

UC Berkeley

UC Berkeley Previously Published Works

Title

Emotion-related impulsivity and suicidal ideation: Towards a more specific model.

Permalink

<https://escholarship.org/uc/item/3pj305tj>

Journal

British Journal of Clinical Psychology, 61(4)

ISSN

0144-6657

Authors

Anvar, Sarah
Swerdlow, Benjamin
Jobes, David
[et al.](#)

Publication Date

2022-11-01

DOI

10.1111/bjc.12383

Peer reviewed



Published in final edited form as:

Br J Clin Psychol. 2022 November ; 61(4): 1219–1235. doi:10.1111/bjc.12383.

Emotion-related impulsivity and suicidal ideation: Towards a more specific model

Sarah Anvar¹, Benjamin A. Swerdlow¹, David Jobes², Kiara R. Timpano³, Abby Adler Mandel², Evan Kleiman⁴, Thomas Joiner⁵, Sheri L. Johnson¹

¹University of California, Berkeley, California, USA

²American University, Washington, District of Columbia, USA

³University of Miami, Coral Gables, Florida, USA

⁴Rutgers University, New Brunswick, New Jersey, USA

⁵Florida State University, Tallahassee, Florida, USA

Abstract

Objectives: Suicidal ideation is a pervasive and painful experience that varies considerably in its phenomenology. Here, we consider how one key risk variable might inform our understanding of variation in suicidal ideation: emotion-related impulsivity, the trait-like tendency towards unconstrained speech, behaviour, and cognition in the face of intense emotions. We hypothesized that emotion-related impulsivity would be tied to specific features, including severity, perceived lack of controllability, more rapidly fluctuating course, higher scores on a measure of acute suicidal affective disturbance, and more emotional and cognitive disturbance as antecedents.

Methods: We recruited two samples of adults ($N_s = 421, 221$) through Amazon Mechanical Turk (MTurk), with over-sampling of those with suicidal ideation. Both samples completed psychometrically sound self-report measures online to assess emotion- and non-emotion-related dimensions of impulsivity and characteristics of suicidal ideation.

Results: One form of emotion-related impulsivity related to the severity, uncontrollability, dynamic course, and affective and cognitive precursors of ideation.

Correspondence: Sheri L. Johnson, Department of Psychology, 2121 Berkeley Way West, University of California, Berkeley, CA 94720–1650, USA, sljohnson@berkeley.edu.

Present address

Sarah Anvar, University of California San Francisco, San Francisco, California, USA

Benjamin A. Swerdlow, Florida State University, Hanover, New Hampshire, USA

AUTHOR CONTRIBUTIONS

Sarah Anvar: Conceptualization; data curation; formal analysis; methodology; writing – review and editing. **Benjamin Swerdlow:** Data curation; formal analysis; methodology. **David Jobes:** Conceptualization; writing – review and editing. **Kiara R. Timpano:** Conceptualization; methodology; writing – review and editing. **Abby Adler Mandel:** Writing – review and editing. **Evan Kleiman:** Writing – review and editing. **Thomas Joiner:** Conceptualization; writing – review and editing. **Sheri L. Johnson:** Conceptualization; formal analysis; funding acquisition; investigation; methodology; supervision; writing – original draft.

CONFLICT OF INTEREST

All authors declare no conflict of interest.

OPEN RESEARCH BADGES

This article has earned Open Data and Open Materials badges. Data and materials are available at https://osf.io/ntqzy/?view_only=46776c2e057e4097bde656dc87944ff0.

Conclusions: Despite limitations of the cross-sectional design and self-report measures, the current findings highlight the importance of specificity in considering key dimensions of impulsivity and suicidal ideation.

Keywords

acute suicidal affective disturbance; emotion-related impulsivity; suicidal ideation; urgency

BACKGROUND

Although suicide attempts are difficult to predict, suicidal ideation is one of the strongest predictors (Franklin et al., 2017) and the most common reason for psychiatric hospitalization (Bowers, 2005). Suicidal ideation is also an important focus in its own right, as it is a profound signal of intense pain (Klonsky et al., 2015). In 2019, as many as 12 million people in the United States had serious thoughts of ending their life (SAMSHA, 2020). Suicidal ideation encompasses a broad range of experiences, ranging from passive thoughts about death, to active images of causing one's death, to forming intentions and plans to end one's life. Ideation differs considerably in characteristics, triggers, and dynamic course. Accordingly, suicidologists have called for a more careful scientific approach to understanding heterogeneity in suicidal ideation (Jobes & Joiner, 2019).

Impulsivity, defined as the tendency to act on one's urges without forethought, has been proposed as a distal risk factor for suicide (Bryan & Rudd, 2006; Mann et al., 1999) and is commonly referenced in public-facing suicide prevention literature (e.g., CDC, 2021); yet, empirical evidence for this link has been mixed (Anestis et al., 2014). Impulsivity, though, is an umbrella construct that covers multiple statistically, and neurobiologically distinct dimensions that relate differentially to outcomes (Strickland & Johnson, 2020; Whiteside & Lynam, 2001). Emotion-related impulsivity is defined by the trait-like tendency towards rash and regrettable responses to states of high emotion. Emotion-related impulsivity has been shown to be more elevated across a range of psychopathologies than is non-emotion-related impulsivity, including psychopathologies related to suicidality, such as bipolar disorder, depression, and borderline personality disorder (Berg et al., 2015; Johnson et al., 2017; Whiteside et al., 2005).

This intense responsivity to emotions is theorized to have pernicious influences on interpersonal function and behavioural outcomes (Cyders & Smith, 2008). Consistent with the focus on emotion and interpersonal function across prominent models of suicidal ideation (Klonsky et al., 2015; O'Connor & Kirtley, 2018; Van Orden et al., 2010), emotion-related impulsivity has been found repeatedly to be elevated among those with suicidal ideation (Beach et al., 2021), and the meta-analytic effect size for the relationship between emotion-related impulsivity and suicidality is qualitatively larger than that for non-emotion-related impulsivity (Berg et al., 2015). Critically, though, researchers have not investigated which dimensions of suicidal ideation are most closely tied to emotion-related impulsivity. We see this as a first step towards developing a more refined model of how emotion-related impulsivity is related to suicidal ideation. Therefore, we sought to examine the association of emotion-related impulsivity with multiple facets of suicidal ideation.

In considering emotion-related impulsivity and suicidal ideation, it is important to consider work identifying two forms of emotion-related impulsivity (Carver et al., 2011), which relate differentially to suicidal ideation. One form, Feelings Trigger Action, reflects tendencies towards impulsive behaviour during states of high emotion (Whiteside & Lynam, 2001). A second form, Pervasive Influence of Feelings, covers poor constraint over motivation and cognition during states of high emotions, such as the tendency to be paralysed by and more cognitively affected by negative emotions. In one large study, Pervasive Influence of Feelings was shown to be related more strongly to suicidal ideation severity than was Feelings Trigger Action (Auerbach et al., 2017). Given this, we predicted that Pervasive Influence of Feelings would be particularly tied to the severity of suicidal ideation.

Beyond severity, we also considered dynamic fluctuations in ideation. Recent work has validated a subtype of suicidal ideation defined by a sudden escalation in ideation and intent, variously described in the literature as suicide crisis syndrome (Schuck et al., 2019) and acute suicidal affective disturbance (ASAD) (Rogers, Anestis, et al., 2017a; Rogers, Chiurliza, et al., 2017b). ASAD has been proposed as a diagnosis to be added to future versions of DSM (Joiner et al., 2018; Schuck et al., 2019). Proposed criteria for ASAD include a dramatic increase in suicidal intent over hours or days, perceptions of hopelessly intractable social alienation and/or marked self-alienation, and two or more manifestations of hyperarousal (Stanley et al., 2016). The definition of the closely-related suicide crisis syndrome also includes poor cognitive control (Schuck et al., 2019), of interest as emotion-related impulsivity also has been tied to poor cognitive control (Johnson et al., 2016). ASAD severity has been found to be related to greater likelihood and more recurrence of suicide attempt (Rogers, Chiurliza, et al., 2017b; Rogers & Joiner, 2018; Stanley et al., 2016; Tucker et al., 2016) and to suicide attempt history when accounting for psychiatric disorders and depressive symptoms (Rogers, Chiurliza, et al., 2017b). As emotion-related impulsivity has been tied to increases in symptoms during intense emotions (Carver et al., 2011), one might expect that suicidal ideation would also intensify in an emotion-state dependent manner for people high in emotion-related impulsivity. Consistent with this idea, Negative Urgency (a measure of impulsive responding to negative emotions) was robustly related to ASAD, $r = .55$, in one prior study (Rogers, Chiurliza, et al., 2017b). One aim of this study, then, is to replicate that finding, and to consider whether Pervasive Influence of Feelings (poor constraint over cognition), given its more robust ties to suicidal ideation, would show a stronger link with ASAD than would Feelings Trigger Action.

Beyond ASAD, we considered perceived uncontrollability of suicidal ideation, which has been shown to be uniquely related to suicide attempts even when controlling for mental disorders (Nock et al., 2018; van Spijker et al., 2014). Recent findings suggest that an interaction of Cognitive Stuckness (“I felt like my thoughts were out of my control”) and Cognitive Dysfunction (“I could not think straight”) was associated with greater severity of suicidal ideation (Mandel et al., 2021). Other work suggests that perceived lack of control over rumination (as opposed to the frequency, duration, or content) is uniquely associated with suicidal ideation (Rogers et al., 2021). As Pervasive Influence of Feelings involves poor constraint over cognitive responses to intense emotion, we hypothesized that this form of emotion-related impulsivity would relate to lower perceived control over suicidal ideation when compared with Feelings Trigger Action.

Finally, we considered the affective and cognitive state at the time of ideation. For those with high emotion-related impulsivity, symptoms, cognitive control deficits appear to increase with high arousal emotion states (Cyders et al., 2010; Cyders & Coskunpinar, 2010; Dekker & Johnson, 2018; Pearlstein et al., 2019). Accordingly, we hypothesized that emotion-related impulsivity would be correlated with high arousal negative emotions and cognitive difficulty preceding suicidal ideation.

In sum, building on findings that emotion-related impulsivity is related to suicidal ideation, we aimed to develop a model of the characteristics of suicidal ideation in relation to emotion-related impulsivity. Our pre-registered hypotheses were that emotion-related impulsivity would relate to greater severity of suicidal ideation, more perceived uncontrollability of the suicidal ideation, rapid onset of suicidal ideation, and greater ASAD severity. Non-registered hypotheses were that emotion-related impulsivity would relate to more prominent affective and cognitive disturbance preceding suicidal ideation. Although we expected both forms of emotion-related impulsivity to relate to each index of suicidal ideation, we hypothesized that the effects would be stronger for Pervasive Influence of Feelings than for Feelings Trigger Action. As a comparison control for emotion-related impulsivity, we included one measure of non-emotion-related impulsivity.

DESIGN

We gathered two samples of adults through Amazon Mechanical Turk (MTurk). In both samples, we over-sampled individuals who endorsed suicidal ideation. All participants completed well-validated measures of impulsivity and characteristics of suicidal ideation.

METHOD

Study procedures were approved by the institutional review board before data collection began. Informed consent and data collection occurred online via Qualtrics (Qualtrics, Provo, UT). Participants completed informed consent before taking the survey. Both samples consisted of adult (age 18 and above) survey takers on the MTurk platform who lived in the United States and were literate in English. Pre-registered hypotheses, materials, and sample 2 data analysis scripts and data are available on the Open Science Framework (OSF) at https://osf.io/ntqzy/?view_only=46776c2e057e4097bde656dc87944ff0; data and analysis scripts for sample 1 are available at https://osf.io/dga4p/?view_only=df37657fd4694a4fa90d272c14908227. Participants were paid for participation. A previous publication focused on rumination within this sample (REF deleted for anonymization during review).

Sample 1. Participants and procedure

In total, 518 participants began the survey, including 313 participants recruited without screener questions and 205 recruited based on endorsement of one or more forms of high suicide risk on pre-screen questions drawn from the Columbia–Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011), including past year suicidal ideation ($n = 159$), lifetime history of suicide attempt ($n = 53$), or past year non-suicidal self-injury ($n = 113$). Participants were excluded from analyses for not completing the survey ($n = 14$), duplicate

MTurk ID ($n = 1$), inconsistencies in responses on the pre-screen compared with the full survey ($n = 22$, e.g., endorsing ideation initially and then denying when asked the same item on the full survey), failing at least one catch trial (e.g., please select “d” for your response on this item; $n = 52$), and finishing the survey in under 10 min ($n = 8$), leaving 421 participants (57% female, Mn age = 36.56, SD = 11.106) for analyses, 330 of whom were employed (78.39%), 27 (6.41%) who identified as Hispanic, and 91 (21.62%) as non-Caucasian. Sample characteristics for both samples are described in Table 1.

Sample 2. Participants and procedure

Budget limitations restricted the size of the replication sample. We conducted a priori sensitivity analyses in G*Power to identify the minimum reliably detectable ($\alpha = .05$, $1-\beta = .90$) effect size with 3 regressors of interest and 3 confound variables in multiple regression (Dong & Maynard, 2013). These analyses indicated we had adequate statistical power with $N = 200$ to detect small to moderate (i.e., $f^2 > .09$) effect sizes for r^2 change, controlling potential confounds.

Potential participants in Sample 2 completed prescreen questions to assess inclusion criteria of life-time history of passive death wish or suicidal ideation as reflected by endorsement of items from the C-SSRS (Posner et al., 2011). Participants were excluded if they reported a history of psychosis, major cognitive, or neurological problems, or if they failed to pass a catch question during prescreening. 94% of those invited to continue to the main study chose to do so. Of the 276 participants who completed the main study, we excluded 33 for incompleteness, failure on attention check items, or poor responses (e.g., lack of variability, inconsistent responses to psychological antonyms) as indicated by the careless package in R (Curran, 2016; Yentes & Wilhelm, 2021), and 22 for logically inconsistent responses on ASAD items (i.e., endorsed a drastic increase in intent on a multiple choice question, yet described a *decline* in intent on an immediately subsequent pair of sliders). This left a final sample of 221 participants (63% female, 6.33% Hispanic, 23.08% non-Caucasian, 59.73% employed, Mn age 35.14, SD = 11.675). Other sample characteristics are described in Table 1.

Measures

All measures were self-report scales that have been well-validated. Participants in both samples completed the Three-Factor Impulsivity scale. To capture severity of suicidal ideation, we examined two well-validated indices of ideation: the C-SSRS index of ideation severity (Posner et al., 2011) in both samples, and in Sample 2 only, the strength of the wish to die (adjusting for the strength of the wish to live). Assessment of Acute Suicidal Affective Disturbance differed by sample. Only those in Sample 2 completed the Suicidal Ideation Scale, which covered questions about their affect and cognition before intense ideation. Both batteries included measures not relevant to the aims here. See Table 1 for internal consistency estimates.

Three-Factor impulsivity—The Three-Factor Impulsivity scale includes factor-analytically based scales to assess emotion-related impulsivity (two subscales) and non-emotion-related impulsivity (one subscale; Carver et al., 2011; <https://calm.berkeley.edu/>

3-factor/). The Feelings Trigger Action subscale covers regrettable speech and behaviour in response to emotions, and encompasses item parcels from Negative Urgency (12 items, e.g., “When I am upset I often act without thinking”; Whiteside & Lynam, 2001), Positive Urgency (7 items; e.g., “When overjoyed, I feel like I can stop myself from going overboard”; Cyders & Smith, 2007), and Reflexive Reactions to Feelings (7 items; e.g., “My emotions turn into actions quickly”). The Pervasive Influence of Feelings subscale reflects poor constraint over cognitive and motivational responses to emotions, including item parcels from Negative Generalization (4 items; e.g., “When even one thing goes wrong I begin to wonder if I can do well at anything at all.” Carver, 1998), Sadness Paralysis (2 items, e.g., “When I feel sad, it paralyzes me”), and Emotions Colour Worldview (3 items, e.g., “My feelings greatly affect how I see the world”). The Lack of Follow Through subscale includes non-emotion-specific item parcels from Lack of Perseverance (Whiteside & Lynam, 2001; 10 items) and Distractibility (9 items). Items are rated on a scale of 1 (I disagree a LOT) to 5 (I agree a LOT). Items within each of the nine parcels were averaged; parcel scores were averaged to create the three subscale scores.

Self-rated Columbia-Suicide severity rating scale—The self-rated C-SSRS is a widely used, well-validated measure of suicidal ideation, controllability of ideation, and suicide attempts (Posner et al., 2011). We focused on ideation in the past year to minimize retrospective recall. Ideation severity is rated as the most severe out of five items: 0 = no suicidal ideation, 1 = wish to be dead, 2 = non-specific active suicidal thoughts, 3 = active suicidal ideation with any methods, 4 = active suicidal ideation with intent, and 5 = active suicidal ideation with intent and plan. For those who endorsed ideation at a level of 1 or higher in the past year, controllability of ideation was assessed with the item “How easy was it for you to control these thoughts or push them out of your mind when you wanted to?” rated on a scale of 1 (easy) to 5 (impossible; unable to control the thoughts). The controllability item also allows persons to select “did not try to control thoughts”; persons who selected this option (16 in Sample 1; 3 in Sample 2) were excluded from analyses of controllability.

Acute suicidal affective disturbance (ASAD)—Participants in Sample 1 were asked about whether they had experienced a drastic increase in suicidal intent (“In your lifetime have you experienced a drastic increase in your intent to kill yourself?”). Sample 1 did not complete other items regarding ASAD.

Participants in Sample 2 completed the ASAD-L to assess lifetime symptoms of ASAD (Rogers & Joiner, 2018). Participants are asked if they have ever experienced a drastic increase (over the course of hours or days) in suicidal intent or intensity of plans/preparations for a suicide attempt and are then asked to quantify the magnitude of this increase using a pair of sliders. Those who endorse this item are asked to identify the most severe period of drastic increase, and then asked about the presence and intensity of specific symptoms during that time on a scale of 0 (not at all) to 10 (very much), including social alienation (disgust with others, perceived burdensomeness), self-alienation, intractability of social and self-alienation symptoms, and hyperarousal (agitation/restlessness, irritability, insomnia, nightmares). The degree of increase in intent and the items concerning intensity

of symptoms are summed to yield total scores (range 0 to 400, higher scores reflect more severity). Although a threshold for creating a binary score is available (Rogers & Joiner, 2018), we focus on the continuous score because continuous and binary scores were highly correlated, $r = .95$, $p < .001$.¹

Suicide status form—Participants in Sample 2 completed the Suicide Status Form (SSF), the suicidal ideation assessment used within the Collaborative Assessment and Management of Suicidality (CAMS) intervention (Jobes, 2016). Participants were asked to think about the time in their life when they were feeling most suicidal (the worst point). They were then asked to rate the wish to live and the wish to die at the worst point, rated on a scale of 1 (not at all) to 8 (very much so). Consistent with previous work, we subtracted the Wish to Live from the Wish to Die (Brown et al., 2005; Kovacs & Beck, 1977; O'Connor et al., 2012). To capture high arousal negative affect at the worst point, we summed 4 items covering the experience of pain, stress, agitation and upset, rated on a scale of 1 (little or none) to 5 (highly so). To capture cognitive difficulties at the worst point, we used the item, “like you could not think straight,” from the SSF. This item is also included on the Attentional Fixation on Suicide Experiences Questionnaire, where it has been shown to have the highest loading on the Cognitive Dysfunction subscale (Adler et al., 2015; Mandel et al., 2021).

Data analyses

Parallel analyses were conducted in Samples 1 and 2 using SPSS Version 27 (IBM, 2020, Armonk, NY). To test hypotheses, we computed hierarchical multiple regression models, which included age and gender as potential confounds in block 1, and the three Three-Factor Impulsivity subscales as conjoint regressors in block 2. Separate regression models were constructed to examine the outcome variables of past year suicidal ideation severity, past year controllability of suicidal ideation (C-SSRS), in Sample 1 only the presence/absence of a drastic increase in suicidal intent, and in Sample 2 only, ASAD-L severity score, the wish to die, emotional pain before ideation, and cognitive difficulty before ideation. Except a logistic regression for presence/absence of drastic increase in suicidal intent, all regressions were linear regression models. Betas, confidence intervals (CIs) and p values were bootstrapped with case re-sampling with replacement from the original data, 1000 bootstrap samples, and bias corrected estimates to increase robustness against violations of multivariate distributional assumptions. CIs were compared with evaluate whether effects for the two forms of emotion-related impulsivity differed significantly from each other (Cumming, 2009).

RESULTS

Descriptive statistics

Descriptive characteristics of key variables are shown in Table 1. Distributions for key variables approximated normality per skew and kurtosis estimates. Both samples were

¹In our pre-registration, we hypothesized that emotion-related impulsivity would relate to greater likelihood of scoring above the cut-off score on the ASAD scale. These effects were significant as hypothesized for Pervasive Influence of Feelings, $\beta = 1.66$, odds ratio = 1.69, $p = .03$, controlling for Feelings Trigger Action, $\beta = 1.26$, $p = .23$, Lack of follow-through, $\beta = .85$, $p = .390$, gender, $\beta = .84$, $p = .39$, and age, $\beta = 1.18$, $p = .341$.

comprised of largely young adult and female participants, consistent with previous MTurk samples that have been two-thirds female with a median age of 30 (cf. Ipeirotis, 2010).

Preliminary analyses

Bivariate correlations are shown in Table 2. In both samples, the impulsivity scales were closely correlated, as were most ideation indices. Emotion-related impulsivity scores, and particularly Pervasive Influence of Feelings, were significantly correlated with most ideation indices. Given that older participants showed lower impulsivity (as expected), and the broader literature on gender in suicidality impulsivity, we controlled gender and age in all regression models.

Tests of hypotheses

VIF coefficients indicated acceptable levels of multicollinearity (all <1.72 except Pervasive Influence of Feelings in Sample 1 linear regression where $VIF = 2.37$). In each regression, null effects were observed for Lack of Follow Through.

Ideation severity—Results of linear regression models examining past year suicidal ideation severity (C-SSRS) regressed on the Three-Factor Impulsivity scores, gender and age are shown in Table 3. As hypothesized, higher Pervasive Influence of Feelings scores were significantly correlated with higher ideation severity in both samples, and in Sample 1, this effect was significantly larger than the effect for Feelings Trigger Action. Higher Feelings Trigger Action scores were significantly correlated with higher ideation severity in Sample 2 only, with an effect size that did not differ significantly from that of Pervasive Influence of Feelings.

Perceived uncontrollability—Pervasive Influence of Feelings was robustly related to uncontrollability in both samples (Table 3), and in Sample 1, this effect was significantly larger than the effect for Feelings Trigger Action. Feelings Trigger Action scores were related to significantly higher uncontrollability in Sample 2 only.

Acute suicidal affective disturbance—Table 4 shows the logistic regression parameters of the model of impulsivity scores regressed on the likelihood of drastic increase in suicidal intent (Sample 1). Higher Pervasive Influence of Feelings scores were significantly and positively associated with drastic increases in suicidal intent, and the effect was significantly larger than the effect for Feelings Trigger Action.

Table 5 shows regression models specific to Sample 2. Parallel with sample 1, higher Pervasive Influence of Feelings scores were significantly related to higher ASAD severity scores. The effects for Feelings Trigger Action were null and significantly smaller than those for Pervasive Influence of Feelings in both samples.

Wish to die—Pervasive Influence of Feelings was significantly related to more endorsement of wish to die relative to wish to live (Sample 2, Table 5). The effects for Feelings Trigger Action were null and significantly smaller than those for Pervasive

Influence of Feelings. Effects were comparable when wish to live and wish to die were examined separately.

Affective and cognitive precursors—Pervasive Influence of Feelings was significantly related to more emotional pain preceding ideation (Sample 2, Table 5). The effects for Feelings Trigger Action were null and significantly smaller than those for Pervasive Influence of Feelings. Pervasive Influence of Feelings and Feelings Trigger Action both related to cognitive disturbance preceding suicidal ideation, and the two effect sizes did not differ significantly.

DISCUSSION

Our goal in this study was to understand how emotion-related impulsivity relates to specific qualities of suicidal ideation. We used well-validated measures, and we tested the replicability of findings across two samples. One novel goal in this study was to understand the differential effects of two forms of emotion-related impulsivity. Pervasive Influence of Feelings captures cognitive and motivational phenomena, and Feelings Trigger Action covers action. Consistent with prior work (Auerbach et al., 2017), we expected Pervasive Influence of Feelings to be closely tied to various facets of suicidal ideation, as ideation is a cognitive phenomenon. Overall, results were consistent with our expectations, in that this form of emotion-related impulsivity contributed unique variance to each of the suicidal ideation outcomes in multivariate analyses when controlling for age, gender and other forms of impulsivity. That is, people who endorsed higher Pervasive Influence of Feelings endorsed experiencing more severe ideation in the past year, more endorsement of wish to die relative to wish to live at the time of their worst suicidal ideation, more difficulty controlling their ideation in the past year, greater likelihood of drastic shifts in the intensity of their ideation, greater severity of ASAD, and more intense pain and cognitive disturbance preceding their period of worst lifetime suicidal ideation. Findings were specific to emotion-related impulsivity, as effects were null for Lack of Follow Through in each regression model, consistent with past studies showing null effects for non-emotion-related forms of impulsivity.

In 6 of the 9 models, Pervasive Influence of Feelings was the only one of three impulsivity scores that demonstrated statistically significant associations, with an effect size significantly larger than that of Feelings Trigger Action. In Sample 2, Feelings Trigger Action contributed unique variance controlling for Pervasive Influence of Feelings to the severity of ideation, perceived uncontrollability of ideation, and cognitive disturbance preceding ideation, with effect sizes that did not differ significantly from those of Pervasive Influence of Feelings. Although we premised our hypotheses regarding Pervasive Influence of Feelings on ideation as a cognitive phenomenon, the most severe score on the ideation severity scale covers detailed planning, which may include some behavioural actions. Similarly, the measure of uncontrollability does not differentiate control over the presence of the thoughts vs. the manifestation of those thoughts in action. Finally, difficulties with executive control during periods of arousal have been found to be correlated with both emotion-related impulsivity scales (Johnson et al., 2016; Pearlstein et al., 2019). It is important to note, though, that effects for Feelings Trigger Action on ideation severity

and controllability in sample 1 were null and significantly smaller than those observed for Pervasive Influence of Feelings. Sample 2, unlike sample 1, was comprised entirely of people with a history of suicidal ideation, and the greater levels and range of ideation severity could have provided more opportunity to detect effects. At the current time, the effects of Feelings Trigger Action warrant further unpacking.

Despite the public health significance of findings, there are important limitations to consider. Due to the cross-sectional design, we cannot infer causality from these results. Moreover, impulsivity changes across the lifespan, and so levels at the time of survey completion may not accurately reflect impulsivity at temporally distant periods of a person's life when ideation was more severe— this would add error variance in our analyses of ASAD and the emotional and cognitive precursors of ideation. We relied on self-report measures, which may be biased by reticence, retrospection, or poor insight. We relied on single-item measures for multiple facets of ideation, which increases the potential for unreliability and bias. We also acknowledge the relatively small effect sizes, which are typical in models of suicidal ideation (Franklin et al., 2017). We also did not observe a typical profile of higher ideation severity for women when compared with men. Although many hypotheses were pre-registered, data cleaning, sample sizes, and analytic approach were not. Although we were interested in the specific, unique effects observed in multivariate models, the high correlations among predictors and the variance accounted for by confound variables, are not trivial conceptually, and bivariate effects may be important to consider as well. The shared variance (and whatever accounts for that) may retain important connections to ideation. Caution is warranted in interpreting null effects due to limited statistical power to detect unique effects of three correlated forms of impulsivity. Concern also is warranted in interpreting the null effects in the models of uncontrollability, which were restricted to the subset of individuals who endorsed current ideation; for analyses of uncontrollability in study 1, statistical power was only adequate to detect a moderate to large effect size ($f^2 = .294$) in testing the unique contribution of one impulsivity dimension controlling for demographic and other impulsivity covariates.

Regarding our sample, there have been questions surrounding the reliability and validity of data gathered on MTurk (Thomas & Clifford, 2017). We included catch trials to assess inattention, and we excluded data from participants who signalled careless responding (Meade & Craig, 2012). With these steps, the substantially elevated rates of mental health problems in MTurk workers (Arditte et al., 2016; Ophir et al., 2020) allowed us to assess large numbers of people who endorsed serious suicidal ideation, reflecting.

Although the current study enriches understanding of suicidal ideation qualities, future directions could include studying the matrix of variables surrounding emotion-related impulsivity. Emotion-related impulsivity has been tied to high rates of childhood adversity, current stressors, non-suicidal self-injury (Anestis & Joiner, 2011; Hamza et al., 2015; Sperry et al., 2018), lack of belonging, perceived burdensomeness, acquired capacity for harm (Anestis & Joiner, 2011), and psychopathology transdiagnostically (Berg et al., 2015). Some previous work has shown effects of emotion-related impulsivity on severity of suicidal ideation and attempts when controlling for psychopathology (Auerbach et al., 2017; Johnson et al., 2017 although see Beach et al., 2021) or other suicide risk variables (Anestis & Joiner,

2011), but we did not control for these key correlates. Conjointly considering this broader matrix is important given that some have suggested that the effects of emotion-related impulsivity on suicidal ideation may be indirect, driven by increases in stress, bodily injury, and acquired capacity (Bender et al., 2011), or occurring in the context of psychopathology (Beach et al., 2021).

The current findings also suggest the importance of considering a wider range of experiences of poor constraint. That is, Pervasive Influence of Feelings captures poor constraint over thoughts and motivation—which is not traditionally incorporated in models of impulsivity. Poor control over thoughts, as reflected in scales related to cognitive stuckness (Adler et al., 2015; Mandel et al., 2021) and rumination (Rogers et al., 2021) has been previously related to suicidal ideation. Poor control over motivation, which includes paralysis in the face of negative emotions, shares some resonance with models of suicidal ideation as involving perceptions of entrapment (O'Connor & Kirtley, 2018; O'Connor & Portzky, 2018), intractable burdensomeness (Joiner et al., 2009; Van Orden et al., 2010), and hopelessness (Beck et al., 1975). Some work suggests that experiences of negative cognitions may be amplified by sensations of paralysis (Mandel et al., 2021). We recommend ongoing research to integrate Pervasive Influence of Feelings with these potentially overlapping constructs.

CONCLUSIONS

Findings of the present study highlighted the role of one form of emotion-related impulsivity in particular, Pervasive Influence of Feelings, across multiple facets of suicidal ideation. We observed significant effects of emotion-related impulsivity on suicidal ideation severity, perceived uncontrollability of ideation, intensity of the wish to die relative to wish to live, ASAD presence and severity, and on the degree of emotional pain and cognitive disturbance reported before experiencing ideation. Against a backdrop of 100 years of mixed results concerning impulsivity and suicidality, these findings affirm that unpacking impulsivity can provide a richer understanding of key facets of ideation. For those working with suicidal clients, we encourage discussing the nature of suicidal ideation—including its temporal dynamics, the acute emotional and cognitive triggers to ideation experiences, and the person's perceptions of control. Together, these variables may be tied to key long-standing traits, such as impulsivity. This work also identifies Pervasive Influence of Feelings as a specific target to be considered in intervention work. Early work suggests that brief cognitive behavioural interventions designed to improve emotion identification and emotion regulation can help reduce emotion-related impulsivity (Zapolski & Smith, 2017), including Pervasive Influence of Feelings (Johnson et al., 2020). Accordingly, current findings, if replicated and found to provide longitudinal prediction, could be relevant for treatment development in the domain of suicide prevention.

ACKNOWLEDGEMENTS

The authors thank Amelia Dev, Kiana Modavi, Morgan Robison, and Madelyn Kushner for their support in assistance with data collection. Support for this study was provided by NIH grant R01 MH110477, and by funding from the University of California to the first author.

DATA AVAILABILITY STATEMENT

Data and analysis scripts for sample 1 are available at https://osf.io/dga4p/?view_only=df37657fd4694a4fa90d272c14908227, and for sample 2 at https://osf.io/ntqzy/?view_only=46776c2e057e4097bde656dc87944ff0.

REFERENCES

- Adler A, Jager-Hyman S, Green KL, Brown GK, Beck AT, & Wenzel A (2015). Initial psychometric properties of the attentional fixation on suicide experiences questionnaire. *Cognitive Therapy and Research*, 39(4), 492–498. 10.1007/S10608-015-9683-7/TABLES/1
- Anestis MD, & Joiner TE (2011). Examining the role of emotion in suicidality: Negative urgency as an amplifier of the relationship between components of the interpersonal–psychological theory of suicidal behavior and lifetime number of suicide attempts. *Journal of Affective Disorders*, 129(1–3), 261–269. 10.1016/j.jad.2010.08.006 [PubMed: 20825997]
- Anestis MD, Soberay KA, Gutierrez PM, Hernández TD, & Joiner TE (2014). Reconsidering the link between impulsivity and suicidal behavior. *Personality and Social Psychology Review*, 18(4), 366–386. 10.1177/1088868314535988
- Arditte KA, Çek D, Shaw AM, & Timpano KR (2016). The importance of assessing clinical phenomena in mechanical Turk research. *Psychological Assessment*, 28(6), 684–691. 10.1037/PAS0000217 [PubMed: 26302105]
- Auerbach RP, Stewart JG, & Johnson SL (2017). Impulsivity and suicidality in adolescent inpatients. *Journal of Abnormal Child Psychology*, 45(1), 91–103. 10.1007/s10802-016-0146-8
- Beach VL, Gissandaner TD, & Schmidt AT (2021). The UPPS model of impulsivity and suicide: A systematic literature review. *Archives of suicide research : Official Journal of the International Academy for Suicide Research*, 1–22. Advance online publication. 10.1080/13811118.2021.1892002
- Beck AT, Kovacs M, & Weissman A (1975). Hopelessness and suicidal behavior: An overview. *JAMA*, 234(11), 1146–1149. 10.1001/JAMA.1975.03260240050026 [PubMed: 1242427]
- Bender TW, Gordon KH, Bresin K, & Joiner TE (2011). Impulsivity and suicidality: The mediating role of painful and provocative experiences. *Journal of Affective Disorders*, 129(1–3), 301–307. 10.1016/j.jad.2010.07.023 [PubMed: 20719393]
- Berg JM, Latzman RD, Bliwise NG, & Lilienfeld SO (2015). Parsing the heterogeneity of impulsivity: A meta-analytic review of the behavioral implications of the UPPS for psychopathology. *Psychological Assessment*, 27(4), 1129–1146. 10.1037/pas0000111 [PubMed: 25822833]
- Bowers L (2005). Reasons for admission and their implications for the nature of acute inpatient psychiatric nursing. *Journal of Psychiatric and Mental Health Nursing*, 12(2), 231–236. 10.1111/j.1365-2850.2004.00825.x [PubMed: 15788042]
- Brown GK, Steer RA, Henriques GR, & Beck AT (2005). The internal struggle between the wish to die and the wish to live: A risk factor for suicide. *American Journal of Psychiatry*, 162(10), 1977–1979. 10.1176/appi.ajp.162.10.1977 [PubMed: 16199851]
- Bryan CJ, & Rudd MD (2006). Advances in the assessment of suicide risk. *Journal of Clinical Psychology*, 62(2), 185–200. 10.1002/JCLP.20222
- Carver CS (1998). Generalization, adverse events, and development of depressive symptoms. *Journal of Personality*, 66(4), 607–619. 10.1111/1467-6494.00026 [PubMed: 9728418]
- Carver CS, Johnson SL, Joormann J, Kim Y, & Nam JY (2011). Serotonin transporter polymorphism interacts with childhood adversity to predict aspects of impulsivity. *Psychological Science*, 22(5), 589–595. 10.1177/0956797611404085 [PubMed: 21460340]
- CDC. (2021). Suicide Prevention: Risk and protective factors CDC <https://www.cdc.gov/suicide/factors/index.html>
- Cumming G (2009). Inference by eye: Reading the overlap of independent confidence intervals. *Statistics in Medicine*, 28(2), 205–220. 10.1002/SIM.3471 [PubMed: 18991332]

- Curran PG (2016). Methods for the detection of carelessly invalid responses in survey data. *Journal of Experimental Social Psychology*, 66, 4–19. 10.1016/J.JESP.2015.07.006
- Cyders MA, & Coskunpinar A (2010). Is urgency emotionality? Separating urgent behaviors from effects of emotional experiences. *Personality and Individual Differences*, 48(7), 839–844. 10.1016/j.paid.2010.02.009 [PubMed: 20514352]
- Cyders MA, & Smith GT (2007). Mood-based rash action and its components: Positive and negative urgency. *Personality and Individual Differences*, 43(4), 839–850. 10.1016/j.paid.2007.02.008
- Cyders MA, & Smith GT (2008). Emotion-based dispositions to rash action: Positive and negative urgency. *Psychological Bulletin*, 134(6), 807–828. 10.1037/a0013341 [PubMed: 18954158]
- Cyders MA, Zapolski TCB, Combs JL, Settles RF, Fillmore MT, & Smith GT (2010). Experimental effect of positive urgency on negative outcomes from risk taking and on increased alcohol consumption. *Psychology of Addictive Behaviors*, 24(3), 367–375. 10.1037/a0019494
- Dekker MR, & Johnson SL (2018). Major depressive disorder and emotion-related impulsivity: Are both related to cognitive inhibition? *Cognitive Therapy and Research*, 42(4), 398–407. 10.1007/s10608-017-9885-2
- Dong N, & Maynard R (2013). PowerUp!: A tool for calculating minimum detectable effect sizes and minimum required sample sizes for experimental and quasi-experimental design studies, 6(1), 24–67. 10.1080/19345747.2012.673143
- Franklin JC, Ribeiro JD, Fox KR, Bentley KH, Kleiman EM, Huang X, Musacchio KM, Jaroszewski AC, Chang BP, & Nock MK (2017). Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research. *Psychological Bulletin*, 143(2), 187–232. 10.1037/bul0000084 [PubMed: 27841450]
- Hamza CA, Willoughby T, & Heffer T (2015). Impulsivity and nonsuicidal self-injury: A review and meta-analysis. *Clinical Psychology Review*, 38, 13–24. 10.1016/j.cpr.2015.02.010
- Ipeirotis PG (2010). Demographics of mechanical Turk (SSRN Scholarly Paper No. 1585030). Social Science Research Network https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1585030
- Jobes DA (2016). *Managing suicidal risk: A collaborative approach* (second) Guilford Press.
- Jobes DA, & Joiner TE (2019). Reflections on suicidal ideation. *Crisis*, 40(4), 227–230. 10.1027/0227-5910/a000615 [PubMed: 31274031]
- Johnson SL, Carver CS, & Tharp JA (2017). Suicidality in bipolar disorder: The role of emotion-triggered impulsivity. *Suicide and Life-threatening Behavior*, 47(2), 177–192. 10.1111/sltb.12274 [PubMed: 27406282]
- Johnson SL, Tharp JA, Peckham AD, Sanchez AH, & Carver CS (2016). Positive urgency is related to difficulty inhibiting prepotent responses. *Emotion*, 16(5), 750–759. 10.1037/emo0000182 [PubMed: 27064288]
- Johnson SL, Zisser MR, Sandel DB, Swerdlow BA, Carver CS, Sanchez AH, & Fernandez E (2020). Development of a brief online intervention to address aggression in the context of emotion-related impulsivity: Evidence from a waitlist controlled trial. *Behaviour Research and Therapy*, 134(103), 708. 10.1016/j.brat.2020.103708
- Joiner TE, Simpson S, Rogers ML, Stanley IH, & Galynker II (2018). Whether called acute suicidal affective disturbance or suicide crisis syndrome, a suicide-specific diagnosis would enhance clinical care, increase patient safety, and mitigate clinician liability. *Journal of Psychiatric Practice*, 24(4), 274–278. 10.1097/PRA.0000000000000315 [PubMed: 30427811]
- Joiner TE, Van Orden KA, Witte TK, & Rudd MD (2009). *The interpersonal theory of suicide: Guidance for working with suicidal clients* American Psychological Association. 10.1037/11869-000
- Klonsky ED, May AM, Klonsky ED, & May AM (2015). The three-step theory (3ST): A new theory of suicide rooted in the “ideation-to-action” framework. *International Journal of Cognitive Therapy*, 8(2), 114–129. 10.1521/ijct.2015.8.2.114
- Kovacs M, & Beck AT (1977). The wish to die and the wish to live in attempted suicides. *Journal of Clinical Psychology*, 33(2), 361–365. 10.1002/1097-4679(197704)33:2<361::AID-JCLP2270330207>3.0.CO;2-H
- Mandel AA, Revzina O, Jessani Z, & Brown GK (2022). Revised attentional fixation on suicide experiences questionnaire and its relationship with suicidal ideation and behavior: A cross-

sectional study. *Suicide & Life-Threatening Behavior* Advance online publication 10.1111/sltb.12904

- Mann JJ, Waternaux C, Haas GL, & Malone KM (1999). Toward a clinical model of suicidal behavior in psychiatric patients. *The American Journal of Psychiatry*, 156(2), 181–189. 10.1176/AJP.156.2.181 [PubMed: 9989552]
- Meade AW, & Craig SB (2012). Identifying careless responses in survey data. *Psychological Methods*, 17(3), 437–455. 10.1037/A0028085 [PubMed: 22506584]
- Nock MK, Millner AJ, Joiner TE, Gutierrez PM, Han G, Hwang I, King A, Naifeh JA, Sampson NA, Zaslavsky AM, Stein MB, Ursano RJ, Kessler RC, Aliaga PA, Benedek DM, Fullerton CS, Gifford RK, Hurwitz PE, Kao TC, ... Gelernter J (2018). Risk factors for the transition from suicide ideation to suicide attempt: Results from the army study to assess risk and resilience in servicemembers (Army STARRS). *Journal of Abnormal Psychology*, 127(2), 139–149. 10.1037/abn0000317
- O'Connor RC, & Kirtley OJ (2018). The integrated motivational-volitional model of suicidal behaviour. *Philosophical Transactions of the Royal Society, B: Biological Sciences*, 373(1754), 20170268. 10.1098/rstb.2017.0268
- O'Connor RC, & Portzky G (2018). The relationship between entrapment and suicidal behavior through the lens of the integrated motivational-volitional model of suicidal behavior. *Current Opinion in Psychology*, 22, 12–17. 10.1016/J.COPSYC.2017.07.021
- O'Connor SS, Jobes DA, Yeargin MK, Fitzgerald ME, Rodríguez VM, Conrad AK, & Lineberry TW (2012). A cross-sectional investigation of the suicidal spectrum: Typologies of suicidality based on ambivalence about living and dying. *Comprehensive Psychiatry*, 53(5), 461–467. 10.1016/J.COMPPSYCH.2011.09.007 [PubMed: 22104555]
- Ophir Y, Sisso I, Asterhan CSC, Tikochinski R, & Reichart R (2020). The Turker blues: Hidden factors behind increased depression rates among Amazon's mechanical Turkers. *Clinical Psychological Science*, 8(1), 65–83. 10.1177/2167702619865973
- Pearlstein JG, Johnson SL, Modavi K, Peckham AD, & Carver CS (2019). Neurocognitive mechanisms of emotion-related impulsivity: The role of arousal. *Psychophysiology*, 56(2), e13293. 10.1111/psyp.13293
- Posner K, Brown GK, Stanley B, Brent DA, Yershova KV, Oquendo MA, Currier GW, Melvin GA, Greenhill L, Shen S, & Mann JJ (2011). The Columbia-suicide severity rating scale: Initial validity and internal consistency findings from three multisite studies with adolescents and adults. *The American Journal of Psychiatry*, 168(12), 1266–1277. 10.1176/appi.ajp.2011.10111704 [PubMed: 22193671]
- Rogers ML, Anestis JC, Harrop TM, Schneider M, Bender TW, Ringer FB, & Joiner TE (2017a). Examination of MMPI–2–RF substantive scales as indicators of acute suicidal affective disturbance components. *Journal of Personality Assessment*, 99(4), 424–434. 10.1080/00223891.2016.1222393 [PubMed: 27669361]
- Rogers ML, Chiurliza B, Hagan CR, Tzoneva M, Hames JL, Michaels MS, Hitschfeld MJ, Palmer BA, Lineberry TW, Jobes DA, & Joiner TE (2017b). Acute suicidal affective disturbance: Factorial structure and initial validation across psychiatric outpatient and inpatient samples. *Journal of Affective Disorders*, 211, 1–11. 10.1016/j.jad.2016.12.057 [PubMed: 28073092]
- Rogers ML, Gorday JY, & Joiner TE (2021). Examination of characteristics of ruminative thinking as unique predictors of suicide-related outcomes. *Journal of Psychiatric Research*, 139, 1–7. 10.1016/J.JPSYCHIRES.2021.05.001 [PubMed: 33992843]
- Rogers ML, & Joiner TE (2018). Lifetime acute suicidal affective disturbance symptoms account for the link between suicide-specific rumination and lifetime past suicide attempts. *Journal of Affective Disorders*, 235, 428–433. 10.1016/J.JAD.2018.04.023 [PubMed: 29677608]
- SAMSHA. (2020). Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on drug use and health. HHS Publication No. PEP19–5068, NSDUH Series H-54, 170, 51–58.
- Schuck A, Calati R, Barzilay S, Bloch-Elkouby S, & Galynker I (2019). Suicide crisis syndrome: A review of supporting evidence for a new suicide-specific diagnosis. *Behavioral Sciences & the Law*, 37(3), 223–239. [PubMed: 30900347]

- Sperry SH, Lynam DR, & Kwapil TR (2018). The convergence and divergence of impulsivity facets in daily life. *Journal of Personality*, 86(5), 841–852. 10.1111/JOPY.12359 [PubMed: 29125631]
- Stanley IH, Rufino KA, Rogers ML, Ellis TE, & Joiner TE (2016). Acute suicidal affective disturbance (ASAD): A confirmatory factor analysis with 1442 psychiatric inpatients. *Journal of Psychiatric Research*, 80, 97–104. 10.1016/J.JPSYCHIRES.2016.06.012 [PubMed: 27344228]
- Strickland JC, & Johnson MW (2020). Rejecting impulsivity as a psychological construct: A theoretical, empirical, and sociocultural argument. *Psychological Review*, 128(2), 336–361. 10.1037/rev0000263 [PubMed: 32969672]
- Thomas KA, & Clifford S (2017). Validity and mechanical Turk: An assessment of exclusion methods and interactive experiments. *Computers in Human Behavior*, 77, 184–197. 10.1016/j.chb.2017.08.038
- Tucker RP, Michaels MS, Rogers ML, Wingate LRR, & Joiner TE (2016). Construct validity of a proposed new diagnostic entity: Acute suicidal affective disturbance (ASAD). *Journal of Affective Disorders*, 189, 365–378. 10.1016/j.jad.2015.07.049 [PubMed: 26476421]
- Van Orden KA, Witte TK, Cukrowicz KC, Braithwaite SR, Selby EA, & Joiner TE (2010). The interpersonal theory of suicide. *Psychological Review*, 117(2), 575–600. 10.1037/a0018697 [PubMed: 20438238]
- van Spijker BAJ, Batterham PJ, Calear AL, Farrer L, Christensen H, Reynolds J, & Kerkhof AJFM (2014). The suicidal ideation attributes scale (SIDAS): Community-based validation study of a new scale for the measurement of suicidal ideation. *Suicide & Life-Threatening Behavior*, 44(4), 408–419. 10.1111/SLTB.12084 [PubMed: 24612048]
- Whiteside SP, & Lynam DR (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*, 30(4), 669–689. 10.1016/S0191-8869(00)00064-7
- Whiteside SP, Lynam DR, Miller JD, & Reynolds SK (2005). Validation of the UPPS impulsive behaviour scale: A four-factor model of impulsivity. *European Journal of Personality*, 19(7), 559–574. 10.1002/per.556
- Yentes R, & Wilhelm F (2021). Careless: Procedures for computing indices of careless responding (R package version 1.2.1).
- Zapolski TCB, & Smith GT (2017). Pilot study: Implementing a brief DBT skills program in schools to reduce health risk behaviors among early adolescents. *Journal of School Nursing*, 33(3), 198–204. 10.1177/1059840516673188

Practitioner Points

- Suicidal ideation varies along dimensions of severity, uncontrollability, dynamic course, and affective and cognitive precursors of ideation.
- One form of emotion-related impulsivity, Pervasive Influence of Feelings, is related to these dimensions.
- If findings replicate, this type of impulsivity could be helpful to assess clinically.

TABLE 1
Descriptive information for key variables in both samples (Ns = 421 sample 1; 221 sample 2)

	Sample 1					Sample 2								
	Min	Max	Mean	SD	Skewness (SE =.12)	Kurtosis (SE =.24)	Omega	Min	Ma	Mean	SD	Skewness (SE =.164)	Kurtosis (SE =.326)	Omega
FTA	1.00	4.78	2.284	.948	.513	-.832	.964	1.05	4.97	2.977	.870	.207	-.548	.96
PIF	1.00	5.00	2.747	1.150	.111	-1.147	.924	1.00	5.00	3.636	.909	-.544	-.319	.93
LoF	1.00	4.70	2.348	.903	.334	-.808	.945	1.05	4.75	2.906	.823	-.173	-.433	.95
Past year ideation (Y/N)	0	1	.223	.417	1.334	-.222		0	1	.471	.500	.117	1.014	
Ideation severity	0	5	.722	1.522	1.944	2.261		0	5.00	1.407	1.683	.811	-.840	
Perceived Uncontrollability	1	5	3.09	1.231	-.321	-.897		1	5	2.694	1.876	.139	-.893	
Suicide attempt (Y/N)	0	1	.234	.424	1.262	-.410		0	1.00	.399	.492	.412	1.170	
# of attempts	0	15	.782	1.980	3.882	18.549		0	16	1.206	7.708	3.422	17.928	
Drastic increase in intent	0	1	.174	.380	1.724	.977								
ASAD severity								0	357.00	58.434	113.477	1.588	.814	.92
Wish to die-wish to live								-2.00	2.00	.423	1.085	-.189	-.132	
Emotional pain								4.00	20.00	16.434	3.382	-.993	.912	.72
Impaired cognition								1.00	5.00	3.511	1.380	-.484	-1.034	
Age	19	71	36.563	11.106	.880	3.141		18	73	35.148	11.674	.799	3.125	

Note. Yes/no items were coded as 0 = "no" and 1 = "yes". Due to participant nonresponse, 2 individuals were missing lifetime suicide attempt and drastic increase in suicide intent in Sample 1; 1 person was missing the wish to die score in Sample 2. Uncontrollability was examined only among those who endorsed suicidal ideation and some degree of attempting to control their ideation (*n*'s = 68 in Sample 1, 108 in Sample 2).

Abbreviations: ASAD, Acute Suicidal Affective Disturbance; FTA, Feelings Trigger Action; LoF, Lack of Follow Through; min, minimum; max, maximum; PIF, Pervasive Influence of Feelings.

TABLE 2
 Bivariate correlations among key variables (sample 1 correlations below the diagonal, sample 2 correlations above the diagonal)

	FTA	PIF	LoF	Suicidal ideation severity	Uncontrollability	ASAD severity	Wish to die-wish to live	Emotional pain	Impaired cognition	Gender	Age
FTA		.531***	.337***	.239***	.394**	.199**	.168*	.167*	.340***	.060	-.201**
PIF	.639**		.462***	.300***	.468***	.254***	.290*	.379***	.360***	.132*	-.250***
LoF	.562**	.676**		.258***	.165	.058	.088	.146*	.204**	-.015	-.241***
Suicidal ideation severity	.301**	.452**	.360**		.371**	.178**	.204**	.104	.030	-.017	-.102
Uncontrollability	.336**	.464**	.098	.269*		.292**	.454**	.354***	.217*	.056	-.185
Rapid increase in ideation	.265***	.392***	.217**	.472**	.214						
ASAD severity							.269**	.243**	.176**	-.072	.048
Wish to die – wish to live								.267**	.134*	.079	-.058*
Emotional pain									.534***	.123	-.107
Impaired cognition										.112	-.168*
Gender	.000	-.175**	-.065	-.060	.048						-.031
Age	-.133**	-.181**	-.197**	-.187**	-.277*						

Note:

* $p < .05$

** $p < .01$

*** $p < .001$

Uncontrollability was examined only among those who endorsed suicidal ideation and some attempt to control their ideation ($n_s = 68$ in Sample 1, 108 in Sample 2).

Abbreviations: ASAD, Acute Suicidal Affective Disturbance; C-SSRS, Columbia-Suicide Severity Rating Scale; FTA, Feelings Trigger Action; LoF, Lack of Follow-through; PIF, Pervasive Influence of Feelings.

TABLE 3

Multiple linear regression model of impulsivity scores on past year suicidal ideation severity ($N_s = 421$ sample 1, 221 sample 2) and perceived uncontrollability of past year ideation ($ns = 68$ sample 1; 108 sample 2)

	Sample 1			Sample 2		
	β	95% CI	p	β	95% CI	p
Severity						
Block 1						
Gender	.003	.093, .104	.950	-.048	.176, .089	.458
Age	-.110	-.207, -.006	.015	.026	-.105, .167	.703
R^2 Change	.039 ^{***}		.005			
Block 2						
Feelings Trigger Action	.032	-.115, .186	.637	.168	.016, .319	.037
Pervasive Influence of Feelings	.339 ^a	.198, .488	.001	.174	.023, .325	.023
Lack of Follow Through	.062	-.075, .191	.371	.080	-.075, .223	.245
R^2 Change	.154 ^{***}		<.001	.108 ^{***}		<.001
Total R^2 /Adjusted R^2	.193 ^{***} /.183		<.001	.113 ^{***} /.092		<.001
Uncontrollability						
Block 1						
Gender	.067	-.396, .761	.587	.004	-.379, .405	.974
Age	-.210	-.066, -.001	.097	-.077	-.024, .009	.350
R^2 Change	.092		.040	.039		.126
Block 2						
Feelings Trigger Action	.165	-.122, .579	.215	.214	.038, .564	.021
Pervasive Influence of Feelings	.496 ^a	.338, .939	.001	.353	.223, .901	.003
Lack of Follow Through	-.251	-.713, -.004	.072	.018	-.585, .854	.884
R^2 Change	.230		<.001	.232		.000
Total R^2 /Adjusted R^2	.322 ^{***} /.268			.271 ^{***} /.235		

Note:

* $p < .05$

** $p < .01$

*** $p < .001$

Bootstrapped β , CI and p values. Analyses include only those who endorsed suicidal ideation and trying to control their thoughts.

Abbreviation: CI, Confidence Interval.

^a β_{PIF} significantly larger than β_{FTA} .

TABLE 4

Multiple logistic regression model of the likelihood of rapid increase in suicidal intent in sample 1: Examining the effects of Feelings Trigger Action, Pervasive Influence of Feelings, and Lack of Follow Through ($N= 419$)

Predictors	Odds ratios	β	95% confidence interval	p
Block 1				
Gender	.985	-.007	-.321, .312	.952
Age	.999	-.012	-.377, .265	.939
Nagelkerke R^2 Block 1 = .02				
Block 2				
Feelings Trigger Action	1.193	.168	-.200, .541	.337
Pervasive Influence of Feelings	3.288	1.369 ^a	.918, 1.920	.001
Lack of Follow Through	.723	-.292	-.707, .052	.100
Nagelkerke R^2 Full Model = .272***				

Note:

* $p < .05$

** $p < .01$

*** $p < .001$

Bootstrapped β , CI and p values.

^a β_{PIF} significantly larger than β_{FTA} .

TABLE 5

Multiple linear regression model of impulsivity on ASAD severity, wish to die, emotional pain preceding ideation, and cognitive disturbance preceding suicidal ideation in sample 2 ($N = 221$)

Regressors	ASAD severity scores			Wish to die minus wish to live			Emotional pain preceding ideation			Cognitive disturbance preceding suicidal ideation		
	β	CI	p	β	CI	p	β	CI	p	β	CI	p
Block 1												
Gender	-.070	-.197, .059	.279	.049	-.083, .183	.453	.072	-.041, .197	.248	.069	-.058, .194	.240
Age	.084	-.031, .208	.187	-.013	-.161, .144	.853	-.020	-.147, .114	.755	-.066	-.188, .055	.329
R^2 Change	.001		.875	.014		.224	.026		.06	.040		.012
Block 2												
FTA	.107	-.068, .270	.228	.024	-.109, .169	.737	-.045	-.187, .079	.539	.200	.061, .327	.006
PIF	.265 ^a	.113, .417	.002	.294 ^a	.124, .448	.001	.401 ^a	.249, .557	.001	.218	.053, .374	.004
LoF	-.081	-.228, .070	.267	-.058	-.216, .112	.449	-.028	-.155, .088	.653	.021	-.133, .174	.804
R^2 change	.087		<.001	.076		.001	.126 ^{***}		<.001	.130		<.001
Total R^2 /adjusted R^2	.088 ^{**} /.067			.090 ^{***} /.068			.152 ^{***} /.132			.170 ^{***} /.151		

Note:

* $p < .05$

** $p < .01$

*** $p < .001$

Bootstrapped β , CI and p values.

Abbreviations: ASAD, Acute Suicidal Affective Disturbance; CI, 95% confidence interval; FTA, Feelings Trigger Action; LoF, Lack of Follow-through; PIF, Pervasive Influence of Feelings.

^a β PIF significantly larger than β FTA.