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The association between suicidal ideation and lifetime suicide attempts is strongest at low levels of depression

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ABSTRACT

Suicidal ideation and depression alone are poor predictors of subsequent engagement in suicidal behavior. Evidence suggests, however, that the lethargy associated with depression may serve as a protective factor against suicide attempts. The purpose of this study was to examine whether suicidal ideation and depression symptoms interact in relation to lifetime suicide attempts among a sample of psychiatric outpatients. A sample of 739 psychiatric outpatients (M_{age} = 27.26, 60.8% female, 73.3% White/European American) from a university-affiliated clinic completed a battery of self-report measures prior to their initial intake appointments. Consistent with hypotheses, a significant interaction emerged between suicidal ideation and depression symptoms in association with lifetime suicide attempts, such that the relationship between suicidal ideation and lifetime suicide attempts was strongest at low, as opposed to high, levels of depression. These findings align with previous research suggesting that lethargy may be a protective factor against suicide attempts, and conversely, that heightened arousal may serve as a suicide risk factor. Our results also point to a configuration of suicidal ideation and depression symptoms that might reflect higher suicide risk.

1. Introduction

Identifying individuals at highest risk for suicide is critical, given that over 800,000 individuals die by suicide each year (World Health Organization [WHO], 2014). Moreover, it is imperative to understand risk and protective factors that influence engagement in suicidal behavior, specifically, in the context of suicidal desire (Klonsky and May, 2014). Although many individuals have thoughts of suicide, far fewer go on to make a suicide attempt (Borges et al., 2012; Kessler et al., 1999), and suicidal ideation alone is an imprecise predictor of suicidal behavior (Borges et al., 2008; Fowler, 2012). Likewise, depression—which is oft-cited as a significant risk factor for suicide—is associated with suicidal desire, but it does not distinguish those who desire suicide from those who go on to make a suicide attempt (May and Klonsky, 2016). In recognition of the differentiation between factors predicting suicidal thoughts and factors predicting suicidal behaviors, several theories positioned with an ideation-to-action framework have been proposed, including the interpersonal theory of suicide (Van Orden et al., 2010), integrated motivational-volitional model of suicidal behavior (O'Connor, 2011), and three-step theory of suicide (Klonsky and May, 2015).

Beyond these theoretical frameworks, configurations of symptoms indicative of high suicide risk, consistent with ideation-to-action frameworks, have been proposed. For instance, Joiner and Stanley (2016) theorized that acute suicidal crises are often characterized by the simultaneous activation of seemingly paradoxical yet compatible shutdown (i.e., dysphoric, withdrawn) and overarousal (i.e., high-energy, agitated) states. This pattern has been observed using the MMPI-2-RF in a sample of psychiatric outpatients with suicidal ideation, such that individuals high on RCd (i.e., demoralization, characterized by negative affectivity broadly, including depression and anxiety) and high on RC9 (i.e., hypomanic activation, characterized by high energy, sensation-seeking, and poor impulse control) were most likely to have made a suicide attempt (Stanley et al., 2018). Likewise, depressive mixed states with psychomotor agitation, otherwise referred to as "agitated unipolar depression" (Akiskal et al., 2005), marked by psychic and motor agitation, intense emotional tension, and/or crowded thoughts (Koukopoulos and Koukopoulos, 1999), have been strongly linked to suicidal behavior (Balázs et al., 2006; Popovic et al., 2015; Sani et al., 2011).

The lethargy that often accompanies depressive episodes may deter, and thus be protective against, suicidal behavior, in that those experiencing prominent depression symptoms, absent psychomotor agitation and irritability, may actually be at *lower* risk for making a suicide attempt because they lack the energy and motivation to engage in suicidal actions. This idea is consistent with past research examining unique

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associations of depression and suicidal ideation with a collection of other clinical symptoms associated with suicide risk (Rogers et al., 2016). Specifically, in a sample of psychiatric outpatients, suicidal ideation was uniquely related to thwarted interpersonal needs, fearlessness about death, externalizing symptoms, and lifetime suicide attempts after partialing out depression symptoms. In contrast, depression, in the absence of suicidal ideation, was unrelated to past suicidal behavior. Rogers et al. (2016) advocated for the distinction of two domains of suicidal ideation: "desire" (reflecting depression symptoms and passive ideations) and "will" /resolve (reflecting fearlessness, self-sacrifice, and externalizing symptoms, including high energy).

Together, these findings suggest that examination of suicidal ideation in the context of depression symptoms may be an avenue through which individuals at high risk for suicide may be detected. Importantly, measures of depression and suicidal ideation are brief and often integrated into clinics' standard batteries, making this a feasible method of quickly screening for suicide risk. Accordingly, the present study aimed to examine whether depression symptoms and suicidal ideation interact in relation to past suicide attempts (one potential marker of suicide risk; Borges et al., 2006; Bostwick et al., 2016). We specifically hypothesized that individuals at high levels of suicidal ideation and low levels of depression symptoms would be most likely to report a past suicide attempt. Further, we examined whether this interaction persisted beyond a variety of sociodemographic characteristics that have been linked to increased suicide risk (i.e., age, gender, race/ethnicity).

2. Methods

2.1. Participants and procedures

Participants were 739 psychiatric outpatients (60.8% female) receiving psychological services at a university-affiliated clinic in the southeastern United States. Although the clinic is university-affiliated, a large proportion of its clientele is from the surrounding community. Namely, in this sample, 45.6% of participants were not current undergraduate students. Due to the clinic's sliding scale fees, a notable portion of patients are of lower socioeconomic status. Exclusionary criteria are minimal: individuals are only referred elsewhere if they are suffering from an acute psychotic- or bipolar-spectrum disorder that is not medically stable or if they are at very imminent risk of harm to themselves or others; in these rare instances, inpatient hospitalization is arranged. Overall, individuals present with a variety of conditions that range in severity. In this sample, approximately half (45.6%) presented with current suicidal/death ideation, as evidenced by a non-zero score on any item of the Beck Scale for Suicide Ideation (BSS; Beck and Steer, 1991). Approximately one-quarter reported a history of suicide attempts (21.9%).

Ages ranged from 18 to 71 years (M = 27.26, SD = 10.67), and participants self-identified as primarily White/European American (73.3%), with 11.0% Hispanic, 10.7% Black/African American, 1.8% Asian/Pacific Islander, and 0.4% American Indian/Native American; 21 participants (2.8%) did not specify an ethnicity. Most participants reported never having been married (79.0%; 10.6% Married, 8.4% Divorced, 1.4% Separated, 0.7% Widowed). The sample was relatively well-educated, with 2.2% not having completed high school, 15.4% earning a high school diploma or its equivalent, 1.6% receiving vocational training, 53.3% completing some college, 19.4% earning a bachelor's degree, and 8.2% completing postgraduate training.

All outpatients seeking treatment completed a large battery of self-report questionnaires at intake prior to receiving psychological services. The data presented in this study are drawn from this battery of questionnaires; importantly, this study represents a secondary analysis of existing archival data, such that data were not collected for these specific hypotheses. Informed consent was obtained from all participants and was not a prerequisite to receiving psychological services; all procedures were approved by the university's Institutional Review Board.

2.2. Measures

2.2.1. Beck depression inventory – II (BDI-II; Beck et al., 1996b)

The BDI-II is a 21-item self-report measure that assesses the severity of depression symptoms within the past two weeks. Items are rated on a 4-point scale ranging from 0 to 3, with higher scores reflecting greater depression severity. Due to the specific analyses being conducted in this study, Item 9, which assesses the presence and severity of suicidal thoughts, was omitted from the total score. The BDI-II has demonstrated strong psychometric properties in previous research (Beck et al., 1996a); internal consistency was excellent (α = 0.93) in the present sample.

2.2.2. Beck scale for suicide ideation (BSS; Beck and Steer, 1991)

The BSS is a 21-item self-report measure that assesses the severity of suicidal ideation, intentions, and plans within the past week. Respondents rate each item on a 3-point scale ranging from 0 to 2, with higher scores reflecting more severe suicidal ideation and intent. The first 19 items of the BSS comprise a suicidal ideation total score, whereas Items 20 and 21 provide information on the presence of and wish to die during past suicide attempts. In this study, the BSS total score was utilized as a measure of suicidal ideation, and Item 20 (0 = I have never attempted suicide/1 = I have attempted suicide once/2 = I have attempted suicide two or more times) was used as a metric for the presence/absence (i.e., dichotomized as 0 = absence and 1 = presence) of past suicide attempts. Psychometric properties of the BSS are strong (Beck et al., 2006), and internal consistency in this sample was excellent (α = 0.94).

2.3. Data analysis

First, descriptive statistics and bivariate correlations were computed to determine the normality and interrelatedness of all variables. BSS suicidal ideation exhibited significant positive skew and underwent a logarithmic transformation to correct for non-normality, resulting in diminished skewness (0.97) and kurtosis (−0.40).[1] Descriptive statistics are presented prior to this transformation for ease of interpretation, but all multivariate analyses (i.e., bivariate correlations, moderation analyses) were conducted after this variable transformation. Moderation analyses were conducted using the PROCESS macro (Hayes, 2013). The PROCESS macro, which is appropriate for use with both continuous and binary outcome variables, uses a regression-based path analytic framework to test interactions; the macro automatically centers variables prior to conducting the moderation analysis and reports simple slopes and related confidence intervals to facilitate post-hoc probing of interactions. Interactions were probed at low (1 SD below the mean) and high (1 SD above the mean) levels of BDI-II depression. A variety of sociodemographic characteristics (age, sex, dummy-coded ethnicity) were included as covariates due to their associations with suicide attempts. Missing data were minimal (0.5%) and handled via listwise deletion (i.e., participants were excluded if they were missing values on any variable in analyses, with 6 participants in this sample being excluded from moderation analyses); analyses were conducted using SPSS 23.0.

3. Results

Descriptive statistics and bivariate correlations are presented in Table 1. As expected, BSS suicidal ideation was strongly related to BDI

[1] These findings were generally equivalent when (1) the BSS did not undergo any transformation to correct for non-normality, and (2) univariate outliers on the BSS were recoded to the maximum allowable value (median ± two interquartile ranges = 6), suggesting the replicability of our findings across different data management strategies.