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Examining the unique relations between anxiety sensitivity factors and suicidal ideation and past suicide attempts

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ABSTRACT

Anxiety sensitivity (AS) has recently been linked to suicidality. Specifically, AS cognitive concerns has been implicated as a risk factor, and AS physical concerns as a protective factor, for suicidal ideation and suicide attempts. However, no studies have used structural equation modeling (SEM) to address issues of skewed suicide variables and bifactor modeling of AS to address the high degree of overlap between the lower-order dimensions of AS that limit interpretation of these past findings. AS, suicidal ideation, past suicide attempts, and depression were assessed in a clinical sample of 267 individuals (*M* age=35.45 years, SD=16.53; 52.1% female). The global AS and AS cognitive concerns factors were positively, significantly associated with suicidal ideation, though these effects were nonsignificant controlling for depression. The global AS factor was positively, significantly associated with suicide attempts, controlling for depression. The current study demonstrated that the relations between AS and suicidal ideation are not maintained when accounting for depression, suggesting that the relation between AS and suicidal ideation may be mediated by depression. The positive relation between global AS and suicide attempts is consistent with theories positing suicide attempts as a consequence of an inability to cope with intolerable distress.

1. Introduction

According to the most recent report by the World Health Organization, suicide accounts for over one million deaths a year, and is among the top three leading causes of death among individuals 15–44 years old (World Health Organization, 2012), making it a critical public health issue. Existing research indicates that completed suicides are strongly predicted by prior suicide attempts as well as suicidal ideation (Kessler et al., 1999; Souminen et al., 2004; Weissman et al., 1989). Therefore, it is important to identify and understand potential malleable risk factors (Kraemer et al., 1997) for suicidal behavior to better predict and reduce completed suicides. One risk factor that has been linked to suicide attempts and suicidal ideation is anxiety sensitivity (AS), or the fear of anxiety-related sensations (Reiss et al., 1986).

Anxiety sensitivity (AS) is associated with and prospectively predicts the development of both anxiety and mood pathology (Schmidt et al., 2006; Olatunji and Wolitzky-Taylor, 2009), and appears to be malleable through intervention (Schmidt et al., 2007). AS reflects an individual's tendency to respond fearfully to symptoms of anxiety arising from the belief that these symptoms will have negative consequences (Reiss and McNally, 1985). Individuals with elevated AS are likely to interpret benign symptoms of anxiety as potentially harmful or dangerous. AS is composed of three lower-order dimensions: cognitive, physical, and social concerns. AS cognitive concerns reflect the tendency to respond anxiously to feelings of cognitive dyscontrol, such as experiencing racing thoughts. AS physical concerns reflect the tendency to respond anxiously to physiological symptoms of anxiety, such as shortness of breath. AS social concerns reflect the tendency to fear potential negative evaluations resulting from others noticing symptoms of anxiety, such as sweating.

In addition to being a risk factor for anxiety and mood pathology broadly, AS also has a robust relationship with suicidality (Schmidt et al., 2001). There is some evidence to suggest that much of this association is driven primarily by the AS cognitive concerns component. Capron and colleagues (Capron et al., 2012b) found in a clinical outpatient sample that the AS cognitive concerns scale was significantly related to suicidal ideation and previous suicide attempts. This positive association between AS cognitive concerns and suicidal ideation was prospectively demonstrated in a large sample of cadets entering basic training at the United States Air Force Academy as well as in a sample of clinic

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outpatient who screened positive for PTSD (Capron et al., 2012a). Furthermore, the association between AS cognitive concerns and suicidality remain significant after accounting for other relevant risk variables, such as distress tolerance, gender, insomnia, thwarted belongingness, and depressive symptoms (Capron et al., 2013; Oglesby et al., 2015). Although other AS subscales have been found to be related to suicidality, results have been inconsistent. For example, Capron et al. (2012b) found that AS social concerns was positively associated with previous suicide attempts in one study. In addition, negative relations between AS physical concerns and suicidal ideation have been found (Capron et al., 2012a, 2012b), indicating there may be a specific role for AS physical concerns as a protective factor for suicidality.

Although relations between AS and suicide have been demonstrated across various samples, there are limitations to the prior studies. First, it is not entirely clear whether the relation between AS and suicidality can be fully accounted for by AS cognitive concerns or whether a global AS factor is also related. As suggested by Mohlman and Zinbarg (2000), AS appears to comprise a global factor in addition to the three lower-order dimensions. As previous work on AS and suicidality has relied on scale scores, it has been impossible to examine both overall AS and the specific dimensions in the same model. One approach that can clarify the true relation between global AS, specific AS dimensions, and suicidality is bifactor modeling (Chen et al., 2012; Reise, 2012). In this approach, common variance, representing AS more generally, can be distinguished from variance specific to the lower-order factors (i.e., cognitive, physical, and social concerns). In fact, several authors have used this approach to validate and implement a bifactor model of AS (Mohlman and Zinbarg, 2000; Osman et al., 2010; Ebesutani et al., 2013; Allan et al., 2015). Thus, a bifactor model of AS will allow for the investigation of both the global AS factor and specific AS dimensions simultaneously in the prediction of suicidality. Only a single study has examined the relations between the AS factors, using bifactor modeling, and suicidality. Osman et al. (2010) found that suicidality was associated with a global AS factor as well as the specific AS physical and cognitive concerns factors. However, these results should be interpreted with caution as their study was conducted in an undergraduate sample with low reported rates of suicidality (i.e., Suicide Behavior Questionnaire-Revised [SBQ-R; Osman et al., 2001] $M=4.43$, $SD=2.11$; minimum possible total score on SBQ-R is 4.00).

Related to this, a second limitation to be addressed in the previous AS and suicidality literature is the skewed nature of suicidal ideation. Given that suicidality is absent in most individuals, suicidality variables tend to have a significant positive skew and be heavily leptokurtic (Van Orden et al., 2008; Capron et al., 2012b). The issues associated with statistical analysis of significantly skewed data have been well documented (Delucchi and Bostrom, 2004; Grant, 2010). Most previous work on AS and suicidality has either not explicitly dealt with the skewed suicidality variables or conducted a logarithmic transformation (Capron et al., 2013), which does not remedy the issues associated with a significant portion of the sample containing the same value on the suicidality variable (i.e., 0, absence of suicidality; Delucchi and Bostrom, 2004). Modeling suicidal ideation treating the items as categorical indicators of a continuous latent variable will remedy issues associated with a highly skewed dependent scale, as this approach does not require normally distributed indicators (Bollen, 1989; Rhemtulla et al., 2012).

1.1. The current study

In the current study, we advanced the literature on AS and suicidality using improved statistical methods in a clinical outpatient sample. First, by modeling AS as a bifactor we were able to investigate the unique contributions of both the global and specific AS factors to suicidal ideation and past suicide attempts. Second, we improved upon the literature by modeling suicidal ideation as a continuous latent variable with categorical indicators to account for the significantly skewed nature of this variable. We hypothesized that using the bifactor model of AS, we would find a significant positive relation between AS cognitive concerns and suicidal ideation and past suicide attempts as has been found in previous studies (Capron et al., 2012b; Oglesby et al., 2015). Second, we hypothesized that there would be a significant negative relation between the global AS factor and suicidal ideation and past attempts. This hypothesis was based on past studies demonstrating a negative relation between AS physical concerns and suicidality (Capron et al., 2012a) as well as studies indicating that the global AS factor predominantly captures AS physical concerns (Allan et al., 2015). We hypothesized that AS physical and social concerns would not be associated with suicidal ideation or past attempts after accounting for the relations between AS cognitive concerns and the global AS factor. Finally, we hypothesized that the relations that global AS and AS cognitive concerns share with suicidal ideation and past suicide attempts would remain after accounting for depression.

2. Methods

2.1. Participants and setting

The sample included 267 individuals presenting to an outpatient anxiety clinic to receive psychological services and/or participate in research options. Demographic and information regarding participant's current primary psychiatry diagnosis are provided in Table 1. Gender was fairly evenly distributed (52.1% female) with ages ranging from 18 to 88 ($M=35.45$, $SD=16.53$). The racial composition of the sample was as follows: 63.7% Caucasian, 23.6% African American, 1.5% Asian, 4% Native American, 4% Pacific Islander, and 10.4% other (e.g., biracial) with 11.6% identifying as Hispanic. The majority of the sample attended some college (53.6%), 16.9% obtained a 4-year degree, 12.0% had a high school diploma, 10.1% had a graduate degree, 4.1% trade school degree, and 3.3% had less than a high school education. Regarding primary psychiatric diagnoses, 45.6% of sample met for a primary anxiety disorder, 18.4% mood disorder, 10.9% trauma and stressor-related disorder, 6.4% substance-related disorder, 2.7% obsessive–compulsive and related disorder, 2.7% other (e.g., somatic disorder) and 13.5% had no primary diagnosis.

2.2. Procedure

All individuals included in the current study agreed to participate in Institutional Review Board-approved research being conducted at the clinic. Prior to initiating treatment or research options, all individuals were interviewed by an advanced level clinical psychology graduate student to assess for the presence of psychopathology. All diagnoses were confirmed at a weekly supervision meeting with a licensed clinical psychologist and director of the clinic. Data used in the current investigation were part of a battery of questionnaires given after completion of the diagnostic interview. Participants were excluded from the current study if they were unable to fully complete their diagnostic interview, including their self-report questionnaires. All other participants who were given a structured clinical interview were included in the current study.

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