On loving thyself: Exploring the association between self-compassion, self-reported suicidal behaviors, and implicit suicidality among college students

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Suicide is a major public health concern. Annually, suicide accounts for nearly 1 million deaths worldwide and more than 40,000 deaths in the United States alone. Suicide is also highly prevalent among college students and college aged individuals, for whom it is the second leading cause of death. Moreover, suicide risk factors, such as suicidal ideation, suicide planning, and suicide attempts are common among college students (12-month prevalence: 10.6, 3.0, and 1.2%, respectively). A greater understanding of the causes of suicide and suicide risk are essential for suicide prevention and intervention efforts.

One important means of improving suicide prevention and intervention efforts is through identifying psychological variables associated with suicide risk. Depression severity and hopelessness have been identified as especially strong psychological predictors of suicide behavior risk. More recently, research has also identified self-criticism (ie, self-judgment, isolation, and overidentifying with distress when experiencing suffering) as an important psychological factor associated with suicide behavior risk. For instance, self-criticism was associated with suicide ideation and past suicide attempts in the general population. Furthermore, among college students, increases in self-criticism were associated with increases in suicidal ideation, even after controlling for increases in distress.

Self-compassion and self-criticism

One theoretically and empirically distinct psychological variable, which research often conflates with self-criticism, is self-compassion (ie, being caring and nonjudgmental of one’s self in the face of personal suffering). Research suggests that self-compassion and self-criticism are two distinct systems for relating to the self. Self-compassion is associated with the safeness system, which activates feelings of safety and peacefulness, as well as self-oriented care seeking and caregiving capabilities. In contrast, self-criticism is associated with the threat-defense system, which is activated when dealing with threats and harm. Subsequent empirical research has supported the distinction between self-criticism and self-compassion. For instance, an fMRI study found that self-criticism was associated with activity in regions associated with error processing, error resolution, and behavioral inhibition (ie, lateral prefrontal cortex and dorsal anterior cingulate), while self-compassion was associated with activity in regions associated with expressing empathy and compassion (ie, ventrolateral prefrontal cortex, left temporal pole, and insula).

Self-compassion and suicide risk

Consistent with the limitations in the self-compassion and self-criticism literature, extant studies on the relationship
between self-compassion and suicide behavior risk have failed to use a two-factor model, which distinguishes self-compassion from self-criticism. Past research using the total score and six subscale scores (ie, self-kindness, self-judgment, common humanity, isolation, mindfulness, and overidentification) of the SCS and SCS-SF has found that they are associated with suicide behavior risk. For instance, total SCS was negatively associated with suicide ideation among patients with persecutory delusions and in college samples. One of these studies also found that total SCS-SF accounted for the relationship between negative affect and suicide ideation, among college students. Furthermore, within college samples, all six SCS/SCS-SF subscales were associated, some positively (self-judgment, isolation, and overidentification) and others negatively (self-kindness, common humanity, and mindfulness), with self-reported suicide risk (ie, depression severity and suicidal behaviors) and self-reported suicide ideation. As well, among adolescents exposed to a potentially traumatic event, higher levels of total SCS prospectively predicted decreases in self-reported suicidal ideation. Importantly, all of these studies failed to use the recommended two-factor model, which distinguishes between self-compassion and self-criticism. Furthermore, these studies failed to examine whether self-compassion is associated with suicide risk above and beyond other clinical factors predictive of suicide risk, such as depression severity and hopelessness.

An additional concern regarding research on the relationship between self-compassion and suicide risk is it has been limited by reliance on self-report measurement of suicide risk. This is problematic given limitations surrounding self-reported measurement of suicide risk, including failure to accurately forecast future suicidal behaviors and purposeful concealment of suicide risk. Given these limitations, the Death/Suicide Implicit Association Test (d/s-IAT) was developed as a means of behaviorally assessing implicit suicidality. Research has shown that scores on the d/s-IAT are highly predictive of suicide risk in both clinical and nonclinical populations. Thus, the d/s-IAT is a useful additional method for assessing suicide risk. However, no research to date has explored the relationship between self-compassion and implicit suicidality.

Summary

In sum, research to date on the relationship between self-compassion and suicide risk has not yet explored (a) the relationship between suicide risk and self-compassion (using the two-factor model, which distinguishes self-compassion from self-criticism) or (b) whether self-compassion is uniquely associated with suicide risk. Furthermore, (c) past research has been reliant upon self-report measures of suicide risk. A better understanding of the relationship between self-compassion and suicide risk may help tailor suicide prevention and interventions. Therefore, the goals of the present study were as follows:

1. Identify whether self-compassion, measured using the two-factor model, is associated with suicide risk. In line with this goal, we hypothesized that self-compassion would be negatively associated with suicide risk (self-reported suicidal behaviors and implicit suicidality).

2. Identify whether self-compassion is uniquely predictive of suicide risk, over and above self-criticism, depression severity, and hopelessness. In line with this goal, we hypothesized that self-compassion would uniquely predict suicide risk (self-reported suicidal behaviors and implicit suicidality) above and beyond self-criticism, hopelessness, and depression severity.

Materials and methods

Participants and procedure

Participants were part of a larger study examining the association between suicide and a variety of mental health variables. The participants consisted of 130 undergraduate students. The inclusion criteria for the study were (a) being between 17 and 60 years of age and (b) being able to speak and read English. Participants were recruited through an online university subject pool and were invited to the laboratory for a 1-hour study on "Personality and Mental Health." After consenting to participate, participants completed the d/s-IAT on a lab computer (see Measures section for further detail). Next, participants completed a Qualtrics survey that included demographics, self-compassion, self-criticism, depression severity, hopelessness, and self-reported suicidal behaviors. For their participation, all participants were compensated with 1 in-course credit. This study was approved by a college research ethics board.

Measures

Self-compassion and self-criticism

The SCS is a 26-item self-report measure of how people relate to themselves when experiencing personal suffering. Though originally designed as a unitary measure of self-compassion, more recent research recommends the use of two 13 item subscales, namely self-criticism (eg, "Times are really difficult, I tend to be tough on myself") and self-compassion (eg, "I try to be loving towards myself when I’m feeling emotional pain"). Responses range from 1 (almost never) to 5 (almost always). Scores for each of the subscales are averaged and higher scores indicate greater self-criticism and self-compassion. Self-criticism and self-compassion have shown good to excellent reliability within college samples (self-criticism, \( \alpha = .91 - .94 \); self-compassion, \( \alpha = .90 - .91 \)). Within the current study, the self-criticism and self-compassion subscales both showed excellent internal consistency (\( \alpha = .93 \) and \( \alpha = .91 \), respectively).

Hopelessness

The Beck Hopelessness Scale (BHS) is a self-report measure of hopelessness that consists of 20 statements regarding current pessimism toward the future (eg, “All I can see ahead of me is unpleasantness rather than pleasantness”) with which respondents are asked to agree (true) or disagree
ability of the SBQ-R has been reported to range from (false). Higher scores indicate greater levels of hopelessness. The BHS has been shown to have strong internal consistency within clinical (\(x = .93\)) and nonclinical populations (\(x = .88\)), as well as being predictive of future suicide.\(^{35,37}\) Within the current study, the scale showed good internal consistency (\(x = .86\)).

**Depression severity**

*The Depression Anxiety Stress Scales, 21-item version (DASS-21)* is a 21-item self-report measure of (a) depression, (b) anxiety, and (c) stress, adapted from the original 42-item Depression Anxiety Stress Scales.\(^{38}\) Given that depression severity is most closely linked with suicide risk behavior,\(^{39,40}\) we used only the depression severity subscale, which includes seven items (eg, "I couldn't seem to experience any positive feelings at all"). Participants rate the extent to which each statement applied to them over the past week on a scale ranging from 0 (never) to 4 (almost always). Scores for the depression subscale are multiplied by two so that scores are comparable to the original 42-item DASS, and higher scores indicate greater depression severity. The depression severity subscale of the DASS-21 has been shown to have strong internal consistency (\(x = .91\))\(^{41}\) and validity in clinical\(^{42}\) and nonclinical samples.\(^{43}\) Within the current study, the depression severity subscale showed excellent internal consistency (\(x = .92\)).

**Self-reported suicidal behaviors**

The *Revised Suicidal Behaviors Questionnaire (SBQ-R)*\(^{14}\) is a 4-item self-report measure of suicidal behaviors and suicide risk. The SBQ-R assesses previous suicide attempts, frequency of suicidal ideation, previous suicidal communication, and the self-reported likelihood of a future suicide attempt. Higher scores indicate greater suicide risk. The reliability of the SBQ-R has been reported to range from acceptable (\(x = .76\)) to good (\(x = .88\)) and the SBQ-R has been found to differentiate between suicidal and nonsuicidal individuals in clinical and nonclinical settings.\(^{44}\) Within the current study, the SBQ-R showed fair internal consistency (\(x = .79\)).

**Implicit suicidality**

The *d/s-IAT*\(^{31}\) measures implicit associations of the self with death and suicide. The *d/s-IAT* is a behavioral computer-based task that assesses an individual’s automatic self-identification with death and suicide. The *d/s-IAT* was administered on the lab computer and a ViewSonic VA2702w monitor, using E-Prime software. Participants sorted word stimuli that represent the concepts of death and life or the attributes of me and others. The *d/s-IAT* was scored in line with past research using the IAT and the *d/s-IAT*.\(^{31,45}\) The dependent measure of the *d/s-IAT* is the difference score, or D-score, which is computed by comparing the response latencies recorded for blocks where death and me are paired together with blocks where life and me are paired together. Higher D-scores indicate that individuals have a stronger association between death and the self. Studies have shown strong support for the validity of the *d/s-IAT*, including higher D-scores among individuals with a history of suicide attempts and the *d/s-IAT* incrementally predicts suicidal behaviors, above and beyond other known predictive factors.\(^{31,32}\)

**Data analysis**

### Preliminary analyses

Missing data ranged from 0 to 3.1% (ie, four missing cases) for one DASS-21 item. Little’s Missing Completely at Random Test suggested that missing data were missing completely at random, \(\chi^2(757) = 639.40, p = 1.00\). Therefore, in order to maximize power, subscales means were imputed for items with missing data. One participant did not respond to any of the items of the DASS-21-depression subscale and was, therefore, excluded from all analyses that included this measure. The dependent variable (SBQ-R) was examined for normality of distribution and was found to deviate from normality (skewness = 1.57, kurtosis = 2.65). Therefore, in line with past research on suicide risk,\(^{36}\) a log transformation was used for the SBQ-R. Following log transformation, skewness (.60) and kurtosis (−.37) were reduced. Therefore, log transformed SBQ-R scores were used for all analyses. For skewness, kurtosis, means, and standard deviations of all measures, see Table 1.

### Hypothesis #1: To test whether self-compassion was predictive of suicide risk (self-reported suicidal behaviors and implicit suicidality), we conducted two regression analyses. In both models, self-compassion was the predictor variable and participant sex was included as a covariate (due to sex differences in suicide risk and self-compassion).\(^{3,47}\) Self-reported suicidal behaviors was the outcome variable in the first model and implicit suicidality was the outcome variable in the second model.

### Hypothesis #2: To test whether high self-criticism and low self-compassion uniquely predicted suicide risk (self-reported suicidal behaviors and implicit suicidality), above and beyond hopelessness, and depression severity, two separate hierarchical regression analyses were conducted. In both models, participant sex was entered at Stage one of the regression, hopelessness and depression severity were entered at Stage two, self-criticism was entered at Stage three, and self-compassion was entered at Stage four. Self-reported suicidal behaviors was the outcome variable in the

### Table 1. Means, standard deviations, skewness, and kurtosis of all measures included in the study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness (SE)</th>
<th>Kurtosis (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-compassion</td>
<td>3.40</td>
<td>.73</td>
<td>−.46 (.21)</td>
<td>.01 (.42)</td>
</tr>
<tr>
<td>Self-criticism</td>
<td>3.28</td>
<td>.86</td>
<td>−.18 (.21)</td>
<td>−.59 (.42)</td>
</tr>
<tr>
<td>Depression severity</td>
<td>5.10</td>
<td>4.85</td>
<td>1.18 (.21)</td>
<td>.96 (.42)</td>
</tr>
<tr>
<td>Hopelessness</td>
<td>3.65</td>
<td>3.76</td>
<td>1.77 (.21)</td>
<td>3.41 (.42)</td>
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<tr>
<td>Self-reported suicidal behaviors</td>
<td>5.49</td>
<td>2.72</td>
<td>1.23 (.21)</td>
<td>1.48 (.42)</td>
</tr>
<tr>
<td>Self-reported suicidal behaviors (Log)</td>
<td>.69</td>
<td>.20</td>
<td>.41 (.21)</td>
<td>−.94 (.42)</td>
</tr>
<tr>
<td>Implicit suicidality</td>
<td>−.44</td>
<td>.37</td>
<td>−.14 (.21)</td>
<td>−.15 (.42)</td>
</tr>
</tbody>
</table>

Note. \(N = 130\); Log = log transformed.
The first model and implicit suicidality was the outcome variable in the second model. For all analyses, the alpha level indicating significance was set at \( p < .05 \), two-tailed. All analyses were conducted using SPSS (Version 25).

**Results**

For participant demographics, see Table 2. Pearson correlation coefficients were calculated for all measures included in the study, see Table 3.

**Hypothesis #1**

The first hierarchical regression, with participant sex as a covariate, indicated that self-compassion was negatively associated with self-reported suicidal behaviors, \( F(1, 128) = 32.02, p < .001 \), accounting for 20% of the variation in self-reported suicidal behaviors. The second linear regression, with participant sex as a covariate, indicated that self-compassion was negatively associated with implicit suicidality, \( F(1, 128) = 1.01, p = .32 \).

**Hypothesis #2**

The first hierarchical multiple regression revealed that at Stage one, participant sex did not contribute significantly to the regression model, \( F(1, 127) = 1.11, p = .293 \), accounting for 1% of the variation in the model. In stage two, adding depression severity and hopelessness to the model resulted in a significant change in \( R^2, F(3, 125) = 10.68, p < .001, \) accounting for an additional 20% of the variation in self-reported suicidal behaviors. In Stage three, adding self-criticism to the model resulted in a significant change in \( R^2, F(4, 124) = 16.75, p < .001, \) and accounted for an additional 15% of the variation in self-reported suicidal behaviors. In stage four, adding self-compassion to the model resulted in a significant change in \( R^2, F(5, 123) = 15.15, p < .001 \) and accounted for an additional 3% of the variation in self-reported suicidal behaviors. When all five predictors were included in the model, only self-criticism and self-compassion were significant predictors, uniquely accounting for 10 and 3% of the variation in self-reported suicidal behaviors, respectively. In total, the model accounted for 38% of the variation in self-reported suicidal behaviors. Regression statistics for self-reported suicidal behaviors are reported in Table 4.

The second hierarchical multiple regression revealed that at Stage one, participant sex did not contribute significantly to the regression model, \( F(1, 127) = 1.39, p = .241 \). In stage two, adding depression severity and hopelessness did not result in a significant change in \( R^2, F(3, 125) = 0.81, p = .492 \). In Stage three, adding self-criticism to the model did not result in a significant change in \( R^2, F(4, 124) = 0.91, p = .462 \). In Stage four, adding self-compassion to the model did not result in a significant change in \( R^2, F(5, 123) = 1.08, p = .373 \). Regression statistics for implicit suicidality are reported in Table 5.

**Discussion**

Suicide is a major, and growing, public health problem. Understanding the psychological variables associated with suicide risk is essential for assessment and prevention. Although self-compassion is an important psychological risk factor for a wide range of mental health concerns, little is known about the association between self-compassion and suicide risk. Therefore, this study was designed to explore the association between self-compassion and suicide risk.

**Self-compassion and self-reported suicidal behavior**

In accordance with our hypothesis, we found that self-compassion was negatively associated with self-reported suicidal behaviors. When self-compassion was the only
variable included in the model, it accounted for 20% of the variation in self-reported suicidal behaviors. Past research on the relationship between self-compassion and suicide behavior risk was reliant upon the total SCS score in suicide behavior risk. However, given research suggesting that self-compassion and self-criticism are distinct, the importance of self-compassion in relation to suicide behavior risk had remained unclear. This is the first study to explore the link between self-reported suicidal behaviors and the recommended two-factor model, which distinguishes self-compassion from self-criticism. These findings, therefore, help to more clearly establish the link between self-compassion and self-reported suicidal behaviors.

The importance of self-compassion in relation to self-reported suicidal behaviors can readily be understood in light of the escape theory of suicide, which suggests that suicide risk stems from severe psychological distress due to shame. Self-compassion allows individuals to self-soothe when experiencing shame and can, thereby, prevent shame from escalating to severe psychological distress. Relatively, a recent study found that depression severity and wellness behaviors serially mediated the relationship between total SCS-SF (ie, both self-compassion and self-criticism) and self-reported suicidal behaviors. The relationship between self-compassion and suicide behavior risk can also be understood in light of the interpersonal theory of suicide, which suggests that suicide risk stems from perceived burdensomeness and thwarted belongingness. Given that common humanity is an essential component of self-compassion, individuals high in self-compassion are less likely to feel disconnected from others. Indeed, among college students, common humanity accounts for the relationship between negative life events and self-reported suicidal behaviors. Thus, self-compassion may help to prevent individuals from experiencing heightened psychological distress and social disconnection, thereby reducing suicide behavior risk.

In accordance with our hypothesis, we also found that self-compassion uniquely predicted self-reported suicidal behaviors, above and beyond self-criticism, depression severity, and hopelessness. Past research had failed to control for psychological variables that are traditionally associated with self-reported suicidal behaviors. Therefore, it remained unclear whether self-compassion is uniquely associated with self-reported suicidal behaviors. When self-compassion, self-criticism, depression severity, and hopelessness were included in the model, self-compassion and self-criticism uniquely accounted for the variation in self-reported suicidal behaviors (3 and 10%, respectively). These results further highlight the independent importance of self-criticism and self-compassion as predictors of self-reported suicidal behaviors.

### Self-compassion and implicit suicidality

In contrast with our hypotheses, we did not find a significant relationship between self-compassion and implicit suicidality. There are a number of potential explanations for these findings. First, implicit suicidality and self-reported suicidal behaviors may tap into separate aspects of suicide risk. Indeed, a number of studies have failed to find a relationship between implicit suicidality and self-report measures of suicide risk. Furthermore, research suggests that the d/s-IAT may be best conceptualized as a measure of escape or erosion of attachment to life. Therefore, our findings suggest that self-compassion is not definitively associated with suicide risk, especially those aspects of suicide risk assessed by the d/s-IAT.

Second, the d/s-IAT may only capture suicide risk among immediately suicidal individuals. Accordingly, given that individuals in the current study were not imminently suicidal, the d/s-IAT may not have been an ideal measure of suicide risk. Additional research will be necessary in order to further delineate the extent to which implicit suicidality is an appropriate measure of nonimminent suicide risk, as well as the extent to which self-compassion may be associated with suicide risk among individuals high in imminent suicide risk. Third, the extent to which self-reported suicidal behaviors and implicit suicidality are predictive of suicide risk may be dependent upon an individuals’ level of insight. Self-reported suicidal behaviors may be a more accurate predictor of suicide risk among individuals with good insight, whereas implicit suicidality may be a better predictor of suicide risk among those with poor insight. Therefore, if the sample in our present study was high in insight, implicit suicidality may not have accurately assessed suicide risk.

### Clinical implications

Our findings suggest that self-criticism and self-compassion are uniquely predictive of self-reported suicidal behaviors. Therefore, in addition to the importance of targeting self-criticism, self-compassion may also be an important, and independent, target within suicide risk interventions. Indeed, qualitative analysis of interviews conducted with individuals with borderline personality disorder (a psychiatric disorder characterized by high levels of suicide risk) and their service providers suggested that self-compassion may be a useful therapeutic target.

<table>
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<tr>
<th>Step 1</th>
<th>Variable</th>
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<th>t</th>
<th>r²</th>
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<td>.01</td>
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</table>

Note. N = 129.
providers, identified self-compassion as an important theme in the process of recovery.\textsuperscript{56,57}

Interventions that specifically focus on fostering self-compassion, by generating feelings of self-reassurance, warmth, and self-soothing, include compassion-focused therapy\textsuperscript{58} and mindful self-compassion.\textsuperscript{59} Compassion-based interventions have shown promise for a wide range of populations, including eating disorders,\textsuperscript{60} psychotic disorders,\textsuperscript{61} personality disorders,\textsuperscript{62} and healthy individuals.\textsuperscript{63} Furthermore, guidance in the development of self-compassion is included in dialectical behavior therapy,\textsuperscript{64} the gold standard intervention for highly suicidal individuals. However, research has not yet directly explored the impact of self-compassion training on suicide risk. Our findings suggest that such research may help to improve suicide prevention and intervention efforts in general and among college students in particular.

\textbf{Limitations and future directions}

These findings should be considered in the context of the limitations of the current study. This study used a nonclinical college sample. Therefore, conclusions drawn from this study cannot necessarily be generalized to samples with higher levels of suicide risk. Future research should, therefore, explore the relationship between self-compassion and suicide risk within clinical and highly suicidal samples. Moreover, the sample was primarily (83.1\%) female. Although we controlled for participant sex in our analyses, it remains unclear whether our findings would extend to a larger sample of male college students. Furthermore, this study used a cross-sectional design, which limits the extent to which the causal and temporal relationship between self-compassion and suicide risk can be determined. Longitudinal research should, therefore, explore whether self-compassion and self-criticism prospectively predict suicide risk. Additionally, research should explore the impact of interventions that target self-compassion on suicide risk and whether self-compassion is a mechanism of change in interventions for highly suicidal individuals. Finally, given the suggestion that the utility of suicide risk assessment tools may be dependent upon individual characteristics (eg, level of insight),\textsuperscript{54} future research should directly explore which suicide risk assessment tools are appropriate for specific individuals.

\textbf{Conflict of interest disclosure}

The authors have no conflicts of interest to report.

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