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Anger problems and posttraumatic stress disorder in male and female National Guard and Reserve Service members

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ABSTRACT

Anger is a common problem among veterans and has been associated with posttraumatic stress disorder (PTSD). This study aimed to improve understanding of how anger and PTSD co-occur by examining gender differences and differences by whether the triggering traumatic event is deployment-related vs. civilian-related in current service members. A representative cohort of Reserve and National Guard service personnel ($n = 1293$) were interviewed to assess for deployment- or civilian-related traumas, PTSD, and anger. The prevalence of self-reported anger problems was estimated among male ($n = 1036$) and female ($n = 257$) service members. Log Poisson regression models with robust standard errors were used to estimate the associations of problems with anger with PTSD and PTSD symptom severity for men and women. Self-reported anger problems were common among male (53.0%) and female (51.3%) service members. Adjusted prevalence ratios (PR) showed associations between anger and PTSD connected to both civilian- and deployment-related traumas (PR were 1.77 (95% CI 1.52–2.05) and 1.85 (95% CI 1.62–2.12), respectively). PTSD symptom severity was also associated with anger. This study was cross-sectional and so a causal relationship between PTSD and anger cannot be established. Problems with anger are common among male and female current Guard and Reserve members. These findings suggest that anger treatment should be made available to current service members and that clinicians should assess anger problems irrespective of gender. Future research should examine the effectiveness of anger treatment protocols by gender.

1. Objectives of the study and background

Anger problems are common among military veterans, with population-based estimates of the prevalence of self-reported anger in post 9/11 veterans ranging between 44% and 57% (Pew Research Center, 2011; Sayer et al., 2010; Wheeler, 2007). In both military and civilian populations, anger problems have been associated with a number of negative consequences, including poor family functioning (Taft et al., 2008), negative workplace and school outcomes (Hershcovis et al., 2007; Thomas and Smith, 2004), aggression (Teten et al., 2010), and poorer treatment outcomes for posttraumatic stress disorder (PTSD) (Forbes et al., 2008).

PTSD is one of the signature wounds of war. PTSD is of particular public health concern for service members who have deployed in support of the wars in Iraq and Afghanistan as these wars have been characterized by longer and multiple deployments, which are known to increase the risk of PTSD (Reger et al., 2009; Smith et al., 2011). Between 11.6% and 24.5% of recently redeployed service members have been found to have PTSD, with higher incidence among Reserve and National Guard members compared to Active Duty military (Litz and Schlenger, 2009; Milliken et al., 2007).

While there have been no population-based studies of the association between PTSD and anger problems in veterans or military service members, the co-occurrence of PTSD and anger problems has been documented in several studies of veterans in treatment for psychosocial problems, substance abuse, and domestic violence

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(e.g. Beckham et al., 1998; Jakupcak et al., 2007; Kulkarni et al., 2012; Lasko et al., 1994; McFall et al., 1999; Novaco et al., 2012). Most research on anger and PTSD has been conducted with male veterans, and a few studies have included both male and female veteran participants. However, none of these studies have presented sub-analyses by gender and so it remains unknown whether the association between PTSD and anger is similar in men and women veterans (Elbogen et al., 2010; Ouimette et al., 2004). The only study to date that compared the association between anger and PTSD in men and women compared a sample of male veterans with PTSD to a sample of female victims of childhood or adult sexual trauma with PTSD; the latter group consisted not just of women veterans, however, but also civilian wives of male service-connected veterans (Castillo et al., 2002). In this study, men had higher levels of anger than women. While there are no studies that examine the association between anger and PTSD in women veterans, a study with women Vietnam veterans seeking treatment at a mental health clinic documented higher levels of hostility in women with PTSD compared to treatment-seeking women without PTSD (Butterfield et al., 2000). Given that women make up 19.5% of Reserve and 15.5% of National Guard service members (The Women's Memorial, 2011), and women are now allowed to serve combat duty, increasing their risk of trauma during future deployments (Roulo, 2013), understanding the relations between anger and PTSD in women service members and veterans is critical. Furthermore, understanding whether and how these relations may differ between men and women will aid in developing appropriate interventions to prevent and treat anger and PTSD.

Less is known about the relations between anger and PTSD in current service members than among veterans who are out of the service. Two recent studies have found high levels of comorbidity between anger and PTSD in current service members (Novaco et al., 2012; Thomas et al., 2010). The first study examined treatment-seeking soldiers recently returned from Afghanistan or Iraq (Novaco et al., 2012), while the second study examined National Guard soldiers recently returned from Iraq (Thomas et al., 2010). In order to capture, address, and alleviate the long-term negative consequences of anger and PTSD, understanding the prevalence of anger and the relations between anger and PTSD in current service members is important.

Furthermore, military service members are at risk of PTSD not just from deployment-related traumas, but also from traumas they may experience outside of deployment, such as car accidents or violent crimes. In a meta-analysis by Orth and Wieland (2006) examining the correlation between anger and PTSD in studies of traumatized adults, the authors found a stronger correlation between anger and PTSD in samples with military war experience compared to any other type of trauma. However, they noted that it was impossible to ascertain whether this increased association was due to trauma event type or due to pre-event differences in sample populations. Understanding the role of the context of the triggering traumatic event on the association between anger and PTSD within an all-military population will help guide appropriate interventions with service members who experience trauma and its sequelae in either context.

To improve our understanding of anger in military service members, we estimated the prevalence of anger in a random, representative sample of male and female National Guard and Reserve soldiers. Previous research is limited because it has been based on treatment-seeking military populations. Second, we estimated the association between anger problems and PTSD among men and women. While there is a sizable body of research documenting the association between PTSD and anger in men, there is limited research on women. Third, we estimated the association between anger problems and PTSD separately for PTSD due to deployment- vs. civilian-related traumas. We hypothesized that the association between anger and PTSD would be stronger in those with deployment-related PTSD compared to those with only civilian-related PTSD.

2. Materials and methods

The U.S. Army Medical Command's Congressionally Directed Medical Research Programs Unit, the Human Research Protection Office at the U.S. Army Medical Research & Materiel Command, and the Institutional Review Boards at both the Uniformed Services University of the Health Sciences and Columbia University approved the study protocol. Verbal informed consent was obtained from all participants.

2.1. Study population

We obtained contact information for a stratified random sample of National Guard ($N = 10{,}000$) and Reserve ($N = 10{,}000$) soldiers who were serving in the military as of June 2009 through the Defense Manpower Data Center (DMDC) from which we began to recruit participants into a cohort study. A random sample of 9751 (4788 National Guard, 4963 Reserves) soldiers were selected to participate and mailed information about the study along with an opt-out letter. After excluding incorrect/non-working telephone numbers (2866/9751 or 29.4%), 6885 working numbers (71%) remained as viable for participant recruitment. We excluded 324 (3%) who were not eligible (e.g. no longer enrolled or retired), and disqualified 61 (1%) because they either did not speak English above an 8th grade level or had hearing problems; 1097 (11%) did not wish to participate, and 3386 (35%) had not yet been contacted when we reached our target sample size. A total of 2003 service personnel were interviewed at baseline, with an overall cooperation rate of 68.2% (2003 + 324+61/6885−3386), defined as the number of participants who consented regardless of eligibility (2003 + 324+61 = 2388) divided by the number of working numbers we successfully contacted (6885−3386 = 3499). The overall response rate was 34.1% (2327/6824); defined as the number of participants who completed a survey or consented but were ineligible, divided by the number of working numbers minus those that were disqualified (2003 + 324/6885-61). Consent to participate in the study began in January 2010 and ended July 2010. Participants were compensated for their time with $25 for an approximately 50 min interview. A second wave of data collection beginning in January 2011 and ending in November 2011 attempted to reach 1996 of the wave 1 participants (7 of the original participants declined further participation at the end of the first interview). We were able to resolve 1428 (72%) of the telephone numbers (251/1996 or 13% were incorrect/non-working telephone numbers and 317/1996 or 16% remained unresolved after up to 60 attempts). We excluded 3 individuals due to hearing or other health problems and 132 (7%) declined to participate. The remaining 1293 participants completed this second wave survey. The cooperation rate was 91% (1293 + 3/1393 + 132 + 3) and the response rate was 74% (1293 + 3/1745 − 3). Participants who were interviewed at baseline were eligible to be interviewed in the second wave regardless of whether they had retired or separated from the Reserve or National Guard between waves 1 and 2. Interviews in the second wave averaged 37 min and participants were paid a $25 stipend for participating in the survey. For the present study, data on gender and race was obtained from the first wave of data; all other variables were obtained from the second wave of data.

2.2. Interviews

In each wave of data collection, participants were administered a telephone survey using a computer-assisted telephone interview