



Paternal history of mental illness associated with posttraumatic stress disorder among veterans



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ABSTRACT

This study examined the association between parent and family reported history of non-PTSD mental illness (MI), PTSD specifically, and substance use problems, and participant clinical diagnosis of PTSD. Participants were drawn from the US Department of Veterans Affairs Mid-Atlantic Mental Illness Research, Education and Clinical Center (MIRECC) Post-Deployment Mental Health (PDMH) study (n = 3191), an ongoing multi-site cohort study of US Afghanistan and Iraq conflict era veterans. Participants who recalled a father history of PTSD had a 26-percentage point higher likelihood of meeting criteria for PTSD; while participants reporting *any* family history of PTSD had a 15-percentage point higher probability of endorsing symptoms consistent with PTSD. Mother history of substance use problems was associated with Veteran current PTSD, but results were sensitive to model specification. Current PTSD was not associated with family/parent history of non-PTSD mental illness, mother history of PTSD, or family/father history of substance use problems. Family history of PTSD may increase PTSD risk among veterans exposed to trauma, particularly when a father history is reported. Knowledge of family history could improve clinical decision-making for trauma-exposed individuals and allow for more effective targeting of programs and clinical services.

1. Introduction

Nearly 2.8 million veterans have served in the US military since September 11, 2001 (National Center for Veterans Analysis and Statistics, 2016). Many veterans have experienced multiple and extended deployments and high levels of exposure to combat. Further, nearly one-quarter of Afghanistan and Iraq conflict era veterans meet criteria for posttraumatic stress disorder (PTSD) (Fulton et al., 2015). Studies conducted with community (Davidson et al., 1998; Dierker and

Merikangas, 2001; Inslicht et al., 2010; Sack et al., 1995; Vaage et al., 2011; Yehuda et al., 2001) and clinical (Dierker and Merikangas, 2001; Reich et al., 1996) samples have demonstrated that family history of mental illness, including parental PTSD and substance abuse, increases an individual's risk of developing PTSD following a traumatic event (Kellermann, 2001; Yehuda and Bierer, 2008). Yet, evidence about the link between family history of mental illness and US veteran/military service member PTSD is limited. Existing studies of veterans (e.g. Gold et al., 2007; Jordan et al., 1992; Rosenheck, 1986) primarily examine

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the effect of PTSD among veterans on their children's behavior (Leen-Feldner et al., 2013). The few studies that have measured anxiety-related symptoms among children of parents with PTSD had small samples; further, findings were inconsistent across studies (Ahmadzadeh and Malekian, 2004; Al-Turkait and Ohaeri, 2008; Beckham et al., 1997; Dansby and Marinelli, 1999; Davidson and Mellor, 2001; Westerink and Giarratano, 1999). To our knowledge, no studies have considered the effect of parental PTSD on the veteran's own PTSD risk.

Not all individuals who are exposed to traumatic events develop psychological symptoms; some individuals may be more susceptible to traumatic distress due to previous life experiences and genetics (Brewin et al., 2000; Friedman et al., 1994). Yet mechanisms of intergenerational transmission remain unclear. Some research findings support genetic, epi-genetic, and biological mechanisms, such as transmission of risk in-utero (Yahyavi et al., 2014; Yehuda and Bierer, 2008; Yehuda et al., 2007), while other studies have shown that parental mental illness may shape the psychosocial home environment (Dekel and Monson, 2010; Galovski and Lyons, 2004) and family functioning (Davidson and Mellor, 2001) by affecting parenting behaviors (Leen-Feldner et al., 2013) or parental attachment (Bosquet Enlow et al., 2014), and by increasing the risk for inter-familial violence (Dekel and Monson, 2010). Such experiences may leave individuals more vulnerable to psychological illness (DiGangi et al., 2013; Rosenheck and Fontana, 1998) by negatively affecting individual resilience, coping, and interpersonal skills (Gorman et al., 2010). Such adverse childhood experiences, including living with someone with a mental illness, are more common in US service members compared to civilians (Katon et al., 2015) and might increase veteran/service member susceptibility to more severe and persistent PTSD symptoms following exposure to combat or other traumatic events.

There is limited research about whether an individual's gender moderates the effect of family history on the individual's own PTSD risk; however, there is preliminary evidence to suggest this is possible (Tolin and Foa, 2006). At a time when more women than ever are entering the military and being exposed at a higher frequency to combat situations, such research among US veterans/service members is of critical importance. A limited number of studies suggest that females are more susceptible to secondary traumatization (Baum, 2014; Baum et al., 2014), which occurs when an individual hears about the firsthand trauma experiences of another and subsequently develops symptoms consistent with PTSD (The National Child Traumatic Stress Network, 2016). Although PTSD risk transmission is a distinct concept from secondary traumatization, it is possible that similar gender-specific physiological and psychosocial mechanisms underlie both direct and indirect PTSD risk factors.

The gender of the parent with mental illness might also result in differential risk for PTSD. While some studies show greater effects of mother mental illness on individual-level biomarkers (Lehrner et al., 2014; Yehuda et al., 2014, 2007), behavioral problems (Al-Turkait and Ohaeri, 2008), and PTSD symptomatology (Dierker and Merikangas, 2001), other studies show that father mental illness has equal (Dijanic Plasc et al., 2007) or greater (Schick et al., 2013; Vaage et al., 2011) effects on individual-level PTSD.

The impact of PTSD on military families may be substantial (Dekel and Monson, 2010), yet evidence about the link between family history of mental illness and PTSD in current-era veterans/service members is limited. The implications of this study are three-fold. First, evidence about PTSD risk factors among veterans/service members may have critical clinical implications for PTSD risk identification, symptom management, and treatment. Second, given the growing number of women who enter the military and use VA services, understanding whether gender moderates the effect of PTSD risk factors is particularly important. Third, 43% of active duty, National Guard, and reservists report having dependent children in the home (Clever and Segal, 2013); therefore, approximately 2 million children of service members may be at risk for developing PTSD later in life if parental trauma or mental

illnesses are risk factors for PTSD.

The aims of this study are to: 1) describe participant-reported prevalence of family history of several mental health conditions among a sample of Afghanistan and Iraq era veterans/service members; 2) analyze the association between veteran/service member current PTSD and participant-reported *parent* history of non-PTSD mental illness, PTSD, or substance use problems; 3) analyze the association between veteran/service member current PTSD and participant-reported *family* history of non-PTSD mental illness, PTSD, or substance use problems; and 4) examine veteran/service member gender moderation effects for any of these associations. We hypothesized that reported parent and family history of non-PTSD mental illness, PTSD, and substance use problems would be associated with an increased likelihood of veteran/service member current PTSD. Given that women may be more likely to develop PTSD symptoms when exposed to secondary trauma, we hypothesized that the association of family history of mental illness and PTSD risk would be stronger among women compared with men.

2. Methods

2.1. Data source and sample

2.1.1. Data source

This study was a secondary analysis of an existing dataset. Data analyzed for the present study were collected as part of the VA Mid-Atlantic Mental Illness Research, Education, and Clinic Center (MIRECC) Post-Deployment Mental Health (PDMH) study (Brancu et al., 2017). The PDMH study is an ongoing multi-site cohort study developed in June 2005 to examine the post-deployment mental and physical health of Afghanistan and Iraq conflict era veterans/service members.

2.1.2. PDMH sample

Participants were veterans, active duty personnel, and National Guard and Reservists who had served in the military since September 11, 2001. Additional study eligibility criteria included functional use of the English language and the ability to travel to one of the participating data collection sites (Durham VA Medical Center in Durham NC, McGuire VA Medical Center in Richmond VA, Hampton VA Medical Center in Hampton VA, and the W.G. [Bill] Hefner VA Medical Center in Salisbury, NC). Participants were recruited via referrals from community and VA medical providers and through mailings and advertisements in the catchment area. Subjects were compensated for their time (\$175 to participate in full-day study) and travel. The study was approved by the Durham, Salisbury, Hampton, and Richmond VA Medical Center Institutional Review Boards. Informed consent was obtained from all participants before study procedures began. Data for the present study included participants who were enrolled between June 2005 and April 2015 (Brancu et al., 2017).

2.1.3. Analytical sample

The sample for the analytic models comprised the PDMH study participants who reported experiencing at least one traumatic event on the Traumatic Life Events Questionnaire (TLEQ) ($n = 3191$); $n = 56$ (2%) of participants denied any history of experiencing a traumatic event and were excluded from the multivariate model samples. Henceforward, we refer to study participants as “participants” or “veterans” with the implicit understanding that the sample also contained veteran, active duty, and reservist personnel.

2.2. Variables and measures

2.2.1. Outcome

The outcome of interest was a clinical diagnosis of current PTSD using the Structured Clinical Interview for DSM-IV (SCID), a clinician-administered diagnostic interview (American Psychiatric Association,

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