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Does CBT for anxiety-related disorders alter suicidal ideation? Findings from a naturalistic sample

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ABSTRACT

Background: Anxiety disorders commonly co-occur with suicidal ideation (SI). To our knowledge, no studies have reported on the baseline prevalence of SI and the reduction in SI in a naturalistic sample receiving cognitive behavior therapy (CBT) for anxiety-related disorders.
Methods: Participants (n = 355) recruited from an anxiety specialty clinic reported SI at pre-, mid-, and post-CBT. Multilevel mixed effects logistic regression models compared differences in SI endorsement over Time.
Results: Posttraumatic stress disorder (PTSD) and social anxiety disorder (SAD) were associated with significantly elevated baseline SI relative to specific phobia. PTSD and unspecified anxiety-related disorders were associated with significant reductions in SI, whereas reductions in SAD, GAD, OCD, and panic disorder did not reach significance. Rates of new onset and exacerbation of SI were low.
Discussion: CBT for anxiety disorders was associated with significant reductions in SI over time, with no evidence for exacerbation of suicide risk. Clinical implications are discussed, as well as future research directions to further understand the effect of anxiety disorder treatments on SI.

1. Does CBT for anxiety-related disorders alter suicidal ideation? Findings from a naturalistic sample

Death by suicide is a growing concern in the United States of America. In adolescents, (Wasserman, Cheng, & Jiang, 2005), adult civilians (World Health Organization, 2012), active duty military (Pruitt et al., 2015), and veteran samples (Kaplan, Huguet, McFarland, & Newsom, 2007; Kaplan, McFarland, Huguet, & Valenstein, 2012) suicide rates have either been stable or have increased over the past several decades. In a typical mental health clinic, 10–55% of annual patients report some degree of suicidal ideation (SI; Asnis et al., 1993; Beck, Brown, Steer, Dahlsgaard, & Grisham, 1999; de Klerk et al., 2011; Mackenzie et al., 2011). Importantly, while most individuals who think about suicide do not engage in suicidal behaviors (Khazem & Anestis, 2016; Klonsky & May, 2014), SI is a clear risk factor for suicide attempts (SA; Ribeiro et al., 2016; Toprak, Cetin, Guven, Can, & Demircan, 2011; Wilcox et al., 2010) and death by suicide (Links et al., 2012; Ribeiro et al., 2016). Moreover, while depression is a well-established risk factor for SI (Anestis, Tull, Bagge, & Gratz, 2012; Hart et al., 2017), not everyone who meets criteria for depression endorses SI (Rihmer, 2001; Turecki & Brent, 2016). Similarly, not all individuals who report SI also have depression (Mayes, Calhoun, Baweja, & Mahr, 2015; Turecki & Brent, 2016). Therefore, understanding both the proportion of patients in mental health clinics at risk for SI and the degree to which SI changes in treatment is important for clinical practice.

Anxiety disorders significantly increase the likelihood of SI (Sareen et al., 2005; Thibodeau, Welch, Sareen, & Asmundson, 2013), SA (Brown, Gaudiano, & Miller, 2010; Brown, Armey, Sejourne, Miller, & Weinstock, 2016; Khan, Leventhal, Khan, & Brown, 2002; Nepon, Belik, Bolton, & Sareen, 2010; Sareen et al., 2005), and death by suicide (Chesney, Goodwin, & Fazel, 2014; Gradus et al., 2010; Khan et al., 2002). Panic disorder (PD; Brown et al., 2010; Nepon et al., 2010) and posttraumatic stress disorder (PTSD; Brown et al., 2016; Gradus et al., 2010; Kerr et al., 2017; Nepon et al., 2010) have the most evidence for elevated risk for SI and SA. Social anxiety disorder (SAD; Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009; Sareen et al., 2005) and generalized anxiety disorder (GAD; Gilmour, 2016; Mu et al., 2016) have some evidence for SI risk, though fewer studies have supported this association. Additionally, patients with comorbid PTSD and SAD report elevated likelihood of lifetime SA relative to either SAD or PTSD alone (McMillan, Asmundson, & Sareen, 2017). The data are more mixed on the association between obsessive-compulsive disorder (OCD) and suicide risk, as some studies support such an association (Chaudhary, Kumar, & Mishra, 2016; Fernandez de la Cruz et al., 2016) while others do not (Kanwar et al., 2013). Nevertheless, only a handful of studies have examined relative risk of SI by principal anxiety

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diagnosis (Brown, Beck, Steer, & Grisham, 2000; Khan et al., 2002; Sareen et al., 2005).

There are several possible mechanisms accounting for the associations among anxiety-related disorders and suicide risk. The first mechanism is interpersonal disconnection, which is associated with increased risk of SI and SA (Joiner, 2005; Winterrowd, Canetto, & Chavez, 2010) and is also a core feature of anxiety-related disorders, including PTSD (Bryan, 2010). In fact, of all PTSD symptoms, interpersonal detachment was found to be the most strongly associated with SI (Davis, Witte, & Weathers, 2014). Additionally, anxiety disorders are highly comorbid with depression (Cummings, Caporino, & Kendall, 2014), which increases the risk of suicide (Ramsawh et al., 2014). Most anxiety disorders, aside from panic disorder, are primary conditions and temporally precede depression (Wittchen, Kessler, Pfister, Höfler, & Lieb, 2000). Anxiety-related avoidance and psychosocial impairment are associated with the onset of secondary depression (Wittchen et al., 2000), which, in turn, is associated with suicidal thoughts and behavior (Kamath, Reddy, & Kandavel, 2007). A third possible mechanism of the associations among anxiety disorders and suicide risk is hyperarousal, which is prevalent in individuals with anxiety disorders (American Psychiatric Association, 2013) and is also associated with reduced fear of death in civilians and military personnel (Pennings, Finn, Houtsma, Green, & Anestis, 2016; Zuromski, Davis, Witte, Weathers, & Blevins, 2014). Reduced fear of death, in turn, is a risk factor for transitioning from suicidal desire to suicidal behavior (Van Orden, Witte, Gordon, Bender, & Joiner, 2008). A fourth possible mechanism is sleep disturbance. Insomnia and nightmares are common in anxiety disorders (Klumpp et al., 2017; Sandman et al., 2013) and are critical risk factors for suicide (Sjöström, Hetta, & Waern, 2009; Tanskanen et al., 2000). These are just some of the potential mediators of the association between anxiety disorders and SI.

Despite the well-established associations among anxiety disorders and SI, only a few studies have examined how SI changes during anxiety-focused treatment, and all of these studies have been in the context of PTSD. In one study, participants with PTSD randomized to receive either prolonged exposure (PE) or cognitive processing therapy (CPT) experienced significant reductions in both PTSD and SI (Gradus, Suvak, Wisco, Marx, & Resick, 2013). An integration of PE and dialectical behavior therapy (DBT) for individuals with PTSD and borderline personality disorder reduced the risk of subsequent SA relative to individuals who received DBT alone (Harned, Korslund, Foa, & Linehan, 2012). In a naturalistic study of veterans receiving PE in the Veterans Health Administration, significant reductions in SI were reported (Cox et al., 2016b). Active duty service members reported significant reductions in SI in response to CPT and present-centered therapy (PCT), a non-trauma-focused treatment (Bryan et al., 2016). In this study, new onset of SI (CPT: 14%, PCT: 16%) and exacerbation of existing SI (CPT: 9% vs. PCT: 38%) were statistically comparable across treatments (Bryan et al., 2016). To our knowledge, there are no available studies examining how treatments for anxiety disorders other than PTSD affect SI over time. Furthermore, the only study of SI changes in a naturalistic treatment for anxiety was conducted in veterans; no research has examined changes in SI during cognitive behavior therapy (CBT) for anxiety-related disorders in civilians.

Clinical guidelines suggest that anxiety-focused treatments, especially for PTSD, should be postponed for individuals with suicide risk until the SI is resolved (Foa, Yadin, & Lichner, 2012; Forbes et al., 2007; Hudenko, Homaifar, & Wortzel, 2017). These guidelines partially explain the gap in the literature on SI outcomes from anxiety-related disorder treatments. Furthermore, clinicians are often hesitant to utilize treatments such as PE for fear of exacerbating suicidality and other related symptoms (Van Minnen, Harned, Zoellner, & Mills, 2012; Van Minnen, Zoellner, Harned, & Mills, 2015). Exacerbation in suicidal ideation may occur because of the increase in distress due to exposure to feared stimuli, though this has not been demonstrated empirically. Despite these cautious recommendations and practices, all the published reports suggest that anxiety-focused treatments reduce rather than exacerbate SI (Bryan et al., 2016; Cox et al., 2016b; Gradus et al., 2013). More research is needed to determine whether SI is altered in response to anxiety-focused treatments.

Accordingly, the current study has three aims. First, we sought to explore the associations among type of anxiety diagnosis and baseline SI for patients at an anxiety clinic in a university-based medical center. Based on prior literature, we hypothesized that individuals with principal PTSD and PD would have higher mean SI relative to other principal diagnoses. Second, we examined whether individuals with a principal, secondary, or tertiary anxiety diagnosis experienced significant reductions in SI in response to exposure-based treatment. For this aim, each diagnosis was examined separately because participants could be categorized into multiple groups based on the presence of a principal, secondary, or tertiary diagnosis. We hypothesized that, consistent with prior literature (Bryan et al., 2016; Cox et al., 2016a; Gradus et al., 2013), principal, secondary or tertiary diagnoses of PTSD would be associated with significant reductions in SI over time. The third and final aim was to report rates of exacerbation in SI (for participants who reported baseline SI) and new onset of SI (for participants who denied baseline SI) at mid-treatment and post-treatment. Consistent with prior research (Bryan et al., 2016), we hypothesized that these rates would be low (i.e., less than 10% of participants).

2. Methods

2.1. Participants

Participants (n = 355) were treatment-seeking adults at the Center for the Treatment and Study of Anxiety (CTSA) in Philadelphia, PA between December 2014 and January 2017 who received a principal diagnosis of a *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV;* American Psychiatric Association, 2000*)* anxiety-related disorder, specifically PD, SAD, GAD, PTSD, OCD, specific phobia, and unspecified anxiety-related diagnosis (e.g., Anxiety Not Otherwise Specified, health/somatic anxiety, misophonia, adjustment disorder with anxiety, etc.; see Table 1 for frequency of principal diagnosis). DSM-IV criteria were used because study enrollment began shortly after the release of the DSM-5 (American Psychiatric Association, 2013), at which point psychometrically validated assessments were not yet available. Exclusion criteria were: (1) active suicide risk requiring imminent treatment for SI or psychiatric hospitalization; (2) unstable or uncontrolled psychosis; (3) unstable or uncontrolled bipolar disorder; (4) primary substance abuse; (5) intellectual disability; or (6) autism spectrum disorder severe enough to interfere with treatment. Gender was relatively equally distributed (58.9% females), and participants were mostly in their early thirties (M = 32.7 years; SD = 12.0). The vast majority of participants were White (83.4%) followed by Asian (6%), Hispanic/Latino (2%), African American (2%), and other (6%).

Table 1
Frequencies of principal, secondary, and tertiary diagnoses.

Diagnosis	Primary (%)	Secondary (%)	Tertiary (%)
OCD	124 (34.0)	10 (5.1)	4 (4.9)
PTSD	52 (14.2)	2 (1.0)	2 (2.4)
GAD	56 (15.3)	18 (9.1)	6 (7.3)
SAD	47 (12.9)	19 (9.6)	10 (12.2)
Panic	26 (7.1)	21 (10.6)	3 (3.7)
Specific Phobia	23 (6.3)	5 (2.5)	0 (0)
Depression	10 (2.7)	65 (32.8)	19 (23.2)
Unspecified/Other	27 (7.4)	58 (29.3)	38 (46.3)

Note. Individuals with a principal diagnosis of depression were not included in current analyses because of both the low sample size of this group and because they did not receive CBT for anxiety disorders. However, we included them in this table to demonstrate the secondary and tertiary diagnosis of depression across individuals with a principal anxiety diagnosis.