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Abstract

This chapter examines the role of stress and emotional well-being as critical antecedents of important outcomes in the military context. In it, we provide a framework for understanding the sources of stress among military personnel. Using this model, we review the risk factors associated with combat and deployment cycles in addition to protective factors, such as personality characteristics and social support, which mitigate the effects of stress on emotional well-being and performance. Finally, we evaluate efforts by military organizations to enhance the emotional well-being of service members through training programs designed to build resiliency.

Keywords: Emotional well-being; military context; personality; social support; resiliency

According to the job web site Careercast.com, military jobs ranked as the most stressful occupation in the United States for the year 2013 (http://www.careercast.com/jobs-rated/10-most-stressful-jobs-2013). A variety

of factors including physical danger, long periods away from home, physical demands, being in the public eye, and being responsible for the lives of others were implicated in this ranking. Among United Kingdom forces, combat deployment has been associated with high rates of mental disorders (19.7%) and alcohol abuse (13%; Fear et al., 2010). According to the most recent report of the U.S. Joint Mental Health Advisory Team (J-MHAT 7, 2011), the result of this general state of stress combined with the acute trauma experienced in combat has resulted in a base rate of 19.8% of American soldiers reporting some sort of psychological problem. With over 2 million service members having been deployed overseas as part of the wars in Iraq and Afghanistan, it is no surprise that senior leadership in the U.S. military has been actively engaged in promoting research aimed at assessing and improving the emotional well-being of service members (e.g., Casey, 2011).

The costs of stress to human and psychological capital can be staggering. Beyond the costs associated with long-term mental health treatment for soldiers experiencing emotional or psychological trauma, upwards of 42% of active duty soldiers report an intent to leave the U.S. army after their current obligation ends (MHAT-6, 2009). Not only does this impact military-readiness, but each soldier that must be trained to replace another lost to emotional health problems is estimated to cost the U.S. army between $54,000 and $73,000. When one considers the sheer size of the U.S. military, the magnitude of the problem becomes obvious. Moreover, it is estimated that as many as half of all casualties in war may be attributed to battle fatigue and stress reactions (Mareth & Brooker, 1985). Add to this the increasing trends in violent offending among UK veterans (McManus et al., 2013), and the record levels of suicide completions among American service members in recent years (Kuehn, 2009), and it is clear that understanding the antecedents and consequences of stress in the military has never been more important. This is particularly true for militaries in nations that have recently experienced prolonged bouts of conflict and/or those militaries that are highly likely to experience armed conflict in the near future.

In the present paper we first review what is known about emotional health and psychological well-being in military settings. Second, we briefly review the primary stressors underlying those outcomes. Third, we address the major personality characteristics that have been linked with these outcomes. Fourth, we review the impact of social relations on stress outcomes and, in particular, the roles of leaders and spouses as factors that influence the emotional well-being of service members. Finally, we summarize research concerning the development of psychological resilience and well-being in the military context. Throughout, we treat

stress responses and emotional problems as both undesirable and potentially preventable things, even though some might argue that the experience of war is horrifying and therefore the resulting stress responses and emotional problems are natural and perhaps even have an adaptive function (Hendrie & Pickles, 2010; Nesse, 2000; Phipps, 2011).

Throughout this paper the reader may notice that the primary focus is on U.S. service members. This is largely due to the fact that a substantial body of research examining the well-being of service members has been developed as a result of the prolonged conflicts in which the United States has been involved over the past decade. When available, we incorporate literature that has examined the well-being of service members in other countries. However, we would like to point out that the breadth of this literature is not nearly as substantial as the research on U.S. armed forces.

That stress is a significant determinant of performance, emotional wellbeing, and other work outcomes in military settings is not in dispute (Kavanagh, 2005). What is more pertinent is the nature of the stressors that service members face and the factors that can mitigate the relationship between stress and outcomes such as performance. This information is perhaps best explained using the framework of the soldier combat and wellbeing model utilized in the 2008 report of the Mental Health and Advisory Team (MHAT-5, 2008; see Fig. 1). In that model, risk factors or stressors, such as combat exposure and deployment length, lead to a variety of negative outcomes including decreased emotional well-being, poorer performance, posttraumatic stress disorder (PTSD), and suicide. However, this relationship is moderated by a number of protective factors such as personality characteristics, sources of personal support such as leaders or spouses, and training.

Of course, gathering accurate information concerning the emotional and mental well-being of service members is quite difficult. Not only are there logistical issues surrounding a population that is constantly rotating in and out of combat, but there is also extensive evidence that service members hesitate to acknowledge or report such problems while actively serving (Hoge et al., 2004). Reasons for this hesitancy to report problems range from a distrust in the efficacy of mental health treatment and mental health professionals to concerns about how admitting to emotional problems may impact their career or standing with their fellow service members (Hoge et al., 2004). Another problem with getting an accurate estimate of the true base rate of emotional health problems comes from the fact that such problems often manifest themselves long after combat has ended (Milliken, Auchterlonie, & Hoge, 2007). Recent research has demonstrated that the prevalence rates of emotional disorders reported

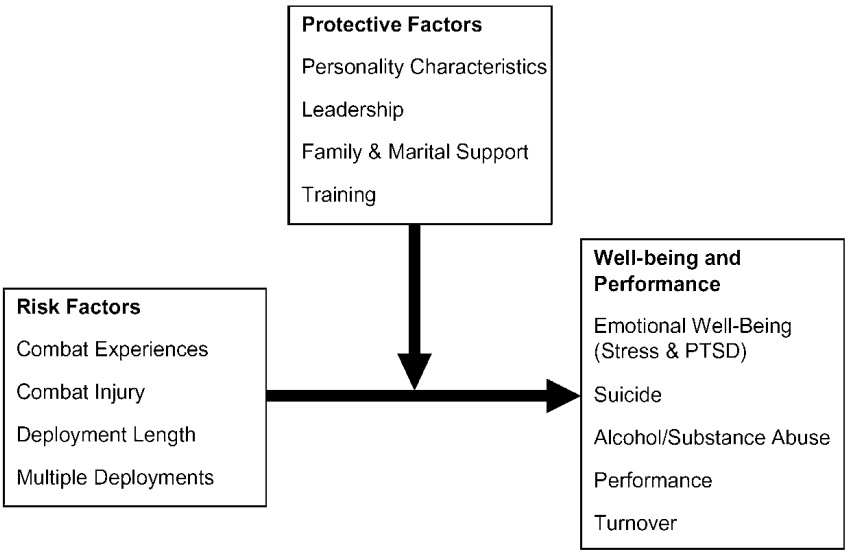

Figure 1. Soldier Emotional Well-Being Model (adapted from MHAT-5, 2008; Bliese & Castro, 2003).

are two to four times higher 120 days after returning from combat than immediately afterwards (Bliese, Wright, Adler, Thomas, & Hoge, 2007). To further illustrate the complex nature of emotional problems in this context it should also be noted that of those reporting PTSD symptoms immediately after returning from combat, 49–59% report an improvement in the severity of their symptoms within that same timeframe (Milliken et al., 2007).

Consequences of Stress in Military Settings

One of the major consequences of stress in military settings is decreased performance along with a host of related negative outcomes that can impact performance (Bray, Fairbank, & Marsden, 1999; Kavanagh, 2005). According to MHAT-5 (2008) 23% of American soldiers say that they work less carefully as a result of stress and emotional problems, 15% indicate that these problems limit their ability to do their jobs, and 13% report that emotional problems have led to increases in concern from their supervisors. Soldiers also indicated problems at home with nearly 21% of married enlisted soldiers reporting that they were con-

sidering divorce. In terms of drug and alcohol abuse, upwards of 8% of soldiers admitted to using alcohol in theatre and approximately 2% admitted using illegal drugs. Perhaps even more disturbing is the impact of stress on the ethical behavior and decision-making of soldiers in the combat zone. MHAT-5 (2008) reports that as many as a third of American soldiers returning from Iraq admitted to insulting or cursing at noncombatants, 6% reported acting violently toward noncombatants when it was not necessary, and 4% reported ignoring the Rules of Engagement when conducting their missions. Finally, 13% of returning soldiers from Iraq and Afghanistan indicated that they had considered suicide in the past four weeks.

Service Member Stress: Risk Factors

It is perhaps no surprise that prior research has found that simply being deployed into a combat zone has a detrimental impact on emotional and physical well-being irrespective of what actually happens during that deployment; this is true for both UK and U.S. armed forces (Fear et al., 2010; Vasterling et al., 2010). Soldiers are put in a context that is not only unfamiliar, but also actively hostile. Veterans of recent combat operations report a number of significant stressors unique to the combat zone including the threat of enemy attacks, dealing with the deaths of fellow soldiers, being responsible for killing another human being, and handling human remains (Adler, Vaitkus, & Martin, 1996; Hoge et al., 2004; McCarroll, Ursano, & Fullerton, 1993). Individuals reporting such experiences are much more likely to develop PTSD than those who are deployed but do not experience such events (McCarroll et al., 1993; MHAT-5, 2008; Thomas et al., 2010). Sadly, the number of soldiers reporting such incidents is very high. MHAT-5 (2008) shows that approximately half of deployed U.S. soldiers report being attacked or ambushed, half report seeing dead or seriously injured fellow soldiers, nearly 80% indicate that they were subject to incoming artillery, mortar, or rocket fire, and 40_50% of soldiers report that an improvised explosive device (IED) or booby trap exploded close to them. For American troops currently in Afghanistan, the rates of these events are even higher (J-MHAT 7, 2011).

Beyond the stresses associated with simply being in a combat zone, one of the most obvious causes of stress in military settings is not just the threat of becoming injured, but being injured itself. This was perhaps best illustrated by a recent study demonstrating that approximately 32% of American soldiers who are injured in combat develop PTSD, compared

with only 14% of those who were never injured (Hoge, Terhakopian, Castro, Messer & Engel, 2007). The development of emotional and mental health issues also covaries with the degree of injury sustained. For example, individuals who report losing consciousness when they sustained their injury are nearly twice as likely to develop PTSD compared with those who are merely dazed (Hoge et al., 2007). Similarly, meta-analytic evidence suggests that trauma severity is one of the most important determinants of whether or not military personnel develop PTSD (Brewin, Andrews, & Valentine, 2000).

Lengthy deployments and repeated combat tours can also play an important role in determining whether or not an individual develops emotional problems. The most common deployment lengths in the U.S. army are 9, 11, and 12 months. Assessments of emotional well-being among American service members in the combat zone demonstrate that morale decreases quite dramatically over the course of deployments with only a small uptick shortly before combat tours end (MHAT-5, 2008). Similarly, the rate of individuals reporting mental health problems increases from around 5% to nearly 20% 10 months after being deployed (MHAT-5, 2008). The association between deployment length and negative outcomes is also reflected in decreased performance, increased substance abuse, and increased likelihood of unethical behavior (MHAT-5, 2008). Although the relationship between deployment length and negative outcomes is strong, there is evidence to indicate this relationship can be explained almost entirely by the increased exposure to traumatic combat experiences. That is, the longer an individual is deployed, the more likely they are to experience a stressful event that will result in emotional or behavioral problems (MHAT-5, 2008). Because the stressors are ongoing and ever-changing, this is not a context that one can ever become fully accustomed to (Diener, Lucas, & Napa Scollon, 2006). Consequently, longer deployments have also been shown to be associated with increased depression and posttraumatic stress symptoms among U.S. service members (Adler, Huffman, Bliese, & Castro, 2005) as well as decreased physical and psychological well-being among both American and non-American service members deployed to combat theatres (Buckman et al., 2011).

Research has also shown that American service members who are deployed twice are much more likely to experience PTSD symptoms (Reger, Gahm, Swanson, & Duma, 2009). Moreover, individuals who are on their third or fourth deployment are more than twice as likely to report mental or emotional health problems as those on their first deployment (MHAT-5, 2008). One possible reason for this is that repeated exposures to trauma can wear down an individual who has not been able to fully recover. In-

deed, recent research has demonstrated that individuals going into combat with poor mental health are much more likely to develop PTSD than those who report few problems precombat (LeardMann, Smith, Smith, Wells, & Ryan, 2009).

Service Member Stress: Protective Factors

Prior research has identified a number of protective factors that can mitigate the effects of stress on the development of emotional and behavioral health problems in military personnel (Brewin et al., 2000; Wald, Taylor, Asmundson, Jang, & Stapleton, 2006). These factors consist of individual differences, environmental factors such as social support relationships, and prior experiences such as training or interventions. Together they are often labeled as resiliency factors (Luthar, Cicchetti, & Becker, 2000; Meredith et al., 2011; Wald et al., 2006). That is, these factors enhance the ability of the individual to adapt to and successfully cope with stress, adversity, and traumatic experiences. Consequently, it is best to think of them as potential moderators of the relationship between risk factors and outcomes such as emotional well-being and behavioral health (Masten, 2001). Moreover, it is heartening to know that resilience, but not necessarily full recovery in the face of trauma, is the norm because so many of these factors are significant and can act in tandem with one another (Bonanno, 2004).

Personality Characteristics

Prior literature has established that a number of personality characteristics are associated with greater resiliency. In fact, it has been argued that the term resiliency should be used only when referring to personality traits (Luthar et al., 2000). A recent review of personality characteristics associated with resiliency in high stress and potentially dangerous occupations found that a number of personality factors, but particularly those related to negative affect and neuroticism, were associated with an individual's level of resiliency (Parrish Meadows, Shreffler, & Mullins-Sweatt, 2011). Related research has demonstrated that emotional adjustment predicts outcomes ranging from leadership to personal discipline in the military context (Hough, Eaton, Dunnette, Kamp, & McCloy, 1990). Likewise, personality characteristics that foster a positive emotional mindset such as hope, optimism, and grit have been

associated with reduced turnover intentions within voluntary forces (Bressler, 2010) and increased likelihood of completing training (Duckworth, Peterson, Matthews, & Kelly, 2007). Closely related constructs such as psychological capital have also been shown to mitigate the effects of combat trauma on health outcomes via their effects on stress appraisals (Schaubroek, Riolli, Peng, & Spain, 2011). Specifically, those individuals who were able to keep a positive mindset were more likely to perceive stressors as a challenge and less likely to view them as a threat or a loss. Consequently, they were less likely to report somatic complaints. Interestingly, this was particularly true for individuals in units that had experienced greater amounts of combat trauma (Schaubroek et al., 2011). Thus, a number of personality characteristics have been demonstrated to predict various emotional well-being and performance outcomes in the military context. However, there are two personality characteristics—coping and hardiness—that have received the most attention of researchers interested in emotional and behavioral outcomes in the military context.

Coping

Positive coping styles such as problem-focused coping and emotion-focused coping have been shown to predict a number of positive outcomes in military settings. For example, in a longitudinal study of Israeli soldiers who had recently experienced combat, emotion focused coping was associated with decreases in PTSD over 12 months (Solomon, Mikulincer, & Avitzur, 1988). Similarly, in a study of Canadian forces negative coping styles such as venting of emotions and disengagement tended to exacerbate the effect of stressors on reported health symptoms (Day & Livingstone, 2001). More recently, using a sample of active duty U.S. army soldiers and reservists Lester et al. (2011a) demonstrated that positive coping styles were associated with a lower likelihood of suicide completion. Moreover, both positive and negative coping styles were predictive of testing positive for illegal drug usage. A further study of positive outcomes revealed that while positive coping styles were more associated with being promoted early, lower scores on measures of negative coping were more predictive of being promoted to brigadier general and being selected for command positions (Lester, Harms, Bulling, Herian, & Spain, 2011b).

Hardiness

Perhaps no single personality characteristic has received as much recent attention in the military stress literature as hardiness. Hardiness is a pattern of characteristics and attitudes that provide both the

will and the means to turn stressful conditions into growth opportunities (Maddi, 2007). More specifically, individuals high in hardiness are characterized by a strong sense of commitment to their work, active engagement with their surroundings, a belief that they control their situation, and a propensity to enjoy new challenges (Bartone, Roland, Picano, & Williams, 2008). Research in American military populations has demonstrated that hardiness is predictive of both health outcomes (Bartone & Priest, 2001) and emotional well-being (Bartone, 1999), particularly in high-stress conditions. Other studies using U.S. military populations have linked hardiness to retention and performance (Maddi, Matthews, Kelly, Villarreal, & White, 2012), leader performance (Bartone, 2006), and completion of special forces training (Bartone et al., 2008).

Leadership

There is widespread consensus in the literature that social support, from both family and coworkers (and particularly leaders), is an important determinant of how badly stressors impact personal stress and well-being (Carlson & Perrewé, 1999; Viswesvaran, Sanchez, & Fisher, 1999). But perhaps it is still surprising that meta-analytic evidence suggests that lack of social support is the single largest risk factor for developing PTSD after a traumatic experience (Brewin et al., 2000). Further, the protective effects of social support against PTSD in soldiers are significant even after controlling for individual difference factors such as locus of control and coping style (Solomon et al., 1988). In this section, we review the literature on leadership as a source of social support; we follow this section with a discussion of the effects of service member families on service member well-being.

It has long been theorized that the behavior and affect of leaders can impact how their subordinates feel (Brief & Weiss, 2002; Skakon, Nielson, Borg, & Guzman, 2010). The empirical literature reflects this in that studies of positive leadership styles (e.g., transformational, empowering, supportive leadership, etc.) have been shown to predict greater wellbeing (e.g., Kuoppala, Lamminpää, Liira, & Vaino, 2008; Nielson, Randall, Yarker, & Brenner, 2008, van Dierendonck, Haynes, Borrill, & Stride, 2004) and reduced stress in subordinates (e.g., Offermann & Hellmann, 1996; Seltzer & Numerof, 1988). Moreover, a recent meta-analysis found that destructive leadership was associated with lower well-being, increased stress, and poorer performance among followers (Schyns & Schilling, 2013).

Leaders can have this impact on stress and well-being by developing a sense of trust and self-efficacy in their followers (Liu, Siu, & Shi, 2010) or developing a sense in followers that their work has purpose or meaning (Arnold, Turner, Barling, Kelloway, & McKee, 2007). Moreover, by showing that they have adequately prepared for potential stressors by providing clear team goals, defining expectations of team members, and laying out a strategy, leaders can reassure their team members that they need not overreact to unexpected events (Zaccaro, Rittman, & Marks, 2001). Another avenue of influence is leader mood contagion. That is, leaders characterized by positivity or charisma can convey an infectious sense of excitement and optimism to their subordinates and change the atmosphere or climate of their work group (Sy, Côté, & Saavedra, 2005) and this in turn increases individual and group performance (Bono & Ilies, 2006). Similarly, when leaders communicate to followers that they have no value, deprive them of personal control over their work, or actively berate them the expected outcome is frustration, emotional exhaustion, resentment, retaliation and decreased performance and well-being (McColl-Kennedy & Anderson, 2002; Schyns & Schilling, 2013; Tepper, 2000).

Emotionally intelligent leaders can foster a climate that facilitates performance by modeling positive emotional regulation for followers and being sensitive to the emotional well-being of their followers (Koman & Wolff, 2007). Further, although there is a general resistance to the display of emotions in masculine-oriented professions such as military, the capacity of emotionally intelligent leaders to display emotions such as anger at appropriate times may prove particularly effective for motivating followers (Lindebaum & Fielden, 2011). A similar line of thinking comes from S.L.A. Marshall's book on military leadership where he declared that ''too much has been said in praise of the calm demeanor as an asset to the fighting commander'' (Marshall, 1947, p. 138). That said, although it has been noted that there is an expectation that military commanders be capable of rousing their troops through displays of anger, such displays are also nowhere near the top of the leadership competencies valued in field commanders (Abrahams, 2007). Nonetheless, the ability to regulate emotions is often mentioned as a key characteristic of effective military leaders.

Current research on the U.S. military reflects the importance of leaders as both a protective factor and a liability. In MHAT-5 (2008) it was demonstrated that while a positive leadership climate was only slightly related to mental health problems of service members who do not experience combat; leadership climate was associated with almost halving the rates of psychological and emotional problems in troops who had experienced a great deal of combat. Even so, one of the big-

gest barriers to service members seeking mental health services for the emotional problems was that they felt that their leaders would blame them for the problem. Moreover, a substantial number of service members reported that their leaders actively discouraged the use of mental health services.

Military Families

Although service members are directly affected by stressful events inherent with army life and therefore are likely to suffer from short- and long-term consequences of such events, their families are also affected by military member deployment- and combat-related negative experiences (Erbes, Polusny, MacDermid, & Compton, 2008; Galovski & Lyons, 2004). However, it is not only service members' experiences that affect service member families, but also family members' behaviors, experiences, and emotions that may negatively (Badr, Barker, & Milbury, 2011; Erbes, 2011) or positively (Badr et al., 2011; Friedman, 2010) influence service member outcomes. In this section we discus two effects of family effects on well-being—service member families as a source of stress for service members and service member families as a source of support and coping assistance for service members.

Service Members' Families as a Source of Stress for Service Members – The importance of family is reflected in recent assessments of emotional well-being in the military in that separation from family is routinely listed as one of the top stressors for American soldiers (MHAT-5, 2008). In fact, married soldiers are almost twice as likely to report that family matters at home have caused them significant stress and have made it difficult for them to do their jobs (J-MHAT-7, 2011). Reflecting these findings, a number of studies have demonstrated that simply having a family might increase the odds of soldier developing PTSD symptoms. For example, a recent longitudinal study of American military families provided some evidence regarding the effects of family factors on service member PTSD (Erbes, 2011). The findings obtained using a sample of U.S. soldiers deployed to Operation Iraqi Freedom (OIF), revealed that soldiers' pre-deployment concerns about family disruptions (e.g., being concerned about damaging relationships with family members, worrying about missing important family events; Vogt, King, & King, 2004) were positively related to their PTSD symptoms assessed at the postdeployment stage.

Also, in a retrospective cohort study focused on examining factors that increase or protect against the risk of developing combat-related PTSD symptoms among U.S. service members, Skopp et al. (2011) found that having a spouse or a significant other increased the odds of developing such symptoms. The authors explain this result in light of previous research suggesting that deployment-related relationship separation may create additional stress (e.g., worrying about family members' health and safety and being concerned about spouse fidelity) that make soldiers more vulnerable to the effects of stressors and more prone to the development of PTSD. These finding are in line with previous literature demonstrating that married soldiers are more likely than single soldiers to report negative consequences of deployment, such as missing important family events and deterioration of relationships with spouses (Newby et al., 2005). Married U.S. service members report suffering from more stressors than single service members (Hammelman, 1995; see also Hosek & Martorell, 2011), and single service members have greater odds of reporting good to excellent physical and mental health compared to married service members (Riviere & Merrill, 2011).

Although families are commonly considered the major source of social support for service members at the postdeployment stage (Badr et al., 2011; Friedman, 2010), some researchers have argued that spouses' affect, cognition, and behaviors and quality of service member-spouse relationships can exacerbate the development of such problems in service members. Relying on the empirical evidence obtained in the literature on the family members' role in patient adaptation to health-related stress in the civilian population (e.g., Manne, Taylor, Dougherty, & Kemeny, 1997; Manne et al., 2003), Badr et al. (2011) argue that having unsupportive partners (e.g., who criticize partner's coping strategies and ways to deal with treatment, avoid being around the partner) is likely to negatively affect injured service members' ability to cope with distress. In general, service members finding themselves in distant or ''combative'' relationships with their family members upon return home from deployment are considered likely to experience difficulty recovering from PTSD (Erbes, 2011). Being in such relationships may further strengthen service member trauma-induced beliefs that they are damaged and incapable of developing intimate and trusting relationships with others, thereby reinforcing cognitions underlying PTSD (Erbes, 2011). Further, Monson, Taft, and Fredman (2009) demonstrate that even caring and supporting partners can inadvertently contribute to service member PTSD. They argue that partners who help service members avoid trauma-specific stimuli in an attempt to prevent service members reliving the trauma (e.g., accom-

panying them everywhere to protect them, managing their social interactions), can reinforce the symptom of trauma-specific avoidance and contribute to the maintenance of PTSD.

Service Members' Families as a Source of Support for Service Members

In line with the findings obtained in more general literatures on coping and the role of relationship quality in improving patients' physical and psychological well-being (e.g., Berg & Upchurch, 2007; Manne et al., 2004), research on military family functioning has reached consensus that social support is an important source of protection against psychological problems and the family is one of the major sources of social support for service members (Badr et al., 2011; MHAT-5, 2008).

Family support at the postdeployment stage is a critical protective factor for service member well-being. Family members actively engaging service members in positive family activities, interactions, and practical responsibilities may help service members avoid experiential avoidance (i.e., behaviors such as substance abuse, thrill-seeking, chronic video-game playing that are used by service members to diminish the occurrence of distressing events, thoughts and memories) that can foster PTSD (Erbes, 2011). In addition to providing emotional support to returning service members and helping them reintegrate into civilian life, family members are considered instrumental in assisting injured service members throughout treatment and rehabilitation. For example, family members often become primary caretakers for injured service members, take care of extra household responsibilities, assist their injured partners with medical appointments, and participate in making medical decisions (Badr et al., 2011).

Developing Service Member Resilience to Stress

Resilience and Emotional Well-Being Interventions

Growing concern over rates of mental health problems among military personnel (e.g., Hoge et al., 2004; Reger et al., 2009) has led to interest in the use of mental health interventions within the military context. Although a number of programs aimed at improving the mental health of service members have been used by militaries around the world, the lion's share of such programs have been implemented within the branches of the U.S. military (see Bowles & Bates, 2010; see also Meredith et al.,

2011). Our focus in this section is on the most notable mental health interventions in use within U.S. and other militaries for which formal evaluative evidence exists.

Battlemind

Battlemind represents the inner strength and confidence in the face of adversity that soldiers must show (Adler, Bliese, McGurk, Hoge, & Castro, 2009a). The Battlemind program is aimed at reducing mental health symptoms by helping U.S. soldiers adapt to stress faced throughout the deployment cycle (Adler, Castro, & McGurk, 2009b). Battlemind interventions include two components—training and debriefing. These interventions share some similarities (see Adler et al., 2009a), but differ substantially in goals, methods, and content.

Battlemind Training – Battlemind training utilizes the general cognitive-behavioral therapy (CBT) model and incorporates aspects of cognitive adaptation associated with positive psychology and aims to develop mental toughness and self-confidence. It was initially developed to aid soldiers in the transition from combat deployment to life back home, providing specific skills and support relevant for the initial transition and for the subsequent 3_6 month postdeployment transition phase (Adler et al., 2009a). Battlemind training has since been extended to include training for spouses and children and army soldiers, leaders at multiple levels in the army, and healthcare personnel (see Bowles & Bates, 2010; Kubisiak et al., 2009). Soldier Battlemind training is conducted in small and large groups and consists of one hour sessions (see Adler et al., 2009a). Training sessions are supplemented with a series of training modules, with content developed from soldier focus groups and survey feedback (Castro, Adler, McGurk, & Bliese, 2012). Battlemind training also includes supplementary material and content based on the differential needs of soldiers, their spouses and children (separate interventions were developed for different age groups of children), army leaders (separate interventions were developed for immediate and senior leaders), and healthcare providers.

Battlemind Debriefing – Unlike Battlemind training, the Battlemind debriefing intervention is best characterized as a stress management intervention, implemented in response to soldiers' experience of traumatic events. Debriefings are conducted in groups (typically at the unit level; 20_30 participants per session) and revolve around discussions of a specific traumatic event. Debriefing sessions last approximately 50 minutes (Adler, Castro, & McGurk, 2007a; Adler et al., 2009b).

Debriefing interventions implemented within the military context prior to Battlemind have been cited for having a number of shortcomings, including: reexposing participants to the initial trauma, being poorly adapted for the military context (e.g., not adequately dealing with issues surrounding stigma; Adler et al., 2007a; 2009b). Battlemind debriefing attempts to address these potential problems by creating a series of psychological debriefings designed specifically for the military context. In addition, three different debriefing formats exist for different specific stressful or traumatic experiences. Event- and time-driven debriefings are conducted with soldiers during combat deployment (i.e., ''in-theatre''). Event-driven debriefings are conducted in response to a specific traumatic event experienced by a unit. Time-driven debriefings are conducted on an interval schedule throughout the deployment, with a focus on the cumulative effects of deployment. Post-deployment debriefings are conducted with soldiers returning from deployments and focus on the stressors associated with reintegration (Adler et al., 2007a).

Evidence of Battlemind Training and Debriefing Interventions – Four studies have demonstrated the efficacy of Battlemind postdeployment training and debriefing among American soldiers (Adler, Castro, Bliese, McGurk, & Miliken, 2007b; Adler et al., 2009a; Castro et al., 2012; Thomas et al., 2007). Overall, these studies suggest that Battlemind interventions have positive effects on health outcomes and emotional well-being. For example, among a large sample of U.S. soldiers returning from a year-long deployment, the effects of small- and large-group Battlemind training, Battlemind debriefing, and a stress education comparison condition were compared in relation to a series of postdeployment psychological health outcomes (Adler et al., 2009a). Among soldiers reporting high levels of combat exposure, those in all three Battlemind conditions reported fewer PTSD symptoms during a 4-month follow-up, compared to the stress education comparison group (*d*s ranged from .14 for Battlemind small-group training to .21 for Battlemind debriefing). Across variations in the Battlemind intervention, combat exposure conditions, and outcomes, Battlemind showed a small positive effect on mental health (d=.07). A follow-up study using a sample of soldiers returning from combat showed that those receiving Battlemind postdeployment training reported significantly fewer PTSD symptoms (d=.30) and depression symptoms (d=.23), and significantly greater life satisfaction (d=.18), with nonsignificant differences found for perceptions of mental health stigma (Castro et al., 2012). A similar

program has recently been piloted in the United Kingdom. The results of that trial provided evidence that the program may help reduce binge drinking among UK armed forces who have experienced high combat exposure (Mulligan et al., 2012).

Boot Camp Survival Training for Navy Recruits — A Prescription (BOOT STRAP)

BOOT STRAP was developed to reduce depression rates, increase psychological functioning, and increase performance, with the overarching goal of reducing basic training attrition rates among U.S. naval recruits (Williams et al., 2004). The program was implemented in response to research which demonstrated that depression among naval recruits was likely the result of perceived stress, loneliness, life-changing events, and emotion-oriented coping, and that depression was negatively related to sense of belonging and task-oriented coping (Williams, Hagerty, Yousha, Hoyle, & Oe, 2002). BOOT STRAP consists of nine weekly classroom sessions (approximately 45 minutes each) in which groups of recruits discuss strategies for altering faulty thinking patterns, developing a greater sense of belonging and strengthening peer relationships, assessing oneself and one's emotional reactions, and are provided training in stress management skills (Williams et al., 2004).

Initial assessments of the validity of BOOT STRAP showed that among recruits at-risk for depression, participants randomly assigned to the program reported lower levels of loneliness (d=.32), lower insecure attachment (d=1.04), and higher levels of problem-solving coping (d=.60), compared to those in the nonintervention control group. In addition, individuals receiving the intervention had a significantly higher basic training completion rate than those in the control condition (86% vs. 74%, respectively). A follow-up evaluation of BOOT STRAP training among a group-randomized sample of at-risk and not-at-risk U.S. naval recruits found that those receiving the training reported significantly greater levels of group cohesion, positive coping strategies, perceived social support, and problem solving, and lower levels of negative coping strategies (Williams et al., 2007).

Comprehensive Soldier and Family Fitness

Comprehensive Soldier and Family Fitness (CSF2) is currently the primary preventive mental health and well-being program used by the U.S. Army (Casey, 2011). It represents the largest psychological health initiative ever implemented within the U.S. military (Cornum, Matthews, & Seligman, 2011). CSF2 is aimed at developing psychosocial resilience in

soldiers and is rooted in the principles of positive psychology in that the focus of the program is on preventing mental health problems and developing psychological strengths instead of attempting to treat psychological problems after they occur (Casey, 2011; Cornum et al., 2011). CSF2 takes a holistic approach which considers both the effects of family relationships on soldier health (Gottman, Gottman, & Atkins, 2011) and effects of military life on the mental health of soldiers' families (Park, 2011). Consequently, CSF2 defines soldier fitness as a multidimensional construct, emphasizing the importance of emotional, family, social, and spiritual aspects of psychological health.

Individual resilience training is provided throughout the army (Corum et al., 2011) and incorporates aspects of Battlemind (Adler et al., 2009a). However, CSF2 resilience training is most closely modeled after the Penn Resiliency Program (PRP; Gillham, Jaycox, Reivich, Seligman, & Silver, 1990), a resilience program previously used as a depression prevention program for adolescents and children (see Brunwasser, Gillham, & Kim, 2009). Individual resilience training is delivered primarily by master resilience trainers (MRTs). Using a train-the-trainer approach, unit leaders (usually Noncommissioned Officers; NCOs) are provided master resilience training prior to conducting individual resilience training within their unit (Cornum et al., 2011). To date, over 13,000 NCOs have completed MRT training (Office of CSF2, personal communication, December 14, 2012). Initial evidence using a large matched sample of nearly 10,000 soldiers has shown that soldiers with MRT trainers in their units are more optimistic, use more effective coping styles, and have better social relations than soldiers without MRTs in their units (Lester, Harms, Herian, Krasikova & Beal 2011c). However, the practical significance of these findings was quite small, as each of the observed effect sizes (Cohen's d) was less than .10. Follow-up analyses using this sample have demonstrated that increases in soldiers' optimism and adaptability mediated the relationship between exposure to MRTs and reduced odds for mental health diagnoses (anxiety, depression, and PTSD). Furthermore, soldiers with MRTs in their units were diagnosed with substance abuse problems at a significantly lower rate (Harms, Herian, Krasikova, Vanhove & Lester, 2013).

Another core component of CSF2 is the global assessment tool (GAT; Peterson, Park, & Castro, 2011). The GAT is a self-assessment inventory intended to measure psychosocial well-being. Feedback for the purposes of building self-awareness is provided to each soldier based on dimensional (emotional, family, social, and spiritual) scores using content that

was largely adapted from other existing measures (e.g., COPE, Carver, Scheier, & Weintraub, 1989; Positive and Negative Affect Schedule, Watson, Clark, & Tellegen, 1988; UCLA Loneliness Scale, Russell, Peplau, & Cutrona, 1980).

Spouse and family interventions are completed individually through a series of training modules. For example, predeployment spousal resilience training aims to prepare the spouse for the hardships associated with managing the family while their significant other is on deployment, maintaining a strong relationship with their significant other throughout the deployment period, and teaches spouses resilience-based skills. This program has not yet been formally evaluated.

Mental Skills Training

Mental Skills Training (MST) consists of enhancing mental and emotional components of psychological functioning through a wide range of exercises, including mental rehearsal, positive imagery, goal setting, and self-talk (Martens, 1987; Rushall, 1992). Prior research on MST in the field of sport psychology has demonstrated positive effects on the self-confidence (e.g., Frey, Laguna, Ravizza, 2003), cohesion (e.g., Hodge & Hermansson, 2007), and performance (e.g., Thelwell & Greenlees, 2003) of athletes. Given the similar physical demands of athletes and soldiers, MST was expected to improve soldier performance (DeWiggins, Hite, & Alston, 2010) and resilience (Hammermeister, Pickering, & Lennox, 2011; Hammermeister, Pickering, & Ohlson, 2009). As a result, MST has been utilized in various resilience-building programs in the U.S. military.

Two empirical studies have directly evaluated MST among soldiers. In one, the MST intervention involved 20 minute sessions, 3_4 times a week, for a 10-week period and included goal-setting, self-talk, and relaxation techniques. Participants reported greater self-confidence and resilience, and showed better performance on physical tests (Hammermeister, et al., 2010). In the other study, MST was utilized in a sample of Warrior Transition Units (WTUs), which are units tasked with caring for seriously injured soldiers (Hammermeister et al., 2009). Researchers implemented an education-based training that taught self-confidence building, use of imagery, and mental rehearsal, and found that MST improved the self-esteem of soldiers in WTUs.

Trauma Risk Management

Trauma Risk Management (TRiM), an intervention used within the UK armed forces, is unique among military interventions in that it does not aim to prevent or to treat mental health disorders. Rather, the purpose

of TRiM is to identify those who may develop mental health problems in order to provide the appropriate subsequent intervention(s) (Greenberg, Langston, & Jones, 2008). TRiM uses a peer-to-peer support system following a traumatic event in an attempt to reduce stigma among military personnel associated with mental health problems (Greenberg et al., 2008, 2010). TRiM support practitioners are volunteer service members (i.e., peers). Practitioners receive basic training in traumatic risk assessment and trauma psychology. After an event, practitioners consult unit leaders regarding next steps and conduct initial (and one month follow-up) risk assessments of those exposed. Those who experienced trauma and continue to display mental health symptoms are referred to additional services (Greenberg et al., 2010).

TRiM has been in widespread use within the UK armed forces in recent years (Greenberg, Jones, Jones, Fear, & Wessely, 2011). However, evaluations of the efficacy of the intervention have only recently been conducted. Findings from a group-randomized trial suggest minimal differences between the TRiM intervention and control groups in reported stress, PTSD, and stigma towards seeking mental health services (Greenberg et al., 2010). However, the authors noted that a limited number of traumatic events occurred during the period of study and that organizational functioning among the warships in the TRiM condition was higher than among control condition warships. In addition, the study did find that the number of disciplinary offenses in the year following the implementation of the program increased from 150 to 152 (1%) on the naval ships receiving the intervention, and from 162 to 205 (21%) on the naval ships not receiving the intervention. A second study tested the longitudinal (predeployment, in-theatre, and postdeployment assessment) effects of the TRiM intervention on mental health problems (Frappell-Cooke, Gulina, Green, Hacker, Hughes, & Greenberg, 2010). Researchers found that the UK Royal Marine company (with greater experience with TRiM) reported fewer instances of psychological distress (3%) postdeployment, compared to the UK Royal Army company (11%; using TRiM for the first time). However, this study used a nonrandomized design in which the company using TRiM for the first time had significantly more reports of psychological distress (21%) predeployment, compared to the company with greater experience with TRiM (8%).

Warriors Prevail

Stigma associated with mental health issues within the military population has often led soldiers with mental health symptoms to fail to seek

the appropriate resources and support (Hoge et al., 2004). Warriors Prevail addresses this problem by providing US soldiers anonymous access to psychological health resources (Prevail Health Solutions, 2011) via a web-based intervention.

Warriors Prevail consists of a nine session (30_45 minutes each) e-learning training program aimed at mitigating mental health symptoms. The program also includes a number of supplemental resources: self-assessments, peer support, and a ''Family Program.'' Self-assessment scores are used to provide users with feedback and tailor subsequent training content to user needs. Second, peer support, via instant messaging, is provided to actual combat veterans who have been trained and certified to provide peer support. Third, the ''Family Program'' provides training and resources to the spouses and significant others of service members (Prevail Health Solutions, 2011). Results from preliminary studies suggest the program has been successful at reducing stigma among participants in care-seeking attitudes, and that participants generally reacted positively to the program, both in terms of participant involvement and intervention content. A clinical trial involving OEF/OIF veterans is currently being conducted.

The Effect of Military Interventions

Taken as a whole, mental health-related interventions appear to have some potential for improving service members' mental health and well-being. This conclusion is based on the positive, but small effects ($d < .20$) evidenced with regard to the majority of the interventions described above (e.g., Adler et al., 2009a; Lester et al., 2011c). However, the relatively small effect sizes raise the question of whether these small effects are important. To answer this question, it is important to understand the breadth and cost of mental health-related problems among military personnel in the United States and the United Kingdom, where the armed forces have been engaged in conflict for over a decade. Larger intervention effects have typically been found among those with greater levels of combat exposure (e.g., Adler et al., 2009a), thus being at greater risk for mental health problems. This may lend support to the potential value of mental health-related interventions. Maybe not surprisingly, it also appears that larger intervention effects have been found when outcomes have been measured more proximally postintervention, as well as when self-reported outcomes have been measured, as opposed to when objective behavioral outcomes have been used.

Evidence suggests that 56% of the 1.6 million of American OEF/OIF veterans who left active duty between 2002 and 2012 obtained Veterans Affairs (VA) healthcare by the end of 2012 (Bagalman, 2013), with the cost of healthcare for soldiers estimated to anywhere from $422 to $717 billion (Stiglitz & Bilmes, 2008). The number of U.S. veterans who began treatment for PTSD, alone, between the years of 2004 and 2009 was over 100,000, with an estimated cost of $8,000 per patient in the first year of treatment (Congressional Budget Office, 2012). These estimates suggest that even small effects, at the population level, can be important at both the individual level (i.e., preventing mental health problems in individuals and improving their psychological well-being) and the organizational level (i.e., reducing healthcare costs and the burden on the military health care system; see Meyer et al., 2001). This is particularly true when residual effects over longer periods of time are considered (Bliese, Adler, & Castro, 2011).

Conclusions

There is perhaps no context where stress and emotional well-being are more important than they are in the military. These factors play a tremendously important role in determining performance, health outcomes, and turnover intentions in this context. Beyond the rigors of day-to-day life in the military, the negative effects associated with the high stress experience of combat deployments often spill into the family domain as well. Yet despite the importance of these factors and the dedicated efforts of researchers working in this domain, fully capturing the nature of the processes underlying these phenomena remains elusive. Studying emotions and wellbeing in the military context is inherently difficult owing to a variety of factors. First and foremost, the military is an organizational culture characterized by an unwillingness to display emotions or acknowledge personal weakness. This, coupled with a distrust of mental health practitioners, makes gathering reliable, accurate data a constant challenge. Moreover, given the fact that service members are constantly rotating in and out of combat environments, there is an extremely high degree of variability in their reported emotional well-being over time. Add to this the fact that a large number of factors contributing to the experience of stress and wellbeing make a comprehensive study capturing all relevant factors logistically (and potentially statistically) impossible.

Thus, we are left with an incomplete picture. Prior literature has identified a number of important risk factors and has established that both

personality and relational circumstances can serve as protective factors, but much is still left to be discovered. A host of relevant personality characteristics (e.g., emotional intelligence, attachment styles) remain relatively unexamined. Further, the relational literature has failed to explore such obvious avenues for research as the importance of family and social networks in nonmarried service members. Perhaps even more intriguing is the potential future directions for interventions designed to increase emotional well-being and develop resiliency against stress. To date, most programs have utilized CBT-based interventions. Although they have proven effective, their impact on emotional well-being and health outcomes is typically quite small and implementing them is often quite expensive. As an example, future research in this area might utilize cognitive bias modification (CBM) techniques as a much less expensive, yet equally effective alternative (see Hakamata et al., 2010 for a review). One final concern in this field of research is that the vast majority of research has been conducted on professional, voluntary forces (e.g. United States, United Kingdom, and Canada) and nearly all studies focus on single countries or specific forces within countries. Consequently, it is difficult to determine what role that organizational culture plays as a determinant of stress and well-being outcomes. For example, it is entirely possible that militaries that utilize conscription will show larger relationships between protective psychological factors and stress outcomes simply because they are not limited by restriction of range issues stemming from selection procedures that screen for potential mental health problems. Cross-national studies comparing military cultures and how they influence stress and well-being outcomes are clearly warranted.

The issues surrounding emotional well-being and stress in the military may be complex, but the importance of the problem cannot be overlooked. This is a context that plays a role in the lives of millions of individuals, both directly and indirectly. We have an obligation as scientists to work to better understand these phenomena, to document their effects, and to work to make the lives of our men and women in uniform better if we can.

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