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Short Communication

PTSD symptomatology and readiness to quit smoking among women with serious mental illness☆,☆☆

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HIGHLIGHTS

- We examined PTSD symptoms & co-occurring problems in women with serious mental illness.
- PTSD symptoms were common and related to poorer mental health and substance use.
- PTSD symptoms were also associated with greater readiness to quit smoking.
- Results suggest the need for integrative PTSD-addiction treatment among women.

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ABSTRACT

Introduction: Posttraumatic stress disorder (PTSD) is a risk factor for tobacco addiction. The majority of research on PTSD and smoking has been conducted with men, particularly combat veterans, and little is known about the association among women. In a clinical sample of women civilian smokers with serious mental illness (SMI), we examined the prevalence of PTSD symptomatology and associations with physical and mental health functioning, co-occurring substance use, nicotine dependence, and readiness to quit smoking.
Methods: 376 adult women smokers aged 18–73 were recruited from 7 acute inpatient psychiatry units and screened by diagnostic interview for current PTSD symptomatology ($PTSD^+$). In multiple regressions, we examined the associations of screening $PTSD^+$ with physical and mental health functioning; past-month drug use; past-year substance use disorders; nicotine dependence and readiness to quit smoking.
Results: Nearly half the sample (43%) screened $PTSD^+$, which was significantly associated with the use of stimulants (OR = 1.26) and opiates (OR = 1.98), drug use disorders (OR = 2.01), and poorer mental health ($B = -2.78$) but not physical health functioning. $PTSD^+$ status was unrelated to nicotine dependence, but predicted greater desire to quit smoking ($B = 2.13$) and intention to stop smoking in the next month (OR = 2.21). In multivariate models that adjusted for substance use disorders, physical and mental health functioning, and nicotine dependence, screening $PTSD^+$ remained predictive of greater desire and intention to quit smoking.
Conclusion: PTSD symptomatology was common in our sample of women smokers with SMI and associated with not only worse substance use and mental health, but also greater readiness to quit smoking, suggesting the need for and potential interest in integrative PTSD-addiction treatment among women.

1. Introduction

Trauma exposure and posttraumatic stress disorder (PTSD) are risk factors for tobacco addiction. In the U.S., 45% of individuals with PTSD smoke (Lasser, Boyd, Woolhandler, et al., 2000), and there is a two- to five-fold increased risk of PTSD or nicotine dependence given the occurrence of the other (Fu et al., 2007). Individuals with PTSD smoke more heavily, experience more severe withdrawal symptoms, and have lower quit rates than those without PTSD (Lasser et al., 2000; Morissette, Tull, Gulliver, Kamholz, & Zimering, 2007; Zvolensky et al., 2008). Multiple mechanisms likely contribute to PTSD-smoking comorbidity, including overlapping neurobiological systems involved in stress response, PTSD, and drug reward (Brady & Sinha, 2005; Sinha, 2012) and shared genetic liability (Koenen et al., 2003, 2005, 2006). Further, individuals with PTSD may attempt to self-medicate PTSD symptoms

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(e.g., hyperarousal, re-experiencing) (Fu et al., 2007) or reduce negative affect (Feldner et al., 2007) by smoking. Smoking among individuals with PTSD contributes to their poorer physical health and greater healthcare costs (Beckham et al., 1997; Deykin et al., 2001).

While some of the extant literature on smoking and PTSD draws from large epidemiologic studies with community-based samples (Lasser et al., 2000), the majority of basic research and clinical treatment trials have been conducted with civilian veterans, mostly men. Two randomized controlled trials, both within the Veterans Affairs (VA) Medical System and the more recent trial a large 10 VA site, multisite trial, demonstrated efficacy for treating tobacco within mental health settings for persons with PTSD without harm to their PTSD recovery (McFall et al., 2005, 2006, 2010). When smoking cessation treatment was delivered as part of PTSD care, clients engaged more with treatment (i.e., attended more sessions, used cessation medications) and had two- to five-fold greater smoking abstinence as compared to clients referred to the VA outpatient quit smoking clinics. Important and novel findings for the field, it is unknown how the approach may generalize to other health care systems and to the treatment of women with PTSD.

With a greater prevalence of PTSD than men, women experience more severe PTSD symptoms and greater co-occurring drug addiction (Compton, Thomas, Stinson, & Grant, 2007; Grant, 1997; Kessler et al., 2005; Olff, Langeland, Draijer, & Gersons, 2007; Pietrzak, Goldstein, Southwick, & Grant, 2011; Tolin & Foa, 2006). Further, women are often younger at the time of trauma exposure, experience different types of traumatic events, are more likely to appraise events as threatening, and have greater acute emotional and dissociative trauma reactions than men, which may contribute to their higher PTSD prevalence (Olff et al., 2007).

The current study is a first investigation of PTSD symptomatology, nicotine dependence, and intentions to quit smoking among women. A diverse sample of women smokers with serious mental illness (SMI), defined as a mental health disorder resulting in serious functional impairment, which substantially interferes with or limits one or more major life activities, was recruited from acute inpatient psychiatry settings. Individuals with SMI are particularly at risk for tobacco use, trauma exposure, and PTSD (Bromet, Sonnega, & Kessler, 1998; CDC, 2013; Grubaugh, Zinzow, Paul, Egede, & Frueh, 2011). Approximately 17–53% of individuals with SMI have current PTSD, compared to 1–4% in the general population, and consistent with epidemiological patterns of sex differences, women with SMI have greater exposure to traumatic events, a higher conditional probability of developing PTSD following trauma, and elevated PTSD prevalence compared to men with SMI (Creamer, Burgess, & McFarlane, 2001; Grubaugh et al., 2011; Kessler et al., 2005).

It is of theoretical and clinical interest to understand how PTSD symptomatology relates to nicotine dependence and readiness to quit smoking, and given gaps in the literature, particularly among civilian women and largely hidden smokers, such as those with SMI. Clinicians may hesitate to address smoking among women with PTSD symptoms if they view these individuals as self-medicating and unmotivated to quit. The current study aimed to: 1) examine the prevalence of PTSD symptomatology among women smokers with SMI; and 2) assess how PTSD symptomatology relates to physical and mental health functioning, co-occurring alcohol and drug use, nicotine dependence, and measures of readiness to quit smoking. Specially, we hypothesized that PTSD symptomatology would be common and associated with poorer physical and mental health, greater co-occurring alcohol and drug use, greater nicotine dependence, and lower readiness to quit smoking.

2. Materials and methods

2.1. Participants and procedures

This study examined baseline data from 376 women smokers with SMI who participated in a randomized controlled tobacco treatment trial (Prochaska et al., 2014). Participants were recruited from 2009 to 2013 and the intervention was initiated during an acute hospitalization on one of seven inpatient psychiatry units with complete smoking bans at a nonprofit community hospital and two academic medical centers in the San Francisco Bay Area. The intervention combined a computer-delivered smoking cessation program tailored to readiness to quit, individual motivational enhancement and cognitive behavioral counseling, and nicotine replacement therapy (Prochaska, Hall, & Hall, 2009).

Individuals were eligible to participate if they were self-reported adult (i.e., ≥18 years old) smokers of ≥5 cigarettes/day, were not pregnant, had no contraindications to nicotine replacement, were not planning to move outside of the greater Bay Area during the 18-month study, and had the capacity to consent in English. Patients did not have to want to quit smoking to participate. The institutional review boards of the participating hospitals and universities approved the study procedures.

2.2. Measures

Measures were administered during one-on-one interviews and included established scales with evidence of reliability and validity in clinical populations (Prochaska et al., 2004; Prochaska, Leek, Hall, & Hall, 2007). The Mini-International Neuropsychiatric Interview Screener (MINI; Sheehan et al., 1998) assessed PTSD and substance use disorders. For assessment of PTSD, we chose to use only the MINI's 3-item screener; in our prior study of smoking in a hospitalized sample with mental illness, we found that the full PTSD interview, with its follow-up detailed questions, was too emotionally charged to warrant administration (Prochaska, Fletcher, Hall, & Hall, 2006). The 3-item PTSD screener assessed: (1) trauma exposure to self or other experienced or witnessed; (2) trauma response with intense fear, helplessness or horror; and (3) re-experiencing of the event in the past month in a distressing way (e.g., dreams, intense recollections, flashbacks or physical reactions). Individuals who answered yes to all three questions, which are necessary criteria but not sufficient for a confirmed diagnosis, were coded as screened PTSD$^+$. The screener neither assessed the nature of the trauma and degree of impairment, nor ruled out causation from medical problems, medications, or drugs or alcohol. The Medical Outcomes Short Form (SF-12) assessed physical and mental health functioning (Ware, Kosinski, & Keller, 1996). The 24-item Behavior and Symptom Identification Scale (BASIS-24) assessed depression, interpersonal relationships, self-harm, psychosis, emotional lability, and substance abuse (Eisen, Gerena, Ranganathan, Esch, & Idiculla, 2006). The Addiction Severity Index (ASI) assessed past month heavy alcohol, stimulant, sedative, opiate and marijuana use (McLellan, Alterman, Cacciola, Metzger, & O'Brien, 1992). The Fagerström Test for Nicotine Dependence assessed nicotine dependence (FTND; Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991). The Stages of Change Scale (Prochaska & DiClemente, 1983) assessed readiness to quit smoking with defined stages of precontemplation, not intending to quit smoking in the next 6 months; contemplation, intending to quit within 6 months; and preparation, planning to quit within 30 days with at least one 24-hour past-year quit attempt. The Thoughts about Abstinence (TAA) scale (Hall, Havassy, & Wasserman, 1990) measured desire to quit smoking, anticipated success with quitting, and perceived difficulty staying tobacco-free after quitting, all on 10-point scales.

2.3. Statistical analyses

We first calculated the prevalence of PTSD$^+$. Next, separate multiple regression analyses examined the association between screening PTSD$^+$ and mental and physical health, alcohol and drug use measures, nicotine dependence and intention to quit. Finally, multiple regression analyses tested whether screening PTSD$^+$ was associated with intention to quit smoking and thoughts about abstinence after further adjusting for mental and physical health, alcohol and drug use disorders, and nicotine dependence. All analyses were conducted using SAS version