Acute Suicidal Affective Disturbance (ASAD): A Confirmatory Factor Analysis With 1,442
Psychiatric Inpatients

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Abstract

Acute Suicidal Affective Disturbance (ASAD) is a newly proposed diagnostic entity that characterizes rapid onset suicidal intent. This study aims to confirm the factor structure of ASAD among psychiatric inpatients, and to determine the clinical utility of ASAD in predicting suicide attempt status. Overall, 1,442 psychiatric inpatients completed a battery of self-report questionnaires assessing symptoms theorized to comprise the ASAD construct. Utilizing these data, a confirmatory factor analysis with a one-factor solution was performed. Regression analyses were employed to determine if the ASAD construct predicted past suicide attempts, and analyses of variance (ANOVAs) were employed to determine if ASAD symptoms differed by the presence and number of past suicide attempts. The one-factor solution indicated good fit: $\chi^2(141) = 309.1$, $p < .001$, Tucker-Lewis Index (TLI) = .96, comparative fit index (CFI) = .97, root-mean-square error of approximation (RMSEA) = .05. Controlling for depressive disorders and current symptoms, the ASAD construct significantly predicted the presence of a past suicide attempt. Moreover, ASAD differentiated in the expected directions between individuals with a history of multiple suicide attempts, individuals with a single suicide attempt, and individuals with no history of a suicide attempt. Acute Suicidal Affective Disturbance (ASAD) appears to be a unified construct that predicts suicidal behavior and is distinct from an already-defined mood disorder.

Keywords: Acute Suicidal Affective Disturbance; ASAD; suicide; psychiatric classification; diagnostics

Acute Suicidal Affective Disturbance (ASAD): A Confirmatory Factor Analysis With 1,442 Psychiatric Inpatients

The Centers for Disease Control and Prevention (CDC) estimates that each year in the United States, over 40,000 individuals die by suicide (CDC, 2016). Globally, the annual estimated number of suicide fatalities balloons to nearly one million individuals (World Health Organization [WHO], 2014). A key component of suicide prevention initiatives is the careful assessment and management of suicide risk (American Psychiatric Association [APA], 2013; Chu et al., 2015; Joiner, Walker, Rudd, & Jobes, 1999; Stanley & Brown, 2012; US Department of Health and Human Services, 2012). However, the current gold standard classification system for mental disorders—the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; APA, 2013)—does not yet fully capture the scope of individuals who think about, attempt, and die by suicide (Aleman and Denys, 2014; Oquendo et al., 2008; Tucker et al., 2016). That is, there is not yet a suicide-specific diagnosable condition included within the DSM.

This absence results in several clinical, epidemiological, and economic problems. First, it limits the ability of clinicians to assess and manage the entire continuum of clinical presentations of suicidality. Second, conditions that lead to death—specifically, death by suicide—but heretofore are not diagnosable may result in misclassification in vital status databases. Third, if a condition exists but is not defined, it is likely that attendant treatments would not be reimbursable. Ultimately, these limitations can pose barriers to effective treatment delivery and result in needless loss of life.

As such, several clinicians and researchers have advocated for the inclusion of suicidal behavior as a separate diagnostic classification within the DSM (Aleman & Denys, 2014; Oquendo et al., 2008; Oquendo & Baca-Garcia, 2014; Van Orden, Witte, Holm-Denoma,

Gordon, & Joiner, 2011). Although DSM-5 does, in fact, list a “Suicide Behavior Disorder (SBD),” it is relegated to the Appendix only as a “Condition for Further Study” (APA, 2013). Moreover, SBD is limited in that it views suicidal behavior as an outcome without characterizing the phenomenology of a suicidal episode as an acute crisis. That is, SBD lists current suicidal behavior as an occurrence in the preceding 24 months. While the presence of a suicide attempt in the previous 24 months provides helpful information regarding suicide risk management (and this fact is reflected in leading suicide risk assessment frameworks; Chu et al., 2015), that a patient had a suicide attempt, say, 18 months ago, does not provide sufficient clinical insight into his or her current, acute risk. Moreover, suicide risk sometimes spikes in the hours, days, and weeks post-discharge from an inpatient psychiatry unit (Bickley et al., 2013; Goldacre et al., 1993; Qin and Nordentoft, 2005). In this regard, SBD is also lacking in its almost full reliance on risk factors for suicide at the expense of more clinically informative warning signs (see Rudd, 2008). Thus, to bolster the clinical utility of a suicide-specific diagnosable entity, it is important for a suicide-specific condition to reflect acuity; however, the importance of examining the relationship of such a construct (i.e., one assessing acuity) to past suicidal behavior is acknowledged.

Why does our diagnostic system need to move beyond the assessment of chronic risk factors in understanding and predicting which individuals will eventually make a suicide attempt? One reply to this question can be found in a recent meta-analysis of 172 studies examining the longitudinal prediction of suicide ideation, attempts, or death; it revealed that, while a history of self-injurious thoughts and behaviors does indeed confer risk for later suicidal thoughts and behaviors, the incremental diagnostic validity above chance is minimal (Ribeiro et al., 2015). The researchers noted that, in some cases, longer follow-ups weakened predictive

validity, highlighting the necessity of focusing on acute, short-term prediction of suicide risk (Ribeiro et al., 2015; see also Bryan & Rudd, 2006). Further, results from psychological autopsy studies indicate that the vast majority of individuals who die by suicide have a diagnosable psychiatric disorder at the time of their death, predominately—but not always—depression (Cavanagh et al., 2003). Estimates hover around 90%, yet some suggest that the number is as high as 100% (Joiner, 2011, 2005), with the discrepancy likely accounted for by the fact that the current classification system insufficiently captures all who die by suicide, and, moreover, that there is a distinct class of individuals whose affective disturbances result in an acute and deadly spike of suicidality. This fact is perhaps the most compelling reason for including a suicide-specific condition within our current diagnostic classification system.

If acute suicidal symptoms are so important in conceptualizing suicide risk, then what are they? Preliminary evidence suggests that such factors may include the following (see Chu et al., 2015 for review): agitation (Ribeiro et al., 2011), sleep disturbances (e.g., insomnia, nightmares; Bernert & Joiner, 2007; Bernert, Turvey, Conwell, & Joiner, 2014; Ribeiro et al., 2012; Sjöstrom, Waern, & Hetta, 2007), marked irritability (Trivedi et al., 2011), social withdrawal (Duberstein et al., 2004), and severe affective states (Hendin et al., 2010; Maltzberger et al., 2003).

Acute Suicidal Affective Disturbance (ASAD): Phenomenology

Building upon the foregoing argument, emerging research and clinical observations have resulted in a newly proposed diagnostic entity, termed Acute Suicidal Affective Disturbance (ASAD). ASAD is theorized to characterize acute, drastic spikes in suicidality. To reflect the condition's acute state, the term “disturbance” was purposely chosen (as opposed to “disorder”). The proposed diagnostic criteria for ASAD include:

- (a) A geometric increase in suicidal intent over the course of hours or days (as opposed to weeks or months);
- (b) One (or both) of the following: marked social alienation (e.g., severe social withdrawal, disgust with others, perception that one is a liability on others), and/or marked self-alienation (e.g., views that one's selfhood is a burden, self-disgust);
- (c) Perceptions that the foregoing are hopelessly intractable; and
- (d) Two or more manifestations of overarousal (e.g., insomnia, nightmares, agitation, irritability).

Further, it is proposed that ASAD is not merely an exacerbation of an already-defined mood disorder (e.g., major depressive disorder [MDD]) or substance use. Crucially, as criterion (a) suggests, ASAD is a time-limited arousal state that will abate over time if appropriately clinically monitored and managed.¹ While ASAD characterizes a syndrome in specific individuals that leads to recurrent increases in suicidal intent, ASAD may also describe a discrete occurrence of suicide risk, which a diagnosis will signal to a future treating clinician as to the possibility of recurrence. The aforementioned symptoms are proposed to coalesce into a one-factor, unified construct. Similar to the diagnostic heterogeneity for other psychiatric disorders, including MDD for which there are 277 possible ways to meet DSM symptom criteria (Zimmerman et al., 2015), the heterogeneity of ASAD does not preclude its utility. Much like

¹ It is acknowledged that acute suicidal crises are frequently of short duration, and as such, may abate in the absence of active intervention on the part of the clinician. For example, a patient may engage in self-distraction techniques, such as distress tolerance skills from Dialectical Behavior Therapy (DBT; Linehan, 2015). The reader is referred to Stanley and Brown (2012) for an in-depth discussion of self-management techniques patients may employ to reduce suicidality. Nonetheless, we emphasize the importance of appropriate assessment and management of acute suicidal crises by a trained clinician, including in inpatient psychiatry settings—the setting of the present study.

MDD, ASAD has a heterogeneous symptom presentation, and preliminary evidence suggests it nonetheless remains a unified construct.

Acute Suicidal Affective Disturbance (ASAD): Empirical Foundations

Indeed, factor analyses of ASAD symptoms among diverse samples representing varying levels of clinical severity suggest a one-factor model representing the amalgamation of these proposed constructs (e.g., Tucker et al., 2016). The construct validity of ASAD as a unified entity has also been demonstrated (Tucker et al., 2016), and ASAD has been shown to differentiate between multiple attempters, single attempters, and non-attempters (Tucker et al., 2016). These data are promising; yet, additional research utilizing distinct samples in terms of setting, severity, and geographical location is needed to replicate and confirm the validity of these findings. In describing any new diagnostic entity, it is of utmost importance to conduct confirmatory factor analyses (CFAs) to verify the factor structure of its proposed underlying constructs. Moreover, it is important to conduct a CFA of ASAD among psychiatric inpatients, in particular, because these are the individuals for whom an ASAD diagnosis may be the most clinically relevant (e.g., as noted previously, suicide risk often spikes in the hours and days post-discharge from inpatient psychiatry; see Goldacre et al., 1993).

As such, the aims of the current study are to utilize data from a large sample of psychiatric inpatients to: (1) describe results from a CFA of ASAD symptoms; (2) determine if ASAD predicts a past suicide attempt above and beyond oft-cited risk factors of suicide such as depression; and (3) determine the ability of ASAD to differentiate between single attempters, multiple attempters, and individuals who have never made a suicide attempt.

Method

Participants

The present study included 1,442 psychiatric inpatients ranging from 18 to 76 years of age ($M = 34.48$, $SD = 14.61$). The sample was slightly skewed toward male (52.8%), and a large majority (90.8%) was Caucasian. Regarding education history, 52.3% had less than a college degree, 26.6% completed a Bachelor's degree, and 21.0% had a graduate degree.

The number of reported lifetime suicide attempts ranged from zero to 17 ($M = 0.47$, $SD = 1.64$); 946 (65.6%) reported no lifetime attempts, 225 (15.6%) reported one attempt, and 238 (16.5%) reported multiple attempts. DSM-IV diagnoses were available for 1,332 (92.4%) of the sample. Among these 1,332 individuals, the most common psychiatric diagnosis was MDD Recurrent ($n = 554$; 41.6%), followed by Anxiety Disorder Not Otherwise Specified ($n = 369$; 27.7%), Generalized Anxiety Disorder ($n = 203$; 15.2%), Depressive Disorder Not Otherwise Specified ($n = 194$; 14.6%), Social Phobia ($n = 117$; 8.8%), Bipolar Disorder Type I ($n = 97$; 7.3%), and MDD Single Episode ($n = 80$; 6.0%). The number of reported admissions for previous acute psychiatric hospital care ranged from zero to 60 ($M = 1.49$, $SD = 2.80$). The number of reported admissions for previous extended psychiatric hospital care ranged from zero to 30 ($M = 1.16$, $SD = 2.14$). The average length of stay for the present sample was 44.13 days ($SD = 21.06$).

Procedures

As part of a standard outcomes battery, patients completed an assessment protocol and a patient information questionnaire that includes demographic information; a structured clinical interview was also administered. Key domains assessed include depression, anxiety, sleep, personality, attachment, suicidal ideation and behavior, and well-being. Data for the present study were assessed at hospital admission via an existing computer-based assessment system, with the aid of a trained research assistant. These data were not collected to test the specific aims

presented herein; however, the nature of the sample (i.e., a large sample of inpatient psychiatric patients) and the available data presented a unique opportunity to test relevant hypotheses. This study was approved by the Institutional Review Board of Baylor College of Medicine, which determined that individual informed consent was not required, since the assessments were conducted as part of routine outcomes monitoring integrated into the existing treatment program. The investigation was carried out in accordance with the latest version of the Declaration of Helsinki.

Measures

ASAD Items. See Table 1 for a full description of the specific items used to comprise the ASAD CFA model as well as the measures from which the items were obtained. Additional information, including psychometric data, for these measures is included below.

Big Five Inventory (BFI; John et al., 1991). The BFI is a self-report measure designed to assess the Big Five personality dimensions—that is, extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Two items assessing the following constructs were extracted from the BFI for the ASAD model: social alienation (“Is outgoing, sociable [Reverse]”) and tense/agitated (“Can be tense”). Past research has established the reliability and validity of the BFI (John et al., 1991).

Columbia-Suicide Severity Rating Scales (C-SSRS; Posner et al., 2011). The C-SSRS is a comprehensive measure of the nature, frequency, and intensity of suicidal thoughts, behaviors, and associated features. For the present study, the following constructs assessed by the C-SSRS were utilized: suicide plan (“Have you started to work out the details of how to kill yourself? Do you intend to carry out this plan?”) and suicidal intent (“Have you had these

thoughts and had some intention of acting on them?”). Past research has demonstrated that the C-SSRS and its subscales have strong reliability and validity (Posner et al., 2011).

Health, Social Support, and Stress (HSS) Scale. The HSS was developed by researchers at the setting from which these data were obtained. A single item assessing social alienation was utilized from this scale (“Do you have someone to love you and make you feel wanted? [Reverse]). This item was adapted from the Social Support Survey of the Medical Outcomes Study (Sherbourne and Stewart, 1991).

Patient Health Questionnaire—9 (PHQ-9; Kroenke and Spitzer, 2002). The PHQ-9 is a commonly used measure of depression symptom severity. Respondents were asked, “Over the past 2 weeks, how often have you been bothered by any of the following problems?” The following constructs theorized to comprise ASAD were extracted from the PHQ-9 for present analyses: suicidal and death ideation (“Thoughts that you would be better off dead or hurting yourself in some way”), self-disgust/perceived liability (“Feeling bad about yourself--or that you are a failure or have let yourself or your family down”), feeling nervous (“Feeling nervous anxiety or on edge”), trouble relaxing (“Trouble relaxing”), restlessness (“Being so restless that it is hard to sit still”), and sleep disturbances (“Trouble falling or staying asleep, or sleeping too much”). Response options include: 0 = Not At All, 1 = Several Days, 2 = More Than Half the Days, 3 = Nearly Every Day.

Moreover, the variable assessing current depression symptoms that was utilized as a control within the current study was comprised of two items from the PHQ-9. The two items were “Little interest or pleasure in doing things” and “Feeling down, depressed or hopeless.” These two items, representing cardinal symptoms of depression, were *not* included in the

proposed ASAD model. Past research has demonstrated that this 2-item composite has strong psychometric properties, including construct and criterion validity (Kroenke et al., 2003).

Sleep Disturbance Screening (SDS). The SDS was developed by researchers at the setting from which these data were obtained. Two items assessing the following constructs were utilized for the ASAD model: difficulty sleeping (“Rate how much difficulty you experienced with sleep”) and nightmares (“Do you have frightening dreams or nightmares?”).

Structured Clinical Interview for DSM Disorders (SCID; First, Spitzer, Gibbon, & Williams, 2002). The SCID was administered by a trained interviewer to all participants to assess for the presence of DSM-IV Axis I and Axis II disorders. Past research has demonstrated that the SCID has excellent inter-rater reliability, and the SCID is widely considered to be the gold standard semi-structured clinical interview (Lobbestael et al., 2011).

WHO-Five Well-Being Index (WHO-5; Topp et al., 2015). The WHO-5 is a widely used assessment of overall psychological well-being. Respondents rank the degree to which they have experienced one of five symptoms over the past two weeks (0 = At no time; 5 = All of the time). A single item from the WHO-5 was utilized for the ASAD model (“I woke up feeling fresh and rested [Reverse]). A recent systematic review of the literature confirmed that the WHO-5 has excellent psychometric properties (Topp et al., 2015).

Data Analytic Approach

To evaluate the proposed one-factor solution to the ASAD construct, a CFA was performed utilizing Structural Equation Modeling (SEM) in Amos. The fit indices assessed included Tucker-Lewis Index (TLI), comparative fit index (CFI), and root-mean-square error of approximation (RMSEA). Past research has suggested the following thresholds must be reached in order to indicate good model fit: $TLI \geq .95$, $CFI \geq .90$, and $RMSEA \leq .06$ (Hu and Bentler,

1999). Factor loadings are generally considered strong if $\geq .40$; however, even factors that load at lower levels but nonetheless contribute to good model fit (i.e., the absence of those factors would reduce the strength of fit indices) may be appropriate to include if theoretically relevant.

Results

Results from the CFA indicated that the one-factor solution demonstrated good model fit: $\chi^2(77) = 309.1, p < .001$, TLI = .96, CFI = .97, RMSEA = .05. See Table 2 for additional information on factor loadings.

As an exploratory analysis, we additionally examined the fit statistics for a model in which depression symptom and diagnosis variables were included. The fit statistics for this model were reduced as compared to the pure ASAD model in which depression symptoms and diagnoses were not included: $\chi^2(104) = 907.4, p < .001$, TLI = .87, CFI = .91, RMSEA = .07. Indeed, when depression symptoms and diagnoses were included in the model, the fit parameters no longer indicate good model fit per established criteria (Hu and Bentler, 1999). This suggests that ASAD symptom variables coalesce more strongly alone than with depression variables, providing evidence as to the distinctiveness of these two constructs.

Following Tucker and colleagues (2016), we conducted a linear regression analysis to determine whether the items used in the ASAD construct would predict past suicidal behavior above and beyond controls. Age, sex, ethnicity, suicidal ideation, a depression diagnosis, and a two-item current depression symptoms composite comprised of anhedonia and depression/hopelessness were entered as the first step ($F[6, 1294] = 24.569, p < .001$) and accounted for 10.2% of the variance in previous attempts. The variables utilized in the ASAD model were added in the second step ($F[21, 1279] = 15.297, p < .001$) and accounted for an additional 9.8% of the variance (See Table 3). Patients with past suicide attempts were

significantly more likely to be female, report they do not have someone to love or make them feel wanted, experience nightmares, and are currently expressing thoughts of suicidal intent, and that they feel they are better off dead.

To determine whether items consistent with the ASAD construct differ among patients with single, multiple, and no attempt histories, a series of one-way analyses of variance (ANOVAs) were performed. First, in order to determine if the overall ASAD construct was able to differentiate by attempt status, a total score of the items was calculated using the z-scores of each item to allow for comparisons across original scale metrics. Tukey's adjustment was utilized when examining all pairwise comparisons. Results of an ANOVA revealed that z-scores on the ASAD construct significantly differed by attempt status $F[2, 1406] = 67.335, p < .001$. More specifically, post hoc tests revealed that there were significant differences in ASAD z-scores between all three groups (Multiple attempts: $M = 4.48, SD = 6.85$; One attempt: $M = 1.79, SD = 6.74$; No attempts: $M = -1.55, SD = 7.97$). Results at the item level revealed that patient responses differed on several items, depending on number of past suicide attempts. More specifically, significant results were found for constructs comprising each proposed ASAD diagnostic criteria domain (see above): (a) *suicidality* (thoughts that they would be better off dead ($F[2, 1406] = 92.669, p < .001$; suicidal intent in the past two months, $F[2, 1406] = 181.832, p < .001$; suicide plan in the past two months, $F[2, 1406] = 86.905, p < .001$); (b) *marked social alienation* or *self-alienation* (outgoing, sociable [reverse], $F[2, 1406] = 8.889, p < .001$; feeling bad about self or that they are a failure or have let self or their family down, $F[2, 1406] = 23.826, p < .001$; thoughts that they would be better off dead, $F[2, 1406] = 92.669, p < .001$); and (c) *overarousal states* (feeling nervous or on edge, $F[2, 1406] = 14.501, p < .001$; trouble relaxing, $F[2, 1406] = 9.988, p < .001$; trouble falling or staying asleep or sleeping too

much, $F[2, 1406] = 13.609, p < .001$; can be tense, $F[2, 1406] = 5.413, p < .01$; difficulty sleeping, $F[2, 1406] = 6.237, p < .01$; frightening dreams or nightmares, $F[2, 1406] = 6.618, p < .01$; calm and relaxed [reverse], $F[2, 1406] = 11.483, p < .001$; woke up fresh and rested [reverse], $F[2, 1406] = 11.143, p < .001$). For the majority of the items, statistically significant differences were found between patients with no past history of a suicide attempt and one or more attempt; however, some items did differentiate further between the attempt groups (See Table 4).

Discussion

This study examined and confirmed the factor structure of a newly proposed diagnostic entity—Acute Suicidal Affective Disturbance (ASAD)—among a large sample of psychiatric inpatients. Results replicate accumulating evidence for the validity and utility of ASAD (e.g., Tucker et al., 2016). Specifically, a CFA indicated that the constructs theorized to comprise ASAD were a statistically good fit as a unitary factor. This coincides with the results from other factor analytic analyses, including a principal components analysis (PCA) among a sample of undergraduate students that utilized a measure specifically designed to assess for ASAD symptoms (Tucker et al., 2016). The current study was incremental in that it confirmed the factor structure of ASAD (i.e., employed a CFA) among a large (i.e., $N = 1,442$) sample of psychiatric inpatients.

In examining the nuances of the ASAD factor structure (i.e., factor loadings), it is worth pondering why several factor loadings were relatively weak despite contributing to the overall strength of the model fit. Of note, the suicidal intent factor loading is relatively weak, despite the conceptualization of ASAD as characterizing suicidal intent. As noted, participants for the current study are individuals who were admitted to inpatient psychiatry and who were

approached for study participation after acute symptoms abated. Thus, it is likely that suicidal intent at the time of assessment is an underrepresentation of suicidal intent that may have propelled an individual to seek inpatient psychiatric treatment, in part accounting for the relatively low factor loading on the ASAD construct. This may also account for the relatively low factor loading for the suicidal plan variable, since the item from the C-SSRS is double-barreled and additionally assesses for intent of carrying out the plan. Indeed, a crucial criterion of ASAD is that it is a time-limited arousal state. Therefore, while the symptoms theorized to comprise the ASAD construct, including the suicidal intent variable, maintains statistically good fit as a unitary factor, it is worth noting that suicidal intent is not a static construct (Bryan and Rudd, 2006). Similarly, nightmares may have demonstrated a relatively lower factor loading given the setting (i.e., by the time of assessment by research staff, sleep disturbances such as nightmares may have been appropriately clinically managed and thus underreported relative to the extent to which nightmares affect the individual outside of the hospital). Moreover, measurement issues may have contributed to low factor loadings for the reverse-coded “someone to love you” variable. That is, as noted above (and again below in the limitations), this item was not from an empirically supported scale, and thus may not adequately represent its intended construct, thus contributing to the low factor loading.

In the present study, ASAD also retrospectively predicted suicide risk. Namely, ASAD symptoms differentiated multiple suicide attempters, single attempters, and non-attempters. Perhaps most importantly, however, ASAD predicted number of past suicide attempts above and beyond a depressive disorder diagnosis and current self-reported depressive symptoms, demonstrating that ASAD is incrementally useful in predicting suicide risk. Despite this statistically significant finding, the overall variance explained was relatively low (i.e., 18.8%).

Given that ASAD is proposed to characterize acute suicidal crises and a more stringent test of the construct, to be conducted in future work (see below), is through ongoing monitoring of at-risk individuals within a prospective design, it makes theoretical sense why ASAD did not explain a larger percentage of variance for *past* suicide attempts. Nonetheless, that ASAD explained a statistically significant portion of variance is notable, as it is plausible that an individual has had a history of an ASAD occurrence, which may have contributed to a past suicide attempt. Indeed, a past suicide attempt may also have occurred in the context of a non-ASAD episode.

Given these findings—that ASAD is a unitary construct associated with suicidal symptoms and associated with indices of suicide risk—a recapitulation of the potential necessity of ASAD is warranted. As noted, there exists a gap in our current diagnostic classification system for mental disorders (i.e., DSM-5), and this gap results in particular presentations of acute suicide risk remaining undetected, and therefore untreated. Consider the following illustrative example: an individual with a non-mood disorder (e.g., anorexia nervosa [AN]) is admitted to inpatient psychiatry, AN symptoms and suicide risk are regularly and competently monitored and treated, symptoms abate over the course of the hospital stay, the patient is discharged, and despite no exacerbation in this individuals' AN symptoms (and no onset of an already-defined mood disorder), there is a dramatic spike of suicidality in the hours post-discharge that culminates in death. This tragic scenario is not uncommon, highlighting the need for a suicide-specific diagnostic entity.

Potential Clinical and Regulatory Implications

As noted, this study is one of the initial studies examining the factor structure and phenomenology of ASAD. Therefore, the clinical and regulatory implications of this study are preliminary and hinge upon successful replication and further validation of this proposed

construct. Nonetheless, should findings be replicated across additional studies, including those employing prospective designs, there are several noteworthy clinical and regulatory implications of ASAD. With regard to assessment, ASAD may prove informative in predicting imminent suicide risk more accurately than currently available assessments. For instance, if an individual has experienced an episode that meets criteria for ASAD in the past, due vigilance on the parts of treatment providers for future episodes, even in the absence of mood pathology, is warranted—that is, if an individual has had an ASAD episode in the past, it alerts the clinician to the possibility of one recurring in the future. With regard to treatment, the assessment and clinical management of ASAD symptoms and episodes could also be incorporated into existing suicide-specific treatment frameworks, such as the Collaborative Assessment and Management of Suicidality (CAMS; Jobes, 2006, 2012; see also Ellis, Green, Allen, Jobes, & Nadorff, 2012; Ellis, Rufino, Allen, Fowler, & Jobes, 2015). Given that ASAD is a suicide-specific diagnosis, CAMS may be effective in reducing the duration and frequency of ASAD episodes. Despite this reasonable plausibility, this is an empirical question that cannot be addressed by the current study. Moreover, there is not yet sufficient evidence as to whether psychotherapy augmented with a suicide-specific component is beneficial as compared to standard psychotherapy (Brown and Jager-Hyman, 2014). As such, it is emphasized that for a patient in the midst of an ASAD episode, given the acuity, it is important for treatment modalities to be focused on safety planning with an emphasis on means safety planning (Stanley and Brown, 2012).²

² Across the world, individuals with experiences of suicidal thoughts and behaviors underutilize mental health services (Bruffaerts et al., 2011; Hom et al., 2015; Stanley et al., 2015), creating missed opportunities for diagnostic assessment and risk management. It may be the case that individuals in acute suicidal crises—those for whom an ASAD diagnosis may be clinically indicated—are even less likely to interface with care in the midst of a crisis. Thus, when these highly suicidal individuals are in care (e.g., an emergency department or an inpatient psychiatry unit), a diagnosis of ASAD may help inform treatment disposition and referral information.

It is also worth pondering the potential necessity of ASAD from a regulatory perspective. For example, the Joint Commission (JC) is the largest accrediting body of hospitals in the United States. As one measure to promote safety for patients treated within hospital settings (e.g., inpatient psychiatry), hospitals accredited by the JC are expected to identify and appropriately respond to all occurrences of death that are “not primarily related to the natural course of the patient’s illness or underlying condition” (i.e., Sentinel Events; Joint Commission, 2015). One of the most commonly reported Sentinel Events is a suicide of a patient (Ballard et al., 2008; Joint Commission, 2015b). Thus, the careful assessment, prediction, and management of acute suicidal crises should be prioritized; a clinical entity like ASAD helps to address this need. Moreover, as noted, the period of time post-discharge from a hospital setting, namely inpatient psychiatry, is also a particularly at-risk period for suicide (Bickley et al., 2013; Goldacre et al., 1993; Qin and Nordentoft, 2005). Particularly relevant to ASAD, the JC also describes the following as a qualifying Sentinel Event: “Suicide of any individual served receiving care, treatment, or services in a staffed around-the-clock care setting *or within 72 hours of discharge*, including from the organization’s emergency department (ED)” (emphasis added; Joint Commission, 2015b). Thus, for a condition that results in a rapid-onset, acute presentation of suicidality (i.e., ASAD) distinct from a primary psychiatric disorder already accounted for by the DSM, it behooves clinicians to be aware of ASAD diagnostics in order to inform treatment and discharge planning. It should be emphasized that suggestions regarding clinical and regulatory implications are tentative, and that additional research that builds on the limitations of the present study is needed to reach definitive conclusions regarding the veracity and necessity of ASAD.

Limitations and Future Directions

While the current study provides useful information regarding the factor structure of ASAD among a sample of individuals with severe, unremitting psychopathology, several limitations of this study must be noted. Most notably, data were cross-sectional, thereby limiting our ability to understand the prospective predictive power of ASAD, as well as how an ASAD diagnosis emerges, responds to treatment, and resolves. Understanding ASAD within a longitudinal research study design is of paramount importance. However, this study represents an initial description of the phenomenology and factor structure of ASAD, which is a necessary precursor to studying the construct longitudinally.

Other study limitations are related to the nature of the sample, which, although large, is comprised of predominately white individuals of above average education and income. Thus, generalizability to other demographic groups is limited. Further, this study relied on extant data that was not specifically developed to test conjectures relevant to the ASAD construct; as such, some important components of ASAD were not fully captured within the present study. These include the view of one's social- or self-alienation as hopelessly intractable. Moreover, although the vast majority of variables used to comprise the unitary ASAD construct were generally derived from scales that have undergone extensive empirical testing, because of our use of pre-existing data, three of the items that were included in the ASAD model were not from validated scales.

Building on the current findings, future research is needed in several domains in order to refine further the ASAD construct and determine its clinical utility. Whereas the current study and others have begun to demonstrate the validity of ASAD as a unified construct, more empirical validation is needed. This may be achieved, for example, through the development,

empirical testing, and systematic use of semi-structured diagnostic interview modules (see Tucker et al., 2016). Establishing a psychometrically sound assessment instrument for ASAD would bolster the clinical utility of the ASAD construct by creating consistency in the way in which ASAD is assessed. Further, given that ASAD aims to describe acute suicidal states, the phenomenology and clinical utility must be tested in settings amenable to research on acute presentations of suicide risk (e.g., in the minutes or hours following a suicide attempt). On this front, the emergency department is often the first clinical setting to which acutely suicidal individuals present (Larkin and Beautrais, 2010). As such, it is important to confirm the existence and test the utility of ASAD within this unique setting and patient population.

Establishing a new and useful diagnostic entity requires rigorous and multilevel analytic approaches (cf. Cacioppo & Berntson, 1992). In their seminal work, Robins and Guze (1970) outlined five core, iterative phases for establishing a diagnostic entity: (1) *clinical description*, including any defining or pathognomonic feature; (2) *laboratory study* utilizing reliable and reproducible psychological tests; (3) *delimitation from other disorders* to demonstrate distinctiveness, and therefore necessity, and to also define its place within the nomological network (cf. Cronbach & Meehl, 1955); (4) *follow-up study* to understand prognosis and prospective predictive power; and (5) *family study* to understand biological underpinnings. It is this level of breadth and depth that we seek to obtain in establishing the utility, necessity, and timeliness of ASAD as a codified diagnostic entity.

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Tables

Table 1. Descriptive Information of Study Measures

Construct	Instrument	Instrument Citation	Item
Suicidality			
Suicidal & Death Ideation	Patient Health Questionnaire (PHQ)	(Kroenke and Spitzer, 2002)	Thoughts that you would be better off hurting yourself in some way
Suicide Plan	Columbia-Suicide Severity Rating Scales (C-SSRS)	(Posner et al., 2011)	Have you started to work out the details of how you would hurt yourself? Do you intend to do this?
Suicidal Intent	Columbia-Suicide Severity Rating Scales (C-SSRS)	(Posner et al., 2011)	Have you had these thoughts and intentions of acting on them?
Social Alienation or Self-Alienation			
Someone to Love You	Health, Social Support, and Stress (HSS) Scale	-- ¹	Do you have someone to love you the way you wanted? (Revised)
Outgoing	Big Five Inventory (BFI)	(John et al., 1991)	Is outgoing, sociable
Self-Disgust / Perceived Liability	Patient Health Questionnaire (PHQ)	(Kroenke and Spitzer, 2002)	Feeling bad about yourself--or that you have let yourself or your life down
Overarousal			
Calm and Relaxed	WHO-Five Well-Being Index (WHO-5)	(Topp et al., 2015)	I have felt calm and relaxed
Feeling Nervous	Patient Health Questionnaire (PHQ)	(Kroenke and Spitzer, 2002)	Feeling nervous anxious or on edge
Trouble Relaxing	Patient Health Questionnaire (PHQ)	(Kroenke and Spitzer, 2002)	Trouble relaxing
Restlessness	Patient Health Questionnaire (PHQ)	(Kroenke and Spitzer, 2002)	Being so restless that it is hard to sit
Can Be Tense	Big Five Inventory (BFI)	(John et al., 1991)	Can be tense
Difficulty Sleeping	Sleep Disturbance Screening (SDS)	-- ²	Rate how much difficulty you experience
Nightmares	Sleep Disturbance Screening (SDS)	-- ²	Do you have frightening dreams or nightmares?
Sleep Disturbances	Patient Health Questionnaire (PHQ)	(Kroenke and Spitzer, 2002)	Trouble falling or staying asleep
Woke Up Rested	WHO-Five Well-Being Index (WHO-5)	(Topp et al., 2015)	I woke up feeling fresh and rested

¹The scale was developed internally for outcomes measures purposes with an item adapted from Sherbourne & Stewart (1991).

²The scale was developed internally for outcomes measures purposes.

Table 2. Factor Loadings for Confirmatory Factor Analysis

Item	Factor Loading
Suicidality	
Suicidal & Death Ideation	.455
Suicidal Plan	.151
Suicidal Intent	.198
Social Alienation or Self-Alienation	
Someone to Love You (R)	.010
Outgoing (R)	.288
Self-Disgust / Perceived Liability	.658
Overarousal	
Calm and Relaxed (R)	.864
Feeling Nervous	.707
Trouble Relaxing	.713
Restlessness	.420
Can Be Tense	.427
Difficulty Sleeping	.447
Nightmares	.173
Sleep Disturbances	.653
Woke Up Rested (R)	.694

Note. R = item reverse coded

Table 3. Results of a hierarchical linear regression predicting past suicide attempts.

	b	SE	F	R ²	p
Step 1			24.569	.098	.000***
Age	-.005	.003			.073
Gender	-.353	.081			.000***
Ethnicity	-.090	.069			.193
Suicidal Ideation	.815	.087			.000***
SCID Depression	-.210	.115			.067
Depression Composite	.013	.021			.556
Step 2			15.297	.188	.000***
Depression Composite	-.049	.033			.132
Age	-.001	.003			.645
Gender	-.322	.080			.000***
Ethnicity	-.090	.066			.173
Suicidal Ideation	.030	.109			.781
SCID Depression	-.205	.110			.061
Feeling Nervous	.077	.061			.205
Trouble Relaxing	-.039	.063			.535
Restlessness	.004	.043			.932
Sleep Disturbances	.101	.052			.053
Self-Disgust / Perceived Liability	.054	.052			.304
Suicidal & Death Ideation	.135	.050			.007**
Can Be Tense	-.076	.042			.066
Someone to Love You	-.260	.106			.014*
Suicidal Intent	1.038	.128			.000***
Suicidal Plan	.200	.137			.145
Woke Up Rested (R)	.043	.040			.283
Outgoing (R)	.022	.030			.463
Calm and Relaxed (R)	-.086	.049			.083
Difficulty Sleeping	-.022	.029			.447
Nightmares	.165	.081			.041*

Note. * = $p < .05$; ** = $p < .01$; *** = $p < .001$.

Table 4. Results comparing ASAD items by suicide attempt status.

Item	No Lifetime Suicide Attempt (N=946) <i>M(SD)</i>	One Lifetime Suicide Attempt (N=225) <i>M(SD)</i>	Multiple Lifetime Suicide Attempts (N=238) <i>M(SD)</i>
Suicidality			
Suicidal & Death Ideation	0.75(1.01) ^a	1.30(1.10) ^b	1.73(1.15) ^c
Suicidal Plan	0.08(.27) ^a	0.20(.40) ^b	0.40(.49) ^c
Suicidal Intent	0.14(.35) ^a	0.41(.49) ^b	0.66(.47) ^c
Social Alienation or Self-Alienation			
Someone to Love You (R)	0.85(.36) ^a	0.84(.37) ^a	0.83(.38) ^a
Outgoing (R)	2.66(1.36) ^a	2.73(1.36) ^{ab}	3.07(1.37) ^c
Self-Disgust / Perceived Liability	1.96(1.11) ^a	2.28(.94) ^b	2.42(.86) ^b
Overarousal			
Calm and Relaxed (R)	3.27(1.31) ^a	3.52(1.17) ^b	3.67(1.09) ^b
Feeling Nervous	2.02(1.03) ^a	2.25(.93) ^b	2.37(.86) ^b
Trouble Relaxing	1.90(1.05) ^a	2.12(.98) ^b	2.20(.96) ^b
Restlessness	1.36(1.24) ^a	1.47(1.20) ^a	1.53(1.16) ^a
Can Be Tense	3.97(1.08) ^a	4.20(.80) ^b	4.11(.99) ^{ab}
Difficulty Sleeping	4.23(1.74) ^a	4.52(1.64) ^{ab}	4.61(1.66) ^b
Nightmares	0.45(.50) ^a	0.50(.50) ^{ab}	0.58(.50) ^b
Sleep Disturbances	1.89(1.13) ^a	2.09(1.01) ^b	2.29(.94) ^b
Woke Up Rested (R)	3.50(1.48) ^a	3.76(1.26) ^b	3.95(1.22) ^b

Note. Means sharing letters are not clinically significant differences. R= item reverse coded.

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