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Posttraumatic stress disorder and alcohol dependence: Does order of onset make a difference?

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ABSTRACT

Posttraumatic stress disorder (PTSD) and alcohol dependence (AD) are frequently comorbid and the order in which they develop may affect the clinical presentation and response to treatment. This study compared 73 treatment-seeking participants who developed PTSD prior to developing AD ("PTSD-first") with 64 participants who developed AD prior to developing PTSD ("AD-first") on demographics, clinical presentation, and response to treatment for PTSD and AD. All participants received BRENDA, a medication management and motivational enhancement intervention and were randomly assigned to either prolonged exposure (PE) for PTSD plus BRENDA or BRENDA alone and to either naltrexone (NAL) for AD or placebo (PBO). Results showed that participants with AD-first were more likely to report low income, meet criteria for antisocial or borderline personality disorder, report an index trauma of physical assault, compared to those with PTSD-first. Conversely, participants with PTSD-first were more likely to report an index trauma of sexual assault or a combat experience. Notably, no group differences were observed in treatment outcome despite some differences in clinical presentation.

1. Introduction

Comorbid posttraumatic stress disorder (PTSD) and alcohol dependence (AD) is common (Kessler et al., 1997; Mills, Teesson, Ross, & Peters, 2006) and is associated with greater impairment and poorer treatment prognosis than either disorder alone (Back et al., 2000; Hien, Nunes, Levin, & Fraser, 2000; Najavits, Weiss, & Shaw, 1997; Triffleman, Carroll, & Kellogg, 1999). Although the association between AD and PTSD is well established, little is known about the temporal relationship between these disorders and how order of onset might impact clinical presentation and response to treatment.

Research on the pathophysiology of PTSD and AD indicates that PTSD typically develops prior to AD (Epstein, Saunders, Kilpatrick, & Resnick, 1998; Jacobsen, Southwick, & Kosten, 2001; Stewart & Conrod, 2003). However, one exception to this pattern is the Epidemiological Catchment Area study which found that the onset of AD more frequently preceded the onset of PTSD among those with both disorders (Cottler, Compton, Mager, Spitznagel, & Janca, 1992). For those who develop PTSD first, one theory of PTSD/AD comorbidity is that individuals with PTSD attempt to relieve (i.e., self-medicate for) their trauma-related symptoms using alcohol, and consequently develop AD (Khantzian, 1985; Stewart, 1996). For those who develop AD first, one theory is that AD is associated with lifestyles that place individuals at a higher risk for trauma (i.e., "high-risk hypothesis"; Chilcoat & Breslau, 1998), and another is that AD heightens susceptibility to PTSD following trauma exposure by increasing anxiety and arousal through psychological processes (i.e., "susceptibility hypothsis"; Chilcoat & Breslau, 1998; Stewart, 1996).

Research on differences in clinical presentation and treatment outcome as a function of order of onset among patients with comorbid PTSD and substance use disorders (SUDs) has yielded somewhat inconsistent results. For example, studies of individuals who developed AD (Brady, Dansky, Sonne, & Saladin, 1998; Nishith, Mueser, Srsic, & Beck, 1997; Schuckit, 1985) or cocaine dependence (Brady et al., 1998) prior to developing PTSD reported fewer psychiatric problems and greater alcohol use (Schuckit, 1985) than those who developed PTSD prior to developing a SUD. In contrast, other studies have found no relationship between order of onset and severity of alcohol use (Back, Jackson, Sonne, & Brady, 2005; Nishith et al., 1997). With regard to treatment response, patients who developed

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AD prior to developing PTSD were found to benefit less from AD treatment than those who developed PTSD first (Back et al., 2005; Nishith et al., 1997).

Only one study has examined the effects of order of onset in comorbid PTSD and AD. Focusing on gender effects in AD/PTSD, Back et al. (2005) found that women were more likely to develop PTSD prior to developing AD ("PTSD-first") than develop AD prior to PTSD ("AD-first") whereas men were equally likely to have PTSD-first or AD-first. This is partially consistent with Kessler et al. (1997) who found that a higher proportion of women had PTSD-first, whereas higher proportion of men had AD-first. Back et al. also found that distress and depression were higher among women with PTSD-first and men with AD-first than their counterparts. In terms of response to cognitive behavioral therapy for alcohol use (Cognitive Behavioral Coping Skills Therapy; Allen et al., 1997), both men and women with PTSD-first benefited from treatment more than those with AD-first.

In sum, prior research on the effect of order of AD/PTSD onset on clinical presentation has yielded somewhat inconsistent results. Importantly, no study has examined differences between AD-first and PTSD-first in key variables such as alcohol craving and negative-trauma related cognitions that have been implicated in the maintenance of AD and PTSD, respectively (e.g., emotional processing theory; Foa, Huppert, & Cahill, 2006). Only a few prior studies have examined the effect of gender (e.g., Back et al., 2005; Kessler et al., 1997) and race (Brady et al., 1998) on order of onset. Antisocial and borderline personality disorders (ASPD and BPD), which have been associated with AD (Grant et al., 2008; Kessler et al., 1997) and AD/PTSD comorbidity (e.g., Ouimette, Wolfe, & Chrestman, 1996) have also not been examined as a function of order of onset. Examining differences in these variables may shed light on the developmental pathway of AD/PTSD comorbidity. Finally, no prior study has examined the impact of order of onset on treatment outcomes for interventions that address AD and PTSD.

To address these gaps, the current study examined differences in demographic characteristics, clinical presentation (e.g., trauma history and attributions, alcohol craving, PTSD symptoms) and response to a concurrent treatment for PTSD and AD (i.e., naltrexone [NAL] and prolonged exposure therapy [PE; Foa, Hembree, and Rothbaum, 2007) as a function of order of onset. Based on prior research (e.g., Back et al., 2005), we hypothesized that: (1) the onset of PTSD would precede AD for the majority of participants; and (2) that women would be more likely than men to have PTSD-first. Because many of the variables of interest had not been examine in prior studies of AD/PTSD order of onset, these analyses were exploratory.

2. Methods

2.1. Participants

Participants were drawn from a sample of 165 voluntary outpatient treatment-seeking adults with PTSD and AD recruited through advertisements and professional referrals, who participated in a randomized controlled trial (RCT) on the effects of treatment for PTSD and AD at the University of Pennsylvania (Foa et al., 2013). All participants received BRENDA (Volpicelli, Pettinati, McLellan, & O'Brien, 1997), a psychosocial program designed to enhance medication and treatment compliance. In the original RCT, participants were randomly assigned to one of four conditions: (1) BRENDA, PE, and NAL (PE + NAL); (2) BRENDA, PE, and pill placebo (PE + PBO); (3) BRENDA and NAL (BRENDA + NAL); and (4) BRENDA and PBO (BRENDA + PBO). Of the 165 total participants, 11 were excluded because they were unable to report which disorder preceded the other, leaving a total of 154 participants.

Inclusion criteria were current PTSD and AD according to the DSM-IV; clinically significant trauma-related symptoms, as indicated by a score of at least 15 on the PTSD Symptom Scale-Interview (PSS-I; Foa, Riggs, Dancu, & Rothbaum, 1993) and heavy drinking in the past 30 days, defined as an average of >12 standard alcohol drinks/week with at least 1 day of 4 or more drinks determined by the Timeline Follow-Back interview (TFBI; Sobell & Sobell, 1992). Exclusion criteria were: current substance dependence other than alcohol, nicotine, or cannabis; current severe psychiatric symptoms (e.g., psychosis, bipolar disorder, active suicidal or homicidal ideation with intent); opiate use in the month prior to study entry; medical illnesses that can interfere with treatment (e.g., AIDS, active hepatitis); or pregnancy or nursing. Most participants were men (67.5%) with an average age of 42.69 ± 9.52years. Approximately 64.3% were Black, 29.9% White, and 5.8% Hispanic or others. See Foa and Williams (2010) for more details about the methods and sample and Foa et al. (2013) for study design and main outcome results.

2.2. Measures

2.2.1. Psychiatric diagnoses and symptoms

2.2.1.1. Diagnosis of AD and comorbid Axis-I conditions. The Structured Clinical Interview for DSM-IV (SCID-I; First, Spitzer, Gibbon, & Williams, 1996) is a semi-structured interview for assessing major axis-I disorders as well to screen for the presence of psychotic symptoms.

2.2.1.2. Diagnosis and symptoms severity of PTSD. The PSS-I (Foa et al., 1993) is a 17-item clinical interview corresponding to DSM-IV PTSD symptom criteria. Items are rated on a 0–3 scale for combined frequency and severity (0 = *not at all*, 3 = *5 or more times per week/very m*uch). The PSS-I has good internal consistency (Foa & Tolin, 2000), good 4-week test–retest reliability, and excellent interrater reliability for PTSD diagnosis (Powers, Gillihan, Rosenfield, Jerud, & Foa, 2012).

2.2.1.3. Current diagnoses of ASPD and BPD. The Psychiatric Research Interview for Substance and Mental Disorders (PRISM; Hasin et al., 1996) is a semi-structural interview for assessing a range of disorders that are commonly co-morbid with SUDs. The PRISM has shown good diagnostic validity for Axis-II personality disorders (Torrens, Serrano, Astals, Pérez-Domínguez, & Martín-Santos, 2004).

2.2.1.4. Depressive symptoms. The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item self-report measure of depression severity within the past two weeks. Items are rated on a 0–3 scale of severity. The BDI has adequate internal consistency, high concurrent validity, and good discriminate validity for subtypes of depression (Beck, Steer, & Carbin, 1988).

2.2.2. Alcohol use variables

2.2.2.1. Alcohol use. The TFBI (Sobell & Sobell, 1992) is an interview that uses a calendar method to evaluate daily patterns and frequency of drinking behavior. The TLFB has high test–retest reliability, good convergent and discriminant validity as well as high agreement with collateral informant's report (Fals-Stewart, O'Farrell, Freitas, McFarlin, & Rutigliano, 2000). In this study, the TFBI was used to calculate percent days drinking (PDD) and drinks per drinking day (DPDD).

2.2.2.2. Alcohol craving. The Penn Alcohol Craving Scale (PACS; Flannery, Volpicelli, & Pettinati, 1999) is a 5-item self-report measure for assessing frequency, intensity, and duration of alcohol