



Anxiety and its disorders as risk factors for suicidal thoughts and behaviors: A meta-analytic review

Kate H. Bentley^{a,*}, Joseph C. Franklin^b, Jessica D. Ribeiro^{b,c}, Evan M. Kleiman^b, Kathryn R. Fox^b, Matthew K. Nock^b

^a Center for Anxiety and Related Disorders, Boston University, USA

^b Department of Psychology, Harvard University, USA

^c Military Suicide Research Consortium, USA

HIGHLIGHTS

- We conducted a meta-analysis of anxiety predicting suicidal thoughts and behaviors.
- Anxiety was a significant risk factor for suicide ideation and attempts.
- As it has traditionally been studied, anxiety is a weak predictor of suicidality.
- Future research must approximate current theories about risk factors for suicide.

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ABSTRACT

Suicidal thoughts and behaviors are highly prevalent public health problems with devastating consequences. There is an urgent need to improve our understanding of risk factors for suicide to identify effective intervention targets. The aim of this meta-analysis was to examine the magnitude and clinical utility of anxiety and its disorders as risk factors for suicide ideation, attempts, and deaths. We conducted a literature search through December 2014; of the 65 articles meeting our inclusion criteria, we extracted 180 cases in which an anxiety-specific variable was used to longitudinally predict a suicide-related outcome. Results indicated that anxiety is a statistically significant, yet weak, predictor of suicide ideation (OR = 1.49, 95% CI: 1.18, 1.88) and attempts (OR = 1.64, 95% CI: 1.47, 1.83), but not deaths (OR = 1.01, 95% CI: 0.87, 1.18). The strongest associations were observed for PTSD. Estimates were reduced after accounting for publication bias, and diagnostic accuracy analyses indicated acceptable specificity but poor sensitivity. Overall, the extant literature suggests that anxiety and its disorders, at least when these constructs are measured in isolation and as trait-like constructs, are relatively weak predictors of suicidal thoughts and behaviors over long follow-up periods. Implications for future research priorities are discussed.

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* Corresponding author at: Center for Anxiety and Related Disorders, Boston University, 648 Beacon Street, 6th Floor, Boston, MA 02215, USA.

E-mail address: khb@bu.edu (K.H. Bentley).

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1. Introduction

Suicidal behavior is a leading cause of injury and death across the globe (Centers for Disease Control and Prevention, 2011), with upwards of one million individuals who take their own lives annually (World Health Organization, 2012). In the United States alone, over 40,000 people die by suicide each year. In addition to completed suicides, approximately 3% of individuals make a suicide attempt during their lifetime (Borges et al., 2010; Nock et al., 2008). It is also estimated that approximately 9% of people report experiencing serious thoughts of suicide during their lives. Unfortunately, the U.S. suicide rate has risen steadily over the past decade (Centers for Disease Control and Prevention, 2011) and is projected to continue increasing over upcoming years (Mathers & Loncar, 2006).

One promising avenue toward reducing the global impact of suicide is to identify risk factors that predict suicidal thoughts and behaviors. Risk factors are not to be confused with correlates; whereas correlates represent concomitants or consequences of a phenomenon of interest and can be identified through cross-sectional methods, establishing risk factors necessitates longitudinal designs (Kraemer et al., 1997). For example, from a study showing that individuals who attempt suicide are more likely to be diagnosed with an anxiety disorder than those who do not attempt suicide, one may conclude that anxiety is a *correlate* of suicidal behavior. However, to determine that anxiety functions as a *risk factor* for suicidal behavior, it would need to be established that anxiety disorders precede and heighten future risk for suicide attempts. Establishing risk factors for suicidality is essential for a number of reasons, including improved understanding of underlying mechanisms, identification of at-risk individuals, and development of evidence-based prevention and treatment programs. Most previous studies have focused exclusively on correlates, which are unlikely to be as informative for prediction and intervention purposes. Accordingly, the primary goal of this study was to conduct a meta-analytic review of prospective studies that have evaluated *anxiety and its disorders* as risk factors for suicidal thoughts and behaviors. In a narrative review, it can be difficult to provide a comprehensive account of all relevant studies, reconcile contradictory findings, account for methodological variations across the literature, and ascertain overall magnitudes of risk factors under investigation. A meta-analysis can overcome these limitations, and thus would be very helpful in summarizing current knowledge about anxiety as a risk factor for suicidality.

There are several reasons why we chose to focus on anxiety in this meta-analysis. First, anxiety and its disorders are listed as important risk factors for suicide by a number of national organizations (e.g., American Association of Suicidology, 2015; American Foundation for Suicide Prevention, 2015; National Suicide Prevention Lifeline, 2015).

Determining the strength of empirical evidence to support this information, which is widely disseminated to clinicians, researchers, and the public, is necessary.

Second, anxiety is implicated in many prominent theories of suicide. For example, according to Beck's cognitive model of suicide, once a suicide schema is activated, anxiety (and agitation) can serve as an expression of attentional fixation on suicide, which interacts with hopelessness to increase suicide risk (e.g., Wenzel & Beck, 2008; Wenzel, Brown, & Beck, in press). Although anxiety is not explicitly addressed in Joiner's interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010), this model's emphasis on the fearsome nature of suicidal behavior is consistent with evidence showing that acute anxious states (e.g., heightened arousal/agitation, severe panic attacks) are often present immediately prior to lethal or near-lethal suicidal acts (e.g., Britton, Ilgen, Rudd, & Conner, 2012; Busch, Fawcett, & Jacobs, 2003; Conrad et al., 2009; Fawcett et al., 1990; Hall, Platt, & Hall, 1999; Ribeiro et al., 2015; Ribeiro, Silva, & Joiner, 2014). These findings align with Fawcett's influential conceptualizations of anxiety/agitation as a determinant for acute suicide risk (e.g., Fawcett, 2001; Fawcett, Busch, Jacobs, Kravitz, & Fogg, 1997), and expert clinical consensus identifying agitation as a "warning sign" for suicide (e.g., Rudd et al., 2006). Furthermore, Baumeister (1990) conceptualizes suicide as the ultimate escape from aversive self-awareness and associated negative affect, which often includes anxiety. Along similar lines, Riskind and colleagues have theorized that a specific cognitive risk factor for anxiety (looming vulnerability), when coupled with hopelessness, enhances urges to escape psychological pain and elevates risk for suicide (e.g., Rector, Kamkar, & Riskind, 2008; Riskind, 1997; Riskind, Long, Williams, & White, 2000).

Third, anxiety and related disorders (broadly defined here as anxiety, obsessive-compulsive, trauma and stressor-related, and somatic symptom disorders) have received theoretical and empirical attention as potential risk factors for suicide. First and foremost, these disorders are characterized by aversive, avoidant reactions to emotional experiences (Barlow, Sauer-Zavala, Carl, Bullis, & Ellard, 2014). Suicidal thoughts and behaviors have similarly been conceptualized as avoidant or escape-based responses to the experience of strong emotions (Baumeister, 1990; Boergers, Spirito, & Donaldson, 1998; Briere, Hodges, & Godbout, 2010; Bryan, Rudd, & Wertenberger, 2013; Shneidman, 1993), highlighting the potential functional similarities of these phenomena. Further, behavioral avoidance, a hallmark feature of anxiety disorders, often results in significant isolation, reduced quality of life, and impaired functioning (e.g., Massion, Warshaw, & Keller, 1993; Olatunji, Cisler, & Tolin, 2007), which confer additional risk to suicidality (Kanwar et al., 2013; Kaplan, McFarland, Huguette, & Newsom, 2007). Other avoidance strategies (e.g., suppression) often

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