THE ROLE OF SOCIAL SUPPORT DURING POST-DEPLOYMENT
REINTEGRATION IN THE ARMY NATIONAL GUARD

by

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ABSTRACT

MAGIN ALLYSE DAY. The Role of Social Support during Post-deployment
Reintegration in the Army National Guard. (Under the direction of DR. VIRGINIA GIL-
RIVAS)

The main purpose of the study was to investigate the role military and civilian

social support may play in moderating the relationship between stress and mental and

physical health during post-deployment reintegration among Army National Guard

(ARNG) members. Secondary data were used from a large longitudinal study in which

face-to-face structured interviews were conducted with ARNG members at six months

post-deployment. Hierarchical multiple regression analyses were conducted to assess the

contribution of reintegration-related stress on self-reported mental health and

Posttraumatic Stress Disorder (PTSD) symptoms at six months post-deployment. Results

indicated no significant association between self-reported physical health and

reintegration stress, social support, or mental health. Contrary to expectations, neither

civilian, nor military, social support moderated the relationship between reintegration

stress and perceived mental health or PTSD symptoms. Reintegration stress was

associated with lower self-reported mental health. In contrast, civilian social support was

associated with higher levels of self-reported mental health. Findings from the current

study suggest civilian, but not military, social support is a critical protective factor for

perceived mental health and lower PTSD symptoms among ARNG members during the

post-deployment reintegration time period.

ACKNOWLEDGMENTS

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INTRODUCTION

Active duty military and the National Guard (NG) satisfy state and federal needs through adherence to unique mission sets. Active duty forces are federally-funded, full-time military members, with a mission to defend the US from outside enemies and project power and aid throughout the world (Department of Defense, 2017). Conversely, NG members serve both state and federal governments and are tasked with aiding in domestic needs and emergencies such as rescue missions, disaster relief, and responding to civil unrest (Title 10 US Code 246). The majority of NG members hold a full-time civilian job and serve an average of 39 days per year of military service (Title 10 US Code 12401; Title 32 US Code 101). However, since September 11, 2001, mobilization of NG units in support of the War on Terror has increased significantly (Defense Science Board Task Force [DSBTF], 2007). In particular, the conflict's heavy reliance on ground forces has led to unprecedented operational stress on the Army National Guard (ARNG) (DSBTF, 2007). Given their part-time military status as civilian-soldiers, and a mission set heavily geared toward supporting state endeavors, returning from overseas deployments (averaging 365 days of continuous military service; US Army National Guard, 2017) results in ARNG members experiencing stressors additional and unique to the active duty component. These stressors include unit deactivation (return of NG soldiers to civilian status; DSBTF, 2007), searching for and adjusting to civilian employment, unemployment, and financial difficulties (Burnett-Zeigler et al., 2011;

Interian, Kline, Callahan, & Losonczy, 2012; Pfeiffer et al., 2012). Additionally, NG

members are subject to difficulties experienced by 40-50% of service members returning

from OIF/OEF deployments (Marek et al., 2012; Sayer et al., 2010; Yosick, 2012), such

as role adjustments, mental health concerns, strained family relationships, managing

aggression, and barriers to care (Bolton et al., 2008; Riviere, Kendall-Robbins, McGurk,

Castro, & Hoge, 2011). These challenges are likely associated with the stressful nature

of the reintegration process.

Given the potentially profound negative impact of chronic stress on health

(Danese & McEwen, 2012; DeVries & Wilkerson, 2003), reintegration may put NG

members at high risk for both mental and physical health concerns such as PTSD,

depression, anxiety, suicidal thoughts, substance use, and identity issues related to loss of

status or loss of self while transitioning from soldier to civilian (Eisen et al., 2012;

Gorman, 2011; Hoge et al., 2006; Mankowski et al., 2015; Marek et al., 2012; Tanielian

& Rand Corporation, 2008).

<div align="center">Background and Significance</div>

Post-Deployment Reintegration in the NG Population

The deployment cycle consists of three phases: pre-deployment, deployment, and

post-deployment/reintegration (Currie, Day, & Kelloway, 2011). For ARNG members,

the reintegration phase involves transition from roles filled in the military-culture during

deployment to civilian roles following return (Currie, Day, & Kelloway, 2011; Marek et

al., 2012). While formal definitions bound the construct to "the period following a

deployment" (Yosick et al., 2012, p. 11), reintegration is recognized as a process occurring over an undefined length of time, shaped by individual and environmental characteristics (Yosick et al., 2012). Military status is one such characteristic found to influence the reintegration experience and differences have been identified between active duty (AD) and NG members.

Active duty service members experience a shorter, more structured reintegration process during which transition is limited to family roles and mission-related activities within continued daily military work. Conversely, the abrupt military-to-civilian transition experienced by NG members leads to a less structured and longer reintegration process (Burnett-Zeigler et al., 2011; Han et al., 2014; Mankowski et al., 2015; Pfeiffer et al., 2012; Sheppard, Malatras, & Israel, 2010; Yosick et al., 2012). Difficulties are more likely to be encountered while re-adjusting to civilian employment and re-establishing civilian lives (Burnett-Zeigler et al., 2011; Han et al., 2014; Mankowski et al., 2015; Pfeiffer et al., 2012; Sheppard, Malatras, & Israel, 2010; Yosick et al., 2012). These difficulties include unemployment, financial trouble, environment and role adjustments, interpersonal aggression, strained family relationships, mental health concerns, and barriers to care (Bolton et al., 2008; Riviere et al., 2011).

Challenges associated with NG members' reintegration. The reintegration experience for NG members begins with unit deactivation. Completed within hours of return, this process consists of formal recognition of the transition from full-time military employment (AD-status) held during deployment, to civilian-status (Burnett-Zeigler et

al., 2011). Upon completion of the deactivation process, NG members return home to lives often lived far from the support and services offered by military bases and military communities (Gorman, Blow, Ames, & Reed, 2011; HQ RIO, 2015; Pfeiffer et al., 2012; Riviere, Kendall-Robbins, McGurk, Castro, & Hoge, 2011; Thomas, 2010 as cited in Yosick et al., 2012). In contrast to AD service members' return to full-time military work, this abrupt and complete re-entry to civilian life leaves many NG members to search for civilian employment or adjust to re-entry to the civilian workforce (Burnett-Zeigler et al., 2011). While federal laws protect civilian employment positions of military members during deployment, termination of positions and layoffs during this leave of absence are common, resulting in civilian unemployment and increased stress for many NG members (Burnett-Zeigler et al., 2011; Interian et al., 2012). Indeed, findings indicate as many as 39.2% of returning NG members face civilian unemployment, with 16.9% reporting an expectation of unemployment within six months of return (Pfeiffer et al., 2012). The resulting financial strain is evidenced by 12.9% of NG members reporting delinquency on housing payments (Pfeiffer et al., 2012). In addition to navigating civilian employment, the abrupt and complete re-entry to civilian life post-deployment leaves NG members to face the process of environment and role adjustment without military-specific support. This may hinder appraisal of the adjustment period, and the associated challenges, as a normal process. For instance, in a qualitative study with female OIF/OEF veterans, a common theme across responses was the perceived contrast between structured, routine life during a military deployment and the unpredictable, fast-

paced civilian world in which multiple roles and responsibilities were demanded (Mankowski et al., 2015). Several women in the study were noted to desire a return to the "simple days" experienced during deployment when a common mission was clear, goals were finite, and social support was convenient while working with individuals in a similar situation (Mankowski et al., 2015). These findings are supported by a report based on data gathered from the DoD, in which participants spoke about "the complexity of normal life" compared to deployment (Marek, 2012 p. 3).

Similarly, in another study of ARNG members exposed to low levels of combat while deployed, Wilcox and colleagues (2015) found rates of aggression five times higher than that in AD populations (Milliken, Auchterlonie, & Hoge, 2007). Additionally, research indicates approximately 30% of sampled NG members report having threatened another individual with physical violence during a reintegration period (Milliken et al., 2007; Thomas, 2010 as cited in Yosick et al., 2012). Heightened levels of aggression among NG members during reintegration may be further indication of the difficulty and stress involved in abrupt transitioning to civilian life.

The impact of reintegration on family life. The demands of role adjustment are perhaps most salient when looking at readjustment to family life. During deployment, the at-home partner assumes responsibilities once held by the service member (Marek et al., 2012), often times leading to a new normal in family functioning over time and sometimes resulting in permanent changes in how family members' abilities and contributions are viewed (Marek et al., 2012). Additionally, older children within the

family may reach developmental milestones during lengthy deployments, adopting permanently larger roles within the family (Marek et al., 2012). Thus, return of the service member to the family requires renegotiation of previously established roles. This process may be complicated by lack of communication regarding family member expectations of retaining new roles, modifying new roles, or reverting back to roles held prior to the deployment (Marek et al., 2012; Pfeiffer et al., 2012). Furthermore, effective communication surrounding these issues may be thwarted by changes in the service member's mood and mental health (Chandra et al., 2011 as cited in Marek et al., 2012). Lack of effective communication around this role adjustment process is a common cause of family stress and conflict during the reintegration period (Marek et al., 2012), and conflicts may leave the service member feeling like an outsider within the family, exacerbating mental health and mood difficulties (Marek et al., 2012; Pfeiffer et al., 2012). In NG members in-particular, role adjustment may be further complicated by personal feelings of loss of status or loss of self while transitioning from soldier to civilian (Marek et al., 2012). These concerns of mental health, mood, and sense of self indicate psychological transition is an important part of reintegration.

The impact of reintegration on mental health. The psychological transition necessary to enable service members to function in a slower-paced, lower-pressure civilian environment may be hindered by mental health concerns (Adler, Zamorskim, & Britt, 2011 as cited in Marek et al., 2012). Research indicates NG members endorse more mental health problems than AD members during reintegration (Hoge et al., 2006;

Milliken et al., 2007; Pfeiffer et al., 2012), likely because of decreased access to health care and lack of military-specific social support (Milliken et al., 2007; Pfeiffer et al., 2012). Findings indicate 11-48% of NG samples reporting at least one mental health concern immediately following deployment (Hoge et al., 2006; Khaylis, 2011; Pfeiffer et al., 2012; Polusny et al., 2011). For instance, a study by Gorman (2011) noted that of the 41% of NG members endorsing at last one mental health concern during reintegration, 11% reported PTSD, 21% depression, 5% suicidal thoughts, and 20% problematic alcohol use. Additional common mental health concerns among returning NG service members include generalized anxiety disorder (Eisen et al., 2012; Hoge et al., 2006; Tanielian & Rand Corporation, 2008), panic attacks (Mankowski et al., 2015), and a distress caused by a generalized sense of "not knowing who they were" (Mankowski, 2015. p. 17). Findings reveal elevated rates of mental health concerns among service members remain consistent for up to six months upon return from deployment (Pfeiffer et al., 2012), indicating the ability to use available and no-cost health care may be hindered by ease of access for NG members who often live far from military facilities. While active duty service members have access to no-cost military health care for the duration of their careers, NG members' no-cost military health care ends six months, and VA benefits expire 24 months, after return to civilian status (Miliken et al., 2007; TRICARE: Transition Assistance Management Program, 2016).

Furthermore, NG members are at higher risk for PTSD than AD members (Browne et al., 2007; Hotopf et al., 2006; Iversen et al., 2009; Milliken et al., 2007;

Operation Iraqi Freedom Mental Health Advisory Team Report, 2005; Russell et al., 2016; Smith et al., 2008) and this risk increases over time during reintegration (Milliken et al., 2007; Wolfe, Erickson, Sharkansky, King, & King, 1999). In one study, conducted by Miliken et al. (2007), despite both groups reporting similar rates of exposure to combat experiences, NG members meeting criteria for PTSD went from 12.7% immediately following deployment to 24.5% at a six-month follow-up, while the rate of PTSD among AD members increased by only 4.9%. Miliken et al. (2007) hypothesized lack of daily support from military unit members, as well as additional stress of transitioning to civilian employment, as possible explanations for results. Unfortunately, research indicates NG members face barriers to receiving support and care for mental health concerns.

     Barriers to care. Although NG members face unique and significant stressors compared to AD members as a result of civilian-soldier status, they experience fear and stigma related to the impact of help-seeking behavior on military-career, similar to their AD counterparts. The military has taken steps to reduce this fear and stigma, launching a $2.7 million mental health anti-stigma campaign (Dingfelder, 2009), and lifting the mandate for reporting counseling received for combat-related trauma, grief, sexual assault, or marriage and family issues during security clearance investigations (Director of National Intelligence, 2016). However, research indicates few NG members seek treatment during reintegration (Pfeiffer et al., 2012). For example, in a study conducted by Gorman et al., (2011), while 40% of NG members returning from deployment were

found to report one or more mental health concerns, only 50% of those individuals sought help. The stigma and fear is illuminated by the words of a NG senior officer interviewed by Mankowski et al. (2015):

> *My fear is—and I'm sure it's with a lot of people that are still in the military—*
> *that if I bring that out, [PTSD symptoms] that I won't be selected for the next*
> *qualitative retention work, that I won't be able to stay in the military. My full-time*
> *job is dependent upon my part-time job as a [MOS deleted]. If I don't have the*
> *part-time, I don't have the full-time (p. 15).*

The impact of fear and stigma are exacerbated by military cultural influences leading individuals to believe help-seeking is a sign of personal weakness (Pfeiffer et al., 2012). Additionally, physical distance from military bases/resources and the inability to schedule appointments around civilian work schedules during reintegration remain significant barriers to care, unique to the NG population (Pfeiffer et al., 2012), which may increase their risk for mental health difficulties during reintegration.

The impact of reintegration on physical health. To my knowledge, no research currently exists on the effect of post-deployment reintegration on physical health among NG members. Rather, the existing literature focuses on physical ailments resulting from combat-related injuries of the larger military population, with associated complications persisting during reintegration. While orthopedic injuries are cited as most common (Kline et al., 2010), traumatic brain injury (TBI) is reported in approximately 19% of returning soldiers (Rand Corporation, 2008). Additionally, veterans deployed in support

of OPERATION ENDURING FREEDOM or OPERATION IRAQI FREEDOM were found to be twice as likely to report chronic pain, and to have physical functioning lower than the that reported by the general population (Kline et al., 2010).

Of interest, findings demonstrate the complex and reciprocal relationship between physical and mental health outcomes during reintegration. Deployment-related TBI has been found to be associated with higher levels of post-deployment depression, anxiety, and PTSD (Bryant et al., 2010; Lew et al., 2008; Vanderploeg et al., 2012). Conversely, PTSD has been found to correlate with lower physical functioning (i.e. increased bodily pain, physical limitations to performing daily activities due to pain, and decreased self-rated general physical health) during post-deployment assessments (Jakupcak, Luterek, Hunt, Conybeare, & McFall, 2008).

The additive and interactive effects of the afore-mentioned challenges, lack of military infrastructure and support, and barriers to care experienced by NG members during post-deployment reintegration highlight the stressful nature of the process and the need to gain a better understanding of naturally existing resources that can help facilitate reintegration.

A Model for Understanding the Process of Reintegration

While acute stress reactions are normal and adaptive functions of the body, extended experiences of stress are associated with negative effects on both physical and mental health (Sapolsky, 1998). A robust body of literature details two general mechanisms through which this association is thought to occur. First, stress is thought to

affect both physical and mental health through maladaptive coping mechanisms, such as smoking and alcohol and drug use (Cohen, Kessler, & Gordon, 1995). A second theory proposes chronic stress may impact health through repeated and sustained activation of natural physiologic stress reactions in the body (i.e. secretion of adrenalin and cortisol, increases in heart rate, respiratory rate, and blood sugar, etc.; Sapolsky, 2004). Prolonged exposure to increased levels of hormones during the physiologic stress reaction put individuals at risk for chronic negative changes in the cardiovascular system (i.e. increased heart rate and blood pressure) and changes in immune function (Rabin, Cohen, Ganguli, Lysle, & Cunnick, 1989). Additionally, prolonged stress can lead to increased risk for metabolic disorders, neurodegeneration (Danese & McEwen, 2012), cellular aging, type 2 diabetes, osteoporosis, systemic inflammation (Bennett, Gillie, Lindgren, Fagundes, & Kiecolt-Glaser, 2013), depression, and anxiety (Bennet et al., 2013; Cigrang et al., 2014). Given these potentially profound negative impacts of chronic stress, recently-deployed ARNG soldiers navigating a prolonged and stressful reintegration represent a population at high risk for mental and physical health concerns. Investigating factors that may modify the relationship between stress and health is therefore a vital endeavor to supporting these service members.

Social Support and Stress Buffering

Research suggests that social support may act as a protective factor, buffering the effect of reintegration stress on physical and mental health in both civilian and military populations (Cigrang et al., 2014; Lehavot, Der-Martirosian, Simpson, Shipherd, &

Washington, 2013). Specifically, social support has been found to decrease the negative impact of stress on health during situations of high stress, in both civilian and military populations (Balderrama-Durbin et al., 2013; Berkman, Glass, Brissette, & Seeman, 2000; Cigrang et al., 2014; Cohen, 2004; Dickstein, 2010; Han et al., 2014; Oliver, Harman, Hoover, Hayes, & Pandhi, 1999; Polusny et al., 2011; Smith et al., 2013; Sripada et al., 2015).

Two central theories seek to explain this phenomenon, the Main Effect Model and the Stress-Buffering Model. The Main Effect Model proposes social support directly influences health through social group influences on thoughts, attitudes (including self-esteem), and behaviors that are beneficial to health (Cohen, Gottlieb, & Underwood, 2000). In this model, social support is thought to affect health regardless of stress-level because group membership provides consistent feedback related to feelings of belonging, security, and stability (Cohen et al., 2000; Lakey & Cohen, 2000). In contrast, the Stress Buffering Model proposes social support indirectly effects health by moderating the relationship between stress and health (Cohen, Gottlieb, & Underwood, 2000). Supported by the majority of findings in the stress literature, this model states social support may decrease the negative impact of stress on health only during situations of high stress (Balderrama-Durbin et al., 2013; Berkman, Glass, Brissette, & Seeman, 2000; Cigrang et al., 2014; Cohen, 2004; Dickstein, 2010; Han et al., 2014; Oliver, Harman, Hoover, Hayes, & Pandhi, 1999; Polusny et al., 2011; Smith et al., 2013; Sripada et al., 2015). In these circumstances, individuals with higher levels of social support experience

less of an increase in negative physical and mental health consequences (Cigrang et al., 2014; Cohen, 2004; Sripada et al., 2015). Different types of social support influence the relationship between stress and health via unique mechanisms.

Mechanisms of stress-buffering. Social support can be categorized into tangible, appraisal, and emotional support (Cohen & McKay, 1984). Tangible support (provision of information or goods) can directly reduce the impact of the stressor. For example, providing an individual who has lost personal possessions in a flood with a house, car, money, food, etc., or a doctor providing treatment options to an individual diagnosed with cancer are forms of tangible support. Appraisal and emotional support work through more complex pathways. Specifically, appraisal support, conceptualized as help defining and understanding events, is thought to intervene in the stress experience both prior to a stress reaction and after a stress reaction (Cohen & Wills, 1985). Appraisal support may prevent a stress response by helping an individual to interpret stressful situations less negatively (Lakey & Cohen, 2000), or as benign, and thus lessen or prevent a physiologic stress reaction (Cohen & McKay, 1984). If an event is evaluated as stressful and the individual experiences a stress reaction, appraisal support may help to reduce the negative consequences of stress on health by modifying an individual's coping response (Cohen & McKay, 2004). For instance, coping strategies may be suggested by members in the support system, enacted through social pressure, or even developed by the individual through social comparisons to like-individuals demonstrating such coping response (Cohen & McKay, 2004). Additionally, appraisal support may operate through

social contacts encouraging an individual to see positive aspects of a stressful situation

(Pearlin & Schooler, 1978), distracting attention from stress, and reducing the stress

response (Cohen & McKay, 2004).

Emotional support meets social-emotional needs such as acceptance and feelings

of belonging (Cohen & Wills, 1985). Through boosting feelings of acceptance despite

difficulties or perceived personal flaws, emotional support is thought to help prevent

stress responses by tempering feelings of helplessness and perceived inability to cope

(Cohen & Wills, 1985). In this way, emotional support promotes self-esteem, enforcing

an individual's confidence in their ability to respond to the situation, and lowers the

chance of a stress response (Cohen & Wills, 1985). Additionally, emotional support

(through feeling of belonging) may play a protective role during appraisal (by preventing

a stress response), and during a stress response (by shortening the length of time a

physiological response is experienced). Because humans have an intrinsic need for

survival, and survival is evolutionarily associated with belonging in social groups (safety

in numbers), it is likely situations threatening an individual's feeling of belonging induce

physiologic stress responses (Eisenberger & Cole, 2012). Types of such stressful events

include the death of loved ones, divorce, retirement, or transitioning from military to

civilian life during post-deployment reintegration. In these cases, emotional support may

fulfill a survival need, protecting an individual from perceiving situations as threatening

to feelings of belonging and thus prevent a stress response (Cohen & McKay, 1984).

Emotional support may also help an individual to recover from threats of belonging, and thus shorten the associated physiologic stress response (Cohen & McKay, 1984).

Source of Social Support: Military vs. Civilian. Research also indicates the effectiveness of different types of social support may be influenced by the source of support. The Resource Matching Hypothesis states some types of social support may be more effective if offered by specific individuals within a social network (Cohen, 1992). Emotional support may be most effective when offered by individuals in close, relatively intimate relationships with the individual in need, as support and acceptance from individuals in these relationships are likely to provide the most genuine sense of belonging (Cohen & McKay, 1984). A study by Han et al. (2014) provides support for this hypothesis in a military context. In this study, emotional support provided by family and friends to NG members returning form a deployment to Iraq was found to be negatively associated with severity of PTSD symptoms. In contrast, emotional support provided by civilian co-workers and members of the community was not found to be significantly associated with PTSD symptom severity (Han et al., 2014).

While no study has yet looked at the role of military-specific social support during the reintegration period for NG members, the necessity of such support in ensuring successful reintegration has been highlighted by study of the larger military population. Specifically, high levels of unit cohesion (military-specific support) are associated with better health, job satisfaction, higher performance, and lower rates of undesirable behaviors within units (Dickstein et al., 2010). Further, post-deployment unit

cohesion is an important source of support for AD service members (Yosick, 2012). The importance of this military-specific support is highlighted by a study in which this resource was not available.

In a study conducted by Cigrang and colleagues (2014), a sample of AD personnel was followed during reintegration from a high-risk, 365-day deployment to Iraq. In this unique case, the personnel were separated from their home unit and re-stationed to a base of choice immediately upon return (Cigrang et al., 2014). Common themes from focus groups conducted with these service members were feelings of estrangement and isolation from new coworkers, a lack of appreciation by new leadership, and an appreciation for focus groups providing the opportunity to meet with fellow military members from deployment (Cigrang et al., 2014). Service members "emphasized the emotional benefit they derived from talking with others who 'had been through the same thing'" (Cigrang et al., 2014, p. 63). A quote from a service member speaking about the focus group experience illustrates the importance of like-other support, "*I can't relate to anyone at my new base; it's like I've been holding my breath all these months and now that I'm with the people I deployed with, I can breathe again*" (Cigrang et al., 2014, p. 63). The authors concluded social support, specifically from service members deployed within the same unit, was a critical component to resilience during reintegration and service members in the study were likely at higher risk for psychological difficulties as a result of the "disruption of unit support" following

deployment (Cigrang et al., 2014). Thus, it is likely this disruption of support also places members at higher risk for physical health concerns.

Given these findings in an AD population, NG members are likely more vulnerable to feelings of isolation and estrangement from their new civilian environments following deployment. In fact, NG members typically report lower levels of unit support than AD forces (Browne et al., 2007), indicating NG members may be at risk for low levels of social support from critical, military-specific sources. In contrast to the AD population, NG members may, instead, rely on family members to provide needed social support. This inference is supported by a study finding family members were the most commonly listed members of a social network in a sample of NG members, with only 26% of the members reporting another NG member within their social support network (Sripada et al., 2015). While these findings indicate NG members may rely more heavily on, and receive benefits from, social support provided by friends and family, it is possible that the lack of military-specific support may place NG members at increased risk for poorer health outcomes during reintegration. Indeed, a study conducted by Smith and colleagues (2013), examining the role of perceived social support from military personnel and civilians (family and friends) in predicting depressive and PTSD symptoms in Marine recruits during recruit training (stressful military exposure), supports this idea. Specifically, high levels of military-specific social support were more effective than civilian support at buffering the impact of recruit training on mental health symptoms (post-traumatic stress and depression; Smith et al., 2013). These findings provide further

support for the unique stress-buffering effect of military-specific social support during adjustment to military-related stressors. However, Marine recruit training has little similarity to the reintegration process faced by NG members and further study is needed to investigate the role of social support during reintegration, a situation requiring adaptation to lower-levels of arousal and vigilance over a longer period of time. Notably, despite increased reliance on the ARNG since 2001, and the unique stressors faced by this population, to my knowledge no study has yet investigated the relationship between reintegration stress, social support, and both mental and physical health during the reintegration period in this population.

In review, two models are used to explain the protective role of social support against negative consequences of stress on physical and mental health. The Main Effect Model proposes social support directly and positively effects health, regardless of stress level experienced. In contrast, the Stress Buffering Model proposes social support buffers the impact of stress only under conditions of moderate to high stress. Three types of social support (tangible, appraisal, and emotional) operate through helping an individual avoid or reduce a stress response through providing tangible objects or information, re-appraising situations, modifying coping skills, increasing self-esteem, and providing a sense of belonging (Cohen & McKay, 1984). According to the Resource Matching Hypothesis, appraisal and emotional social support may be more effective if offered by individuals in close relationships with, or from similar backgrounds as, the individual in need (Cohen & McKay, 1984).

The Present Study

Previous research on social support during reintegration of military members has largely focused on samples other than OIF/OEF service members (i.e. Vietnam veterans), with mixed AD/NG samples, and during time periods other than post-deployment reintegration (i.e. civilian reintegration following retirement and post-secondary education reintegration). These studies have limited ecological validity to the NG population due to differences in culture and homecoming era of previous wars (Chard, Schumm, Owens, & Cottingham, 2010), access to resources between AD and NG members (Browne et al., 2007; Han et al., 2014), and stressors faced by different forms of reintegration. Finally, research has focused on the effect of social support on mental health of military members during reintegration with little or no regard to the possible relationship between social support and physical health.

Given the issues outlined above, the purpose of the proposed study is to better understand the role of social support during ARNG members' reintegration experience. While previous research on military populations has tested the direct effect of stress on mental health, the proposed study will test the possible moderating effect of social support on the relationship between stress and health. Additionally, this study will seek to determine whether military-specific social support plays a role unique to support received from friends and family in the relationship between stress and physical and mental health. Findings have implications for future program development aimed serving ARNG members during reintegration.

Based on the current model and research findings, we propose the following hypotheses:

H1: Social support received from *friends and family* will moderate the relationship between stress and health such that greater levels of support will be associated with better physical and mental health outcomes for individuals experiencing moderate to high levels of stress.

H2: Social support received from *ARNG members* will moderate the relationship between stress and health such that greater levels of support will be associated with better physical and mental health outcomes for individuals experiencing moderate to high levels of stress.

H3: Social support received from *ARNG members* will buffer the relationship between stress and physical and mental health to a greater degree than social support received from *friends and family*.

METHOD

Participants

Participants are part of an on-going, larger, DoD-funded study investigating deployment experiences in ARNG families from the Midwest United States. Consequently, eligibility for the larger study required service members to be serving in the ARNG, preparing for deployment in support of OIF/OEF, and currently living with a significant other. Participants were recruited through partnership with state-level ARNG headquarters to identify units preparing to deploy. Contact was made with each identified unit's deployment readiness personnel to gather approval for recruitment of service members within the unit. If permission was received, all identified service members within the unit were mailed study information approximately one week prior to mandatory pre-deployment briefings. Researchers attended the unit's pre-deployment briefing in-person to recruit ARNG members and their families. ARNG families indicated desire to participate by responding either to the mailing or by providing contact information at the pre-deployment briefings. Given the very low number of women in ARNG, and documented gender differences in the use of social support (Ashton & Fuehrer, 1993; Kaplan & Hartwell, 1987), this study utilized data collected only from men serving in the ARNG. Due to military operational security constraints, it was infeasible to obtain the sampling frame necessary to conduct probability sampling of ARNG members preparing to deploy. Rather, the sampling technique described aimed to

obtain a sample representative of the larger, overall deployment-eligible ARNG

population in the Midwestern United States.

Each service member received $30 monetary compensation per interview, which

lasted approximately 90 minutes. Human subjects IRB approval for the larger study was

obtained from Purdue University and all participants provided informed consent. Human

subjects IRB approval was also obtained from the University of North Carolina, Charlotte

for use of de-identified data from ARNG service members.

<div align="center">Study Design</div>

This study used between-subject analysis to examine the post-deployment

reintegration experience of ARNG members. The current study used data from an

ongoing study conducted by MacDermid-Wadsworth and colleagues at the Purdue

Military Family Research Institute. Specifically, data from male service members at pre-

deployment and six-months post-deployment were used. Using a sample of currently-

serving ARNG members introduces risk of under-reporting of mental and physical health

and life concerns, a known difficulty when studying military members (Nevin, 2009). In

an attempt to address this issue, data collection was completed through use of

interviewers trained to build rapport with participants and encourage accurate reporting.

Additionally, use of interviewers aided in standardizing the environment in which

participants completed self-report measures.

Procedure

Participants for the original study participated in semi-structured interviews, during which information was gathered about military experience, civilian job experience, civilian job and family life overlap, military lifestyle, coping, well-being, life events, relationship, communication, family function, and parenting. Interviews took place in service members' homes or public meeting places (i.e. public libraries or restaurants). When more than one family member was interviewed simultaneously (i.e. children, spouse, and service member), interviews occurred in separate rooms to assure confidentiality and encourage honest reporting. Interviews were conducted by professional social workers, who completed standardized interview training designed specifically for the study, and participated in frequent rehearsals. To limit interviewer influence on participant responses, interviewers read standardized greetings, instructions, and prompts throughout interviews. However, in recognition of the potential for interviewer affect to influence participant reporting, interviewers were not identified as mental health professionals to participants and were instructed to be personable, warm, and welcoming during interactions with families to encourage truthful and accurate reporting of sensitive information. To insure the highest level of professional conduct and unobtrusiveness, families were provided feedback forms to complete at leisure after all interviews, providing a way to express negative impressions or suggested changes. In an effort to prevent recording errors, data entry of each interview into a computer database was accomplished twice by two, separate research assistants. Additionally,

monitoring of the interview process was conducted through review of both interviewer-recorded responses and audio recorded interviews by research assistants to consistently provide corrective and positive feedback to interviewers and insure fidelity across the study.

<div align="center">Measures</div>

Covariates assessed at pre-deployment.

Demographic information. Participants completed items indicating their age, educational attainment, race, income, and current employment status.

Covariates assessed at one-month post-deployment.

PTSD Symptoms. The 17-item PTSD Check List, Military Version for DSM-5 (PCL-M; Weathers et al., 2013) was administered to assess symptoms over the last month. Participants responded on a scale from 1 (*Not at All*) to 5 (*Extremely*). Total scale score was computed based on available guidelines (Wortmann et al., 2016). The measure has demonstrated excellent convergent validity with measures of depression ($r = .64$, $p<.01$), anxiety ($r = .61$, $p<.01$), and PTSD clinical interview scales ($r = .68$, $p<.01$) in samples of veterans returning from deployment (Wortmann et al., 2016). Discriminant validity has been demonstrated with a measure of resilience ($r = .-.22$, $p<.01$) (Wortmann et al., 2016). Internal consistency of this measure has been shown to be excellent in past use, with subscales of PTSD symptom criteria ranging from $\alpha =.75$ to $\alpha=.95$ (Wortmann et al., 2016). Measure reliability in this sample was also excellent ($\alpha =.93$).

Independent variables assessed at 6-months post-deployment.

Reintegration-specific stress experiences. Twelve items adapted from the Survey of Army Families-V study (SAF-V; Orthner & Rose, 2005) assessed stress experienced by ARNG members as a direct result of post-deployment reintegration. For example, the measure included items such as "*Relationship intimacy and communication with one another*". Participants were provided with five response options on a scale ranging from 1 (*Very Difficult)* to a 5 (*Very Easy)*. No psychometric data were available to confirm the validity or reliability of the original or the adapted scale. Preliminary data analysis revealed significant missing data across both post-deployment collection time points for item one ("*Reunion with family*"), as well as the three items inquiring about stress surrounding parenting ("*meeting expectations of children"*). Item one was removed from the final measure after it was determined this item contrasted with other items in its general ambiguity. It appears this item was eventually omitted from later interviews within the larger study. Additionally, the three items relating to stress of parenting during reintegration were removed as 15% (n=25) of the final sample (n=162) did not have children. A mean score of the eight remaining items will be calculated. Reliability of the final, 8-item scale for this particular sample was acceptable (α =.85).

Trauma exposure. The Post-deployment Stressors Subscale of the Deployment Risk and Resilience Inventory (DRRI; Han et al., 2014) is comprised of 17 items describing stressful events and providing participants with *yes* or *no* answer options to indicate the occurrence of the event. Examples of items include "*Since returning home, I*

experienced a serious operation", "*… experienced the death of someone close*", or

"*…had a family member with a serious drug or alcohol problem*". A total summary

score of the items reported was computed (Voght et al., 2012). This subscale has been

found to have good internal consistency ($\alpha = .70$), good convergent validity, and

demonstrated significant positive correlations with PTSD symptom severity ($r = .55$,

$p < .001$), depression ($r = .50$, $p < .001$), and anxiety ($r = .51$, $p < .001$) (Vogt et al., 2012).

Measure reliability for this sample was acceptable ($\alpha = 78$).

    Social support from family and friends. Three items from each of the two

subscales- family and friend), modified and adapted from the 40-item Inventory of

Socially Supportive Behaviors (ISSB; Barrera, Sandler, & Ramsay, 1981), were

administered to assesses perceived support from friends and family. The modified items

were designed to measure emotional ("*I can get together with my [friends, family] to

have fun or to relax")* and tangible support ("*I can call on my [friends, family, military

coworkers to spend time and energy to help take care of something I need"* and "*I can

talk to my [friends, family, military coworkers] and get advice about things that are

important to me").* Questions referenced frequency of support received over the last

month with response options of *Never, Sometimes,* and *Always.* Participants responded to

these three items regarding social support received from family, and then responded to

the same three items regarding social support received from friends, for a total of six

questions. A mean score of the six items was computed. Reliability for this measure in

the current sample was acceptable ($\alpha = .72$).

Social support from military coworkers. ARNG members responded to items adapted from the ISSB described above assessing emotional and tangible support received from military coworkers. A mean score of the three items was computed. Reliability of this measure for the current sample was acceptable (α =.88).

Dependent variables assessed at six-months post-deployment.

Perceived Mental Health. Participants rated their overall mental health over the past month with an item adapted from the Department of Defense Form 2900, Post Deployment Health Re-Assessment (PDHRA) which was modeled after life-chart methodology (Leverich & Post, 2002). The item asked participants to "*Rate your psychological health during this past month.*" Participants responded using a scale ranging from 1 (*Very Poor*) through 5 (*Very Good*).

PTSD Symptoms. See description of PCL-M (Weathers et al., 2013) previously mentioned.

Physical Health. Perceived physical health was measured with a single item adapted from the Behavioral Risk Factor Surveillance System's core Health-Related Quality of Life survey (HRQOL; Currey, Rao, Winfield, & Callahan, 2003): "*Thinking about the last 30 days, how many days have you felt ill because of physical illness or injury?*" and required the participant to provide an answer from zero to 30. The number of days provided by participants served as the score of physical health, with higher numbers of days indicating poorer health. This item has demonstrated convergent validity with physical functioning (Newschaffer, Jackson-Thompson, & Counte, 1998).

Statistical Analysis

SPSS Version 24 (IBM, 2016) was used for data management and statistical

analyses. To allow the best possible investigation of the stress-buffering relationship,

several variables of interest were identified and requested from the original study. These

variables were identified as measures of varying aspects of stress, mental health, and

social support. Of these requested variables of interests and time points, variables

representing the most valid measure of the constructs of interest (social support, stress,

and health) were selected. Descriptive statistical analyses were used to identify response

variability, missing data, and outliers. Reliability coefficients were calculated for the

measurement scales. Additionally, data from two post-deployment collection points (1-

month post-deployment and 6-month post-deployment) were requested. This study used

the 6-month post-deployment data collection point for final analysis.

Bivariate correlations were conducted to explore the associations among the

variables of interest. Hierarchical multiple regression analysis were performed to

evaluate the moderating effect of two types of social support (ARNG member and friends

and family) on the relationship between stress and mental health, as well as stress and

physical health, while controlling for relevant demographic variables. In step 1, the

control variables were entered, in step 2, stress and mental health or physical will be

entered, and in step 3, one interaction term was entered.

Additionally, comparisons of ΔR^2 values of ARNG member social support and friends

and family social support were planned to determine which form of support had the

greatest effect on the relationships of interest. Two interaction terms were calculated

(one for each type of social support) for each outcome of interest (stress and mental

health and stress and physical health): Civilian Social Support_X_Mental Health and

Military Social Support_X_Mental Health; Civilian Social Support_X_Physical Health

and Military Social Support_X_Physical Health.

Simple slopes analyses were planned for examining the nature of the moderating effects.

RESULTS

In total, 290 participants completed pre-deployment measures of demographics, combat exposure, PTSD, and depression. A total of 128 participants dropped out of the study between pre-deployment and six months post-deployment, leaving a sample of 162 participants. Of these 162 participants, a final sample of 99 provided demographic information and complete measures of self-rated mental and physical health, reunion stress, and social support at both the pre-deployment and six months post-deployment time points. Independent T-tests used to compare means of demographic and other variables of interest indicated no significant differences between individuals who dropped out and remained in the study.

The majority of participants (91.9%) identified as white, with an average age of 33 years (*SD* =6.92 years). The majority of the sample (77.8%) endorsed being employed full-time prior to deployment, 26.3% served between four-to-seven years, and 40.4% reported having some college credit but no degree. All means fell within the expected range and standard deviations indicate limited variability in responses (see Table 1). Correlation analysis indicated the demographic variables were not significantly associated with perceived mental health, physical health, PTSD symptoms, reintegration stress, or social support.

Factors Contributing to Perceived Mental Health

Correlation analyses indicated that higher levels of reintegration specific stress and PTSD symptoms were strongly associated with lower levels of perceived mental

health. Additionally, both civilian and military social support were significantly associated with higher levels of perceived mental health at 6-month post-deployment. Hierarchical multiple regression analyses were performed to evaluate the moderating effect of civilian and military social support on the relationship between reunion stress and perceived mental health. Reintegration stress was negatively associated with perceived mental health. Civilian social support had a direct effect on perceived mental health such that higher levels of civilian social support were associated with higher perceived mental health. Contrary to expectations, social support from military coworkers was not significantly associated with perceived mental health when accounting for civilian support and reunion stress. Additionally, neither civilian, nor military, social support moderated the relationship between reunion stress and perceived mental health.

Factors contributing to PTSD symptoms. Interestingly, although there was a significant bivariate association between military and civilian social support, military social support was not significantly associated with PTSD symptoms. Hierarchical multiple regression analyses were performed to evaluate the moderating effect of civilian and military social support on the relationship between reintegration stress and PTSD symptoms. Both reintegration stress, and trauma exposure were associated with higher levels of PTSD symptomatology. Civilian social support was associated with lower levels of PTSD symptoms. Surprisingly, social support from military coworkers was not significantly associated with PTSD symptoms when accounting for civilian support,

reunion stress, and trauma exposure. Furthermore, contrary to predictions, neither

civilian, nor military, social support moderated the relationship.

Factors Contributing to Self-Reported Physical Health.

Surprisingly, none of the variables of interest were significantly associated with

self-reported physical health and thus no additional analyses were conducted.

DISCUSSION

The purpose of this study was to examine the role of civilian and military social support in buffering the negative effects of reunion stress on mental and physical health of ARNG members during post-deployment reintegration. Overall, findings did not support the hypothesized buffering effects. Contrary to the hypotheses, social support from military coworkers, or family and friends, did not moderate the relationship between reunion stress and self-reported mental health and PTSD symptoms. Results of this study indicate civilian social support contributes to better self-reported mental health and lower levels of PTSD symptomology during the post-deployment reintegration. In contrast to prior studies with active duty populations, military support was not significantly associated with the mental health of ARNG during the reintegration period. It is possible that military support plays a different role among ARNG members' as they have limited contact with military coworkers before deployment and after return to civilian status during reintegration. Social support has been found to be most effective when offered by individuals in close, relatively intimate relationships with the individual in need, as support and acceptance from individuals in these relationships is likely to provide the most genuine sense of belonging (Cohen, 1992; Cohen & McKay, 1984). In the absence of daily interactions with military coworkers during post-deployment reintegration, ARNG members may rely heavily on civilian family and friends for support. This line of reasoning is also supported by studies indicating family members were the most commonly listed members of a social network in a sample of NG members, with only

26% of ARNG members reporting military members in their social support circles (Sripada et al., 2015). This study's findings are in-line with those found by Han et al. (2014), in which emotional support provided to NG members during post-deployment reintegration by family and friends, but not less-intimately related civilian coworkers, was negatively associated with severity of PTSD symptoms.

Similarly, contrary to expectations, none of the variables of interest were significantly associated with physical health in this population. The negative effects of stress on physical health are well-documented, with research indicating increased heart rate and blood pressure, changes in immune function (Rabin, Cohen, Ganguli, Lysle, & Cunnick, 1989), increased risk for metabolic disorders, neurodegeneration (Danese & McEwen, 2012), cellular aging, type 2 diabetes, osteoporosis, and systemic inflammation (Bennett, Gillie, Lindgren, Fagundes, & Kiecolt-Glaser, 2013) among individuals experiencing chronic high levels of stress. It is likely the small sample size of this study, and limited variability in self-reported physical health, hindered examination of the true relationship between reunion stress, social support, and physical health. Limited variability in self-reported health among service members is consistent with known under-reporting of health concerns in this population (Nevin, 2009).

Implications

To my knowledge, no study has yet examined the importance of military-specific social support during post-deployment reintegration in NG members. Findings indicative of the importance of civilian, but not military, social support for mental health in this

population highlights the unique circumstances and needs of ARNG members during this post-deployment time period. These findings suggest clinicians and others working with ARNG members should evaluate civilian social support available and leverage this resource in efforts to facilitate post-deployment reintegration. For instance, services for ARNG members should consider including family and friends in activities, and educate family and friends on the warning signs of mental health concerns, resources available for support, and how best to support service members. Inclusion of, and educating family and friends, are important endeavors given many ARNG families are isolated, living far away from military bases and larger military communities. Finally, findings indicate civilian social support is an important resource to NG members, regardless of stress level experienced during reintegration. Therefore, programs should aim to target the family of all returning ARNG members, rather than selecting only members reporting high levels of distress during this time period.

<div align="center">Limitations & Future Directions</div>

The current study has several limitations worth discussing. The use of secondary data, representing a subset of information from a larger, ongoing study, presented unique challenges. The original study was not designed to examine the contribution of social support to physical and mental health among ARNG members. Specifically, perceived physical and mental health outcome variables were measured with a single-item. As such, it is possible participants considered only narrow aspects of mental and physical health when answering each question, contributing to under-reporting of concerns and

limited variability in responses. Furthermore, under-reporting of health issues is a known difficulty in studying military populations (Nevin, 2009). Future studies investigating the relationship between social support and physical and mental health should include valid and reliable measures of both physical and mental health to capture the complexity of these constructs in this population.

In addition, given the original study's focus on the effect of post-deployment reintegration on military family life, the measure of reunion stress included 12 items focused on parenting, which were not relevant to 15% of participants included in these analyses who did not have children. Future studies investigating the relation between social support and health should consider use of measures that capture a broader variety of factors affecting reunion stress. Similarly, likely to reduce participant burden and response fatigue, the original study shortened the 40-item Inventory of Socially Supportive Behaviors (ISSB; Barrera, Sandler, & Ramsay, 1981) to three items. While the original, 40-item ISSB assessed emotional, tangible, and self-esteem support, the three items in the current study assessed for only emotional and tangible support. Examining self-esteem support in the NG population is particularly relevant given research indicating this population often struggles with feelings of loss of status, or loss of self, while transitioning from soldier to civilian (Marek et al., 2012). Furthermore, when answering questions about social support received from family, participants were instructed to consider only support received from "extended family", which was defined to participants as "*family other than your significant other and children (e.g. parents,*

grandparents, siblings)". In this way, this study does not include a measure of social support provided by spouses, a likely significant and critical source of support to NG members. Future studies should use well-established, construct-valid, measurements to more fully understand the role of social support during post-deployment reintegration among ARNG members.

Finally, the secondary data set included in these analyses had large amounts of missing data, leading to a small final sample and reduced statistical power which may have limited our ability to detect the moderating effects of social support on the relationship between reunion stress and mental health. Response patterns indicate participants made frequent use of the option "*prefer not to answer*" during interviews. Future studies may choose not to include this selection on the questionnaire response options provided to participants during the interview, but rather establish in the interview introduction that participants may elect not to answer any question or stop the interview at any time. Granting permission at the beginning of the interview and limiting participant's exposure to the "*prefer not to answer*" option, may more effectively encourage valid responses. Furthermore, interviewers may be trained to probe and encourage participants to limit the likelihood of selecting the "*prefer not to answer*" response option.

Conclusion

Despite the study's limitations, these findings provide insight into the unique needs and experiences of ARNG members during post-deployment reintegration. Results

revealed civilian, but not military, social support is a significant protective factor for self-reported mental health and PTSD symptom severity. These findings are divergent from those among active duty samples in which military social support is critical, indicating, in the absence of daily interaction with military co-workers, ARNG members likely rely more heavily on intimate relations with family and friends during post-deployment reintegration. Furthermore, civilian social support has direct, positive effects on mental health among ARNG members during post-deployment reintegration, regardless of the amount of stress experienced during this time. As such, civilian social support is an important resource to all ARNG members during reintegration, to include those who appear to be effectively managing the stress of reintegration and military-to-civilian transition. The results of this study may inform programs and practitioners serving ARNG members during reintegration. Providers should evaluate civilian social support available and leverage this resource in efforts to facilitate post-deployment reintegration. For instance, services for ARNG members should consider including family and friends in activities, and educate family and friends on the warning signs of mental health concerns, resources available for support, and how best to support service members. Inclusion of, and educating family and friends, are important endeavors given many ARNG families are isolated, living far away from military bases and larger military communities.

REFERENCES

Ashton, W. A., & Fuehrer, A. (1993). Effects of gender and gender role identification of participant and type of social support resource on support seeking. *Sex Roles*, *28*(7), 461–476.

Barrera, M., Sandler, I. N., & Ramsay, T. B. (1981). Preliminary development of a scale of social support: Studies on college students. *American Journal of Community Psychology*, *9*(4), 435–447.

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, *51*(6), 843–857.

Browne, T., Hull, L., Horn, O., Jones, M., Murphy, D., Fear, N. T., … others. (2007). Explanations for the increase in mental health problems in UK reserve forces who have served in Iraq. *The British Journal of Psychiatry*, *190*(6), 484–489.

Burnett-Zeigler, I., Valenstein, M., Ilgen, M., Blow, A. J., Gorman, L. A., & Zivin, K. (2011). Civilian employment among recently returning Afghanistan and Iraq National Guard veterans. *Military Medicine*, *176*(6), 639–646.

Chard, K. M., Schumm, J. A., Owens, G. P., & Cottingham, S. M. (2010). A comparison of OEF and OIF veterans and Vietnam veterans receiving cognitive processing therapy. *Journal of Traumatic Stress*, n/a-n/a. https://doi.org/10.1002/jts.20500

Cigrang, J. A., Wayne Talcott, G., Tatum, J., Baker, M., Cassidy, D., Sonnek, S., … Smith Slep, A. M. (2014). Impact of Combat Deployment on Psychological and Relationship Health: A Longitudinal Study: Impact of Combat Deployment. *Journal of Traumatic Stress*, *27*(1), 58–65. https://doi.org/10.1002/jts.21890

Cohen, Gottlieb, Underwood. (2000). Social Relationships an dHealth. Retrieved September 30, 2016, from http://kungfu.psy.cmu.edu/~scohen/CohGotUnd2000.pdf

Cohen, S. (2004). Social relationships and health. *American Psychologist*, *59*(8), 676.

Currie, S. L., Day, A., & Kelloway, E. K. (2011). Bringing the troops back home: Modeling the postdeployment reintegration experience. *Journal of Occupational Health Psychology*, *16*(1), 38–47. https://doi.org/10.1037/a0021724

Danese, A., & McEwen, B. S. (2012). Adverse childhood experiences, allostasis, allostatic load, and age-related disease. *Physiology & Behavior*, *106*(1), 29–39. https://doi.org/10.1016/j.physbeh.2011.08.019

Demirchyan, A., Petrosyan, V., & Thompson, M. E. (2011). Psychometric value of the Center for Epidemiologic Studies Depression (CES-D) scale for screening of depressive symptoms in Armenian population. *Journal of Affective Disorders*, *133*(3), 489–498. https://doi.org/10.1016/j.jad.2011.04.042

DeVries, M. W., & Wilkerson, B. (2003). Stress, work and mental health: a global perspective. *Acta Neuropsychiatrica*, *15*(1), 44–53. https://doi.org/10.1034/j.1601-5215.2003.00017.x

Dingfelder, S. F. (2009). The Military's War on Stigma. *Monitor on Psychology*, *50*(6), 52–54.

Eisen, S. V., Schultz, M. R., Vogt, D., Glickman, M. E., Elwy, A. R., Drainoni, M.-L., … Martin, J. (2012). Mental and physical health status and alcohol and drug use following return from deployment to Iraq or Afghanistan. *American Journal of Public Health*, *102*(S1), S66–S73.

Eisenberger, N. I., & Cole, S. W. (2012). Social neuroscience and health: neurophysiological mechanisms linking social ties with physical health. *Nature Neuroscience*, *15*(5), 669–674. https://doi.org/10.1038/nn.3086

Gorman, L. A., Blow, A. J., Ames, B. D., & Reed, P. L. (2011). National Guard families after combat: Mental health, use of mental health services, and perceived treatment barriers. *Psychiatric Services*. Retrieved from http://ps.psychiatryonline.org/doi/pdf/10.1176/ps.62.1.pss6201_0028

Han, S. C., Castro, F., Lee, L. O., Charney, M. E., Marx, B. P., Brailey, K., … Vasterling, J. J. (2014). Military unit support, postdeployment social support, and PTSD symptoms among active duty and National Guard soldiers deployed to Iraq. *Journal of Anxiety Disorders*, *28*(5), 446–453. https://doi.org/10.1016/j.janxdis.2014.04.004

Hoge, C. W., Auchterlonie, J. L., & Milliken, C. S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *Jama*, *295*(9), 1023–1032.

Hotopf, M., Hull, L., Fear, N. T., Browne, T., Horn, O., Iversen, A., … others. (2006). The health of UK military personnel who deployed to the 2003 Iraq war: a cohort study. *The Lancet*, *367*(9524), 1731–1741.

Interian, A., Kline, A., Callahan, L., & Losonczy, M. (2012). Readjustment stressors and early mental health treatment seeking by returning National Guard soldiers with PTSD. *Psychiatric Services*. Retrieved from http://ps.psychiatryonline.org/doi/abs/10.1176/appi.ps.201100337

Iversen, A. C., van Staden, L., Hughes, J. H., Browne, T., Hull, L., Hall, J., … Fear, N. T. (2009). The prevalence of common mental disorders and PTSD in the UK military: using data from a clinical interview-based study. *BMC Psychiatry*, *9*(1). https://doi.org/10.1186/1471-244X-9-68

Jakupcak, M., Luterek, J., Hunt, S., Conybeare, D., & McFall, M. (2008). Posttraumatic Stress and Its Relationship to Physical Health Functioning in a Sample of Iraq and Afghanistan War Veterans Seeking Postdeployment VA Health Care: *The Journal of Nervous and Mental Disease*, *196*(5), 425–428. https://doi.org/10.1097/NMD.0b013e31817108ed

Lehavot, K., Der-Martirosian, C., Simpson, T. L., Shipherd, J. C., & Washington, D. L. (2013). The Role of Military Social Support in Understanding the Relationship Between PTSD, Physical Health, and Healthcare Utilization in Women Veterans: Social Support, PTSD, and Health in Women Veterans. *Journal of Traumatic Stress*, *26*(6), 772–775. https://doi.org/10.1002/jts.21859

Mankowski, M., Haskell, S. G., Brandt, C., & Mattocks, K. M. (2015). Social Support Throughout the Deployment Cycle for Women Veterans Returning From Iraq and Afghanistan. *Social Work in Health Care*, *54*(4), 287–306. https://doi.org/10.1080/00981389.2014.990130

Marek, L. I., Hollingsworth, G., D'Aniello, C., O'Rourke, K., Brock, D. P., Moore, L., … Wiles, B. (2012, March 1). Returning Home: What We Know About the Reintegration of Deployed Service Members into Their Families and Communities. Retrieved from https://www.ncfr.org/ncfr-report/focus/military-families/returning-home

Milette, K., Hudson, M., Baron, M., Thombs, B. D., & Canadian Scleroderma Research Group. (2010). Comparison of the PHQ-9 and CES-D depression scales in systemic sclerosis: internal consistency reliability, convergent validity and clinical correlates. *Rheumatology*, *49*(4), 789–796. https://doi.org/10.1093/rheumatology/kep443

Milliken, C. S., Auchterlonie, J. L., & Hoge, C. W. (2007). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *Jama*, *298*(18), 2141–2148.

Oliver, L. W., Harman, J., Hoover, E., Hayes, S. M., & Pandhi, N. A. (1999). A quantitative integration of the military cohesion literature. *Military Psychology*, *11*(1), 57.

Pearlin, L. I., & Schooler, C. (1978). The Structure of Coping. *Journal of Health and Social Behavior*, *19*(1), 2. https://doi.org/10.2307/2136319

Pfeiffer, P. N., Blow, A. J., Miller, E., Forman, J., Dalack, G. W., & Valenstein, M. (2012). Peers and Peer-Based Interventions in Supporting Reintegration and Mental Health Among National Guard Soldiers: A Qualitative Study. *Military Medicine*, *177*(12), 1471–1476. https://doi.org/10.7205/MILMED-D-12-00115

Polusny, M. A., Erbes, C. R., Murdoch, M., Arbisi, P. A., Thuras, P., & Rath, M. B. (2011). Prospective risk factors for new-onset post-traumatic stress disorder in National Guard soldiers deployed to Iraq. *Psychological Medicine*, *41*(04), 687–698. https://doi.org/10.1017/S0033291710002047

Riviere, L. A., Kendall-Robbins, A., McGurk, D., Castro, C. A., & Hoge, C. W. (2011). Coming home may hurt: risk factors for mental ill health in US reservists after deployment in Iraq. *The British Journal of Psychiatry*, *198*(2), 136–142. https://doi.org/10.1192/bjp.bp.110.084863

Sapolsky, R. M. (2004). *Why Zebras Don't Get Ulcers*. NY: Henry Holt and Company.

Sayer, N. A., Noorbaloochi, S., Frazier, P., Carlson, K., Gravely, A., & Murdoch, M. (2010). Reintegration problems and treatment interests among Iraq and Afghanistan combat veterans receiving VA medical care. *Psychiatric Services*. Retrieved from http://ps.psychiatryonline.org/doi/abs/10.1176/ps.2010.61.6.589

Sheppard, S. C., Malatras, J. W., & Israel, A. C. (2010). The impact of deployment on U.S. military families. *American Psychologist*, *65*(6), 599–609. https://doi.org/10.1037/a0020332

Smith, B. N., Vaughn, R. A., Vogt, D., King, D. W., King, L. A., & Shipherd, J. C. (2013). Main and interactive effects of social support in predicting mental health symptoms in men and women following military stressor exposure. *Anxiety, Stress & Coping*, *26*(1), 52–69. https://doi.org/10.1080/10615806.2011.634001

Smith, T. C., Ryan, M. A. K., Wingard, D. L., Slymen, D. J., Sallis, J. F., Kritz-Silverstein, D., & for the Millennium Cohort Study Team. (2008). New onset and persistent symptoms of post-traumatic stress disorder self reported after deployment and combat exposures: prospective population based US military cohort study. *BMJ*, *336*(7640), 366–371. https://doi.org/10.1136/bmj.39430.638241.AE

Sripada, R. K., Bohnert, A. S. B., Teo, A. R., Levine, D. S., Pfeiffer, P. N., Bowersox, N. W., … Valenstein, M. (2015). Social networks, mental health problems, and mental health service utilization in OEF/OIF National Guard veterans. *Social Psychiatry and Psychiatric Epidemiology*, *50*(9), 1367–1378. https://doi.org/10.1007/s00127-015-1078-2

Tanielian, T. L., & Rand Corporation (Eds.). (2008). *Invisible wounds of war: summary and recommendations for addressing psychological and cognitive injuries*. Santa Monica: RAND.

Voght, D., & others. (2012). Manual for the Deployment Risk and Resilience Inventory-2. Retrieved from http://jpo.wrlc.org/handle/11204/4292

Weathers, F.W., Litz, B.T., Keane, T.M., Palmieri, P.A., Marx, B.P., & Schnurr, P.P. (2013). The PTSD Checklist for *DSM-5* (PCL-5). Scale available from the National Center for PTSD at www.ptsd.va.gov.

Wolfe, J., Erickson, D. J., Sharkansky, E. J., King, D. W., & King, L. A. (1999). Course and predictors of posttraumatic stress disorder among Gulf War veterans: a prospective analysis. *Journal of Consulting and Clinical Psychology*, *67*(4), 520.

Wortmann, J. H., Jordan, A. H., Weathers, F. W., Resick, P. A., Dondanville, K. A., Hall-Clark, B., … others. (2016). Psychometric Analysis of the PTSD Checklist-5 (PCL-5) Among Treatment-Seeking Military Service Members. Retrieved from http://psycnet.apa.org/psycinfo/2016-00617-001/

APPENDIX A: TABLES

Table 1: Descriptive statistics and correlations

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Perceived Mental Hlth	4.09	.86											
2. Physical Health	4.10	8.18	-.04										
3. Reintegration Stress	2.43	.66	-.54**	.10									
4. Civilian Social Support	1.53	.37	.43**	-.02	-.26**								
5. Military Social Support	1.25	.60	.27**	-.18	-.17	.49**							
6. PTSD	27.46	10.52	-.42**	.12	.27**	-.28**	-.09						
7. Trauma Exposure	.64	.97	-.14	.03	.12	.14	.12	.29**					
8. Education	--	--	-.02	-.07	.00	.03	-.05	.01	.17				
9. Income	--	--	.05	-.06	-.06	-.02	.02	-.08	.08	.41**			
10. Years of Service	--	--	-.06	.15	.06	-.10	-.08	.13	.08	.29**	.56**		
11. Rank	--	--	.01	-.08	-.01	.04	-.03	-.10	.03	.80**	.55**	.40**	
12. Race	--	--	-.06	.08	.02	-.10	-.15	.01	-.04	.19	.21*	.19	.08

Note. $N = 99$. * $p < .05$, ** $p < .01$, two-tailed.

Table 2: Summary of Regression Analyses Predicting Perceived Mental Health

Model	b	S.E.	95% CI
Step 1			
Reintegration Stress	-.71**	.11	-.93 -- -.48
Step 2			
Civilian Soc. Sup.	.69**	.22	.25 – 1.13
Military Soc. Sup.	.06	.13	-.20 -- .32

Note. $N = 99$. ** $p < .01$. b = unstandardized regression weight. Adjusted $R^2 = .37$**. $\Delta R^2 = .09$**. All analyses were run with standardized variables.

Table 3: Summary of Regression Analyses Predicting PTSD Symptoms

Model	b	S.E.	95% CI
Step 1			
Reintegration Stress	3.87*	1.52	.84 – 6.89
Trauma Expos.	2.83**	1.03	.79 – 4.87
Step 2			
Civilian Soc. Sup.	-8.73**	3.11	-14.90 – -2.57
Military Soc. Sup.	.83	1.84	-2.83 – 4.48

Note. $N = 99$. * $p < .05$, ** $p < .01$. b = unstandardized regression weight. Adjusted $R^2 = .18$*. $\Delta R^2 = .07$*. All analyses were run with standardized variables.