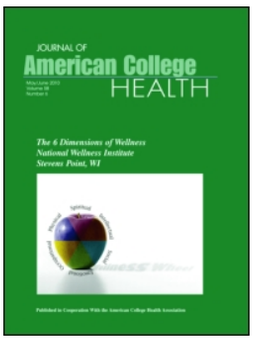

Journal of American College Health

ISSN: 0744-8481 (Print) 1940-3208 (Online) Journal homepage: https://www.tandfonline.com/loi/vach20

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

Richard J. Zeifman, Jennifer Ip, Martin M. Antony & Janice R. Kuo

To cite this article: Richard J. Zeifman, Jennifer Ip, Martin M. Antony & Janice R. Kuo (2019): On loving thyself: Exploring the association between self-compassion, self-reported suicidal behaviors, and implicit suicidality among college students, Journal of American College Health, DOI: 10.1080/07448481.2019.1679154

To link to this article: https://doi.org/10.1080/07448481.2019.1679154

Published online: 29 Oct 2019.

JOURNAL OF AMERICAN COLLEGE HEALTH
https://doi.org/10.1080/07448481.2019.1679154

Taylor & Francis
Taylor & Francis Group

MAJOR ARTICLE

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

Richard J. Zeifman, MA, Jennifer Ip, BSc, Martin M. Antony, PhD, ABPP, and Janice R. Kuo, PhD

Department of Psychology, Ryerson University, Toronto, ON, Canada

ABSTRACT

Objective: Suicide is a major public health concern. It is unknown whether self-compassion is associated with suicide risk above and beyond suicide risk factors such as self-criticism, hopelessness, and depression severity. **Participants:** Participants were 130 ethnically diverse undergraduate college students. **Methods:** Participants completed self-report measures of self-compassion, self-criticism, hopelessness, depression severity, and suicidal behaviors, as well as an implicit measure of suicidality. **Results:** Self-compassion was significantly associated with self-reported suicidal behaviors, even when controlling for self-criticism, hopelessness, and depression severity. Self-compassion was not significantly associated with implicit suicidality. **Conclusions:** The findings suggest that self-compassion is uniquely associated with self-reported suicidal behaviors, but not implicit suicidality, and that self-compassion is a potentially important target in suicide risk interventions. Limitations and future research directions are discussed.

ARTICLE HISTORY
Received 26 April 2019
Revised 12 July 2019
Accepted 6 October 2019

KEYWORDS
Implicit suicidality; self-compassion; self-criticism; suicidal behaviors; suicide risk

Suicide is a major public health problem. Annually, suicide accounts for nearly 1 million deaths worldwide[1] and more than 40,000 deaths in the United States alone.[2] Suicide is also highly prevalent among college students and college aged individuals, for whom it is the second leading cause of death.[3,4] 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).[5] 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.[1,6] Depression severity[7] and hopelessness[6] 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)[8] as an important psychological factor associated with suicide behavior risk. For instance, self-criticism was associated with suicide ideation[9] and past suicide attempts[10,11] 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.[10]

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).[8] Research suggests that self-compassion and self-criticism are two distinct systems for relating to the self.[12] 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.[13] In contrast, self-criticism is associated with the threat-defense system, which is activated when dealing with threats and harm.[13] Subsequent empirical research has supported the distinction between self-criticism and self-compassion.[14,15] 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).[14] Similarly, factor analyses[16–20] suggest that self-compassion and self-criticism (also referred to as self-coldness) are distinct constructs and that self-compassion measures (eg, the 26-item Self-Compassion Scale [SCS][8] and the short form Self-Compassion Scale [SCS-SF][21]) often conflate these two constructs. As a result, more recent research has called for the importance of utilizing a two-factor model, which distinguishes between self-compassion and self-criticism.[16,22]

Self-compassion and suicide risk

Consistent with the limitations in the self-compassion and self-criticism literature, extant studies on the relationship

CONTACT Martin M. Antony mantony@psych.ryerson.ca Department of Psychology, Ryerson University, 350 Victoria Street, Toronto, ON, Canada M5B 2K3.

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[23] and in college samples.[24–27] One of these studies also found that total SCS-SF accounted for the relationship between negative affect and suicide ideation, among college students.[25] Furthermore, within college samples, all six SCS/SCS-SF subscales were associated, some positively (self-judgment, isolation, and over-identification) and others negatively (self-kindness, common humanity, and mindfulness), with self-reported suicide risk (ie, depression severity and suicidal behaviors)[24] and self-reported suicide ideation.[25] As well, among adolescents exposed to a potentially traumatic event, higher levels of total SCS prospectively predicted decreases in self-reported suicidal ideation.[28] 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.[29,30] Given these limitations, the Death/Suicide Implicit Association Test (d/s-IAT) was developed as a means of behaviorally assessing implicit suicidality.[31] Research has shown that scores on the d/s-IAT are highly predictive of suicide risk in both clinical[31–33] and nonclinical[34] 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[31] 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*[8] 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, "When 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, $\alpha = .90–.91$).[21] 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)*[35] 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

(false). Higher scores indicate greater levels of hopelessness. The BHS has been shown to have strong internal consistency within clinical ($\alpha = .93$)[35] and nonclinical populations ($\alpha = .88$),[36] as well as being predictive of future suicide.[35,37] Within the current study, the scale showed good internal consistency ($\alpha = .86$).

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 ($\alpha = .91$)[41] and validity in clinical[42] and nonclinical samples.[43] Within the current study, the depression severity subscale showed excellent internal consistency ($\alpha = .92$).

Self-reported suicidal behaviors

The *Revised Suicidal Behaviors Questionnaire (SBQ-R)*[44] 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 ($\alpha = .76$) to good ($\alpha = .88$) 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 ($\alpha = .79$).

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]

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

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

Note. $N = 130$; Log = log transformed.

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, χ^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,[46] 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).[5,47] 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

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 variance in self-reported suicidal behaviors. The second linear regression, with participant sex as a covariate, indicated that self-compassion was not significantly 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 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 resulted 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.

Table 2. Participant demographics.

Total sample		130
Sex	Female	108 (83.1%)
	Male	22(16.9%)
Age, *M (SD)*		21.04 (6.30)
University status	Full-time student	105 (80.8%)
	Part-time student	25 (19.2%)
Relationship status	Single, never married	92 (70.8%)
	Dating, never married	31 (23.9%)
	Divorced	1 (0.8%)
	Married/common law partner/life partner	6 (4.6%)
Ethnicity	Asian or Asian Canadian	60 (46.1%)
	White/Caucasian/European Origin	48 (36.9%)
	Middle Eastern	11 (8.5%)
	Black-Canadian/Black/Caribbean Origin	7 (5.4%)
	Biracial/Multiracial	6 (4.6%)
	Hispanic/Latino	2 (1.5%)

Table 3. Correlation coefficients of measures included in the study.

	1.	2.	3.	4.	5.
1. Self-compassion	–				
2. Self-criticism	−.48***	–			
3. Depression severity	−.36***	.67***	–		
4. Hopelessness	−.44***	.52***	.62***	–	
5. Self-reported suicidal behaviors (Log)	−.43***	.59***	.43***	.35**	–
6. Implicit suicidality	.09	−.01	.06	.09	−.03

Note. Log = log transformed.
**$p < .01$.
***$p < .001$.

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

Table 4. Summary of hierarchical regression analysis for variables predicting self-reported suicidal behaviors.

Variable	β	t	sr^2	R	R^2	ΔR^2
Step 1				.09	.01	.01
Sex	.09	1.06	.01			
Step 2				.45	.20	.20
Sex	.09	1.14	.01			
Depression severity	.36	3.51**	.08			
Hopelessness	.12	1.21	.01			
Step 3				.59	.35	.15
Sex	.03	.41	.00			
Depression severity	.06	.56	.00			
Hopelessness	.03	.31	.00			
Self-criticism	.53	5.30**	.14			
Step 4				.62	.38	.03
Sex	.04	.60	.00			
Depression severity	.07	.70	.0			
Hopelessness	−.03	−.30	.00			
Self-criticism	.45	4.36**	.10			
Self-compassion	−.21	−2.46*	−.03			

Note. $N = 129$.
*$p < .05$,
**$p < .001$.

Table 5. Summary of hierarchical regression analysis for variables predicting implicit suicidality.

Variable	β	t	sr^2	R	R^2	ΔR^2
Step 1				.10	.01	.01
Sex	.10	1.18				
Step 2				.14	.02	.01
Sex	.10	1.17	.01			
Depression severity	.00	.00	.00			
Hopelessness	.09	.81	.01			
Step 3				.17	.03	.01
Sex	.12	1.33	.01			
Depression severity	.07	.56	.00			
Hopelessness	.12	1.00	.01			
Self-criticism	−.13	−1.10	−.01			
Step 4				.21	.04	.01
Sex	.11	1.22	.01			
Depression severity	.07	.49	.00			
Hopelessness	.15	1.30	.01			
Self-criticism	−.08	−.63	.00			
Self-compassion	.14	1.33	.01			

Note. $N = 129$.

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 and six subscales.[24–27] However, given research suggesting that self-compassion and self-criticism are distinct,[12–20,22] 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.[48] Self-compassion allows individuals to self-soothe when experiencing shame and can, thereby, prevent shame from escalating to severe psychological distress.[49,50] Relatedly, 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.[26] The relationship between self-compassion and suicide behavior risk can also be understood in light of the interpersonal theory of suicide,[51] which suggests that suicide risk stems from perceived burdensomeness and thwarted belongingness. Given that common humanity (ie, seeing one's experiences as part of the human experience, rather than as isolating)[8] is an essential component of self-compassion, individuals high in self-compassion are less likely to feel disconnected from others.[8,49] Indeed, among college students, common humanity accounts for the relationship between negative life events and self-reported suicidal behaviors.[27] 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[10,11] 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.[52,53] Furthermore, research suggests that the d/s-IAT may be best conceptualized as a measure of escape or erosion of attachment to life.[32,54] 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 imminently suicidal individuals.[55] 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.[54] 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, identified self-compassion as an important theme in the process of recovery.[56,57]

Interventions that *specifically* focus on fostering self-compassion, by generating feelings of self-reassurance, warmth, and self-soothing, include compassion-focused therapy[58] and mindful self-compassion.[59] Compassion-based interventions have shown promise for a wide range of populations, including eating disorders,[60] psychotic disorders,[61] personality disorders,[62] and healthy individuals.[63] Furthermore, guidance in the development of self-compassion is included in dialectical behavior therapy,[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.

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),[54] future research should directly explore which suicide risk assessments tools are appropriate for specific individuals.

Conflict of interest disclosure

The authors have no conflicts of interest to report.

Funding

No funding was used to support this research and/or the preparation of the manuscript.

References

1. World Health Organization. *Public Health Action for the Prevention of Suicide: A Framework*. Geneva, Switzerland: Author; 2012.
2. Web-based Injury Statistics Query and Reporting System (WISQARS). Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. 2016. Accessed October 14, 2019. https://www.cdc.gov/injury/wisqars.
3. Eiser A. The crisis on campus. *Am Psychol Assoc*. 2011;42(8):18–19.
4. Drapeau CW, McIntosh JL. *U.S.A. Suicide 2017: Official Final Data*. Washington, DC: American Association of Suicidology. Available at: http://www.suicidology.org. Published 2018.
5. Mortier P, Cuijpers P, Kiekens G, et al. The prevalence of suicidal thoughts and behaviours among college students: a meta-analysis. *Psychol Med*. 2018;48(4):554–565. doi:10.1017/S0033291717002215.
6. Brown GK, Beck AT, Steer RA, et al. Risk factors for suicide in psychiatric outpatients: a 20-year prospective study. *J Consult Clin Psychol*. 2000;68(3):371–377. doi:10.1037//0022-006X.68.3.371. PMID: 10883553.
7. Nock MK, Hwang I, Sampson N, et al. Cross-national analysis of the associations among mental disorders and suicidal behavior: findings from the WHO World Mental Health Surveys. *PLoS Med*. 2009;6(8):e1000123. doi:10.1371/journal.pmed.1000123. PMID: 19668361.
8. Neff KD. The development and validation of a scale to measure self-compassion. *Self and Identity*. 2003;2(3):223–250. doi:10.1080/15298860390209035.
9. O'Connor RC, Noyce R. Personality and cognitive processes: self-criticism and different types of rumination as predictors of suicidal ideation. *Behav Res Ther*. 2008;46(3):392–401. doi:10.1016/j.brat.2008.01.007. PMID: 18308293.
10. Campos RC, Holden RR, Baleizão C, et al. Self-criticism, neediness, and distress in the prediction of suicide ideation: results from cross-sectional and longitudinal studies. *J Psychol*. 2018;152(4):237–255. doi:10.1080/00223980.2018.1446895. PMID: 29667539.
11. Cox BJ, Enns MW, Clara IP. Psychological dimensions associated with suicidal ideation and attempts in the National Comorbidity Survey. *Suicide Life Threat Behav*. 2004;34(3):209–219. doi:10.1521/suli.34.3.209.42781. PMID: 15385175.
12. Gilbert P. Social mentalities: a biopsychosocial and evolutionary reflection on social relationships. In: Baldwin MW, ed. *Interpersonal Cognition*. New York, NY: Guilford Press; 2005.
13. Gilbert P, Irons C. Focused therapies and compassionate mind-training for shame and self-attacking. In: Gilbert P, ed. *Compassion: Conceptualisations, Research, and Use in Psychotherapy*. London, UK: Routledge; 2005.
14. Longe O, Maratos FA, Gilbert P, et al. Having a word with yourself: neural correlates of self-criticism and self-reassurance. *Neuroimage*. 2010;49(2):1849–1856. doi:10.1016/j.neuroimage.2009.09.019. PMID: 19770047.
15. Rockliff H, Gilbert P, McEwan K, et al. A pilot exploration of heart rate variability and salivary cortisol responses to compassion-focused imagery. *Clin Neuropsych: J Treat Eval*. 2008;5(3):132–139.
16. Brenner RE, Heath PJ, Vogel DL, et al. Two is more valid than one: examining the factor structure of the Self-Compassion Scale (SCS). *J Counsel Psychol*. 2017;64(6):696–707. doi:10.1037/cou0000211.
17. Costa J, Marôco J, Pinto-Gouveia J, et al. Validation of the psychometric properties of the Self-Compassion Scale. Testing the factorial validity and factorial invariance of the measure among borderline personality disorder, anxiety disorder, eating disorder and general populations. *Clin Psychol Psychother*. 2016;23(5):460–468. doi:10.1002/cpp.1974. PMID: 26289027.
18. Kumlander S, Lahtinen O, Turunen T, et al. Two is more valid than one, but is six even better? The factor structure of the Self-

Compassion Scale (SCS). *PloS One*. 2018;13(12):e0207706. doi:10.1371/journal.pone.0207706. PMID: 30517174.
19. López A, Sanderman R, Smink A, et al. A reconsideration of the Self-Compassion Scale's total score: self-compassion versus self-criticism. *PloS One*. 2015;10(7):e0132940. doi:10.1371/journal.pone.0132940.
20. Phillips WJ, Ferguson SJ. Self-compassion: a resource for positive aging. *J Geront B Psychol Sci Soc Sci*. 2013;68(4):529–539. doi:10.1093/geronb/gbs091. PMID: 23065320.
21. Raes F, Pommier E, Neff KD, et al. Construction and factorial validation of a short form of the self-compassion scale. *Clin Psychol Psychother*. 2011;18(3):250–255. doi:10.1002/cpp.702. PMID: 21584907.
22. Brenner RE, Vogel DL, Lannin DG, et al. Do self-compassion and self-coldness distinctly relate to distress and well-being? A theoretical model of self-relating. *J Counsel Psychol*. 2018;65(3):346–357. doi:10.1037/cou0000257. PMID: 29672084.
23. Collett N, Pugh K, Waite F, et al. Negative cognitions about the self in patients with persecutory delusions: an empirical study of self-compassion, self-stigma, schematic beliefs, self-esteem, fear of madness, and suicidal ideation. *Psychiatry Res*. 2016;239:79–84. doi:10.1016/j.psychres.2016.02.043. PMID: 27137965.
24. Basharpoor S, Daneshvar S, Noori H. The relation of self-compassion and anger control dimensions with suicide ideation in university students. *Int J High Risk Behav and Addiction*. 2016;5:e26165. doi:10.5812/ijhrba.26165.
25. Hasking P, Boyes ME, Finlay-Jones A, et al. Common pathways to NSSI and suicide ideation: the roles of rumination and self-compassion. *Arch Suicide Res*. 2018;23(2):247–260. doi:10.1080/13811118.2018.1468836. PMID: 29791304.
26. Kelliher Rabon J, Sirois FM, Hirsch JK. Self-compassion and suicidal behavior in college students: serial indirect effects via depression and wellness behaviors. *J Am Coll Health*. 2018;66(2):114–122. doi:10.1080/07448481.2017.1382498. PMID: 28937937.
27. Chang EC, Yu T, Najarian ASM, et al. Understanding the association between negative life events and suicidal risk in college students: examining self-compassion as a potential mediator. *J Clin Psychol*. 2017;73(6):745–755. doi:10.1002/jclp.22374.
28. Zeller M, Yuval K, Nitzan-Assayag Y, et al. Self-compassion in recovery following potentially traumatic stress: longitudinal study of at-risk youth. *J Abnorm Child Psychol*. 2015;43(4):645–653. doi:10.1007/s11469-011-9340-7.
29. Glenn CR, Nock MK. Improving the short-term prediction of suicidal behavior. *Am J Prev Med*. 2014;47(3):S176–S180. doi:10.1016/j.amepre.2014.06.004. PMID: 25145736.
30. Janis IB, Nock MK. Behavioral forecasts do not improve the prediction of future behavior: a prospective study of self-injury. *J Clin Psychol*. 2008;64(10):1164–1174. doi:10.1002/jclp.20509. PMID: 18690670.
31. Nock MK, Park JM, Finn CT, et al. Measuring the suicidal mind: implicit cognition predicts suicidal behavior. *Psychol Sci*. 2010;21(4):511–517. doi:10.1177/0956797610364762. PMID: 20424092.
32. Ellis TE, Rufino KA, Green KL. Implicit measure of life/death orientation predicts response of suicidal ideation to treatment in psychiatric inpatients. *Arch Suicide Res*. 2016;20(1):59–68. doi:10.1080/13811118.2015.1004483. PMID: 25923054.
33. Randall JR, Rowe BH, Dong KA, et al. Assessment of self-harm risk using implicit thoughts. *Psychol Assess*. 2013;25(3):714–721. doi:10.1037/a0032391. PMID: 23647043.
34. Harrison DP, Stritzke WG, Fay N, et al. Probing the implicit suicidal mind: does the Death/Suicide Implicit Association Test reveal a desire to die, or a diminished desire to live? *Psychol Assess*. 2014;26(3):831–840. doi:10.1037/pas0000001. PMID: 24611787.
35. Beck AT, Weissman A, Lester D, et al. The measurement of pessimism: the Hopelessness Scale. *J Consulting Clin Psychol*. 1974;42(6):861–865. doi:10.1037/h0037562. PMID: 4436473.
36. Steed L. Further validity and reliability evidence for Beck Hopelessness Scale scores in a nonclinical sample. *Educat Psychol Measure*. 2001;61(2):303–316. doi:10.1177/00131640121971121.
37. Beck AT, Steer RA, Kovacs M, et al. Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *Am J Psychiatry*. 1985;142(5):559–563. doi:10.1176/ajp.142.5.559. PMID: 3985195.
38. Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety Stress Scales*. Sydney, Australia: Psychology Foundation of Australia; 1995.
39. Nam B, Hilimire MR, Jahn D, et al. Predictors of suicidal ideation among college students: a prospective cohort study. *Soc Work Ment Health*. 2018;16(2):223–237. doi:10.1080/15332985.2017.1380742.
40. Soto-Sanz V, Castellví P, Rodríguez-Marín J, et al. Internalizing and externalizing symptoms and suicidal behaviour in young people: a systematic review and meta-analysis of longitudinal studies. *Acta Psychiatr Scand*. 2019;140:5–19. doi:10.1111/acps.13036.
41. Sinclair SJ, Siefert CJ, Slavin-Mulford JM, et al. Psychometric evaluation and normative data for the depression, anxiety, and stress scales-21 (DASS-21) in a nonclinical sample of US adults. *Eval Health Prof*. 2012;35(3):259–279. doi:10.1177/0163278711424282. PMID: 22008979.
42. Antony MM, Bieling PJ, Cox BJ, et al. Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychol Assess*. 1998;10(2):176–181. doi:10.1037/1040-3590.10.2.176.
43. Henry JD, Crawford JR. The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *Brit J Clin Psychol*. 2005;44(2):227–239. doi:10.1348/014466505X29657. PMID: 16004657.
44. Osman A, Bagge CL, Gutierrez PM, et al. The Suicidal Behaviors Questionnaire-Revised (SBQ-R): validation with clinical and nonclinical samples. *Assessment*. 2001;8(4):443–454. doi:10.1177/107319110100800409. PMID: 11785588.
45. Greenwald AG, Nosek BA, Banaji MR. Understanding and using the implicit association test: I. An improved scoring algorithm. *J Person Soc Psychol*. 2003;85(2):197–216. doi:10.1037/0022-3514.85.2.197. PMID: 12916565.
46. Nadorff MR, Ellis TE, Allen JG, et al. Presence and persistence of sleep-related symptoms and suicidal ideation in psychiatric inpatients. *Crisis*. 2014;35(6):398–405. doi:10.1027/0227-5910/a000279. PMID: 25231857.
47. Yarnell LM, Stafford RE, Neff KD, et al. Meta-analysis of gender differences in self-compassion. *Self Identity*. 2015;14(5):499–520. doi:10.1080/15298868.2015.1029966.
48. Baumeister RF. Suicide as escape from self. *Psychol Rev*. 1990;97(1):90–113. doi:10.1037//0033-295X.97.1.90. PMID: 2408091.
49. Gilbert P. Compassion and cruelty: a biopsychosocial approach In: Gilbert P, ed. *Compassion: Conceptualisations, Research and Use in Psychotherapy*. London, UK: Routledge; 2005.
50. Johnson EA, O'Brien KA. Self-compassion soothes the savage ego-threat system: effects on negative affect, shame, rumination, and depressive symptoms. *J Soc Clin Psychol*. 2013;32(9):939–963. doi:10.1521/jscp.2013.32.9.939.
51. Van Orden KA, Witte TK, Cukrowicz KC, et al. The interpersonal theory of suicide. *Psychol Rev*. 2010;117(2):575. doi:10.1037/a0018697. PMID: 20438238.
52. Chiurliza B, Hagan CR, Rogers ML, et al. Implicit measures of suicide risk in a military sample. *Assessment*. 2018;25(5):667–676. doi:10.1177/1073191116676363. PMID: 27821459.
53. Price RB, Iosifescu DV, Murrough JW, et al. Ketamine on explicit and implicit suicidal cognition: a randomized controlled trial in treatment-resistant depression. *Depress Anxiety*. 2014;31(4):335–343. doi:10.1002/da.22253. PMID: 24668760.
54. Harrison DP, Stritzke WG, Fay N, et al. Suicide risk assessment: trust an implicit probe or listen to the patient? *Psychol Assess*. 2018;30(10):1317–1329. doi:10.1037/pas0000577. PMID: 29781661.
55. Barnes SM, Bahraini NH, Forster JE, et al. Moving beyond self-report: implicit associations about death/life prospectively predict suicidal behavior among veterans. *Suicide Life Threat Behav*. 2017;47(1):67–77. doi:10.1111/sltb.12265. PMID: 27387836.

56. Katsakou C, Pistrang N. Clients' experiences of treatment and recovery in borderline personality disorder: a meta-synthesis of qualitative studies. *Psychother Res*. 2018;28(6):940–957. doi:10.1080/10503307.2016.1277040. PMID: 28140762.
57. Katsakou C, Pistrang N, Barnicot K, et al. Processes of recovery through routine or specialist treatment for borderline personality disorder (BPD): a qualitative study. *J Ment Health*. 2017:1–9. doi:10.1080/09638237.2017.1340631. PMID: 28675714.
58. Gilbert P. Introducing compassion-focused therapy. *Adv Psychiatr Treat*. 2009;15(3):199–208. doi:10.1192/apt.bp.107.005264.
59. Neff KD, Germer CK. A pilot study and randomized controlled trial of the mindful self-compassion program. *J Clin Psychol*. 2013;69(1):28–44. doi:10.1002/jclp.21923. PMID: 23070875.
60. Kelly AC, Carter JC. Self-compassion training for binge eating disorder: a pilot randomized controlled trial. *Psychol Psychother Theory Res Pract*. 2015;88(3):285–303. doi:10.1111/papt.12044. PMID: 25330466.
61. Braehler C, Gumley A, Harper J, et al. Exploring change processes in compassion focused therapy in psychosis: results of a feasibility randomized controlled trial. *Br J Clin Psychol*. 2013;52(2):199–214. doi:10.1111/bjc.12009. PMID: 24215148.
62. Lucre KM, Corten N. An exploration of group compassion-focused therapy for personality disorder. *Psychol Psychother Theory Res Pract*. 2013;86(4):387–400. doi:10.1111/j.2044-8341.2012.02068.x. PMID: 24217864.
63. Navarro-Gil M, Lopez-del-Hoyo Y, Modrego-Alarcon M, et al. Effects of attachment-based compassion therapy (ABCT) on self-compassion and attachment style in healthy people. *Mindfulness*. 2018. doi:10.1007/s12671-018-0896-1.
64. Linehan MM. *DBT® Skills Training Manual*. 2nd ed. New York, NY: Guilford Press; 2015.