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Mental Health Problems and Suicide Risk: The Impact of Acute Suicidal Affective Disturbance

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Abstract

Objective: Acute Suicidal Affective Disturbance (ASAD) is a suicide-specific, episodic clinical entity that is theorized to characterize acute suicide risk. Little work has examined the role of ASAD in mental health conditions linked to suicide risk. Thus, the current study examined whether depression, social anxiety, panic, and alcohol-related problems were related to suicide risk via ASAD history.

Methods: 527 undergraduates completed an online survey.

Results: Depression, social anxiety, and alcohol problem risk (but not panic) were robustly, significantly related to suicide risk, but only social anxiety and depression were robustly related to ASAD history. Depression and social anxiety symptoms were indirectly related to suicide risk via ASAD.

Conclusion: ASAD may serve as potential explanatory pathway through which some mental health conditions may lead to greater suicide risk.

Keywords

depression; social anxiety; alcohol; suicide risk; acute suicidal affect disturbance

Suicide is the 10th leading cause of death in the U.S. (Centers for Disease Control [CDC], 2015) and is the 17th leading cause of death worldwide, with 800,000 people per year (i.e., 40 people per second) dying by suicide (World Health Organization, 2018). Further, many more think about suicide. To illustrate, in the U.S., 9.3 million adults reported past-year suicidal ideation (SI), 2.7 million reported past-year suicide plans, and 1.3 million reported making a past-year suicide attempt (CDC, 2015). Identification of at-risk individuals can inform prevention efforts.

Several mental health conditions are associated with greater suicide risk (for review see Chu et al., 2015). Among the most prevalent mental health conditions are depression, anxiety, and hazardous drinking (Kessler et al., 2005), each of which is associated with greater suicide risk. To illustrate, depression is associated with greater rates of SI, suicide attempts,

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and death by suicide (Goldney et al., 2003; LeardMann et al., 2013). Social anxiety is related to high rates of SI even after controlling for co-occurring depression and other psychopathology (e.g., Buckner et al., 2017; Sareen et al., 2005), as is panic (e.g., Schmidt, Woolaway-Bickel, & Bates, 2001). Individuals with more alcohol-related problems also experience greater suicide risk, including SI, suicide attempt, and death by suicide (Darvishi et al., 2015; Ribeiro et al., 2012). In addition, alcohol use disorders are the second most prevalent psychiatric disorder associated with suicide decedent, after depression (Cavanagh et al., 2003).

Given that these conditions are characterized by increases in acute negative affect, it may be that the newly proposed Acute Suicidal Affective Disturbance (ASAD) plays a role in the greater suicide risk associated with them. An ASAD episode is characterized by: 1) a short-term exponential increase in suicidal intent, 2) social and self-alienation (e.g., self-disgust and loneliness), 3) the belief that one's social and self-alienation will never diminish, and 4) at least two indicators of overarousal, such as the experience of nightmares or agitation. Past ASAD symptoms are highly related to suicide risk, including non-suicidal self-injury, SI, and past suicide attempts above and beyond clinical symptoms of anxiety and depression (Stanley et al., 2016; Tucker et al., 2016).

It may be that among individuals who suffer from chronically elevated negative affect (e.g., those with elevated depression, anxiety, or hazardous alcohol use), acute increases in negative affect lead to suicidality in which death by suicide is seen as a viable option to relieve the misery of these acute states. In this way, ASAD symptoms, in line with the ideation to action framework (Klonsky & May, 2014), could serve as a factor that facilitates a transition from the suicidal thoughts - potentially influenced by psychiatric illness symptoms such as hazardous drinking, depression, and anxiety symptoms - to enhanced suicide risk and suicide attempt likelihood. Preliminary research supports this notion – to illustrate, past suicide attempters endorsed higher levels of past ASAD symptoms compared to those with a history of SI but no history of suicide attempt, who endorsed more historical ASAD symptoms than participants without a history of SI (Tucker et al., 2016). Despite the accumulating evidence that the proposed ASAD construct may relate to suicide attempt history above and beyond clinical symptoms of anxiety and depression (Stanley et al., 2016; Tucker et al., 2016), no known studies have tested whether mental health conditions such as depression, anxiety, or alcohol problem risk are related to suicide risk indirectly via ASAD.

The current study sought to extend understanding of the relation between mental health conditions and suicide risk by testing the following hypotheses: (1) that depression, anxiety (i.e., social anxiety, panic), and hazardous drinking would be related to greater ASAD history, and (2) that severity of ASAD history would mediate the relations between these mental health conditions and suicide risk. These hypotheses were examined among undergraduate students given that suicide is the second leading cause of death for this age group in the U.S. and globally (Centers for Disease Control and Prevention, 2015; World Health Organization, 2018) and 31% of students who visit counseling centers endorsed seriously considering suicide (Center for Collegiate Mental Health, 2015).

Method

Participants and Procedures

Participants were recruited through the psychology participant pool from at a large state university in the southern United States. The university's Institutional Review Board approved the study and participants provided informed consent prior to data collection. The consent form explained that participants' names would not be linked to their responses, assuring anonymity of responses. Participants completed computerized self-report measures using a secure, on-line data collection website ([surveymonkey.com](https://www.surveymonkey.com)). All participants received referrals to university-affiliated psychological outpatient clinics and the telephone number for the local crisis intervention hotline as well as research credit for completion of the survey.

Of the 531 students who completed study measures, 4 were excluded due to questionable validity of their responses (described below). The final sample of 527 was predominately female (82.9%) and the racial/ethnic composition was 11.4% non-Hispanic African American, 4.7% Asian American, 75.3% Non-Hispanic Caucasian, 3.6% Hispanic Caucasian, 0.8% non-Hispanic Native American, 2.5% multiracial, and 1.7% "other". The mean age was 19.9 ($SD=2.5$). Regarding suicide risk, 15.6% endorsed clinically relevant suicide risk per the *Suicide Behaviors Questionnaire-Revised* (SBQ-R; Osman et al., 2001). Further, 32.4% endorsed lifetime SI, 21.4% endorsed past-year SI, 11.4% endorsed past-two week SI, and 3.1% endorsed lifetime suicide attempt. These are in line with other undergraduate samples (Garlow et al., 2008; Roh et al., 2007; Toprak et al., 2011).

Measures

2.2.1 The Acute Suicidal Affective Disturbance Inventory – Lifetime (ASADI-L; Tucker et al., 2016).— The ASADI-L is a 27-item self-report measure developed to assess lifetime symptoms of ASAD. The 13 items that compose the measure's total score correspond to the four clinical characteristics of the suicide-specific clinical entity (e.g., assess rapid changes in suicidal intent, social/self-alienation and their intractability, and manifestations of overarousal). The 14 items not included in the scoring of the measure are included to allow for skipping of symptoms not experienced by the participant/patient completing the measure. Response options vary depending on item. Past factor analytic studies have demonstrated a one factor solution of the measure which corresponds to the assertion that ASAD is a unified entity that represents important characteristics of acute suicide risk (Rogers et al., 2017; Tucker et al., 2016). The total score for the measure ranges from 0–400. The internal consistency for the measure is excellent in other samples (Tucker et al., 2016) and in the current sample ($\alpha = .99$).

2.2.2. The Suicide Behaviors Questionnaire-Revised—(SBQ-R; Osman et al., 2001) is a 4-item self-report measure developed to determine suicide risk by assessing lifetime suicidal ideation and attempt, past year suicidal ideation, informing others of intended suicide, and likelihood of attempting suicide in the future, with a score 7 indicating high suicide risk. The use of the total score of the measure as an indicator of current suicide risk has been supported by previous work (Osman et al., 2001). The SBQ-R

has shown good internal consistency in prior work (e.g., Chang, Sanna, Hirsch, & Jeglic, 2010) and in the current sample ($\alpha = .84$).

2.2.3 The Inventory of Depression and Anxiety Symptoms—(IDAS; Watson et al., 2007) is a 64-item self-report measure of the degree to which one has experienced symptoms in the past two weeks from 1 (*not at all*) to 5 (*extremely*). The dysphoria subscale (10 items; possible range 10–50) was chosen for the current study because it assesses depressive symptoms (e.g., anhedonia, sadness, worthlessness) and does not include symptoms of suicide. The panic subscale (7 items) was also used. The IDAS has strong psychometric properties, including internal consistency, test-retest reliability, and convergent and discriminant validity (Watson et al., 2007). The dysphoria ($\alpha=.91$) and panic ($\alpha=.91$) subscales demonstrated excellent internal consistency in the current sample.

2.2.4 The Social Interaction Anxiety Scale—(SIAS; Mattick & Clarke, 1998) was used to assess social anxiety. The SIAS contains 20 items scored from 0 (*not at all characteristic or true of me*) to 4 (*extremely characteristic or true of me*). The SIAS has shown adequate specificity for social anxiety relative to other forms of anxiety (e.g., trait anxiety; Brown et al., 1997). Internal consistency of the SIAS was excellent in the current sample ($\alpha=.95$).

2.2.5 The Alcohol Use Disorders Identification Test—(Saunders et al., 1993) is a 10-item self-report measure of hazardous and harmful drinking. The AUDIT score ranges from 0 to 40, with greater scores indicating greater risk of alcohol-related problems (e.g., Kokotailo, 2004). In the current sample, the AUDIT had good internal consistency ($\alpha = .82$).

2.2.4 Four questions from the Infrequency Scale—(IS; Chapman & Chapman, 1983) were used to identify random responders who provided random or grossly invalid responses. As in prior online studies (Cohen, Iglesias, & Minor, 2009), individuals who endorsed three or more items were excluded ($n = 4$).

Data Analyses

First, we examined bivariate correlations among study variables. Second, direct and indirect effects were tested using PROCESS, a macro used with SPSS 23.0 that utilizes an ordinary least squares regression-based path analytical framework to test for both direct and indirect effects (Hayes, 2013) using bootstrap analyses with 10,000 resamples from which bias-corrected 95-percentile confidence intervals (CI) were estimated (Hayes, 2009; Preacher & Hayes, 2004, 2008). Bias-corrected bootstrapping is the most powerful method for testing mediation (Fritz & Mackinnon, 2007). Although mediational models are ideally tested using prospective data, cross-sectional tests of putative indirect effects can be important tests of theoretically-driven mediational models (see Hayes, 2013). All independent variables (depression, social anxiety, panic, alcohol problems risk) were entered simultaneously to control for shared variance among these variables.

Results

Correlations among study variable appear in Table 1. Depression, social anxiety, panic, and alcohol problem risk were significantly correlated with severity of ASAD history and suicide risk. ASAD severity was significantly correlated with suicide risk. Given observed gender differences in SI and suicide-related behaviors (Centers for Disease Control and Prevention, 2015), we tested if gender was related to study variables in the current sample; it was not (α range: .05-.13) and therefore was not included as a covariate in subsequent analyses.

Indirect effects models

When depression, social anxiety, panic, were simultaneously entered as criterion variables, the total effect model was significant, $R^2 = .26$, $F(4, 522) = 46.68$, $p < .0001$. Depression, social anxiety, and alcohol problem risk (but not panic) were robustly, significantly related to suicide risk, but only social anxiety and depression were robustly related to ASAD history (Table 2). The full model when ASAD history was included was also significant, $R^2 = .68$, $F(5, 521) = 221.98$, $p < .0001$. Social anxiety, panic, and ASAD history were robustly related to suicide risk (Table 3). Depression was indirectly related to suicide risk via ASAD history, $b = .083$, $SE = .015$, 95% CI [.055, .112]. Social anxiety was indirectly related to suicide risk via ASAD history, $b = .015$, $SE = .006$, 95% CI [.003, .027]. Alcohol problem risk, $b = .027$, $SE = .016$, 95% CI [-.003, .059], and panic, $b = -.020$, $SE = .022$, 95% CI [-.063, .024], were not indirectly related to suicide risk via ASAD history.

Discussion

This is the first known test of the role of the newly developed ASAD clinical entity in the relation between chronically elevated affective states (depression, social anxiety, panic, alcohol problem risk) and suicide risk. Depression, social anxiety, and alcohol problem risk were robustly, significantly related to suicide risk, but only depression and social anxiety were robustly related to ASAD history. It has been suggested that depression and ASAD are distinct constructs (Stanley et al., 2016; Tucker et al., 2016); the current findings are in line with this conceptualization given that per Table 1, although depression symptoms were correlated with ASAD severity, the magnitude of the effect indicates that they are related, but distinct constructs.

Importantly, depression and social anxiety were indirectly related to suicide risk via severity of ASAD history. This finding identifies a potential pathway through which individuals with chronically elevated depression and anxiety symptoms may experience greater suicide risk – via increases in acute negative affect. Prospective research has indicated that depression and anxiety symptoms temporally precede affective constructs encompassed within prosed ASAD criteria, such as feelings of thwarted belongingness and perceived burdensomeness (Hill et al., 2018; O’Keefe et al., 2016). Further, supporting the importance of ASAD components in suicide risk among those with chronically elevated anxiety/depressive symptoms, agitation was one of the strongest acute predictors of suicide in a sample of over 900 patients with an affective disorder diagnosis (Fawcett, Scheftner, Fogg, Clark, & Young, 1990). Data from the current study converges with these previous investigations to depict a

potential pathway in which risk for suicide attempt increases in the context of depression and social anxiety symptoms.

Along with the potential clinical pathway depicted in study results, this investigation provides continued theoretical understanding of suicide. Although ASAD is not a theoretical construct, ASAD criteria were in-part derived from the best available theoretically-driven studies of suicide (Tucker et al., 2016). Specifically, constructs encompassed within ASAD criteria, such as thwarted belongingness, perceived burdensomeness, hopelessness, agitation, and sleep disturbance, occur within and out of the context of psychiatric disorders and predict suicide risk (Bernert et al., 2014; Bryan et al., 2014; Joiner et al., 2009; Kovacs & Garrison, 1985). The current investigation provides support for the understanding of suicide in that specific theoretical and clinical constructs may enhance risk for suicide within (and outside of) the context of multiple psychiatric diagnoses given that in the current study, ASAD history remained significantly related to suicide risk after accounting for variance attributable to symptoms of several psychiatric conditions.

Findings from the current study have important clinical implications. Our data add to a growing literature that social anxiety is related to greater SI and suicide risk even after controlling for co-occurring depression and other psychopathology (e.g., Buckner et al., 2017; Sareen et al., 2005); thus, universities may consider identifying students with higher social anxiety in addition to those with greater depression for prevention interventions geared toward decreasing suicide risk among undergraduates. Clinicians are encouraged to assess suicide risk factors among patients with elevated depression and/or social anxiety using empirically informed criteria that include assessment of ASAD (Chu et al., 2015). Finally, the assessment of ASAD in the context of patients experiencing symptoms of social anxiety and depression may help further identify which individuals may benefit from suicide-specific interventions (i.e., those who have recently experienced elevated ASAD symptoms) versus those whose suicide risk could be managed in the context of interventions targeting social anxiety and depression.

Findings must be considered in light of limitations. First, the sample consisted largely of White female undergraduates and it will be important to test whether results replicate in other samples (e.g., non-college persons, older persons, samples with larger representation of historically underrepresented racial/ethnic groups). Second, a non-clinical sample was employed given that the majority of individuals with clinically elevated social anxiety, depression, and alcohol problems do not seek treatment psychological services (Endicott, 1996; Grant, 1997; Grant et al., 2005), thereby increasing generalizability of findings. However, an important next step will be to test whether results generalize to clinical samples. Third, the study was cross-sectional in nature, permitting an initial test of mediation (Hayes, 2013). However, prospective and experimental work will be an important next step to test whether depression and social anxiety lead to ASAD or whether ASAD leads to greater depression and/or social anxiety (or whether there are bidirectional relations among these variables). Fourth, data were collected via retrospective self-reports and future work could benefit from multi-method approaches (e.g., ecological momentary assessment of momentary suicide vulnerability factors). Fifth, social anxiety was included because it is the most common anxiety condition among young adults (Kessler et al., 2005), it is the most

common anxiety condition among those with SI (Sareen et al., 2005), and it is robustly related to SI after controlling for other psychopathology and other suicide risk factors (e.g., Buckner et al., 2017; Sareen et al., 2005). Although we also included panic symptoms (and found them to not be robustly related to ASAD or suicide risk after controlling for variance attributable to depression, social anxiety, and alcohol problems risk), future work testing the impact of ASAD history on other anxiety conditions is warranted.

Despite these limitations, the current study adds to a growing corpus of work delineating potential explanatory factors implicated in the relation of psychological conditions characterized by chronically elevated negative affect (in this case, depression and social anxiety) with suicide risk. Data suggest that ASAD is an important vulnerability for suicide among those with chronically elevated negative affect. It is our hope that these data can inform prevention and treatment efforts aimed at decreasing suicide risk among those suffering from chronically elevated negative affect.

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Table 1:

Mean, standard deviations, and bivariate correlations (N=527)

	1	2	3	4	5	6	M	SD
1. Depression							19.78	8.24
2. Social anxiety	.51**						24.21	15.40
3. Panic	.65**	.34**					11.07	5.07
4. Alcohol problem risk	.14**	-.03	.14**				5.79	5.00
5. Acute Suicidal Affective Disturbance	.42**	.30**	.25**	.12**			20.06	37.05
6. Suicide risk	.48**	.36**	.37**	.14**	.80**		4.41	2.49

*

p<.05,

**

p<.01,

p<.001

Table 2:

Bootstrapping analyses of predictor variables entered simultaneously to predict outcome variables.

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% C.I.
Outcome: Suicide Risk					
Depression	0.100	.016	6.143	<.0001	0.068, 0.132
Social anxiety	0.027	.007	3.857	.0001	0.012, 0.041
Panic	0.040	.024	1.667	.096	−0.007, 0.088
Alcohol problem risk	0.044	.019	2.305	.022	0.007, 0.081
Outcome: Acute Suicidal Affective Disturbance					
Depression	1.724	.254	6.789	<.0001	1.225, 2.222
Social anxiety	0.307	.110	2.785	.006	0.090, 0.524
Panic	−0.413	.377	−1.095	.274	−1.154, 0.328
Alcohol problem risk	0.557	.297	1.876	.061	−0.026, 1.139

Table 3:

Full model of maximum likelihood bootstrapping (10,000 samples were drawn) predicting suicide risk

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% C.I.
Outcome: Suicide Risk					
Acute suicidal affective disturbance	.048	.001	26.081	<.0001	.045, .052
Depression	.017	.011	1.504	.133	-.005, .039
Social anxiety	.013	.005	2.652	.008	.003, .022
Panic	.060	.016	3.774	<.001	.029, .092
Alcohol problem risk	.017	.013	1.349	.178	-.008, .042