



Intermittent explosive disorder: Associations with PTSD and other Axis I disorders in a US military veteran sample



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ABSTRACT

This study examined the prevalence of intermittent explosive disorder (IED) and its associations with trauma exposure, posttraumatic stress disorder (PTSD), and other psychiatric diagnoses in a sample of trauma-exposed veterans ($n = 232$) with a high prevalence of PTSD. Structural associations between IED and latent dimensions of internalizing and externalizing psychopathology were also modeled to examine the location of IED within this influential structure. Twenty-four percent of the sample met criteria for a lifetime IED diagnosis and those with the diagnosis were more likely to meet criteria for lifetime PTSD than those without (30.3% vs. 14.3% respectively). Furthermore, regression analyses revealed lifetime PTSD severity to be a significant predictor of IED severity after controlling for combat, trauma exposure, and age. Finally, confirmatory factor analysis revealed significant cross-loadings of IED on both the externalizing and distress dimensions of psychopathology, suggesting that the association between IED and other psychiatric disorders may reflect underlying tendencies toward impulsivity and aggression and generalized distress and negative emotionality, respectively.

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1. Introduction

Intermittent explosive disorder (IED) is defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association [APA], 1994) as an impulse control disorder characterized by recurrent, discrete episodes of aggression that result in assaults against others or the destruction of property. By definition, the intensity of the aggressive behavior is grossly out of proportion to any psychosocial precipitant and the aggressive episodes may not be better accounted for by other mental disorders such as major depressive (MDD), borderline personality (BPD) or mania/hypomania.

The diagnosis of IED was first introduced into the nomenclature in DSM-III (American Psychiatric Association, 1980). Originally, the diagnosis was ruled out in the presence of generalized aggression or impulsivity between “aggressive episodes” or if a diagnosis of antisocial personality disorder (ASPD) applied. The DSM-III-R

(American Psychiatric Association, 1987) added an additional rule-out for BPD. In DSM-IV these rule-outs were eliminated and the exclusion criteria changed to: “aggressive episodes are not better accounted for by another disorder” (American Psychiatric Association, 1994, p. 612). Finally, DSM-5 (American Psychiatric Association, 2013) brought IED together with other disorders characterized by problems with self-control into a new chapter, “Disruptive, Impulse-Control and Conduct Disorders.” The DSM-5 IED criteria addressed important limitations in prior versions of the IED diagnostic criteria, including changes to the type of aggression that can be considered for the diagnosis; it allows for both verbal and non-destructive/non-injurious physical aggression, in addition to the serious assaultive or destructive aggression required in DSM-IV. DSM-5 also provides specific frequency and timeframe requirements, and requires marked distress in the individual or functional impairment. Finally, the relationship of IED to frequently comorbid disorders has been clarified; a diagnosis can be given in the presence of attention-deficit/hyperactivity disorder, conduct disorder, and/or oppositional defiant disorder when the aggressive episodes are in excess of those usually seen in those disorders and merit independent clinical attention (American Psychiatric Association, 2013).

DSM-IV lifetime IED prevalence in the National Comorbidity Survey Replication sample (Kessler et al., 2006) was estimated at

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7.3%. In that study, individuals with IED reported an average of 43 episodes of explosive behavior over their lifetimes, resulting in an estimated \$1300 or more in total property damage. The socio-demographic correlates of IED have been fairly consistent across studies and include a mean onset at 15 years of age, duration of 20 years, and a higher prevalence among men than women (ratio of 3:1; Coccaro, 2000). In addition, IED has been shown to exert deleterious effects on job performance and health, and has been linked to coronary heart disease (McCloskey, Kleabir, Berman, Chen & Coccaro, 2010).

IED is often accompanied by comorbid diagnoses; studies have found high frequencies of co-occurring mood (76–93%), anxiety (48–78%), and substance use disorders (48–60%; Coccaro, Posternak & Zimmerman, 2005; McElroy, Soutullo, Beckman, Taylor & Keck, 1998). In addition, evidence suggests links to trauma exposure and PTSD. For example, in a nationally representative sample of South African adults, Fincham et al. (2009) found an association between exposure to multiple traumatic life events and IED. Similarly, Nickerson, Aderka, Bryant, and Hoffman, 2012 examined the correlates of IED in trauma-exposed and non-trauma-exposed civilians and found IED was associated with greater trauma exposure and PTSD. Indirect support for a possible link between trauma, PTSD and IED comes from an extensive body of research documenting associations between PTSD and problems with anger and aggression among combat veterans (for review, see McHugh, Forbes, Bates, Hopwood, & Creamer, 2012) and among veterans with combat-related PTSD, specifically (Lasko, Gurvits, Kuhne, Orr, & Pitman, 1994).

One possible explanation for the substantial psychiatric comorbidity associated with IED is that IED and accompanying disorders are manifestations of a common underlying factor. Factor analytic studies suggest that an externalizing dimension (EXT) accounts for common variance across substance use disorders and ASPD while an internalizing dimension (INT) accounts for common variance across unipolar mood, anxiety, and somatization disorders (see Krueger, Caspi, Moffitt & Silva, 1998; Krueger, McGue & Iacono, 2001). In several studies, the INT dimension is further divided into two correlated factors termed “anxious–misery” or “distress” (comprised of unipolar depression, dysthymia, GAD) and “fear” (comprised of panic and phobic disorders; Cox, Clara, & Enns, 2002; Krueger, 1999; Slade & Watson, 2006; Vollebergh et al., 2001). This model has been replicated across a range of populations, including samples of veterans with a high prevalence of PTSD (Miller, Fogler, Wolf, Kaloupek & Keane, 2012; Miller et al., 2012). To our knowledge, no study has specifically examined the location of IED within this model. The existing literature suggests that the aggression and impulsivity associated with IED and its demonstrated links with substance abuse (Coccaro et al., 2005) may align primarily with EXT. Alternatively, evidence for an association with generalized anxiety disorder and depression (Nickerson et al., 2012) suggests it might also show an additional association with INT (a cross-loading on EXT and INT).

1.1. Aims and hypotheses

The primary aim of this study was to examine lifetime prevalence of IED and associated patterns of comorbidity in a sample of male veterans, and to test the hypothesis that IED is associated with trauma exposure, combat exposure severity, and PTSD. The second aim was to examine the relationship between IED and the INT and EXT latent psychopathology dimensions. We hypothesized that IED would show evidence of significant cross-loadings on both EXT and distress (an INT factor).

2. Methods

2.1. Participants and procedure

This study focused on male veterans who were drawn from a larger study of couples recruited at two U.S. Department of Veterans Affairs medical centers ($n = 298$ couples). Study eligibility required that one member of the couple be a veteran who had been cohabitating with an intimate partner for at least 12 months, and that the veteran endorsed a history of exposure to a traumatic event meeting PTSD DSM-IV criterion A1. Out of the 298 couples, data for 11 couples were omitted from analyses due to voluntary withdrawal, ineligibility, or inability to meet protocol requirements. Out of the remaining 287 couples, 267 individuals were male veterans; 232 (87%) of them completed all self-reports and diagnostic psychiatric interviews for this study, and were the focus of the data analyses reported below. As we were interested in the relative associations between IED and trauma exposure generally as compared to combat exposure specifically, only veterans were included in this study; because the study included only 33 female veterans, we focused on male veterans as the small number of female veterans precluded us from examining possible sex effects. All interviews were administered by psychology post-doctoral fellows or licensed clinical psychologists and were videotaped for reliability purposes.

Veterans ranged in age from 22 to 74 ($M = 52.5$). The sample was primarily white non-Hispanic (67.4%); other self-reported races included black/African American (10.4%), American Indian/Alaska native (6.5%), and Hawaiian/Pacific Islander (.9%); a total of 19.6% of participants reported Hispanic or Latino ethnicity. The majority of participants was married (81.8%) and reported their primary service occurred during the Vietnam War era (59.5%), Operation Iraqi/Enduring Freedom (14.7%), and Operation Desert Storm (12.1%). An additional 12.0% reported service during other conflicts or peacetime and 1.7% as spanning two or more conflicts.

Out of the final sample, 63.6% ($n = 147$) met for lifetime PTSD, as determined by the clinician-administered PTSD scale (CAPS; Blake et al., 1995). Index trauma events, on which the PTSD assessment was based, were determined by CAPS interview: 60.7% endorsed combat-related trauma as the index event; 7.4% endorsed sudden death/life-threatening illness of a friend/loved one; and, 6.6% endorsed a motor vehicle accident. Several other trauma types were endorsed as index events, but each occurred in less than 5% of the sample. In terms of trauma history, participants reported an average of seven different trauma types ($SD = 4.2$; range: 0–21), as reported on the Traumatic life events questionnaire (TLEQ; Kubany et al., 2000), with a mean of 21 total traumatic events occurring in their lifetimes ($SD = 17.2$, range 1–113). Most frequently reported traumas include the sudden death of a friend or loved one (90.0%), natural disaster (74.9%), combat (74.6%), threat of death or serious harm (66.5%), life-threatening or disabling event to a loved one (61.9%), and physical punishment as a child (53.7%).

The Institutional Review Boards at VA Boston Healthcare System, VA New Mexico Health Care System, and Boston University School of Medicine approved and annually reviewed the study.

2.2. Measures

2.2.1. The clinician-administered PTSD scale (CAPS; Blake et al., 1995)

The CAPS, the gold standard structured diagnostic interview that assesses the 17 DSM-IV PTSD symptoms, was used to determine lifetime PTSD symptom severity scores and diagnoses according to DSM-IV (American Psychiatric Association, 1994) criteria. A PTSD diagnosis required endorsement of at least one re-experiencing, three avoidance, and two hyperarousal symptoms, each with a minimum frequency score of one and minimum

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