OCCUPATIONAL STRESS AND WELL-BEING IN MILITARY CONTEXTS

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RESEARCH IN OCCUPATIONAL STRESS AND WELL-BEING VOLUME 16

OCCUPATIONAL STRESS AND WELL-BEING IN MILITARY CONTEXTS

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PREFACE

In the 16th volume of *Research in Occupational Stress and Well-Being*, we have eight chapters that cover topics related to the causes, consequences, and experiences associated with stress and well-being of soldiers, veterans, and their family members. Our first three chapters cover topics related to the antecedents and processes related to the experiences of stress and post-traumatic stress disorder in military personnel and how research in this area can inform both the future military research and stress-related research in civilian settings. In the lead chapter, Matthew R. Leon, Holly K. Osburn, and Thomas Bellairs review research on the link between combat experiences and the development of post-traumatic stress, the factors that increase or decrease the likelihood of developing stress-related disorders, and how these processes compare to those of civilian war survivors. In the second chapter, Karen Landay and Rachel E. Frieder investigate how trait psychopathy may explain why certain individuals are attracted to professions wherein the likelihood of experiencing violence is more likely and how such characteristics may influence the manner in which such individuals cope with combat-related experiences. In the third chapter, a team from the US Army's Research Facilitation Laboratory discusses current practices in terms of how the US Army measures and monitors mental health in soldiers and its link with performance metrics.

The theme of the second section concerns issues surrounding how the stress-related experiences of soldiers can influence those around them and how veterans cope with stress when their service ends. In the fourth chapter of this volume, Wylie H. Wan, Sarah N. Haverly, and Leslie B. Hammer use the life course perspective to examine the experiences of military couples across stress-inducing events such as relocations and deployments. In the fifth chapter, Maura J. Mills and Leanne M. Tortez review the literature surrounding military families with a focus on parenting issues and how the military family lifestyle can impact child's well-being. The sixth chapter by Sara Kintzle and Carl A. Castro follows the theme of examining stressors outside and after life as a soldier by introducing the military transition theory and reviewing the literature surrounding how soldiers transition to life after active service.

The final section of this volume deals more specifically with the processes surrounding how military personnel cope with stress on their jobs. In the seventh chapter, Adam J. Vanhove, Tiffany Brutus, and Kristin A. Sowden review the state of the literature on interventions designed to improve soldier well-being in terms of its scientific rigor. In the final chapter, Ethan W. Gossett and P. D. Harms make the argument that there is a need to move beyond stress and well-being in both military and civilian literature and to address more directly the role of pain in terms of understanding the acute and chronic disorders often experienced by military personnel both during and after their service.

We are thrilled to bring these chapters together to address such a significant issue and are particularly proud that our authors were able to reflect successfully how stress and well-being shape the experiences of military personnel both in and out of the combat zone. We hope that these chapters will help shape the future research in both military and civilian research literatures. Finally, we would like to thank the authors for contributing to this volume, the reviewers who helped develop the chapters, and especially to the former and current service members who shared their insights concerning the topics that were needed to accurately reflect issues of importance to them as well as those who contributed as authors.

Peter D. Harms and
Pamela L. Perrewé

PROCESSING WAR: SIMILARITIES AND DIFFERENCES IN PTSD ANTECEDENTS AND OUTCOMES BETWEEN MILITARY AND CIVILIAN WAR SURVIVORS

Matthew R. Leon, Holly K. Osburn and Thomas Bellairs

ABSTRACT

Post-traumatic stress disorder (PTSD) affects both civilian and military populations following wartime experiences. However, despite an abundance of research investigating civilian and military populations separately, much less focus has been given to synthesizing and integrating findings to describe how civilian and military war survivors are comparatively affected by PTSD. This review is broken down into three sections covering (1) risk factors associated with PTSD, (2) relationships between PTSD and mental health outcomes, and (3) protective factors that can attenuate PTSD and its effects. Each section covers findings for civilians and military personnel and highlights similarities and differences between groups.

Keywords: Post-traumatic stress disorder; military war survivors; civilian war survivors

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INTRODUCTION

The mental health consequences of wartime experiences are heavily documented and widely recognize the impact of post-traumatic stress disorder (PTSD) on both military and civilian war survivors. However, the PTSD process impacts these groups differently, including variation in risk factors (Brewin, Andrews, & Valentine, 2000), severity of mental health outcomes such as depression (O'Campo et al., 2006), and presence of protective factors (e.g., social camaraderie; Allden et al., 1996). Despite a glut of research investigating civilian and military populations separately, much less focus has been given to synthesizing and integrating findings to describe how civilian and military war survivors are comparatively affected by PTSD. The purpose of this manuscript is to draw attention to similarities and differences in PTSD antecedents and outcomes associated with wartime in both civilian and military populations. Understanding the unique impact of PTSD in the context of civilian and military status will (1) increase our ability to provide insight and intervention to families with mixed military/civilian status dealing with PTSD, (2) bolster the effectiveness of existing PTSD treatment by providing more targeted information for differing demographics, and (3) identify differences in the power of various antecedents and outcomes of PTSD across military and civilian populations.

When discussing PTSD throughout this manuscript, we reference its description by the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013), where PTSD is categorized as a trauma- and stressor-related disorder. Criteria include all of the following: (a) exposure to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, (b) persistently re-experiencing the traumatic event, (c) avoidance of trauma-related stimuli, (d) negative thoughts or feelings that begin or worsen after the trauma, and (e) trauma-related arousal and reactivity that began or worsened after the trauma; additionally, symptoms must, (f) last for more than one month, (g) create distress or functional impairment, and (h) not be due to medication, substance use, or other illness. Note that before the formalization of the PTSD diagnosis in 1980, psychologists categorized the diagnosis under names such as combat exhaustion, shell shock, and traumatic war neurosis (Friedman, Schnurr, & McDonagh-Coyle, 1994).

Based on the DSM-5 criteria, research suggests that PTSD affects up to 8.3% of US adults over their lifetime (Kilpatrick et al., 2013), but this number almost doubles for military war survivors (14–16%; Gates et al., 2012). While PTSD statistics on US civilian war survivors is sparse due to lack of data, research on various international populations suggests extraordinarily high prevalence of PTSD. Moisander and Edston (2003) found rates of 69–92% among refugees from six different nations. Similarly, Wenzel, Griengl, Stompe, Mirzaei, and Keiffer (2000) reported PTSD rates of 91% over a three-year study of exiled survivors. More conservative estimates suggest rates between 20% (Eisenman, Gelberg, Liu, & Shapiro, 2003) and 31% (Ramsay, Gorst-Unsworth, & Turner, 1993). A recent review by Johnson and Thompson (2008) suggests that prevalence rates vary

based on study methodology, which may explain the wide range of findings. Well-documented outcomes of PTSD include suicide (Krysinska & Lester, 2010; Tarrier & Gregg, 2004), drug and alcohol abuse (McFarlane, 1998; Shipherd, Staffer, & Tanner, 2005), and behavioral problems at work (Smith, Schnurr, & Rosenheck, 2005) and home (Riggs, Byrne, Weathers, & Litz, 1998). Moreover, PTSD is often comorbid with other mental health disorders such as depression and anxiety (Silove, Sinnerbrink, Field, Manicavasagar, & Steel, 1997).

This manuscript contains three sections. First, we will review risk factors associated with PTSD and their impact on civilian and military war survivors. Demographic factors such as education, gender, race, and age at trauma will be explored in conjunction with individual variables such as psychiatric history, previous trauma, and coping strategies. Second, we will discuss relationships between PTSD and mental health outcomes, including comorbidity with states such as depression and anxiety and likelihood of long-term psychological issues. Finally, in conjunction with the discussion on mental health outcomes, we will explore the power of protective factors in attenuating PTSD and its effects. Specifically, we will focus on differences in post-trauma responses due to previous training and individual traits. For example, Meichenbaum (1994) urged researchers to consider how the expectation of violence can impact the likelihood of PTSD. Regarding military war survivors, the expectation of combat is high and satisfies professional duties whereas that same expectation can shatter feelings of normalcy and safety among civilians. Further, military war survivors may be more likely to find high levels of social support from their peers who share similar experiences. Conversely, expectation of violence among civilians may violate norms of safety, pose threats to their homes and families, and be a catalyst for displacement as refugees (Silove et al., 1997).

We hope this research provides a more nuanced approach to help prevent a wide variety of negative outcomes such as divorce, suicide, and ongoing mental health issues based on more deeply detailed data about the target populations. Further, we hope this manuscript serves as the first step for researchers as they conceive and design studies in this area and the practitioners that apply research findings. We believe that developing a deeper understanding of the PTSD process in varying contexts will benefit scholars and practitioners seeking to predict a broad range of PTSD antecedents and outcomes and, potentially, explain otherwise unaccounted for variance across military and civilian war survivors.

RELATIONSHIPS BETWEEN PTSD AND MENTAL HEALTH OUTCOMES

Research findings of over 20 years suggest that individuals experiencing interpersonal violence or military combat have the highest conditional probability of experiencing PTSD (Breslau, Chilcoat, Kessler, & Davis, 1999; Kessler et al., 2005; Kilpatrick et al., 2013; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). According to the United Nations High Commissioner for Refugees (UNHCR,

2008), this group includes an estimated 50 million civilians each year in addition to countless military personnel. While there is no universal response to PTSD, common outcomes include anxiety and depression, behavioral issues, and cognitive and emotional consequences. In the following section, we review the literature on PTSD and mental health outcomes in military and civilian populations. Given the similarities in mental health outcomes, civilian and military groups are reviewed together.

Comorbidity with Anxiety and Depression

One of the largest challenges facing researchers and clinicians is untangling comorbid symptoms such as anxiety and depression from PTSD. Most commonly, PTSD victims suffer from comorbid anxiety, depression, or a triple comorbidity of PTSD, anxiety, and depression simultaneously (Ginzburg, Ein-Dor, & Solomon, 2010). A meta-analysis of 161 studies and roughly 82,000 research participants identified rates of depression ranging from 3% to 85.5% in various PTSD samples (Steel et al., 2009). An additional review by Ginzburg et al. (2010) reported estimates between 21% and 94% for depression and PTSD (e.g., Frayne et al., 2005; Ginzburg, 2007), 39–97% for anxiety and PTSD (e.g., Hashemian et al., 2006; Sundquist, Johansson, DeMarinis, & Johansson-Sundquist, 2005), and 11–67% for triple comorbidity (Brady & Clary, 2004; Hashemian et al., 2006). That is, military veterans suffering from PTSD have, at a minimum, a one in five likelihood of also suffering from depression or anxiety.

Comorbidity of symptoms increases the likelihood of long-term psychological complications in military and civilian war survivors (Blair, 2000). The DSM-5 lists intrusion, avoidance, and alterations or arousal in mood or cognition as behavioral criteria associated with PTSD. Intrusion is the involuntary manifestation of thoughts, images, feelings, or nightmares into one's consciousness. Intrusions are associated with previous trauma and can re-create combat stress reactions (Solomon & Mikulincer, 2007), resulting in intensive feelings of fear, anxiety, or aggression. These feelings may result in negative behavioral reactions such as increased likelihood of suicidal ideations, depression, or anxiety.

In most cases, intrusion is followed by avoidance (Horowitz, 1982). While intrusion is exclusively a psychological phenomenon (although it can lead to behavioral reactions), avoidance manifests itself both cognitively and behaviorally. Cognitive symptoms include the tendency to deny meaning and consequences of trauma and negatively evaluate unwanted feelings (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Behavioral avoidance strategies include inhibition and engagement in counter-phobic activities (e.g., shunning large crowds, identifying all exits before entering public spaces; Solomon & Mikulincer, 2007). Kashdan, Morina, and Priebe (2009) found that partial avoidance mediates the relationship between PTSD and quality of life. Specifically, avoidance habits developed by PTSD victims exacerbate anticipatory anxiety and interfere with potential disconfirming evidence that may alleviate feelings of avoidance (e.g., walking through a crowd may not be as anxiety-inducing as an individual initially believes; Barlow, 2000; Salters-Pedneault, Tull, & Roemer, 2004). As such,

habitually engaging in avoidance behaviors inhibits quality of life by constraining day-to-day functions of individuals with PTSD.

Relationships between PTSD and mental health outcomes are further complicated by the reciprocal nature of PTSD and disorders such as depression (Breslau et al., 1998). Prior psychiatric history (especially depression) can obfuscate the relationship between PTSD and psychological or behavioral outcomes. Studies examining the causal relationship between PTSD and major depression have suggested that the association may have multiple explanations. First, depression increases the individual probability that one will be vulnerable to stressors that may cause PTSD (Breslau, Davis, Andreski, Peterson, & Schultz 1997; Bromet, Sonnega, & Kessler, 1998; Connor & Davidson 1997). Conversely, PTSD increases the chance of first-time depression (Breslau et al., 1997; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). These findings suggest that the presence of either PTSD or depression makes one vulnerable to the other (Breslau et al., 1997). Scholars continue to struggle with delineating the causal relationship between PTSD and depression (Breslau & Davis, 1987; Breslau, Davis, Andreski, & Peterson, 1991; Kendler et al., 1995; Kessler, 1997; Yehuda & McFarlane, 1995).

Anxiety is often comorbid with depression and/or PTSD (Ginzburg et al., 2010) and manifests itself as nervousness, worry, or unease about an event. For PTSD victims, anxiety can be triggered by any stimuli that remind them of PTSD-related experiences or trauma. Behavioral reactions are often similar to fear cues in individuals without anxiety (Grillon, 2002). Further, anxiety triggers similar biological responses to those of PTSD patients (Etkin & Wager, 2007). Due to these types of confounding factors, it remains difficult to distinguish causality between PTSD and anxiety (similar to the relationship between PTSD and depression). However, research of samples of war survivors often shows differences in the antecedents of anxiety and depression. For example, Silove et al. (1997) found moderate positive correlations between PTSD and anxiety, but different predictors. Antecedents of anxiety included being female and experiencing recent conflict, while PTSD was related to pre-trauma and loneliness. A meta-analysis of adult refugees reported PTSD rate of 10%, depression rate of 5%, and generalized anxiety rate of 4%, with high probability of overlapping symptoms (Fazel, Wheeler, & Danesh, 2005). Similar to depression, comorbidity complicates diagnoses and the ability to make causal claims.

RISK FACTORS ASSOCIATED WITH THE DEVELOPMENT OF PTSD

The US government has indicated a strong interest in managing PTSD and its outcomes among veterans. However, challenges abound due to the varied demographics, socioeconomic status, and needs of the 21.8 million veterans of the US Armed Forces. In the following section, we review veteran susceptibility to PTSD based on demographic data, individual and situational factors contributing to PTSD, and briefly discuss coping strategies.

Military War Survivors

Demographic Predictors of PTSD

Several demographic factors play a major role in the likelihood of PTSD development. In this section, we will discuss pre-military (i.e., factors present before enlistment) and military (i.e., factors present after enlistment) variables contributing to or attenuating the likelihood of PTSD. Pre-enlistment issues can often cause negative outcomes both during and after military service; as such, it is important to identify these obstacles and target these individuals for preventative interventions (Nock et al., 2014). Specifically, we will discuss commonly studied variables, including age, gender, race, and pre-trauma risk factors.

Previous research suggests that age of enlistment is linked with PTSD development (where younger enlistees are more likely to develop PTSD; Breslau et al., 1999). A meta-analysis of 13 studies reported younger age at trauma was – despite a small effect size – a significant predictor of PTSD among military samples (Brewin et al., 2000). Similarly, Smith et al. (2008) found higher self-reports of new-onset PTSD in younger members of US soldiers deployed to Iraq and Afghanistan. Providing appropriate training to young military personnel on identification of symptoms, coping, and the value of social support may reduce risks for these individuals. This could include an emphasis on problem-focused coping, providing information on support options (e.g., counseling), and relationship-building among squad-mates.

Gender effects are an intensely studied correlate of PTSD. Direct comparisons suggest that women are more likely than men to develop PTSD following combat exposure (Brewin et al., 2008; Smith et al., 2008; Wolfe & Kimmerling, 1997). Data from the Veteran's Affairs office suggest about 10 of every 100 women (or 10%) develop PTSD sometimes in their lives compared with about four of every 100 men (or 4%; Department of Veterans Affairs, 2016). In general, women experience higher levels of stress in deployment despite similar exposure to deployment stressors (Vogt, Pless, King, & King, 2005). However, not all stressors are created equal. The same study reported that sexual harassment had a more negative impact on men's mental health, while concerns about family and relationship disruptions were harder on women.

Minorities have a slightly higher rate of PTSD than non-minority veterans, with 5.8% of minority veterans and 5.0% of non-minority veterans reporting PTSD as a service-connected disability (Department of Veterans Affairs, 2017). This makes PTSD the second most prevalent reported disability for minority veterans, following tinnitus (roughly 7%). According to the Department of Veterans Affairs National Center for PTSD, some demographics, including African-Americans and Hispanics, may be more likely than Whites to develop PTSD because these groups are more likely to go through a trauma. For example, Vietnam veterans self-reporting a minority status were in combat more than Whites (Department of Veterans Affairs, 2017).

In addition to Veterans Affairs data, academic evidence also suggests that race may predict risk of PTSD onset (Sutker, Davis, Uddo, & Ditta, 1995; Vasterling et al., 2002). Effect sizes are reportedly small, although meta-analytic

data suggest that race may have a larger impact on PTSD development in civilian rather than military populations (Brewin et al., 2000). In some cases, race may act as a moderator rather than a main effect (e.g., Breslau et al., 2014; Brewin et al., 2000). More research is needed into the moderating and main effects of race before making conclusive statements. With that in mind, the general consensus is that demographic factors such as race and gender are weak predictors of PTSD development (Ozer, Best, Lipsey, & Weiss, 2003). Scholars also caution against confounding issues with demographic variables such as race and socioeconomic status (King, King, Foy, Keane, & Fairbank, 1999). In a meta-analytic review, Brewin et al. (2000) found a stronger effect size for low socioeconomic status than gender, race, and education level. However, they noted that all these variables produced low effect sizes (between 0.05 and 0.14).

Individual Factors Predicting PTSD

Individual characteristics can act as pre-dispositional risk factors in the role of PTSD development. Surveys have shown that a majority of research participants who experience any trauma have experienced multiple traumas, and individuals with PTSD are likely to report multiple childhood traumas (Berntsen et al., 2012; Breslau et al., 1999; Galea et al., 2002; Resnick, Yehuda, Pitman, & Foy, 1995) compared with adult trauma victims who do not display symptoms of PTSD. Pre-dispositional factors fall into one of the three categories: intra-individual psychopathological factors, normal pre-existing traits, and exposure to external stressors/situations (Emery, Emery, Shama, Quiana, & Jassani, 1991). Psychopathological factors include emotional problems or other mental disorders (e.g., anxiety and depression), normal pre-existing traits include personality and intelligence, and exposure to external stressors/situations includes episodes such as car accidents or parental alcoholism. Pre-dispositional factors often remain undisclosed by applicants or unidentified by recruiters. As such, it is difficult to measure frequency of pre-trauma risk in military populations. In addition, external stressors such as childhood trauma or family instability are related to gender, race, or socioeconomic status – further muddying the relationship between pre-dispositional factors and PTSD development (King et al., 1999). Regardless of type of trauma, the current consensus is that early stressors produce greater responsiveness to stressors later in life (Breslau et al., 2014). This idea of sensitization guides research on early indicators of PTSD, particularly when studying early life stressors surrounding family issues.

Trauma in family of origin is a consistent predictor of PTSD among veterans (Emery et al., 1991; King et al., 1999). Broadly, research suggests that household instability, lack of control, and familial disorganization have the strongest impacts on PTSD development (Berntsen et al., 2012; Breslau, Troost, Bohnert, & Luo, 2013; Koenen et al., 2002). Specifically, childhood adversity predicts likelihood of PTSD following deployment as well as the likelihood of becoming less resilient to deployment stressors over time (Berntsen et al., 2012). These findings are particularly concerning for two reasons: (1) deployment stressors such as war

trauma and resettlement are already highly consistent with PTSD development (Blair, 2000) and (2) these findings suggest the nullification of existing levels of resilience that individuals may rely on to combat PTSD and combat stressors in general. For example, Maguen et al. (2008) – in a study of pre-deployment stressors and their relationship to the future resilience – suggested that a history of trauma outweighs the otherwise positive benefits of a resilient personality or resilient training. That is, the findings indicated that pre-deployment stressors and lifetime trauma had a stronger relationship with the development of PTSD than resilience did with attenuating PTSD. Finally, the relationship between prior trauma and PTSD is similar across demographics and does not differ in time elapsed since trauma or in method of PTSD assessment (Ozer et al., 2003). This is an unusual finding because it shows that prior trauma consistently predicts PTSD almost regardless of other contextual variables.

How individuals interpret early trauma also plays a large factor in the future likelihood of manifesting PTSD (Emery et al., 1991). For example, Koenen et al. (2002) suggested that pre-existing psychopathology mediates the relationship between early age at trauma and development of PTSD, which affects interpretation of and response to trauma. Similarly, family history of psychopathology acts as a small to moderate predictor of PTSD development in adults (Ozer et al., 2003). This relationship varied by type of traumatic experience (with non-combat violence having the strongest relationship) suggesting that interpretation and variance in events is a probable factor in development of PTSD. To combat PTSD susceptibility, data suggest that perceptions of structure (e.g., a regular schedule imposed by parents and regular school attendance) and feelings of responsibility at a young age can mitigate the potential for negatively interpreting traumatic events (Emery et al., 1991).

Coping with PTSD

It is almost impossible that a military war survivor will not have encountered at least one of the many PTSD antecedents discussed in this manuscript. Therefore, it is important to discuss potential coping mechanics for these populations. Coping is a broad concept and refers to a trait that denotes a person's general emotional and physiological stability or a state focused on handling reactions to environmental stimuli (Lazarus & Folkman, 1984). PTSD research focuses primarily on the second definition of coping with an emphasis on individual and social factors that help manage the resource demands of PTSD (Besser, Weinberg, Zeigler-Hill, & Neria, 2014; Priebe et al., 2010). Toward this end, coping actions require (1) effort from the individual, (2) behaviors or cognitive action, and (3) an appraisal of the stressor (Schwarzer & Schwarzer, 1996). Considerable evidence associates coping responses with psychological well-being and functionality in military samples. Historically, PTSD research in a military context draws heavily from clinical and military psychology and identifies three primary coping mechanisms that reduce impact of PTSD and risk of PTSD development: social support, utilizing psychological counseling services, and problem-focused coping strategies (Summerfield, 2000; Zeidner, 1994).

Scholars operationalize perceived social support as one's perceptions of helpful and unhelpful social interactions (Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009). Multiple meta-analyses suggest that perceptions of social support are negatively associated with PTSD in military personnel regardless of generation (Brewin et al., 2000; Ozer, et al., 2003). The importance of social support in combating negative mental health outcomes such as PTSD cannot be understated. For example, a study of Iraqi asylum seekers found that poor social support was a stronger prediction of depression than history of torture (Gorst-Unsworth & Goldenberg, 1998). Further, Brewin et al. (2000), in their meta-analysis of PTSD predictors, found lack of social support to have the strongest effect size of all correlates with a weighted effect size of 0.40 (race was the weakest with a weighted effect size of 0.05). A more recent meta-analysis yielded an effect size of –0.28 between perceived social support and PTSD (Ozer et al., 2003). This meta-analysis found that the perceived social support–PTSD relationship became stronger over time. Specifically, studies with more than three years of time lapse between the traumatic event and PTSD assessment exhibited the strongest effect size ($r = –0.42$), while studies in the six month to three-year period were lower ($r = –0.16$) and those with one to six months between assessment were lower still ($r = 0.01$). Finally, this relationship had a larger effect size in studies of combat trauma ($r = –0.26$) than noncombat violence ($r = –0.11$). Together, these data suggest that the effect of social support may be cumulative over time and be especially important for war survivors.

Social support helps shape the post-trauma environment by acting as a secondary level of prevention by protecting against the development and consequences of trauma-related psychopathology such as PTSD (Ozbay et al., 2007; Ozer, 2003). Studies exploring the impact of social support on health outcomes suggest that social support promotes the use of available medical programs, increases early detection of illness, and decreases morbidity (Ozbay et al., 2007). The absence of social support can be particularly detrimental to those veterans needing treatment for PTSD; for example, in a study of veterans returning from Vietnam, Johnson et al. (1997) found that lack of social support (as an indicator of homecoming stress) increased feelings of isolation as well as frequency and intensity of PTSD symptoms.

Fortunately, military members have a clear support group in their peers, officer structure, and through the efforts of programs based out of Veterans Affairs, among other government-sanctioned and non-profit organizations. Research suggests that veteran peers (e.g., members of one's unit) are viewed as providing high levels of social support (Laffaye, Cavella, Drescher, & Rosen, 2008; Pietrzak et al., 2010). In fact, Laffaye et al.'s (2008) suggested that veterans view their peers as providing more social support and less interpersonal stress than any other group, including spouses, relatives, and nonveteran friends. While sources of social support remain understudied, it appears to be a fruitful area of future inquiry. In addition to informal and formal support groups, research shows that participating in professional psychological treatments (e.g., counseling and cognitive therapy) provides benefits to military war survivors (Resick, 2001).

Organizations such as the American Psychological Association, US Department of Veterans Affairs, and the US Department of Defense have created clinical guidelines for psychological treatments of PTSD. Most commonly, counselors and clinicians utilize exposure therapy, cognitive therapy, and cognitive behavioral therapy in patients with severe PTSD. These trauma-focused therapies are broadly available to veterans, commonly taught to clinicians, and have exhibited high levels of success as empirically based PTSD treatments. In this manuscript, we will provide general overviews of these three types of treatments. However, many variants exist.

Exposure therapy includes directly addressing thoughts, feelings, and memories of a traumatic event through guided reflection in order to reduce symptom severity. Exposure treatment is considered a first-line treatment (i.e., a standard, first approach solution) for PTSD and is considered a highly efficacious method for treating a large majority of PTSD victims (Committee on Treatment of Posttraumatic Stress Disorder, & Institute of Medicine, 2008; Cusack et al., 2016). Given the intensity of exposure therapy, it is often utilized in short periods and in conjunction with other types of therapies. The necessary brevity of exposure therapy is a considerable advantage for victims who are unwilling to devote large amounts of time to other types of counseling programs (e.g., behavioral modification). In fact, even a single session of exposure therapy has been shown to reduce fear and PTSD in earthquake survivors (Basoglu, Salcioglu, & Livanuo, 2007).

Cognitive therapy is another first-line treatment that helps clients change unhelpful thinking patterns to improve functioning (e.g., using mindfulness techniques to be aware of one's own stress, identifying and coping with obsessive thoughts). The goal of cognitive therapy is to help individuals regulate emotional responses to their interpretation of different situations. Often, this includes exercises designed to identify distorted or negative thinking patterns and modify existing beliefs to cope more effectively with the surrounding environment. This therapy is brief, goal-oriented, and time-limited (Cusack et al., 2016). Evidence supports the idea that cognitive therapy can attenuate PTSD symptoms, completely remove PTSD diagnosis, and improve severity of depression and anxiety among adults with PTSD (Cusack et al., 2016).

Cognitive-behavioral therapy combines facets of exposure and cognitive therapy with behavioral therapy techniques (Harvey, Bryant, & Terrier, 2003). It is based on behavioral conditioning and is a fairly resource-intensive therapy – it requires eight to 12 weekly sessions of up to 90 minutes (Cusack et al., 2016). However, given the more mixed and general nature of this therapy, it can be employed in a wide variety of settings, including in a group format, with a focus on correcting specific behaviors, and to target a wide variety of PTSD outcomes (Committee on Treatment of Posttraumatic Stress Disorder, & Institute of Medicine, 2008; Foa, Keane, Friedman, & Cohen, 2008). Research shows low rates of remission for military veterans utilizing cognitive behavioral therapy and show that it is just as effective as other types of intensive counseling programs (Levi, Bar-Haim, Kreiss, & Fruchter, 2016).

While all three of these types of therapies are effective, PTSD victims and their counselors must consider other issues before committing to a program. Factors

include clinical judgment about the intervention's appropriateness for the client, patient preferences, and ease of access to treatment. For example, exposure therapy is still a specialized program that is not available at many community-based mental health facilities (Cusack et al., 2016). At this time, studies show promise for integrative multiple types of therapies, but more research is needed (Mills et al., 2012; Sannibale et al., 2013).

Civilian War Survivors

This section mirrors the previous portions of this manuscript – we will discuss commonly studied variables, including age, gender, race, and pre-trauma risk factors. However, this section focuses exclusively on civilian war survivors, who are different in several key ways. First, there are many more studies dedicated to responding to tragedy and trauma as a community. This is obviously something unique to civilians since they often remain with their community where the war and trauma occurred. On the other hand, soldiers are removed from the communities with which they shared the trauma upon returning home (Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008; Pfefferbaum et al., 2008). Second, civilians are often unprepared for combat experiences and wartime trauma. Unlike military war survivors, civilians lack resilience training, are not pre-selected or screened for protective traits, and often do not have government entities such as Veterans Affairs who specialize in helping victims to recover. Moreover, military war survivors prepare for wartime trauma due to its nature as a regular work duty. Finally, civilian research naturally covers a broader age range. Children and elderly are just as likely to experience wartime trauma as middle-aged adults, where military samples naturally do not include youth and rarely include elderly outside of retrospective inter-generational studies (e.g., comparisons of Vietnam veterans vs operation enduring freedom (OEF) veterans). Given these differences, research suggests that external factors such as trauma severity and injury play a more powerful role in PTSD for civilians than military (Abenhai, Dab, & Salmi, 1992). On the other hand, demographic variables such as race, age, and gender yield similar results (e.g., Ai, Peterson, & Ubelhor, 2002; Cheung, 1994; Reppesgaard, 1997; Scholte et al., 2004).

Demographic Predictors of PTSD

Civilians aged over 65 years are at an increased risk of developing PTSD following wartime experiences (Cardozo, Vergara, Agani, & Gotway, 2000; Eytan, Gex-Fabry, Toscani, Deroo, & Bovier, 2004). This research has been consistent across research participants in European, Middle Eastern, and Asian populations, but almost no data currently exist for war survivors in North America. One notable exception are the data covering the 9/11 terrorist attacks which showed consistent results with other research (e.g., DiGrande, Neria, Brackbill, Pulliam, & Galea, 2011). Johnson and Thompson (2008) conducted a meta-analysis of civilian PTSD development among war survivors and noted that older adults were at higher risk of PTSD development, but cautioned that the age differences may

have been attributable to differences in type of trauma, lack of social support, or refugee status. As such, more research targeting elderly populations needs to occur before making strong conclusions.

On the opposite end of the spectrum, children also struggle with wartime experiences. About 11% of child refugees report PTSD, and are 10 times more likely to have PTSD than a child not exposed to wartime trauma (Fazel, Wheeler, & Danesh, 2005). Here, data are similar to military populations where childhood trauma is a predictor of PTSD development in adulthood. This is an incredibly vulnerable population requiring special care due to the difficulty of identifying PTSD through traditional self-report techniques.

Gender studies are also similar to military samples showing that women are more likely to develop PTSD (e.g., Ekblad, Prochazka, & Roth, 2002; Morina et al., 2016). However, civilian research suggests that this may be due to an increased likelihood of rape and the increased risk of becoming a single parent or widow from losing a spouse who was in the military (Johnson & Thompson, 2008). However, similar results exist regardless of presence of rape or death of spouses (e.g., DiGrande et al., 2011). Other scholars propose that women may be more likely to engage in emotion-focused coping (instead of more effective problem-focused coping) or that women are merely more likely to report PTSD symptoms than men (McNally, 2003).

Individual Factors Predicting PTSD

Given the harmful outcomes of war on civilians, a large amount of time and energy has been spent identifying variables that put civilians at risk of developing PTSD. Broadly, research suggests that war experiences themselves are incredibly strong predictors (Michultka, Blanchard, & Kalous 1998). Specifically, exposure to situational factors seem to be the most predictive of civilian PTSD development with findings showing that severe injury (Abenhaim et al., 1992), number of war experiences (Michultka, et al., 1998), and severity of trauma (Carlson & Rosser-Hogan, 1993) all strongly predicting PTSD development. A recent review of the mental health of wartime survivors confirms these findings and shows that mental health issues remain prevalent for many years following wartime trauma (Bogic, Njoku, & Priebe, 2015). It is possible that trauma exposure is more impactful for civilians because these experiences destroy assumptions of safety. As such, civilians may be more likely to experience intrusive thoughts about the experiences and less emotional numbing. Conversely, military veterans are less likely to experience intrusive thoughts and receive training to deal with them (Meichenbaum, 1994).

Another unique factor for civilians is refugee status. By definition, refugees are displaced during wartime, which results in particular vulnerability to PTSD due to lack of coping resources, social support, and the stress associated with forced removal from one's home and possibly from country (Steel et al., 2009). Compared to non-refugee war survivors, refugees experience moderately worse mental health outcomes (Porter & Haslam, 2005). These outcomes are due to post-displacement accommodation, lack of economic opportunity, and loss of

social support (Eisenbruch, 1991). Refugees are one of the most difficult populations to study due to practical obstacles. Populations are often inaccessible to researchers physically due to injury, and linguistic and cultural differences; aid receives justified priority over scientific investigation (Porter & Haslam, 2005). Unfortunately, this results in a dearth of empirically rigorous studies in this area and more exploratory or methodologically compromised work. Finally, it is difficult to draw generalizable conclusions due to the extremely localized circumstances that refugees face – there is no standardized refugee or refugee experience. Regardless, data show that refugee war survivors are at a distinct disadvantage even compared to other civilian war survivors.

Coping with PTSD

Clinicians use many of the same coping techniques employed with military war survivors to aid civilian survivors. However, given the additional issues civilians often have with recurring and intrusive thoughts about their war trauma, some researchers also suggest reducing experiential avoidance as a coping strategy to mitigate PTSD symptoms (Kashdan et al., 2015). Experiential avoidance is the tendency to evaluate negatively intrusive or unwanted feelings and thoughts, being unable to tolerate these thoughts, and desire to control or remove them (Hayes et al., 1996). Individuals exhibiting high levels of experiential avoidance have a difficult time managing unpleasant emotions and thoughts. Helping civilians through this process is paramount in reducing PTSD and its symptoms over time.

Avoidance-based strategies sit on the opposite end of the spectrum of recommended therapies such as the previously discussed exposure therapy and cognitive therapy, which recommend individuals confront and accept their emotions and thoughts in order to work through them. Individuals unable to accept and manage their thoughts are often constricted in their behaviors. For example, they may be unable to maintain social relationships, leave home, or hold a job due to the constant anxiety they experience from fear of intrusive thoughts (Hayes et al., 1996). This anxiety acts as a constant resource drain due to the substantial efforts expended by victims who structure their life around avoiding potentially triggering experiences. As such, a clinician's top priority with civilians is making them comfortable addressing their negative thoughts and emotions in order to move forward to more advanced programs (e.g., cognitive-behavioral therapy) that can reduce the impact of their PTSD.

Both civilians and military personnel are at risk of PTSD development following wartime experiences. However, the primary antecedents differ between each group. When studying and treating military war survivors, clinicians and scholars must be particularly wary of childhood trauma, family history of psychopathology, and focus on guiding victims in interpreting war trauma in a constructive fashion (e.g., minimizing survivor guilt). Treatment targeted for civilian war survivors should be based on amount and severity of witnessed trauma and focus on providing clear structures of social support that may not exist for these groups.

INDIVIDUAL PROTECTIVE FACTORS IN POST-TRAUMA RESPONSE

Each person processes trauma in a unique way. In this manuscript, we have discussed individual characteristics that can increase the likelihood of PTSD (e.g., childhood trauma), but many streams of research focus on individual characteristics that protect against PTSD. Clinicians and scholars have shown particular interest in individual ability to overcome stress (e.g., resilience), personality traits such as altruism and extroversion, and self-regulation. Given that these traits act similarly in both military and civilian populations (Bonanno, Galea, Bucciarelli, & Vlahov, 2006; Campbell-Sills, Cohan, & Stein, 2006), we will discuss both groups simultaneously in this section. In addition, we will provide an overview of the literature and findings related to individual characteristics that attenuate the effects of PTSD following trauma exposure.

Research on resilience suggests that it can act as a protective factor against stressors and PTSD development in military populations (e.g., King, King, Fairbank, Keane, & Adams, 1998; Meredith et al., 2011; Tsai, Harpez-Rotem, Pietrzak, & Southwick, 2012). While no universal definition of resilience exists, it encompasses the ability to recover from stress or trauma. Resilient individuals are more likely to perceive traumatic events as challenges or growth opportunities instead of threats, exhibit lower amounts of emotional fluctuation when under stress, and maintain a more positive mindset (Bartone, 2006).

Additional traits, including altruism and extraversion, correlate with reduced likelihood of PTSD (Meredith et al., 2011). Scholars posit that altruistic and extroverted individuals are more likely to develop strong social support networks, which – as discussed previously – play a large role in reducing PTSD (Foa et al., 2008). For example, results from a study of Vietnam War veterans suggested that altruism significantly decreased PTSD symptomatology over time (Kishon-Barash, Midlarsky, & Johnson, 1999). Vollhardt (2009) also provides a detailed account of the benefits of altruism and prosocial behaviors following trauma, emphasizing the importance of trauma victims pro-actively helping others. Extraversion has been tied to resilience (Campbell-Sills, 2006) and social support (Cohen & Wills, 1985), which buffer effects of PTSD. For example, extraverted individuals tend to easily form attachments with others, seek interaction, and utilize support networks (Costa & McCrae, 1992).

Finally, emotional regulation is often emphasized in therapy (Ford & Russo, 2006). Individuals with high levels of emotional regulation are less likely to experience emotional numbing, social detachment, and intrusive thoughts (American Psychiatric Association, 2013). This is particularly important in aiding with recovery from trauma. Currently, emotional regulation is integrated into several types of cognitive therapy, given its strong empirical associations with recovery in a wide range of trauma victims.

DISCUSSION

As expected, antecedents of PTSD differ in strength between civilians and military war survivors (see Table 1 for overview). High risk of exposure to multiple traumas and a lack of reporting trauma are particularly impactful for military. Given the general duties of many military personnel, it is likely that cumulative exposure to trauma occurs. Potential trauma events (e.g., combat exposure) should be documented for military war survivors as a potential early indicator of PTSD development. Civilians are especially susceptible to war experiences, including witnessing injury or being injured. Moreover, civilians are much more likely to develop PTSD if they lack social support or have their communities disrupted (e.g., refugees). As such, the most important strategy for PTSD civilians is to build and maintain a strong support network. Across military and civilian groups, age of trauma is strongly related to PTSD development, and extra care should be given to monitor young enlistees and civilian children and elderly. Finally, demographics are small but significant predictors of PTSD, with both military and civilian women displaying a larger propensity to develop PTSD than men do.

Although PTSD outcomes are similar between groups, coping and therapeutic strategies should emphasize different areas based on the unique needs

Table 1. Overview of PTSD Antecedents and Coping Effectiveness.

	Military	Civilian
Age	Younger age at trauma more likely to develop PTSD; younger age at trauma has larger effect size for men than women	Civilians over 65 years old have higher risk than children or younger adults of developing PTSD after wartime experience; children exposed to wartime experience 10× more likely to develop PTSD than other children
Gender	Women more likely to report PTSD following combat than men; however, meta-analytic data suggest there may be no significant gender effect in military samples	Women more likely to develop PTSD following wartime experience than men; may be due to exposure to additional trauma such as rape; meta-analytic data suggest substantial gender effect
Race	Minorities report slightly higher rates of PTSD (0.8% higher report rate)	Weak to nonexistent relationship between race and PTSD development following combat exposure
Pre-trauma	Childhood trauma increases likelihood of PTSD development	Childhood trauma increases likelihood of PTSD development
Exposure to wartime trauma	High risks associated with exposure to multiple traumas	High risks associated with severity of trauma and witnessing trauma
Coping techniques	Experiential avoidance often impossible – exposure therapy can be effective instead; problem-focused coping effective; social support effective; encourage reporting of trauma and PTSD symptoms	Experiential avoidance effective in severe cases – exposure therapy often difficult for civilians; problem-focused coping effective; social support effective (especially with refugees)

of military and civilian war survivors. Broadly, coping strategies should directly address emotional and cognitive triggers and emphasize the importance of support networks. However, civilians may be more sensitive to direct confrontation of their feelings and memories (e.g., exposure therapy); whereas it may be particularly effective in terms of time and cost resources for many military war survivors. Civilian-coping strategies should lean more on providing a stable and normal external environment – this may be particularly effective for displaced civilians such as refugees.

Limitations and Future Directions

This manuscript is limited in that it shows only a broad overview of the decades of PTSD research. However, it is valuable to gain and compare "big picture" knowledge of the mechanisms of PTSD development in one of the most vulnerable populations in the world – war survivors. In this manuscript, we have identified high-level similarities and differences in antecedents and provided a starting point for the future research. In addition, we did not explore pharmacotherapy components of PTSD in this manuscript (e.g., changes in brain chemistry, pharmaceutical treatments for PTSD). However, existing books, reviews, and meta-analytic studies cover this topic (e.g., Foa et al., 2008; Mohamed & Rosenheck, 2008; Watts et al., 2013). Finally, it is difficult to generalize existing results, given the large variation in geography, demographics, and the unique characteristics of each war's survivors. While broad statements can be made (e.g., social support is important, PTSD will likely affect children differently than adults, symptoms change over time), it is difficult and empirically unsound to believe that effect sizes or causal relationships will remain the same as the nature of war and worldwide demographics continue to change. At best, previous research in this area acts as guideposts for practical solutions and the future research.

The future research can delve more deeply into the nuances of effective coping strategies and further measures the efficacy of different types of therapy and support. Moreover, counselors and researchers in this area should not shy away from replicating previous studies to clarify the generalizability of existing data. Additional research is also needed to provide more nuanced data in areas such as social support (e.g., exploring different sources of social support), therapeutic options (behavioral vs pharmaceutical), and how PTSD manifests itself in different cohorts (e.g., OEF vs Operation Iraqi Freedom veterans). Finally, the review of the literature yielded no studies directly studying agency as a protective factor against PTSD. Scholars allude to research participants' sense of agency when discussing displacement of refugees or as a facet of other clinical issues (e.g., external locus of control), but – to our knowledge – there are no articles directly addressing the role of agency in attenuating PTSD following combat experiences. This may prove to be a fruitful area of the future research as locus of control is often tied to clinical recovery.

CONCLUSION

We hope this research can provide a more nuanced approach to help prevent a wide variety of negative outcomes such as divorce, suicide, and ongoing mental health issues based on more deeply detailed data about the target populations. With this in mind, we hope this manuscript has served as a first step for researchers as they conceive and design studies in this area and the practitioners that apply research findings. We believe that developing a deeper understanding of this phenomenon in varying contexts will benefit scholars and practitioners seeking to predict a broad range of PTSD antecedents and outcomes and, potentially, explain otherwise unaccounted for variance in PTSD outcomes across military and civilian war survivors.

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