gross, & Smith, 1997).

When individuals are presented with a perceived threat, survival mode is activated. Because threats to survival represent an experience of vulnerability and weakness, anger often occurs in reaction and serves as a powerful antidote, providing the experience of power and maintaining control (Lerner & Tiedens, 2006). Along with this anger, hypervigilance and hyperarousal occur, serving to ensure that the individual is not caught off-guard by what they have essentially deemed as a potentially unsafe world. In essence, survival mode prepares an individual to quickly recognize a (perceived) threat and quickly combat it. The problem is that perpetual survival mode serves to re-create the cognitive and affective response at the time of trauma even though the context no longer warrants such a reaction. Resolving survival mode
requires recognition of automatic cognitive and affective processes in order to combat them (Chemtob et al., 1997).

Despite the fact that the completion principle and survival mode theory offer alternative pathways to understanding the development of PTS, in conjunction the two models provide a relatively cohesive picture in terms of explaining the array of symptoms contained within PTS.

The Link between Combat Exposure and PTS: Literature Review

Empirical evidence on military veterans has generally not sought to test the veracity of different theoretical perspectives, but rather the focus has largely been on establishing that the relationship between trauma and PTS exists.

Early findings from the National Vietnam Veterans Readjustment Study—a large-scale, nationally-representative survey and interview study of 2348 veterans conducted in 1987 and mandated by the Veterans Administration to examine the long-term impacts of service on readjustment and mental health issues—indicated that combat veterans experienced higher levels of PTSD (measured as actual diagnosis of the disorder versus just symptoms) compared both with veterans of the same era that did not serve in Vietnam and non-veterans (Kulka et al., 1990). More recent evidence on Gulf War-era II veterans has revealed a similar link between combat exposure and development of PTSD (Hoge et al., 2004).

The association between combat exposure and PTS appears to be monotonic, such that progressively more combat exposure increases PTS risk and severity. From a broad perspective, incidence rates of PTSD have been found to be significantly higher among Iraq than Afghanistan veterans, which is consistent with the relatively higher degree of combat faced by Iraq as compared with Afghanistan veterans (Hoge et al., 2004). Within the Iraq veteran sample, a trend emerged demonstrating the cumulative impact of combat experiences on post-deployment PTS,
such that progressively more combat experiences were associated with a higher probability of developing PTSD. Taking this into consideration, preliminary evidence suggests that additional combat deployments are associated with an increased risk for PTSD. However, the strength of this relationship may be partially suppressed considering that highly resilient individuals are the ones who typically choose to re-enlist and re-deploy, thus exposing themselves to additional combat exposure (Reger, Gahm, Swanson, & Duma, 2009).

Other types of study designs produce similar results. A longitudinal study (LeardMann et al., 2009) suggests that although PTSD prevalence in a sample of military service members was comparable to that of civilians prior to entry into the military, it was significantly higher for military service members after service. In fact, 7.3% new cases of PTSD emerged in a two-year period representing military service members’ first deployment experience (LeardMann et al., 2009). Smith et al. (2008) present similar results but also examined the level of combat exposure within their sample, allowing for clarification that it is the experience of combat exposure per se, as opposed to general military service or deployment, that is associated with increased PTSD risk.

Whereas most previous studies have examined the diagnosis of PTSD per se, I focus on the presence of any degree of PTS. Because the diagnosis of PTSD requires a certain threshold of symptoms to be present, it may fail to capture less severe but still meaningful consequences of combat. I posit that examining the full range of PTS will produce greater variability than occurs when individuals are placed into “PTSD” and “non-PTSD” groups. Thus, I propose the following:

**Hypothesis 1:** Combat exposure is positively associated with PTS.
The Theoretical Link between PTS and CWB

I turn now to the pathway between PTS and CWB in Figure 1. I first present a formal definition for CWB. I then describe the theoretical rationale for the association between PTS and CWB, drawing both from the aggression and CWB literature on the role of emotions.

**Defining CWB.** Counterproductive work behavior (CWB) is defined as any intentional activity which is perceived by the organization as fundamentally contrary to its goals (Gruys & Sackett, 2003). CWB has traditionally been viewed as either an emotional and behavioral strain reaction due to stressors at work (Fox et al., 2001) or as arising from a negative cognitive response to perceptions of unfairness or organizational injustice (Skarlicki & Folger, 1997).

CWB may consist of overt behaviors, such as physical aggression, or passive behaviors, as in the case of intentionally not including a co-worker in a meeting which he or she is entitled to attend (Fox et al., 2001). Although all CWB is volitional and is harmful to the organization, this does not mean that all CWB arises out of a motivation to harm the organization. This point will become especially cogent when examining the antecedents of passive forms of CWB.

The dimensionality of CWB has been conceptualized in numerous ways: as a single construct, as two separate dimensions of CWB against the organization and CWB against other individuals, or as consisting of as many as 11 dimensions (Gruys & Sackett, 2003). For the present study, I balance parsimony and construct clarity by adopting the definition of CWB as consisting of five dimensions: production deviance, sabotage, theft, withdrawal, and abuse (Spector et al., 2006).

**Cognitive neoassociationistic model.** Although CWB is the primary focus of the present study, theories of aggression have potential bearing on studying this phenomenon given that CWB may be conceptualized as a higher-order construct that includes aggression. Modern
research on the antecedents of aggression can largely be traced to Dollard and colleagues’ (1939) frustration-aggression hypothesis, which stipulates that the presence of an obstacle stopping one from attaining one’s goals will lead to the experience of frustration. In turn, aggression is a normal reaction, as it allows the actor to remove the object of frustration. Berkowitz (1989) refined this classic theory by arguing that affect is a critical mediator between a frustrating event and aggression. Thus, frustration leads to negative affective states, such as anger, which in turn propel the individual to act aggressively. The implication of this expansion of frustration-aggression theory is that there potentially exist many factors that will intervene to impact one’s affective response to a frustrating event. Therefore, to state that frustration will automatically lead to aggression is an oversimplification.

Berkowitz (1990) further defined the cognitive neoassociationistic model to stipulate that negative affect is cognitively linked with both anger and aggressive thoughts and action tendencies. Therefore, when unpleasant emotions (e.g., frustration, sadness, anxiety) are present, a process of spreading activation across the associated network of cognitive nodes will result in increased aggression. However, the degree to which individuals associate negative affect with aggression will vary, as will the breadth and complexity of overall aggressive schemas. Thus, those with PTS may be hypersensitive to negative emotions and therefore more prone to activation of aggressive neural pathways and subsequent aggressive behaviors. When a threatening situation occurs, the script of acting aggressively, along with the concomitant affective and physiological components, are all activated. Importantly, hypersensitivity refers not only to affective states that result from perceived threats, but also to the presence of threats from the start. This is similar to the previously discussed notion of survival mode. Whereas survival mode itself is described as comprised of hypervigilance to threats, the cognitive
neoassociationistic model goes a step further in positing that as a result of constantly scanning for threats, threats will indeed be perceived and met with aggression to protect oneself.

The cognitive neoassociationistic model is particularly useful for explaining CWBs that are aggressive in nature, whether that aggression be directed at an individual (e.g., attacking a coworker) or directed at the organization itself (e.g., destruction of property). However, the model may be poor at predicting other types of CWB, such as withdrawal behaviors (e.g., calling in sick). Thus, a broader framework of CWB is needed to provide the full picture.

**Emotion-centered model of CWB.** A large body of literature has amassed positing that emotions represent a key explanatory mechanism for CWBs (Fox et al., 2001; Kaplan et al., 2009; Krischer, Penney, & Hunter, 2010; Miles, Borman, Spector, & Fox, 2002; Shockley, Ispas, Rossi, & Levine, 2012; Spector & Fox, 2002). I review below the theoretical themes throughout this literature, culminating in the proposition that PTS may lead to CWB both due to a generally high baseline of negative emotions, as well as increased reactivity to external stimuli.

Spector and Fox (2002) first posited an emotion-centered model to explain voluntary behavior in the workplace. Simply put, the model posits that negative emotions such as anger and frustration will increase the likelihood of CWB, whereas positive emotions such as happiness and contentment will increase the likelihood of prosocial behavior. Furthermore, the impact of work events on behavior that is harmful or helpful to the organization will be mediated by negative or positive emotions, respectively. This model ties in closely with appraisal theories of emotion (Lazarus, 1993) and affective events theory (Weiss & Cropanzano, 1996).

Although the emotion-centered model has maintained a focus on the work events leading to CWB, it is equally important to examine the pre-existing emotions that may lead to CWB, irrespective of specific work events. A hallmark symptom of PTSD is negative emotions
(American Psychiatric Association, 2013). In addition to the negative emotions associated with PTS leading directly to engaging in CWB as a coping mechanism (Krischer et al., 2010), it is also plausible that they lead to increased sensitivity to negative events at work. Mood congruity effects refer to the ease with which individuals recall and selectively attend to stimuli that are congruent with their current mood (Bower, 1981). Those who are anxious are more likely to perceive threats that could reinforce their anxiety (i.e., survival mode; Chemtob et al., 1997). Those who are angry are more likely to perceive actions by others as intentionally hostile (i.e., hostile attribution bias; Matthews & Norris, 2002). In turn, the negative emotions generally experienced by those with PTS, as well as the emotions elicited as a result of a PTS-emotion-filter of events at work, may culminate in activation of aggressive or withdrawal semantic cognitive networks, and CWB ensues. Whereas the cognitive neoassociationistic model may be effective at explaining how an array of negative emotions may coalesce into sabotage, theft, deviance, or interpersonal abuse (i.e., aggression), the emotion-centered model of CWB provides an additional perspective to effectively predict withdrawal. More specifically, the experience of anger is associated with an action tendency to aggress (“act against”), but anxiety is associated with an action tendency to protect oneself from a threat by withdrawing (Lazarus & Cohen-Charash, 2001). Although much of the present discussion has focused on the emotional components of PTS, all symptoms of PTS, including intrusive thoughts, avoidance, and increased arousal, are likely to be interlinked in a complex set of reciprocal relationships (Liu et al., 2014). Thus, it is useful to consider the link between all of these symptoms holistically with the outcome of CWB.
Empirical Support for the Link between PTS and CWB

As previously mentioned, there is currently no known research on the relationship between PTS as a predictor of CWB per se. However, there is much extant literature regarding the relationship between PTS and various non-work counterproductive behaviors (NWCB). Therefore, I presently examine the empirical evidence for a link between PTS and NWCB, separating this construct into the three domains of aggression, criminality, and withdrawal, each of which are defined and discussed below.

Aggression. There is a strong relationship between PTS severity and aggression in military veterans (Jakupcak et al., 2007; Killgore et al., 2008). Research has found that Vietnam veterans with PTSD report engaging in any level of physical aggression over the past year at a significantly higher rate than Vietnam veterans without PTSD (75% versus 17%, respectively). Another study indicated that PTSD and “antisocial behavior”—operationalized as a mix of both aggressive and generally unsafe behaviors—are correlated. Those high on PTSD risk were over eight times more likely to engage in antisocial behavior than those low on PTSD risk (Booth-Kewley et al., 2010). Additionally, the PTSD-aggression relationship appears to be a chronic one. Vietnam combat veterans with PTSD continue to display more hostility and violence than veterans without PTSD over time, potentially spanning decades after military service has ended (Beckham et al., 2000).

Most studies of aggression in military veterans have focused on physical aggression, to the neglect of psychological or relational aggression (cf. Taft et al., 2009). As an exception, research suggests that psychological, verbal, and physical aggression in the home are all higher among veterans compared with non-veterans, with combat exposure representing the most important aspect of military service associated with these differences (Byrne & Riggs, 1996; Taft
et al., 2009). Additionally, researchers have found that impulsive (i.e., emotionally reactive) aggression is more typically associated with PTSD than is premeditated (i.e., proactive and instrumental) aggression (Teten, Miller, et al., 2010). This finding illustrates that this group does not tend to strategically aggress as a means to an end, but rather engages in aggression in relatively rapid response to powerful emotions. This finding would thus appear to support the assertion of the cognitive neoassociationistic model that aggression arises out of the rapid spreading activation of aggressive schemas, as opposed to secondary appraisal processes.

Understanding the level of severity and specific characteristics of PTS that lead to aggression is another area of budding research. Jakupcak et al. (2007) extended previous research on the PTSD-aggression relationship by analyzing both military veterans who screen positive for PTSD based on clinical criteria as well as those who demonstrate subthreshold-PTSD. They found that hostility and anger were significantly higher in both the PTSD group and the subthreshold-PTSD group in comparison with the non-PTSD group. Thus, posttraumatic stress, although commonly operationalized and measured as the surpassing of a set cut-score on a PTSD screening instrument, may have an important impact on aggression even when not reaching clinical significance.

In terms of research on processes linking PTS to aggression, anger appears to play a central role. In a meta-analysis of traumatized adults, the relationship of PTSD with four other variables was examined: anger-hostility, anger out, anger in, and anger control (Orth & Wieland, 2006). Anger-hostility refers to the subjective experience of anger and hostility, anger-out refers to behaving in an aggressive manner, anger in refers to internalized efforts to suppress and ruminate over anger, and anger control refers to emotional self-regulation of anger. Aggregating across 39 studies, the effect sizes (r) were as follows: .48 for anger-hostility, .29 for anger out,
.53 for anger in, and -.44 for anger control. On the whole, PTS is highly associated with anger and hostility and negatively associated with regulating one’s anger. Additionally, type of sample was a moderator of these relationships, such that the effects were stronger for military veteran samples versus other samples who experienced trauma as a result of rape, natural disaster, or witnessing a traumatic event. Thus, there appears to be a uniquely potent relationship within military veterans between trauma, PTS, anger, and aggression.

Criminality. Evidence on the relationship between combat exposure and criminal behavior provides an additional perspective to the evidence discussed above. Investigating the degree of criminality within veterans allows for an expansion from a narrow focus on interpersonal acts of aggression to more general societally counterproductive behavior (i.e., disobeying the law). In this manner, criminality may be construed as a more generalized analogue of CWB.

Research on the relationship between previous general military service and criminality has typically examined incarceration as the outcome of interest and has yielded mixed results for a harmful or helpful impact of military service on criminal behavior (Bouffard, 2005; Brooke & Gau, 2015). Much of the research in this area has examined differences between military veterans and civilians, as opposed to differences within veterans. I therefore make the assumption, based upon previously discussed evidence, that many of the observed differences between civilians and veterans are driven by the experience of combat as opposed to other factors associated with military service. Early correlational research suggested that criminal justice involvement during adulthood (i.e., arrests or incarcerations after age 18) was significantly higher for Vietnam veterans than for civilians (Kulka et al., 1990). This research must be interpreted cautiously as it is not possible to ascertain if military service generally and/or
combat exposure specifically led to a proclivity to engage in illegal behaviors or instead if individuals with this proclivity self-select into the military.

At least two studies exist that attempt to address the limitations of correlational research and more strongly support the role of combat exposure in leading to criminal behavior. First, one study controlled for pre-military service antisocial behaviors, defined broadly as job instability, arrests, felony convictions, two or more divorces/separations, and/or reckless driving. Combat exposure was found to be a better predictor of post-service antisocial behavior than was pre-service antisocial behavior (Resnick et al., 1989). More recently, Rohlfs (2010) employed a cohort-level approach to study Vietnam-era veterans and control for the large differences in exposure to combat, fatality risk, and policing/arrest policies across different age cohorts. Utilizing this more sophisticated approach, evidence suggests that combat exposure is associated with self-reported violent acts—defined as various forms of physical aggression—but not with incarceration per se.

**Withdrawal behaviors.** As previously discussed, CWB by definition will lead to harm to the organization, but this does not automatically imply that an employee must act in an intentionally hostile manner to constitute CWB. Withdrawal behaviors illustrate this point and may have distinct emotional causal factors in comparison with other forms of CWB. In a workplace context, withdrawal may take a quite literal form, such as being absent from work or taking excessive breaks, or it may manifest as psychological withdrawal, such as intentionally performing work slowly (Spector et al., 2006). Drawing from research outside the workplace context, withdrawing from social opportunities due to perceived effort and potential harm represents a significant problem for many military veterans suffering from PTS (Otter & Currie, 2004). Because of the immense anxiety associated with the disorder, sufferers may feel the need
to retreat from or alter the form of outside stimulation to regulate their emotions (Brockman et al., 2016).

The degree to which different jobs require social interaction varies. Nonetheless, evidence suggests that the social aspect of work may be particularly distressing and lead to the need to withdraw for those with high PTS symptoms. Controlling for physical health symptoms, suffering from PTSD has been linked to primary care physician visits, somatic complaints, and missed days of work (Hoge et al., 2007). Thus, there may be a simple direct link between the experience of negative PTS symptoms and the inability to report for work. Or there may be more complex processes by which one desires withdrawal from social interactions as a result of these symptoms.

In summary, the current body of literature points to numerous conceptually similar counterproductive behavioral correlates for military veterans who suffer from PTS symptoms, including aggression, criminal behavior, and withdrawal. Although the NWCBs listed above do not all occur specifically in a workplace setting, the motivational processes driving CWB are quite similar (Spector & Fox, 2002). That is, whether the desire is to actively aggress due to the activation of hostile cognitive schemas or withdraw as a result of hypervigilance, veterans’ behavior may manifest in multiple ways that are harmful to the organization. Thus,

**Hypothesis 2**: PTS is positively associated with CWB.

**The Indirect Effect of Combat Exposure on CWB**

Until this point, I have proposed that combat exposure is related to PTS and that PTS is related to CWB without consideration of the way in which combat exposure is related to CWB. Whereas limited past research has posited that simple classical conditioning or social learning processes may explain how behavior learned in combat extends to civilian life (e.g., Beckham et
al., 2000; Gimbel & Booth, 1994), such a mechanistic explanation fails to take into consideration the complex appraisals made by individuals regarding the appropriateness of enacting specific roles in different contexts.

From a purely logical perspective, it follows that if combat exposure leads to PTS and PTS leads to CWB, the effect of combat exposure on CWB is at least partially transmitted via PTS. Past research has indeed found that PTS mediates the relationship between combat exposure and antisocial behavior (Booth-Kewley et al., 2010) and between combat exposure and aggression (Taft, Vogt, et al., 2007). Because CWB is closely related to these past outcomes, I propose that a similar process can effectively explain its occurrence. Nonetheless, it is important to consider the unique nature of CWB as a construct. To reiterate, CWB encompasses harmful behaviors that are not only aggressive but may arise from hypervigilance or anxiety. Despite this caveat, the variety of emotions that precipitate CWB are still contained within combat-related PTS. In the absence of contradictory empirical evidence and in the interest of theoretical parsimony, the following full mediation hypothesis is proposed:

**Hypothesis 3**: The relationship between combat exposure and CWB is fully transmitted via an indirect effect through PTS.

**Moderating Variables**

It is likely that different individuals will react to the trauma of combat exposure in fundamentally different ways, owing to factors related to the nature of combat exposure, additional sources of support, and pre-existing individual differences. The notion that pre-existing factors may protect against development of PTS in the face of traumatic exposure has been quite heavily supported (Litz et al., 2009). I here introduce a relatively new concept, warriorism, into my model, first providing a brief history leading to the development of this
construct and then describing the mechanisms through which it may protect against the deleterious impact of combat exposure. Past research has also provided strong support for the impact of post-service environmental factors on the development and outcomes of PTS (Fontana & Rosenheck, 2005; Goldmann et al., 2012). Therefore, I extend this past research into the workplace domain and discuss the concept of workplace belongingness and its role in the present model.

Defining Warriorism. To understand the concept of warriorism, it is useful to examine the seminal sociological perspective described within Moskos’ (1977) “I/O Thesis.” Moskos viewed the military as both an “institutional” and an “occupational” entity. Whereas an institutional approach views individuals as joining because of the inherent and intrinsic value to themselves to be a part of a greater cause, an occupational approach views the military more as a tool through which individuals can reach their own personal career goals. Those who join the military for institutional purposes are intrinsically motivated to identify with the military as an institution. Such individuals desire to serve their country, have a high degree of patriotism, and endorse the concept of “doing one’s duty.” On the other hand, those who join for occupational purposes are more concerned with the military as an instrument to reach their own career goals. Such individuals may seek to gain transferable technical skills or take advantage of education incentives. The I/O thesis is at the core a sociological theory, with the level of analysis being the entire military. Thus, the military may be perceived as either an institution or an occupation, although this need not be a strict either/or judgment, and the degree to which it falls into one classification will be dependent upon various sociohistorical factors.

Interestingly, there exists disagreement regarding the degree to which the current United States military as a whole reflects an institutional or an occupational entity. Levy (2007)
identifies two types of rewards offered to service members by the military: *material* and *symbolic*. Whereas material rewards are tangible and/or practical, symbolic rewards pertain to the prestige and honor that is bestowed upon service members by society. When one of these rewards is lacking, enlists generally expect the other to rise in a compensatory fashion. In other words, in times when symbolic capital is not offered by society, enlists that do join will be much more likely to do so on the basis of material considerations. Conversely, when social symbolic capital gained from service is high, generally, motivation to join will be comparatively less associated with expectations of material gains. Levy (2007) argues that as a whole, the US military has moved to a commodified occupation, citing historical evidence that in the recent past, the military has had to boost its competitive edge by offering compensation that rivals the private sector. Thus, by extension, social prestige has declined and potential service members are weighing the decision to join much as they would any other occupation.

Nevertheless, other research suggests that institutional (patriotic) motivations may still be a strong component in enlistment decisions. One study of two units of combat service members demonstrated that out of various enlistment motivations, 73.9% of respondents cited adventure/challenge, 65.8% cited service to country, and 54.9% cited patriotism (Woodruff, Kelty, & Segal, 2006). Thus, there is strong evidence that multiple motivations for military enlistment abound in present day service members.

One such motivation is warriorism. Johansen et al. (2013) propose that military identity consists of three components: idealism, professionalism/warriorism, and individualism. Individualism roughly corresponds to the previously discussed occupational motivations for enlistment, and idealism refers to one’s beliefs regarding the traditional role of the military and its members. Of particular importance to the present discourse, warriorism is conceptualized as
positive “attitudes toward war fighting, expectations about fighting in a war or combat, and the
degree of personal satisfaction expected from participating in combat” (p. 864). Warriorism is
associated with both organizational commitment to the military and a sense of identification with
the military (Johansen et al., 2013).

**Impact of warriorism on the combat exposure-PTS relationship.** In applying
Horowitz’s (1976) completion principle to the present discussion, it is noteworthy that
expectations can be a significant component of schemas related to the self and others. More
specifically, when expectations come into conflict with actual traumatic experience, a
discrepancy develops, requiring cognitive energy to correct the discrepancy. However, if the
individual anticipates aspects of the actual traumatic experience, less discrepancy occurs and
thus the resultant cognitive load is reduced, leading to a lesser need to engage in inhibitory and
re-experiencing cognitive controls. Thus, the model allows for the presence of expectations of a
traumatic event to ameliorate the traumatizing effects of such an event.

In this vein, perceived preparedness for deployment is associated with lower rates of
certain aspects of post-deployment PTS (Ferrier-Auerbach, Erbes, Polusny, Rath, & Sponheim,
2010). Preparedness can be conceptualized as instrumental or psychological (as demonstrated by
the scale utilized by Goldmann et al., 2012) and may lead to a more accurate appraisal of actual
threat when faced with a traumatic experience (Green, Grace, Lindy, Gleser, & Leonard, 1990;
King et al., 1995; King, King, Bolton, Knight, & Vogt, 2008; Renshaw, 2011; Vogt & Tanner,
2007).

In tandem with the concept of psychological preparedness, the present model suggests
that a warrioristic orientation will lead individuals to psychologically prepare for and positively
and realistically assess traumatic combat experiences, thus decreasing vulnerability to PTS. In
other words, while those joining the military in order to engage in combat will deeply consider and elaborate on their own expectations of what combat will entail before deployment, those joining for other reasons will not engage in such elaboration. In this way, those high in warriorism will inoculate themselves against the negative, alarming experience of combat.

Combat exposure represents not only events that happen to oneself but also consequences of choices made. Researchers have recently noted the possibility of moral injury from combat as distinct from physical or psychological injury, arising from internal ethical dilemmas regarding actions taken during combat (Frankfurt & Frazier, 2016; Litz et al., 2009). Because warriorism entails more than preparedness, this trait may more accurately predict reactions to combat experiences than preparedness per se. Specifically, high warriorism signifies that an individual is not only prepared to engage in combat but also has values that are congruent with doing so. In this way, warriorism may serve to alter appraisals of one’s aggressive actions in wartime as necessary and laudable rather than being indicative of unethical behavior.

Note that the presence of warriorism does not automatically connote the absence of other, more material and occupational motives. I take the approach that ultimately different motivations for service are orthogonal and here focus only on one of those motivations (Woodruff et al., 2006).

**Hypothesis 4:** Warriorism moderates the relationship between combat exposure and PTS, such that the relationship between combat exposure and PTS is weaker when warriorism is higher.

**Defining workplace belongingness.** Belongingness is a fundamental human motivation, consisting of an innate, universal need for persistent, frequent, and affectively pleasant interactions marked by mutual concern for group members’ well-being (Baumeister & Leary,
From an evolutionary standpoint, being a part of a social group represents a key survival mechanism, allowing for the receipt of important resources and protection against external threats. Belongingness is similar to the need for affiliation, but is distinct insomuch as there is a commitment component to belongingness, a perception that the interpersonal contact will lead to enduring support. Belongingness is also posited to be a universal human need, although the strength of this need may vary as a function of the individual and the specific context. Importantly, the thwarting or simple absence of belongingness is associated with negative affective and cognitive reactions, including anxiety, depression, jealousy, and loneliness (Baumeister & Leary, 1995).

**Workplace belongingness and the PTS-CWB relationship.** Belongingness is associated with engagement at work (Kahn & Heaphy, 2014). Engagement, in turn, is associated with a high level of motivation to perform one’s role effectively, gaining a sense of purpose and gratification from work (Christian, Garza, & Slaughter, 2011). Therefore, belongingness-related engagement may serve to override the hostile or withdrawal intentions associated with PTS-induced negative emotions. A sense of belongingness also creates a shared social identity, resulting in the perception of a common fate (Kahn & Heaphy, 2014). In this way, other group members are perceived as an extension of the self (Tajfel, 1974), which should reduce the likelihood of engaging in behaviors that would directly or indirectly harm them. In sum, both investment in one’s role at work and reciprocal concern for co-workers' well-being will hinder CWB despite negative action tendencies brought about by PTS-associated emotions.

Although it is plausible that belongingness in other domains (e.g., family, community) will serve as an important resource for ameliorating the link between PTS and CWB, most working adults spend a substantial proportion of their waking hours at work and craft social
identities from their work (Haslam, van Knippenberg, Platow, & Ellemers, 2003). Thus, the impact of belongingness in this domain is likely to have a widespread impact. Limited experimental evidence demonstrates a moderating role of belongingness. Specifically, increasing perceived belongingness mitigates the impact of social rejection on aggressive behavior (DeWall, Twenge, Bushman, Im, & Williams, 2010). Because PTS and social rejection elicit similar negative emotions (i.e., anger and anxiety; Baumeister & Leary, 1995), workplace belongingness may also mitigate the impact of PTS on CWB.

**Hypothesis 5**: Workplace belongingness moderates the relationship between PTS and CWB, such that the relationship between PTS and CWB is weaker when workplace belongingness is higher.
CHAPTER 2

METHOD

Participants & Procedure

Eligibility for participation included the following: (1) previous service in any of the US Armed Forces branches, (2) at least one deployment overseas since September 11, 2001, (3) willingness to provide proof of military service (although not actually required for participation), and (4) being currently employed full-time (at least 32 hours/week) in a civilian organization. A total of 1170 responses were initially received; of those, the final usable sample was 392. See Appendix A for a flowchart of why and how participants were eliminated (largely based on evidence of fraudulent responding), and see the Analyses section below for information on how insufficient effort responding and missing data was handled. The 392 participants worked in 22 different industries and were located throughout 46 states within the United States (89.9% male, 70.8% White, years since military discharge M = 6.53, SD = 4.20). See Table 1 for demographic information and Table 2 for additional information regarding previous military experience. Of note, although the purpose of the present study was to examine PTS as a continuous variable, 31.9% of the sample qualified for a provisional clinical diagnosis of PTSD (i.e., a sum score of 33 or higher out of 80; Weathers et al., 2013). See Appendix B for the complete list of background and demographic items.

Participants were recruited using snowball sampling, a common procedure in the organizational psychology literature (Grant & Mayer, 2009; Piccolo, Greenbaum, Den Hartog, & Folger, 2010). I posted recruitment notices to several social media and discussion board websites
Table 1

**Sample Demographics**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>US Region</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>339</td>
<td>89.9</td>
<td>Midwest</td>
<td>75</td>
<td>20.3</td>
</tr>
<tr>
<td>Female</td>
<td>38</td>
<td>10.1</td>
<td>Northeast</td>
<td>57</td>
<td>15.4</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>267</td>
<td>70.8</td>
<td>Southeast</td>
<td>119</td>
<td>32.2</td>
</tr>
<tr>
<td>Black, Non-Hispanic</td>
<td>13</td>
<td>3.4</td>
<td>West</td>
<td>89</td>
<td>24.1</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>67</td>
<td>17.8</td>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>2</td>
<td>0.5</td>
<td>Single</td>
<td>58</td>
<td>15.4</td>
</tr>
<tr>
<td>Asian</td>
<td>9</td>
<td>2.4</td>
<td>Serious relationship</td>
<td>34</td>
<td>9.0</td>
</tr>
<tr>
<td>Other/ Multiple ethnicities</td>
<td>19</td>
<td>5.0</td>
<td>Married</td>
<td>264</td>
<td>70.0</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school/ GED</td>
<td>31</td>
<td>8.2</td>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>80</td>
<td>21.2</td>
<td>Children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-year college degree</td>
<td>65</td>
<td>17.2</td>
<td>Years at current employer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-year college degree</td>
<td>148</td>
<td>39.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate degree</td>
<td>53</td>
<td>14.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Item totals differ due to individual missing data.
Table 2

**Military Background Information**

<table>
<thead>
<tr>
<th>Branch (select all that apply)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Force</td>
<td>61</td>
<td>16.2</td>
</tr>
<tr>
<td>Army</td>
<td>249</td>
<td>66.0</td>
</tr>
<tr>
<td>Coast Guard</td>
<td>12</td>
<td>3.2</td>
</tr>
<tr>
<td>Marine Corps</td>
<td>35</td>
<td>9.3</td>
</tr>
<tr>
<td>National Guard</td>
<td>44</td>
<td>11.7</td>
</tr>
<tr>
<td>Navy</td>
<td>46</td>
<td>12.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Military Occupational Specialty</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combat</td>
<td>108</td>
<td>27.6</td>
</tr>
<tr>
<td>Support (non-combat)</td>
<td>284</td>
<td>72.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Military Designation</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enlisted</td>
<td>16</td>
<td>4.5</td>
</tr>
<tr>
<td>Non-commissioned officer a</td>
<td>300</td>
<td>83.6</td>
</tr>
<tr>
<td>Officer</td>
<td>30</td>
<td>8.4</td>
</tr>
<tr>
<td>Warrant Officer</td>
<td>13</td>
<td>3.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Received Special Ops Training</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>134</td>
<td>34.2</td>
</tr>
<tr>
<td>No</td>
<td>258</td>
<td>65.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operations served (select all that apply)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation Enduring Freedom</td>
<td>246</td>
<td>62.8</td>
</tr>
<tr>
<td>Operation Iraqi Freedom</td>
<td>249</td>
<td>63.5</td>
</tr>
<tr>
<td>Operation New Dawn</td>
<td>38</td>
<td>9.7</td>
</tr>
<tr>
<td>Gulf War I (from 1990-1991)</td>
<td>19</td>
<td>4.8</td>
</tr>
<tr>
<td>Vietnam War</td>
<td>3</td>
<td>0.8</td>
</tr>
<tr>
<td>Korean War</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
<td>6.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Has a service-related physical disability</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>202</td>
<td>53.6</td>
</tr>
<tr>
<td>No</td>
<td>175</td>
<td>46.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Has provisional PTSD diagnosis b</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>125</td>
<td>31.9</td>
</tr>
<tr>
<td>No</td>
<td>267</td>
<td>68.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years in Military</th>
<th>M=8.78, SD=6.48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Deployments</td>
<td>M=3.10, SD=2.65</td>
</tr>
<tr>
<td>Years Between Last Deployment and Discharge</td>
<td>M=2.03, SD = 2.71</td>
</tr>
<tr>
<td>Years Since Military Discharge</td>
<td>M=6.53, SD=4.20</td>
</tr>
</tbody>
</table>

*Note.* Item totals differ due to individual missing data.

a Enlisted personnel at pay grade of E-4 or higher. b Sum score ≥ 33 on the 20-item PTSD scale.
geared toward military veterans (31.8% of participants enrolled via the military veterans subreddit on Reddit.com, 40.1% enrolled via targeted Facebook advertising, and 28.1% enrolled from personal social networks and postings on six nonprofit veteran service organization websites). After providing informed consent and responding to eligibility items, participants completed all measures via an online questionnaire. Participants were compensated with a $10 gift card to Amazon.com.

**Measures**

**Combat exposure.** Combat exposure was measured using the Deployment Risk and Resilience Inventory-2 (DRRI-2) Combat Experiences subscale (Vogt et al., 2013). The 17 items encompass trauma to self or trauma to others, as well as situations in which the respondent was victimized or served as the attacker. Sample items include: “While deployed, I personally witnessed someone from my unit or an ally unit being killed,” and “While deployed, I was exposed to hostile incoming fire.” Item responses indicate the frequency of the given event over the duration of the participant’s most recent deployment, ranging from “Never” to “Daily or almost daily.” Despite the formative nature of this measure, high internal consistency (Cronbach’s α = .95) was observed in the current sample. See Appendix C for the complete scale.

**Posttraumatic stress.** Posttraumatic stress was measured using 19 items from the PTSD Symptom Checklist for the DSM-V (PCL-5; Weathers et al., 2013). A single item from the original scale (“Irritable behavior, angry outbursts, or acting aggressively”) was not used due to content overlap with CWB. Sample items include “Repeated, disturbing, and unwanted memories of the stressful military experience(s)” and “Having strong negative feelings such as fear, horror, anger, guilt, or shame.” Item responses range from “not at all” to “extremely” to
assess the degree to which participants have been bothered by each symptom over the preceding month. A previous version of this scale (PCL-S) has been used extensively in clinical research on PTSD and has demonstrated acceptable psychometric properties for Gulf War-era II combat veterans, although such research has been primarily aimed at developing cutoff scores that yield acceptable specificity and sensitivity values for identifying those at-risk for the disorder (Bliese et al., 2008).

Items on this scale are designed to tap the four previously discussed symptom clusters of intrusive thoughts (five items; Cronbach’s $\alpha = .93$), avoidance (two items; Cronbach’s $\alpha = .86$), negative alterations in cognition and affect (seven items; Cronbach’s $\alpha = .91$), and increased arousal (five items; Cronbach’s $\alpha = .87$). Internal reliability consistency for each facet is reported solely for informational purposes; only the composite score for the entire scale (Cronbach’s $\alpha = .96$) was used in the analyses below. See Appendix D for the complete scale.

**Counterproductive work behavior.** CWB was measured using 32 items from the Counterproductive Work Behavior Checklist (Spector et al., 2006). A single item from the original scale was not used because it referred to behaviors toward customers, which may not be applicable across all job types. Sample items include “Purposely damaged a piece of equipment or property” and “Verbally abused someone at work.” Item responses refer to the frequency of behavior over the previous three months and range from “never” to “every day or nearly every day.” Previous meta-analytic evidence (Berry, Carpenter, & Barratt, 2012) suggests that self-report measures of CWB correlate highly with other-report measures and elicit a broader range of reported behaviors, thus supporting the use of such a measure in the present study.

This scale is comprised of two higher-order subscales: CWB against the organization (15 items; Cronbach’s $\alpha = .95$) and CWB against people (17 items; Cronbach’s $\alpha = .95$). CWB
against the organization is further comprised of four lower-order subscales: sabotage (three items; Cronbach’s α = .85), withdrawal (four items; Cronbach’s α = .81), production deviance (three items; Cronbach’s α = .82), and theft (five items; Cronbach’s α = .95). Internal reliability consistency for each facet is reported solely for informational purposes; only the composite score for the entire scale (Cronbach’s α = .97) was used in the analyses below. See Appendix E for the complete scale.

**Warriorism.** Warriorism was measured using 10 items from the Professionalism/Warriorism subscale of the Dimensions of Military Identity scale (Johansen et al., 2013). Whereas the original scale was utilized to assess attitudes upon enlistment, the present study necessitated editing the prompt such that participants were required to recall these attitudes by thinking back to the time when they initially enlisted. Sample items include “The possibility of participating in war actions was an important motivating factor to me,” and “Self-sacrifice, courage, and fellowship in war are more important than ever.” Responses were measured on a five-point Likert scale from “strongly disagree” to “strongly agree.” The original full subscale consisted of 12 items, but two items were deemed inappropriate for the current study due to unclear verbiage and measurement issues. The first deleted item, “The government may deploy me to whichever mission as long as it did not contradict my moral convictions,” was worded such that an individual’s endorsement of this item would be challenging to interpret. Specifically, it could indicate a high level of warriorism (i.e., the individual is willing to be deployed to any mission and does not possess any moral convictions that might conflict), or it might suggest a moderate level of warriorism (i.e., the individual subscribes to the value of obeying orders in the military, but personal convictions may supersede the mission). The second deleted item, “The idea of fellowship in arms as the primary motivating factor to participate in
operations is subordinated,” could cause confusion among participants due to the use of unfamiliar verbiage (i.e., “fellowship in arms”). Internal consistency reliability in the present sample for the final 10 items was acceptable (Cronbach’s α = .83). See Appendix F for the complete scale used in the present study.

**Workplace belongingness.** Belongingness was measured using a combination of three items from Den Hartog, De Hoogh, and Keegan (2007) and three items from Kirkhaug (2010). An example of these items includes, “My colleagues and I feel like a tight-knit group.” Responses were measured on a five-point Likert scale from “strongly disagree” to “strongly agree.” Individually, these scales were short and internal consistency reliability in past studies was low for both; therefore, they were combined to increase reliability. One item from the original Kirkhaug (2010) scale, “If there is a professional disagreement between me and my colleagues, I withdraw from them,” was not used because of overlap with the withdrawal facet of CWB. Internal consistency reliability in the present sample was acceptable (Cronbach’s α = .85). See Appendix G for the complete scale.

**Control variable.** Individuals high in warriorism may exhibit stigma surrounding mental illness due to the belief that warriors should be strong and not show signs of weakness (Mittal et al., 2013). As a result, they may be less likely to report PTS symptoms—due to either impression management, self-deception, or a combination of the two—leading to the erroneous conclusion that warriorism protects against the development of these symptoms. Therefore, stigma toward mental health was measured using four items derived from the 9-item Personal Depression Stigma scale developed by Cook and Wang (2010) and was entered into the hypothesized model as a covariate (the original scale was condensed due to concerns surrounding participant fatigue). This measure serves a similar purpose to commonly used social desirability measures but is
targeted specifically toward potential hesitance to report mental health issues rather than socially sensitive issues more generally. Internal consistency reliability in the present sample was acceptable (Cronbach’s α = .90). See Appendix H for this measure.

**Analyses**

**Data preparation.** Prior to data analyses, insufficient effort responding, outliers, and missing data were examined (see Appendix A for an overview of this process). Although insufficient effort responding was anticipated to be relatively minimal, some of the scales were lengthy, creating the risk that even motivated participants might experience fatigue. Based upon recommendations by Curran (2016), participants were deemed to be careless responders if they spent less than 2 seconds per item (i.e., less than 324 seconds for the entire survey), which resulted in removal of 13 individuals.

Next, outliers were examined at the univariate level by examining boxplots. An outlier is defined as a value greater than the sum of the 75th percentile and 1.5 times the interquartile range or less than the difference of the 25th percentile and 1.5 times the interquartile range. An extreme value is defined similarly but using 3 times the interquartile range. For combat exposure, five individuals were deemed outliers with composite scores greater than 4.97 on the 6-point scale. For warriorism, 13 individuals were deemed outliers with composite scores less than 2.20 on a 5-point scale. For CWB, four individuals were deemed outliers with composite scores greater than 2.11 on a 5-point scale, and 27 were deemed extreme values with composite scores greater than 2.72. The composite scores for PTS, stigma, and workplace belongingness did not contain any outliers or extreme values. Treatment of outliers is an ongoing area of interest in the organizational sciences, and current best practices focus on critically considering the reason for outliers (Aguinis, Gottfredson, & Joo, 2013). It is conceivable that some individuals may
demonstrate particularly high levels of combat exposure and CWB, and some may have particularly low levels of warriorism despite joining the military. Therefore, no further action was taken with these observations.

Outliers were also examined at the multivariate level by calculating Mahalanobis distance, which identifies the length of the line between a given observation and the centroid of all variables. Equation 1 below (Barnett & Lewis, 1978) was used to identify that the cutoff Mahalanobis distance in the present sample was 26.51. No individuals exceeded this value.

\[
p(n-1)^2\left(F_{df=p,n-p-1,\text{alpha}\text{level}=\frac{\alpha}{p}}\right)/\left(n(n-p-1+pF_{df=p,n-p-1,\text{alpha}\text{level}=\frac{\alpha}{p}})\right)
\]

(1)

where \(p\) = number of variables, \(n\) = sample size, \(F\) = critical score on the F-distribution, \(\alpha = .05\)

Item-level missingness was addressed by utilizing the maximum likelihood (estimation-maximization) technique, which provides less biased parameter estimates than does listwise or pairwise deletion (Newman, 2003). In the case of non-latent models, such as the one tested currently, the maximum likelihood technique can estimate composite scores for individuals with missing values on endogenous variables (i.e., PTS and CWB) but still excludes from analyses individuals with missing data on exogenous variables due to the manner in which the model is specified conditional on those values (Muthén & Muthén, 1998-2012). Out of 441 valid responses, 49 individuals did not complete all items for the exogenous scales (i.e., combat exposure, warriorism, mental health stigma, and belongingness) and were excluded from analyses. Six individuals with missing data completed the entire survey (i.e., skipped specific items). The remaining 43 individuals with missing data ended the survey prematurely: seven stopped prior to combat exposure items, four stopped prior to PTS items, one stopped prior to mental health stigma items, and 31 stopped prior to completing the workplace belongingness and
CWB items. Although it is difficult to determine if discontinuation of the survey was due to question content, the large percentage of participants who discontinued near the end suggests this may have been due to participant fatigue.

**Evaluation of statistical assumptions.** Linear regression-based path analysis (discussed below) makes the following assumptions: independence of observations; no omission of important variables; no multicollinearity among predictors; linear relationships among variables; and normally distributed, independent, and homoscedastic error terms (Cohen, Cohen, West, & Aiken, 2003). The first two assumptions are methodological rather than statistical but bear mentioning. In the present study, units (i.e., participants) were expected to be non-nested and independent. Additionally, all theoretically important variables were considered when specifying the hypothesized model, although it is worth noting that, to some degree, all models will be misspecified in this respect (Box, 1976).

The tenability of each linear relationship was assessed by visually examining bivariate scatterplots for each hypothesized variable relationship in the model. The Variance Inflation Factor (VIF) was examined to identify multicollinearity; a value greater than 10 suggests multicollinearity is an issue for a specific predictor (Field, 2005). Error terms were examined as a frequency distribution (to examine normality), and were plotted against expected values of the outcome variable (to examine homoscedasticity). Finally, the Durbin-Watson statistic was calculated to identify if errors were independent; a value less than one or greater than three suggests that autocorrelation of errors is present (Field, 2005).

**Main model testing.** Path analysis is a multiple regression-based approach that allows for the simultaneous prediction of multiple outcome variables (Hayes, 2013) and was used in the present analysis. Specifically, Mplus 7.1 was used with the maximum likelihood estimator to
estimate the model (Muthén & Muthén, 1998-2012). This approach provides estimates that are more robust to statistical assumption violations than ordinary least squares estimation (Berkson, 1956). Hypotheses 1 and 2 were tested by examining the significance of the respective parameter estimates in the model. The indirect association of combat exposure with CWB via PTS (i.e., Hypothesis 3) was tested with bias-corrected bootstrapping, which generates a confidence interval of the true indirect effect by estimating the product of the combat exposure-PTS and PTS-CWB pathways using 1,000 random resamples (Preacher, Rucker, & Hayes, 2007).

Moderation (i.e., Hypotheses 4 and 5) was tested by regressing each respective outcome variable onto the product of the two respective predictor variables (Cohen et al., 2003). In addition, simple slopes for the relationship of the predictor and outcome variable at one standard deviation below the moderator and one standard deviation above the moderator were plotted to examine the nature of the interaction effect.

**Alternative models.** Psychometricians have recently noted that alternative model specification is vital to building theory in organizational research when variable relationships not hypothesized by researchers may have equal theoretical and/or statistical support (Vandenberg & Grele, 2009). Therefore, three alternative models to Figure 1 were tested (see Figure 2). In the first alternative model, to test the degree to which full or partial mediation through PTS better explains the relationship between combat exposure and CWB, the direct effect from combat exposure to CWB was specified to freely vary. A significant improvement of fit, as determined by a chi-square difference test, provides support for partial, rather than full, mediation (Aguinis, Edwards, & Bradley, 2016).
(a) Partial mediation ($N = 392$).

(b) Reversal of PTS to CWB causal direction ($N = 389$).
(c) **Serial mediation model** \((N = 428)\).

*Figure 2.* Alternative model specifications. Path estimates are standardized regression coefficients. Paths pointing to another path are interaction terms. Dashed paths were not explicitly hypothesized. Total sample size \((N)\) differs slightly by analysis due to maximum likelihood handling of missing values.

* \(p < .05\). *** \(p < .001\). ns = not significant.*
The second alternative model reverses the causal order of the moderator and outcome variable (combat exposure leads to CWB, which then leads to PTS) with the moderators remaining unchanged from the hypothesized model. The justification for this causal order reversal is the recognition that a direct effect could emerge between combat exposure and CWB. Engaging in CWB may then have downstream effects, such as being ostracized at work, which in turn could lead to the expression and/or worsening of PTS symptoms.

The third alternative model represents a serial causal chain, proposing the following order: warriorism-combat exposure-PTS-belongingness-CWB. There are several important characteristics of this model warranting further explanation. To begin, warriorism was re-conceptualized as an antecedent of combat exposure as opposed to a moderator of its impact. Although I am not aware of any literature that has examined predictors of combat exposure once deployed, it is plausible that those displaying high levels of warriorism may volunteer for additional missions. Alternatively, high levels of warriorism may act as a signal to commanding officers of one’s ability and thus lead to being chosen for more frequent or more intense combat missions. The role of workplace belongingness was also changed from exogenous to endogenous. Specifically, this alternative model poses that rather than moderating the PTS-CWB relationship, workplace belongingness actually mediates it. Because PTS is associated with alterations in cognition and withdrawal behavior (American Psychiatric Association, 2013), this may be directly responsible for a decline in one’s attempts to engage in social interaction, thus leading to lower belongingness in one’s work group. Additionally, mental illness is often met with stigma, fear, or perceptions of weakness (Couture & Penn, 2003), leading other individuals in the workplace to actively ostracize a veteran displaying these symptoms. In turn, low levels of workplace belongingness will be associated with propensity to engage in higher CWB.
CHAPTER 3

RESULTS

Evaluation of Statistical Assumptions

Because path analysis simultaneously examines all endogenous (i.e., outcome) variables, computationally the present model represents two sets of regression equations: one predicting PTS and one predicting CWB. Therefore, two sets of statistical assumption tests, one for each equation, are presented currently.

**PTS.** Figure 3 presents scatterplots for each predictor of PTS. Although the plots do not demonstrate strong linear associations, they are also not particularly suggestive of any non-linear (i.e., quadratic or cubic) associations, suggesting that the assumption of linear associations is not violated. The VIF for each predictor was less than 1.6, indicating that multicollinearity is not a serious concern. Figure 4(a) presents the frequency distribution of the residuals in predicting PTS, and Figure 4(b) plots these residuals against predicted values of PTS. In combination, these figures demonstrate that errors are normally distributed and are homoscedastic conditional on PTS. Nonetheless, Figure 4(b) suggests that the model overpredicts PTS for individuals expected to be low on this variable and underpredicts PTS for individuals expected to be high on this variable. Finally, the Durbin-Watson statistic was 1.58, suggesting that independence of errors is a tenable assumption.

**CWB.** Figure 5 presents scatterplots for each predictor of CWB. Although the association between PTS and CWB appears to be linear, the plot for belongingness is suggestive of a potentially quadratic relationship. Exploratory analyses demonstrated that the bivariate, quadratic...
Figure 3. Scatterplots between predictors and posttraumatic stress.
Figure 4. Residuals plots for outcome variable PTS.

(a) Histogram of standardized residuals

(b) Predicted values of PTS plotted against standardized residuals
relationship between belongingness and CWB was significant ($\beta = -.13$, $p < .05$). Based on this finding, two sets of analyses were conducted to test Hypothesis 5: one path model including only the linear relationship between belongingness and CWB and one model including the quadratic relationship between belongingness and CWB. Results of both analyses are presented in the next section.

Figure 5. Scatterplots between predictors and counterproductive work behavior.
The VIF for each predictor was less than 1.2, indicating multicollinearity is not a serious concern. Figure 6(a) presents the frequency distribution of the residuals in predicting CWB, and Figure 6(b) plots these residuals against predicted values of CWB. Figure 6(a) suggests that there is a small group of individuals for whom prediction is particularly inaccurate. Figure 6(b) expands on this finding by illustrating that model prediction is more accurate for those low on CWB than those high on CWB. In this case, homoscedasticity is not supported. Nonetheless, due to the robustness of maximum likelihood estimation to violations of homoscedasticity, parameter estimates were still assumed to be unbiased (Berkson, 1956; Cohen et al., 2003). Finally, the Durbin-Watson statistic was 2.06, suggesting that independence of errors is a tenable assumption.

**Main Findings**

Descriptive statistics and correlations for all study variables can be seen in Table 3. Parameter estimates reported presently are based upon centered predictor variables (Sardeshmukh & Vandenberg, 2017). Examining the path coefficients in Figure 1, Hypothesis 1 was supported: combat exposure and PTS were positively associated, $\beta = .57, p < .001$. Hypothesis 2 was also supported: PTS and CWB were positively associated, $\beta = .51, p < .001$. Hypothesis 3 stated that the relationship between combat exposure and CWB is mediated by PTS. The model test of the indirect effect (i.e., the bias-corrected, bootstrapped product of the combat exposure-PTS pathway and the PTS-CWB pathway) indicated support for this hypothesis, $b = .18, p < .001, 95\% CI [.12, .25]$. This signifies that there was an indirect effect of combat exposure on CWB through PTS. I reserve discussion of whether mediation was full or partial for the following section on alternative model testing.
Figure 6. Residuals plots for outcome variable CWB.
### Table 3

**Descriptive Statistics and Correlations**

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Combat</td>
<td>2.12</td>
<td>1.09</td>
<td>.95</td>
<td>.96</td>
<td>.97</td>
<td>.96</td>
<td>.96</td>
<td>.96</td>
<td>.97</td>
<td>.97</td>
<td>.96</td>
<td>.96</td>
<td>.96</td>
</tr>
<tr>
<td>2. PTS</td>
<td>2.28</td>
<td>.96</td>
<td>.54***</td>
<td>.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. CWB</td>
<td>1.44</td>
<td>.64</td>
<td>.50***</td>
<td>.97</td>
<td>.97</td>
<td></td>
<td>.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Warriorism</td>
<td>3.72</td>
<td>.69</td>
<td>.20***</td>
<td>.09</td>
<td>.03</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
</tr>
<tr>
<td>5. Belonging</td>
<td>3.30</td>
<td>.87</td>
<td>-.32***</td>
<td>-.12*</td>
<td>.19***</td>
<td>.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Stigma</td>
<td>2.33</td>
<td>1.10</td>
<td>.31***</td>
<td>.14**</td>
<td>.41***</td>
<td>.27***</td>
<td>.24***</td>
<td>.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Gender</td>
<td>.90</td>
<td>.30</td>
<td>.21***</td>
<td>.05</td>
<td>.04</td>
<td>.17**</td>
<td>.04</td>
<td>.14**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Time Out</td>
<td>6.53</td>
<td>4.20</td>
<td>-.07</td>
<td>-.11*</td>
<td>-.04</td>
<td>-.07</td>
<td>.12**</td>
<td>.16**</td>
<td>-.07</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Time In</td>
<td>3.09</td>
<td>2.59</td>
<td>-.04</td>
<td>-.07</td>
<td>-.07</td>
<td>.01</td>
<td>.04</td>
<td>.11*</td>
<td>-.05</td>
<td>.31***</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. MOS</td>
<td>.28</td>
<td>.45</td>
<td>.31***</td>
<td>.07</td>
<td>-.10*</td>
<td>.20***</td>
<td>.05</td>
<td>.13**</td>
<td>.17**</td>
<td>.04</td>
<td>.03</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11. Disability</td>
<td>.54</td>
<td>.50</td>
<td>-.21***</td>
<td>-.02</td>
<td>-.11*</td>
<td>-.03</td>
<td>-.13**</td>
<td>-.09</td>
<td>-.06</td>
<td>.05</td>
<td>-.02</td>
<td>-.06</td>
<td>-</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

*Note.* Combat = combat exposure. Belong = workplace belongingness. PTS = posttraumatic stress. CWB = counterproductive work behavior. Gender coded as 0 = female, 1 = male. Time Out = years since discharge from military. Time In = years in current civilian organization. MOS = military occupational specialty, coded as 0 = support, 1 = combat. Disability = physical disability from service, coded as 0 = no disability, 1 = disability. Bold values on the diagonal are the internal reliability coefficients for the respective variable. N ranges from 357 to 392. Combat exposure is on a 1-6 scale; all other variables are on a 1-5 scale.
Regarding the moderating role of warriorism on the combat exposure-PTS relationship, Hypothesis 4 was not supported (interaction term $\beta = -0.10, p = 0.10$).

Regarding the moderating role of workplace belongingness on the PTS-CWB relationship, Hypothesis 5 was not supported when only the linear relationship between belongingness and CWB was included (interaction term $\beta = 0.08, p = 0.09$; see Figure 1). Due to the aforementioned curvilinear relationship between belongingness and CWB, however, a second set of analyses was conducted using the following equation:

$$Y = b_1X + b_2Z + b_3Z^2 + b_4XZ + b_4XZ^2,$$

wherein $Y$ is combat exposure, $X$ is PTS, and $Z$ is belongingness (Cohen et al., 2003). Specifying a multiple regression model with these additional terms yielded a significant interaction between belongingness and PTS ($\beta = -0.29, p = 0.001$; see Table 4). Figure 7 illustrates the nature of the interaction between PTS and the quadratic belongingness term. Examining all evidence, Hypothesis 5 was not supported, but exploratory analysis suggests that this is due to the curvilinear relationship between belongingness and CWB. Specifically, PTS is more strongly related to CWB when belongingness is one standard deviation below the mean compared to when belongingness is one standard deviation above the mean. Contrary to expectations, however, the relationship between PTS and CWB appears to be strongest when belongingness is moderate.

**Alternative Model Results**

Figure 2(a) shows the parameter estimates for the first alternative model (partial mediation). The chi-square value for this model, $\chi^2(13) = 285.03, p < 0.001$, was smaller than the chi-square value for the hypothesized full mediation model, $\chi^2(14) = 323.94, p < 0.001$. The chi-square difference test was statistically significant, $\chi^2(1) = 38.91, p < 0.001$, indicating that inclusion of the direct combat exposure-CWB path fit the data better. Additionally, the direct
Table 4

Multiple Regression of CWB on PTS, Belongingness, and Quadratic Belongingness

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Step 1</th>
<th></th>
<th></th>
<th>Step 2</th>
<th></th>
<th></th>
<th>Step 3</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>SE</td>
<td>t</td>
<td>β</td>
<td>SE</td>
<td>t</td>
<td>β</td>
<td>SE</td>
<td>t</td>
</tr>
<tr>
<td>PTS</td>
<td>.49</td>
<td>.04</td>
<td>12.41***</td>
<td>.49</td>
<td>.04</td>
<td>12.08***</td>
<td>.58</td>
<td>.04</td>
<td>14.82***</td>
</tr>
<tr>
<td>Belongingness</td>
<td>.04</td>
<td>.05</td>
<td>.96</td>
<td>.01</td>
<td>.05</td>
<td>.20</td>
<td>-.06</td>
<td>.05</td>
<td>-1.23</td>
</tr>
<tr>
<td>Belongingness*Belongingness</td>
<td>-.08</td>
<td>.05</td>
<td>-1.68</td>
<td>-.07</td>
<td>.05</td>
<td>-1.54</td>
<td>-.29</td>
<td>.07</td>
<td>-4.53***</td>
</tr>
<tr>
<td>PTS*Belongingness</td>
<td>-.11</td>
<td>.06</td>
<td>-1.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTS<em>Belongingness</em></td>
<td>-.29</td>
<td>.07</td>
<td>-4.53***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belongingness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>59.68***</td>
<td></td>
<td>40.90***</td>
<td></td>
<td>29.37***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta F$</td>
<td>2.80</td>
<td></td>
<td>9.41***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.24</td>
<td></td>
<td>.24</td>
<td></td>
<td>.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>.00</td>
<td></td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. PTS = posttraumatic stress. $\beta$ = standardized regression coefficient. SE = standard error. $\Delta F = F$ change from the previous step. $R^2 = $ variance explained in CWB. $\Delta R^2 = $ change in variance explained from previous step. ** $p < .01$. *** $p < .001$. **
Figure 7. The interaction between PTS and the quadratic relationship of workplace belongingness on CWB. PTS = posttraumatic stress. CWB = counterproductive work behavior. “Lower” and “Higher” refer to one standard deviation below and above the mean, respectively.
effect between combat exposure and CWB modeled in Figure 2(a) was significant, $\beta = .20, p < .001$. The bootstrapped indirect effect of combat exposure on CWB via PTS in this model is lower than in the hypothesized model, $b = .11, p < .001, 95\%$ CI [.07, .16]. Therefore, Hypothesis 3 received only partial support, as the relationship between combat exposure and CWB was partially mediated via PTS.

The second alternative model, which indicated a reverse causal order between PTS and CWB, is presented in Figure 2(b). The fit of this model cannot be directly compared to the hypothesized model because they are non-nested. However, several parameter estimates are worth noting. First, the relationships between combat exposure and CWB ($\beta = .53, p < .001$) and between CWB and PTS ($\beta = .45, p < .001$) were both significant. Additionally, there was a significant indirect effect of combat exposure on PTS via CWB, $b = .21, p < .001, 95\%$ CI [.13, .29]. Finally, there was a significant interaction between warriorism and combat exposure ($\beta = -.14, p < .001$), such that as warriorism increases, the strength of the relationship between combat exposure and CWB decreases (see Figure 8).

The third and final alternative model indicated a serial causal chain and is presented in Figure 2(c). The fit of this model cannot be directly compared to the hypothesized model because they are non-nested, but the parameter estimates suggest that all substantive regression paths were significant ($p < .001$).
**Figure 8.** The moderating effect of warriorism on the relationship between combat exposure and CWB. CWB = counterproductive work behavior. “Lower” and “Higher” refer to one standard deviation below and above the mean, respectively.
CHAPTER 4
DISCUSSION

Overview of Findings

Despite ample empirical evidence that combat exposure is associated with PTS (Hoge et al., 2004; Thomas et al., 2010) and that PTS is associated with aggressive and nonwork counterproductive behaviors (Taft, Kaloupek, et al., 2007; Taft, Vogt, et al., 2007; Taft et al., 2009), no research to date has examined the degree to which these phenomena extend into the workplace and the potential boundary conditions of the combat exposure-PTS-CWB relationship. The present study is the first to provide evidence that past combat exposure is associated with CWB and that this relationship is partially transmitted via PTS. This represents an expansion of the existing literature both in terms of capturing the full criterion space of counterproductive behaviors (i.e., beyond general physical aggression), as well as examining these relationships specifically in the workplace.

Results of the present study indicated support for the positive association between combat exposure and PTS and for the positive association between PTS and CWB. Additionally, results indicated that the association between combat exposure and CWB is partially mediated via PTS. Results did not support the role of warriorism as a moderator of the combat exposure-PTS relationship, but they did support the role of workplace belongingness as a moderator of the PTS-CWB relationship. In the remainder of this chapter, I discuss the theoretical implications of this study, practical implications, limitations, and future directions for research.
Theoretical Implications

Results support the propositions of the completion principle and survival mode theory. The completion principle stipulates that traumatic experiences, because they are dissonant with previous belief systems, create a cycle in which individuals are motivated to resolve this cognitive dissonance but also maintain a sense of safety, resulting in both re-experiencing and avoidance of the traumatic memories (Horowitz, 1997). As an additional etiological perspective, survival mode theory suggests that individuals who have experienced trauma learn to view the world around them as potentially unsafe and thus become hypervigilant to protect themselves from perceived threats (Chemtob et al., 1997). The present findings are in line with the ideas presented by these theories and suggest that combat exposure may serve to activate these cognitive survival and completion mechanisms. Although this finding has been studied extensively in Vietnam-era veterans (Bordieri & Drehmer, 1984), the present study specifically serves to replicate this relationship among recent Gulf War-era II veterans. Findings indicate that, despite differences in types of warfare and mental health resources available across eras, experiencing combat is still strongly associated with PTS.

Results also shed light on the relationship between PTS and CWB, supporting the extension of the cognitive neoassociationistic model. This model postulates that (a) negative affect is cognitively linked with aggressive action tendencies and that (b) individuals with PTS may form stronger connections among these cognitive nodes, leaping quickly from anger to aggression. Results support the extension of this theory from examining the relationship between PTS and general aggression (Berkowitz, 1990) to also predicting CWB. The PTS-CWB relationship similarly provides results that could support emotion-centered theories of CWB (Spector & Fox, 2002). Namely, PTS may induce negative affect, which in turn is likely to be
associated with actions that harm the organization. By drawing on these two theoretical approaches together, results are in line with the ideas that PTS may be linked with CWB as a result of a predisposition to perceive events at work as potentially threatening and to react in a hostile or withdrawing manner. Whereas past research has primarily examined the individual personality traits (Berry et al., 2007; Dalal, 2005; Hershcovis et al., 2007) or affective responses to organizational justice (Fox et al., 2001; Skarlicki & Folger, 1997) that are associated with engaging in CWBs, the present study indicates that negative experiences prior to entry into the organization may be an important correlate of CWB. In this way, it is beneficial to consider not only present organizational context but also the interaction of that context with the cognitive lens through which an individual views events at work.

The significant indirect effect from combat exposure to CWB via PTS indicates that the experience of PTS may be an important mechanism through which combat exposure and CWB are related. A significant improvement in model fit when including the direct effect from combat exposure to CWB, however, demonstrates that there are additional mechanisms by which these two constructs are related. For instance, some researchers have posited that operant and social learning may explain how aggressive tendencies learned to survive combat may extend into civilian life (Beckham et al., 2000; Gimbel & Booth, 1994). Specifically, those who are exposed to more combat will necessarily need to behave in more aggressive ways than those not engaged in combat. By virtue of keeping an individual alive, these aggressive action tendencies are reinforced and are more likely to occur in the future, even after military service. This may also happen vicariously when an individual witnesses a respected military colleague being rewarded for aggressive behaviors while in combat. These additional mechanisms might be more explicitly explored in future research by adopting qualitative and ethnographic research methodologies to
identify the culture of military units as they serve in combat (i.e., the explicit and implicit messages that individuals are taught regarding the use of aggression in combat and more generally). Additionally, future research should measure the degree to which military veterans have internalized the instrumental value of aggression and counterproductive behaviors to explicitly test the mediating role of these learning processes on behaviors after reintegration into civilian society.

Regarding boundary conditions, I proposed that warriorism mitigates the relationship between combat exposure and PTS. Results did not support this hypothesis, suggesting that motivations for joining the military, and the concomitant identification with traditional military values, may not help reduce the development of PTS after experiencing combat. One reason for this may be that the experience of combat is so unpleasant (Frankfurt & Frazier, 2016) that initial motivating factors are of minimal relevance for reducing adverse reactions. Another reason for the null finding may be the nature of warriorism itself. This construct may tap into one’s level of professionalism, or the degree to which individuals demonstrate loyalty to the organization and co-workers around them, regardless of whether that organization is military or civilian. There are two pieces of information that support this interpretation. First, the alternative model depicted in Figure 2(c) demonstrates that warriorism is positively associated with combat exposure, suggesting the possibility that those high in warriorism may either self-select into more combat or be chosen based on their perceived competence. In other words, they may be more likely to perform the essential duties of a soldier because of their commitment to the military (however, the retrospective measurement of warriorism after military service is complete may pose an issue in the present study, as expanded upon in the limitations below). The second piece of information that bolsters the conceptualization of warriorism as general professionalism is the
fact that warriorism did not significantly moderate the relationship between combat exposure and PTS but it did significantly moderate the relationship between combat exposure and CWB (see Figure 2(b)). This suggests that, rather than protecting against development of PTS after combat, warriorism may be more likely to deter those who have experienced combat exposure from allowing it to impact their discretionary work behaviors.

When workplace belongingness was modeled curvilinearly, it significantly moderated the relationship between PTS and CWB. The curvilinear relationship between workplace belongingness and CWB was unexpected and makes interpretation of this interaction somewhat complex. Specifically, the relationship between PTS and CWB is strongest when belongingness is moderate, weaker when belongingness is low, and weakest when belongingness is high. It is possible that those with low levels of workplace belongingness also exhibit low engagement overall (Kahn & Heaphy, 2014) signifying that, even when they experience PTS symptoms, these individuals do not have a strong motivation to actively engage in any type of behavior at work, whether productive or counterproductive. On the other hand, those with moderate levels of belongingness care about the actions of their co-workers enough that they are motivated to react in counterproductive ways when they perceive injustice, particularly when these perceptions of unfair treatment are exacerbated by PTS. Finally, those with very high levels of belongingness are interpersonally connected to a high enough degree that they also perceive injustice at times, but the high belongingness simultaneously prevents them from acting out against their workgroup even in the presence of high PTS symptoms. In total, belongingness appears to potentially increase or decrease the likelihood of engaging in CWB, depending upon one’s level of PTS symptoms.
**Implications for Practice**

Practical implications of the present study may be considered as those relevant prior to, during, or after military service. From the simplest perspective, assuming that the causal order depicted in Figure 1 is correct, the present research suggests that the military should seek to minimize combat exposure among military veterans, which would be anticipated to reduce PTS and subsequent CWB among veterans. However, such a suggestion is probably impractical considering the mission of the military. Alternatively, the significant association between combat exposure and PTS highlights the necessity of carefully selecting, training, and preparing individuals for combat. In the present study I did not identify factors that significantly reduce the relationship between combat exposure and PTS. This is an area that should continue to be explored in future research. I also did not examine the level of mental health resources made available to those who experience combat exposure after military service but such resources are clearly needed, as evidenced by the large correlation between combat exposure and PTS.

Upon reintegration, military veterans may benefit greatly from organizational decision-makers that are cognizant of the harmful role that previous combat exposure may serve. Clearly, both from a moral and a legal perspective, the present research should not serve as a rationale for discrimination against military veterans. Rather, employers should strive to provide services to help individuals cope with PTS, both for the individual’s well-being as well as to address the potentially negative repercussions to co-workers and the organization. Tentatively drawing on current evidence, employers should strive to foster high workplace belongingness among military veteran employees. Such belongingness would be anticipated to be especially beneficial to those experiencing high PTS. Although additional research is undoubtedly warranted to examine specific drivers of belongingness, employers might consider providing informal or
formal channels for fellow veteran employees to connect. Such connections may help to boost belongingness by increasing veteran employee perceptions that they fit within the organization (Baumeister & Leary, 1995; Kristof-Brown, Zimmerman, & Johnson, 2005). Addressing the issue from another angle, employers might also consider providing training to current employees on the past experiences of military veterans, thus increasing their ability to connect interpersonally with veterans.

As a final option, employee assistance plans, which previous evidence suggests helps with other mental health issues (Kirk & Brown, 2003), may be effective in helping to reduce PTS symptoms. However, such resources should be provided carefully and equitably among all employees, as opposed to targeting military veterans specifically, so as to avoid creating additional stigma for this group (MacLean & Kleykamp, 2014).

**Limitations**

The present research design was chosen to maximize internal validity while balancing practical considerations. As with all research, however, several limitations are present. Most relevant are the limits of the cross-sectional design in allowing conclusions about causality, issues related to the psychometric properties of the scales used and measurement strategy, and the generalizability of the present study to all Gulf War-era II military veterans.

**Inability to test causal claims.** Because of the cross-sectional nature of the present study, I cannot conclusively determine causal relationships among variables. This is best illustrated by the varying conclusions across the hypothesized model and the alternative models that were drawn above. Three specific problems must be considered in interpretation of this study’s findings. First, because PTS and CWB are both endogenous to the model, switching their relative position in the model is supported statistically but signifies very different theoretical
interpretations. Ultimately, the question of which of the two models is more tenable cannot be presently addressed empirically, owing to the design of the study. Rather, I would contend that it is more plausible to consider PTS as being caused by combat exposure than by CWB, the latter of which does not fit the traditional DSM-V definition of an activating trauma. Second, the association between combat exposure and CWB may be explained by a third factor that is associated with both. The serial causation model in Figure 2(c) provides potential, albeit inconclusive, evidence regarding this potential. Specifically, warriorism is positively associated with combat exposure, which might suggest that this variable (or one highly correlated with it, such as general aggressiveness) might predict those who experience higher levels of combat and, independently, predict those who are more likely to engage in CWB after military service. Third, I cannot rule out epiphenomenal relationships with regard to the mediation effect. Specifically, another variable that is highly correlated with PTS may actually mediate the combat exposure-CWB relationship. Alternative research designs (discussed in the following section) would help address these shortcomings in the future.

Measurement considerations. Because the present study is retrospective, it is plausible that intervening events, particularly combat exposure, may have altered recall of the original motivations with which participants entered the military (i.e., their warriorism). In particular, it stands to reason that initial zealouslyness may be seen through a dissonant lens after experiencing highly negative experiences, and thus some veterans may downplay the degree to which they initially desired to fulfill the warrior role. In addition, memories surrounding traumatic experience, in this case combat exposure, could be potentially colored by present PTS symptoms. In other words, a mood-congruent memory mechanism might occur (Bower, 1981). Although methodologically challenging, future work should utilize a prospective research design in order
to track a single cohort and identify initial levels of warriorism and PTS upon entry into the military, combat exposure as it occurs, PTS upon discharge from the military, and CWB upon reintegration. Such a design would also be well-positioned to identify and parcel out the effects of potential common causes of combat exposure and CWB, such as trait anger or general aggressiveness.

For the present study, all participants were instructed to refer to their most recent deployment when considering the frequency of combat exposure events. The primary purpose for examining only the most recent deployment was to reduce participants’ cognitive load when responding, requiring responses to 17 items total rather than 17 items per deployment. Including fewer total items may reduce the likelihood of careless responding or participant fatigue (Curran, 2016), thereby increasing the quality of data collection. I also anticipated that the most recent deployment would be the most proximally related to reintegration. However, this measurement approach may have provided an inaccurate picture of overall trauma experienced by a given participant, considering that the number of deployments in this sample was relatively high ($M = 3.10$, $SD = 2.65$). If the most recent deployment is not representative of participants’ overall military service experience, or if the negative effects of repeated deployments are cumulative, overall combat exposure may be underestimated presently. Thus, future research should measure combat exposure over the course of the entire military career to identify not only total aggregated combat exposure but also examine if patterns of change in combat exposure over time are associated with mental health and behavioral outcomes.

Finally, although mental health stigma was not a variable of substantive interest, the zero-order correlations between this variable and other study variables (Table 3) may call into question the validity of this scale. Namely, relationships with all other study variables were
statistically significant and positive. In particular, the positive association between stigma and PTS was the opposite of what was expected. It is possible that individuals with PTS, by virtue of being more sensitized to possible judgments from others, have internalized messages about how mental illness is a weakness more than those low in PTS. From a methodological perspective, considering the positive correlations with all other variables, stigma may be inadvertently serving as a rough indicator of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Indeed, it is challenging to craft a strong theoretical argument for why mental health stigma should be associated with workplace belongingness or combat exposure.

**Generalizability.** Because convenience sampling was used in the present study, concerns about sampling bias are warranted. However, the use of Internet-based sources for recruitment (e.g., Facebook and Reddit) improves the probability that a representative sample was obtained. In fact, participants were geographically dispersed and matched the age and gender distribution of all Gulf War era-II veterans. Regarding ethnicity, however, Whites were represented comparable to all Gulf War era-II veterans, but Hispanics were overrepresented and other ethnic minorities were underrepresented (National Center for Veterans Analysis and Statistics, 2017).

Those exhibiting high levels of PTS and/or CWB may be underrepresented in the sample for two reasons. First, involuntary turnover is a plausible result of CWB. Similarly, PTS is negatively associated with work performance (Pflanz & Ogle, 2006). If individuals high on these constructs are more likely to be unemployed, they would be excluded from the current study. Second, by virtue of the tendency for those with higher levels of PTS to withdraw socially (Otter & Currie, 2004), they may be less likely to self-select into research studies. As a result, there
may be range restriction, suggesting that the true, unattenuated associations among focal constructs may be greater than what I found.

**Future Directions**

In addition to the suggestions mentioned above, numerous potential extensions of the present research exist. In particular, I suggest the following future directions: exploring additional moderators of the relationship between combat exposure and CWB, examining additional performance outcomes, adopting a positive psychology approach, exploring secondary trauma for coworkers, and leveraging research designs that take into account temporal considerations.

**Examining additional moderators.** Although there exists a large body of literature examining the prevention and treatment of PTSD, the relationship specifically between PTS and CWB has not been explored prior to the present study, underlining the opportunity to explore additional boundary conditions around this relationship. General social support has been found to moderate the relationship between PTSD and aggression (Elbogen et al., 2014). Therefore, although I assumed that belongingness within the workplace was most related to actions within the workplace (i.e., CWB), future research should consider the social resources gleaned from all domains within an individual’s life. On the other hand, because CWB consists largely of actions that are taken against the organization, it may be important to consider specific job attitudes, including job satisfaction and organizational commitment, that may deter an individual from acting upon negative action tendencies.

**Examining additional performance outcomes.** Job performance is considered to be a function of both ability and motivation (Campbell, McCloy, Oppler, & Sager, 1993) and consists of task performance, CWB, and prosocial/organizational citizenship behaviors (Miles et al.,
Although CWB may be particularly relevant to the hostile action tendencies associated with PTS, it is also possible that the cognitive and affective consequences of PTS may lead to decrements in quality or quantity of task performance, particularly when combined with the deleterious consequences of combat-related traumatic brain injury (Schretlen & Shapiro, 2003). Additionally, it would be valuable to identify if PTS symptoms are associated with organizational citizenship behaviors, a plausible possibility considering the tendency of those high in PTS to withdraw from social situations (Otter & Currie, 2004). Identifying the associations between combat-related PTS with dimensions of performance beyond CWB will hopefully serve to provide a more complete picture of the motivational consequences of this condition.

**Adopting a positive psychology approach.** In the present study, I took the approach that combat exposure is associated primarily with negative outcomes for military veterans (i.e., PTS). Future research could benefit from the positive psychology paradigm by identifying how these past experiences produce positive outcomes. For instance, there is growing research on the affective experience of pride (Tracy, Shariff, & Cheng, 2010; Williams & DeSteno, 2009). Experiencing pride as a result of serving in combat might be associated with a reduction in PTS symptoms. Similarly, researchers have recently recognized the possibility of posttraumatic growth, which refers to the positive benefits (e.g., development of stronger coping skills) that can occur alongside the negative outcomes of trauma (Tedeschi & McNally, 2011). Research that examines PTS, posttraumatic growth, and an array of discrete emotions, independently and jointly, could be valuable for understanding unique experiences of reintegration and for better prediction of CWB in association with combat exposure.
Identifying secondary trauma. CWB enacted by military veterans may serve as a traumatic experience for coworkers. Thus, future research should seek to identify the prevalence and mechanism of this phenomenon, as well as potential solutions. Generally speaking, being the victim of workplace aggression can lead to poor mental health and performance outcomes (Cortina et al., 2001). But additional research is needed to identify if downstream negative outcomes occur specifically as the result of PTS-related CWB from military veterans, considering that many of the CWBs measured in the present study are relatively minor in comparison with the more extreme forms of aggressive actions that have been previously linked with coworker and organizational outcomes (e.g., Hansen et al., 2006; Kivimäki et al., 2003). Additionally, individuals may react differently to this population due to generating unique appraisals of CWBs enacted by military veterans, ranging from sympathy due to knowledge of the challenges of reintegration or, contrarily, hypersensitivity due to existing prototypes of military veterans as aggressive (MacLean & Kleykamp, 2014).

Recognizing temporal factors. Future research should consider the dynamic nature of the relationships among combat exposure, PTS, and CWB. The association between PTSD and aggression has been found to initially be fairly weak, then rise sharply, then lessen with the passage of time (Orth & Wieland, 2006). Because the present study represents a single measurement of these constructs, identifying change across time, and interdependencies of changes among variables, is not possible. From a long-term perspective, a longitudinal study would be effective in capturing any potential bidirectional patterns between PTS and CWB over time. On a shorter time scale, experience sampling methodologies might be used to identify discrete episodes of CWB and their relation to intensity of PTS manifestation at a given time.
Conclusion

The present study is the first to provide evidence that previous combat exposure among Gulf War-era II military veterans is significantly associated with CWB upon reintegration into the civilian workforce and that this relationship is partially transmitted via PTS. Clearly, there is a need to provide military veterans with resources to cope with past combat experiences and to reduce the association between PTS and CWB. I did not find support for the moderating role of warriorism on the combat exposure-PTS relationship. Workplace belongingness moderated the PTS-CWB relationship, albeit this relationship was complex due to the curvilinear relationship between belongingness and CWB. Future research should examine additional boundary conditions and additional work outcomes at the individual and organizational level that are associated with previous combat exposure.
REFERENCES


Retrieved from
https://www.va.gov/vetdata/docs/SpecialReports/Post_911_Veterans_Profile_2015.pdf


APPENDIX A

PARTICIPANT ELIGIBILITY FLOWCHART

All Responses, $N = 1170$

Not eligible: 165 removed

$N = 1005$

Fraudulent responses*: 551 removed

$N = 454$

Valid but insufficient effort (<324 seconds for entire survey): 13 removed

$N = 441$

Missing data on at least one exogenous variable: 49 removed

Final $N = 392$

*Fraudulent responses were defined as any of the following response patterns:
1. IP address was identical to an immediately preceding response in which eligibility questions excluded the participant (i.e., participant was not eligible initially then pretended to be).
2. All responses associated with a duplicate IP address, or IP address was the same except for the last digits, indicating use of a VPN by the same individual to generate different IP addresses.
3. All responses that occurred in rapid succession and shared a common email format (e.g., <English word><4 random letters>@gmail.com).
APPENDIX B

DEMOGRAPHIC ITEMS

What is your age? ___

What is your gender?
   Female
   Male
   Transgender
   Other

What is your marital status?
   Single
   In a serious relationship
   Married
   Divorced
   Widowed

How many children under the age of 18 are currently living in your household? ___

Are you Hispanic or Latino?
   Yes
   No

What is your race? (select one or more).
   White/Caucasian
   American Indian or Alaska Native
   Asian
   Black/African American
   Native Hawaiian
   Other ___

What is the highest level of education you have completed?
   Less than high school
   High school/ GED
   Some college
   2-year college degree
   4-year college degree
   Graduate degree
Are you currently attending a postsecondary school or college? (For example, community college, trade school, university, or graduate school).
   No
   Yes, full-time
   Yes, part-time

In which branch(es) of the military have you served/are you serving?
   Air Force
   Army
   Coast Guard
   Marine Corps
   National Guard
   Navy

Which specialty best describes your occupation in the military?
   Combat
   Administrative
   Construction
   Electronic and Electrical Repair
   Engineering, Science, and Technical
   Health Care
   Human Resource Development
   Machine Operator and Production
   Media and Public Affairs
   Protective Services
   Support Services
   Transportation and Material Handling
   Vehicle and Machinery Mechanic
   Other

What was your final (Air Force Specialty Code/ Army Military Occupational Specialty Code/ Marine Corps Military Occupational Specialty Code/ Navy rating)? As applicable.

Have you ever received special operations training while in the military? (examples include, but are not limited to, Navy SEALs, Army Rangers, Marine Corps Force Recon, Air Force Pararescue, etc.)
   Yes
   No

Which of the following operations have you served in? (Check all that apply.)
   Operation Enduring Freedom
   Operation Iraqi Freedom
   Operation New Dawn
   Gulf War I (from 1990-1991)
   Vietnam War
   Korean War
World War II
Other ___
None of the above

How many times have you been deployed? ___

Please tell us the approximate date that your last deployment ended. Your best estimate is acceptable.

What was your final pay grade in the military?
   E-1
   ...
   E-9
   W-1
   ...
   W-5
   O-1
   ...
   O-11

Please tell us the date you BEGAN military service. Your best estimate is acceptable. ___

Please tell us the date you were DISCHARGED FROM military service. Your best estimate is acceptable. ___
APPENDIX C

DRRI-2: COMBAT EXPERIENCES SUBSCALE

Answer choices on a 6-point Likert scale: Never, Once or twice over entire deployment, Several times over entire deployment, A few times each month, A few times each week, Daily or almost daily.

The statements below are about your combat experiences during your most recent deployment. As used in these statements, the term "unit" refers to those you lived and worked with on a daily basis during deployment. Please carefully select the choice that most closely describes how frequently you experienced each circumstance.

While deployed...

1. I went on combat patrols or missions.
2. I took part in an assault on entrenched or fortified positions that involved naval and/or land forces.
3. I personally witnessed someone from my unit or an ally unit being killed.
4. I encountered land or water mines, booby traps, or roadside bombs (for example, IEDs).
5. I was exposed to hostile incoming fire.
6. I was exposed to "friendly" incoming fire.
7. I was in a vehicle (for example, a "Humvee", helicopter, or boat) or part of a convoy that was attacked.
8. I was part of a land or naval artillery unit that fired on enemy combatants.
9. I personally witnessed enemy combatants being seriously wounded or killed.
10. I personally witnessed civilians (for example, women and children) being seriously wounded or killed.
11. I was injured in a combat-related incident.
12. I fired my weapon at enemy combatants.
13. I think I wounded or killed someone during combat operations.
14. I was involved in locating or disarming explosive devices.
15. I was involved in searching or clearing homes, buildings, or other locations.
16. I participated in hand-to-hand combat.
17. I was involved in searching and/or disarming potential enemy combatants.
APPENDIX D

POSTTRAUMATIC STRESS DISORDER CHECKLIST (PCL-5)

Answer choices on a 5-point Likert scale: Not at all, A little bit, Moderately, Quite a bit, Extremely.

Items 1-5 assess intrusion symptoms of “Cluster B”, items 6-7 assess avoidance symptoms of “Cluster C”, items 8-14 assess negative alterations of mood and cognitions of “Cluster D”, and items 15-19 assess hyperarousal symptoms of “Cluster E”.

Below is a list of problems that people sometimes have in response to a very stressful experience or set of experiences that occurred while serving in the military. Please read each problem carefully and then check the response to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by...

1. Repeated, disturbing, and unwanted memories of the stressful military experience(s)?
2. Repeated, disturbing dreams of the stressful military experience(s)?
3. Suddenly feeling or acting as if the stressful military experience(s) were actually happening again (as if you were actually back there reliving it)?
4. Feeling very upset when something reminded you of the stressful military experience(s)?
5. Having strong physical reactions when something reminded you of the stressful military experience(s) (for example, heart pounding, trouble breathing, sweating)?
6. Avoiding memories, thoughts, or feelings related to the stressful military experience(s)?
7. Avoiding external reminders of the stressful military experience(s) (for example, people, places, conversations, activities, objects, or situations)?
8. Trouble remembering important parts of the stressful military experience(s)?
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?
10. Blaming yourself or someone else for the stressful military experience(s) or what happened after it?
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?
12. Loss of interest in activities that you used to enjoy?
13. Feeling distant or cut off from other people?
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?
15. Taking too many risks or doing things that could cause you harm?
16. Being “superalert” or watchful or on guard?
17. Feeling jumpy or easily startled?
18. Having difficulty concentrating?
19. Trouble falling or staying asleep?
APPENDIX E

COUNTERPRODUCTIVE WORK BEHAVIOR SCALE

Answer choices on a 5-point Likert scale: Never, Once or twice, Once or twice per month, Once or twice per week, Every day or nearly every day.

Within the last three months, please indicate how many times you have engaged in the following behaviors while at work.

Counterproductive Work Behavior against the Organization (CWB-O)

I. Sabotage
   1. Purposely wasted your employer’s materials/supplies
   2. Purposely damaged a piece of equipment or property
   3. Purposely dirtied or littered your place of work

II. Withdrawal
   1. Came to work late without permission
   2. Stayed home from work and said you were sick when you were not
   3. Taken a longer break than you were allowed to take
   4. Left work earlier than you were allowed to

III. Production deviance
   1. Purposely did your work incorrectly
   2. Purposely worked slowly when things needed to get done
   3. Purposely failed to follow instructions

IV. Theft
   1. Stolen something belonging to your employer
   2. Took supplies or tools home without permission
   3. Put in to be paid for more hours than you worked
   4. Took money from your employer without permission
   5. Stole something belonging to someone at work

Counterproductive Work Behavior against Individuals (CWB-I)

V. Abuse
   1. Told people outside the job what a lousy place you work for
   2. Started or continued a damaging or harmful rumor at work
   3. Insulted someone about their job performance
   4. Made fun of someone’s personal life
   5. Ignored someone at work
   6. Blamed someone at work for error you made
   7. Started an argument with someone at work
8. Verbally abused someone at work
9. Made an obscene gesture (the finger) to someone at work
10. Threatened someone at work with violence
11. Threatened someone at work, but not physically
12. Said something obscene to someone at work to make them feel bad
13. Did something to make someone at work look bad
14. Played a mean prank to embarrass someone at work
15. Looked at someone at work’s private mail/property without permission
16. Hit or pushed someone at work
17. Insulted or made fun of someone at work
APPENDIX F

WARRIORISM SCALE

Answer choices on a 5-point Likert scale: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree.

When answering the following questions, think about your motivation for initially joining the military. Please rate how much you would have agreed with each statement at that time.

1. My motivation was to gain operational experience by using my military skills in highly intensive operations.
2. The possibility of participating in war actions was an important motivating factor to me.
3. I believed that self-sacrifice, courage, and fellowship in war was more important than ever.
4. I would have preferred service in high-intensity rather than in peacekeeping operations.
5. One of my top motivating factors was to completely develop and master my military skills.
6. When I joined the US military, I had a clear expectation of taking part in war operations.
7. I believed that codes of honor and unit values were of utmost importance in the US military.
8. I believed that the most important part of the military role was to prepare for and conduct war-like operations.
9. I believed that controlled aggression would be an important element if I had to take part in war actions.
10. I believed that the Armed Forces should be characterized by a warrior culture.
APPENDIX G

WORKPLACE BELONGINGNESS SCALE

Answer choices on a 5-point Likert scale: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree. Items 1-3 are from Kirkhaug, 2010; Items 4-6 are from Den Hartog et al., 2007.

Please rate how much you disagree or agree with the following statements regarding your coworkers in your current civilian job.

1. My colleagues and I feel like a tight-knit group.
2. I receive support and attention from my colleagues.
3. I exchange confidential and personal information with my colleagues.
4. When at work, I really feel like I belong.
5. I feel quite isolated from others at work. (R)
6. I don't seem to "connect" with others in the work group. (R)

(R) = Item is reverse scored.
APPENDIX H

PERSONAL STIGMA SCALE

Answer choices on a 5-point Likert scale: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree.

Please read the following short story and then answer the questions that follow.

John is 30 years old. He has been feeling unusually sad and miserable for the last few weeks. Even though he is tired all the time, he has trouble sleeping nearly every night. John doesn't feel like eating and has lost weight. He can't keep his mind on his work and puts off making decisions. Even day-to-day tasks seem too much for him. This has come to the attention of his boss, who is concerned about John's lowered productivity.

Based on the short story above, please consider how much you agree or disagree with the following statements.

1. A problem like John's is a sign of personal weakness.
2. John's problem is not a real medical illness.
3. People with a problem like John's could snap out of it if they wanted.
4. It is best to avoid people with a problem like John's.