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Self-Compassion Induction Reduces Anticipatory Anxiety Among Socially Anxious Students

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Abstract Self-compassion has been consistently linked to psychological well-being. This current study explored whether (a) inducing self-compassion would result in reduced state anxiety for a speech task and (b) whether this effect would be greater for individuals with high social anxiety, compared to those with low social anxiety. Undergraduate students (N = 118; high social anxiety n = 56; low social anxiety n = 62) were randomly assigned to a self-compassion writing or a control writing condition. Anticipatory anxiety (related to an upcoming speech) was measured. Only the participants with high social anxiety displayed lower levels of anticipatory anxiety in the self-compassion condition compared to the control condition. These results support the use of self-compassion practices for social anxiety.

Keywords Self-compassion · Social anxiety disorder · Mindfulness · Anticipatory anxiety

Introduction

Self-compassion has attracted considerable attention in recent years given that it is associated with adaptive psychological functioning in various domains (Neff 2003a). Self-compassion consists of three interrelated components: (1) *self-kindness* which involves treating oneself with care and kindness in negative circumstances such as failure, as opposed to being overly self-critical; (2) *common humanity* which involves viewing oneself as part of a larger human experience, as opposed to viewing oneself in isolation; and (3) *mindfulness* which involves viewing painful experiences in balance and with mindful awareness, as opposed to over-identifying with them (Neff 2003a). A self-compassionate individual will confront situations of failure, inadequacy, or suffering with mindful awareness, rather than an over-identification with negative factors and with a lack of self-judgment, acknowledging that such downfalls and imperfections are part of the larger human experience, and that they are not alone in their sufferings (Neff 2003a).

The beneficial effects of self-compassion have been reliably established in research with healthy individuals. Self-compassion encourages many adaptive qualities such as life satisfaction, resilience and wellness, emotional intelligence, and perceived competence (Neff 2003a), social connectedness (Akin and Akin 2015), goal mastery and self-improvement motivation (Neff et al. 2005), adaptive coping, as opposed to avoidance (Costa and Pinto-Gouveia 2013), and use of first person plural pronouns ("we"; Barnard and Curry 2011). Further, self-compassion is negatively associated with various negative affective states including anxiety, depression, self-criticism, rumination, and perfectionism (Neff 2003a), anxiety level after considering weaknesses (Neff et al. 2007), self-referring words ("I"), fear of failure (Neff et al. 2005), and post-traumatic stress and panic following traumatic events (Zeller et al. 2014).

Most research on self-compassion and social anxiety has been correlational, revealing a negative association. For example, one study has examined the relationship between self-compassion and social anxiety disorder (SAD) (Werner et al. 2012). Individuals with SAD were found to have lower levels of self-compassion, even when controlling for depression and general anxiety, compared to healthy controls. They also found that self-compassion appears to be linked primarily to

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cognitive aspects of social anxiety, such as fear of evaluation. Individuals with high evaluation fears exhibited higher levels of self-criticism, self-judgment, and feelings of isolation. Other correlational studies have evaluated the impact of trait self-compassion on social stress (i.e., using the Trier Social Stress Test, TSST; Kudielka et al. 2007) and found that healthy participants who are higher in self-compassion at baseline experience less social stress during the TSST (Bluth et al. 2016; Breines et al. 2015).

One experimental study has evaluated the impact of self-compassion training on social stress. Arch et al. (2014) demonstrated that women who underwent a self-compassion manipulation consisting of *metta* (loving-kindness) meditation consequently displayed lower levels of social stress, in comparison to two control conditions. Moreover, these individuals displayed lower levels of salivary alpha amylase (sAA) following the TSST, indicating an inhibited sympathetic system response (Arch et al. 2014). These results build on the correlational research supporting that self-compassion may serve as a buffer against social stress. However, the sample consisted of only women, and it is unclear to what extent socially anxious individuals would benefit from self-compassion training.

Previous research has supported that self-compassion can be induced through a variety of techniques. As described above, Arch et al. (2014) employed a loving-kindness meditation exercise. Another technique for manipulating self-compassion consists of a writing exercise regarding a negative life event (Breines and Chen 2012; Leary et al. 2007). Specifically, participants are asked to write about an event that made them feel particularly bad about themselves, as self-compassion has been determined to be most relevant in situations provoking shame and self-criticism (Neff 2003b). They receive three prompts of how to proceed in their writing, each relating to one of the three facets of self-compassion. The self-kindness prompt urges them to express concern and understanding to themselves, in such a way they might express concern for a friend who was experiencing a similar situation; the common humanity prompt requires listing ways in which other people may have experienced similar events; the mindfulness prompt encourages their description of the events and surrounding feelings to be as objective and unemotional as possible.

A reasonable proposition may be to introduce self-compassion training among socially anxious individuals with the goal of increasing their levels of self-compassion. Given that socially anxious individuals are low in self-compassion, they may have more to gain from self-compassion training and therefore may be highly receptive to it; on the other hand, being low in self-compassion may bar their receptiveness to self-compassion training. Self-compassion inductions have been found to be *more* effective for individuals who are initially low in self-compassion; for example, Leary et al. (2007) found that a self-compassion induction led low self-

compassion individuals to subsequently demonstrate a higher perception of similarity to others, while those originally high in self-compassion were unaffected by the self-compassion induction.

The primary focus of the present study was to evaluate how receptive highly socially anxious individuals would be to self-compassion training prior to a speech task. Participants with high social anxiety (HSA) and those with low social anxiety (LSA) were randomly assigned to a self-compassion writing or control writing task, after which anticipatory anxiety was assessed. A social anxiety group (HSA, LSA) by condition (self-compassion writing, control writing) interaction was hypothesized, such that self-compassion training would reduce anticipatory anxiety to a greater extent for the HSA group compared to the LSA group. The rationale driving this hypothesis was that individuals low in self-compassion have been found to be more receptive to self-compassion training (Leary et al. 2007) and individuals with high social anxiety tend to be low in self-compassion (Werner et al. 2012). Therefore, we expected that individuals with higher social anxiety would be more receptive to self-compassion training and reap greater benefits, compared to individuals with low levels of social anxiety.

Method

Participants

Participants were 124 undergraduate students (86% female; 88% white) between the ages of 15–38 ($M = 19.13$, $SD = 2.85$) enrolled in an introductory psychology course at Wilfrid Laurier University. They received course credit for their participation. Participants were pre-selected for level of social anxiety based on their scores on the Social Phobia Inventory (SPIN, Connor et al. 2000) and the Social Interaction Anxiety Scale (SIAS, Mattick and Clarke 1998). The SPIN is a 17-item measure that assesses anxiety within three domains: fear (i.e., "I am afraid of people in authority"), avoidance (i.e., "I avoid talking to people I don't know"), and physiological arousal (i.e., "I am bothered by blushing in front of people"). The SPIN has been shown to have good test-retest reliability, internal consistency, and validity (Connor et al. 2000). The SIAS is a 20-item measure that requires respondents to rate their experience in a given social setting (i.e. "When mixing socially, I am uncomfortable"). The SIAS has been shown to be particularly reliable for undergraduate students ($\alpha = .99$) as well as people with SAD ($\alpha = .93$) (Mattick and Clarke 1998). Those who scored equal to or above 30 on the SPIN *and* equal to or above 34 on the SIAS (high social anxiety; $n = 56$), as well as those who scored *either* equal to or below 10 on the SPIN *or* equal to or below 19 on the SIAS (low social anxiety; $n = 62$) were eligible,

based on previously determined cut-offs for these scales (SIAS: Cody and Teachman 2010; Mattick and Clarke 1998; SPIN: Connor et al. 2000; Moser et al. 2008). Finally, six participants (three HSA; three LSA) were excluded due to guessing the deceptive nature of the study (i.e., they figured out they were not required to do a speech, rendering it impossible to assess anticipatory anxiety) or recruitment error (i.e., they were able to sign up without meeting inclusion criteria due to a technical error), leaving a total of 118 participants.

Procedure

Participants were told that the purpose of the study was to understand the ways that individuals self-talk in work-related events. Informed consent was obtained from all individual participants included in the study, followed by the administration of baseline measures of depression, self-compassion, and self-esteem. Next, participants were randomly assigned to the self-compassion writing or control writing condition, for a total of four conditions: (1) high social anxiety/self-compassion ($n = 30$), (2) high social anxiety/control ($n = 26$), (3) low social anxiety/self-compassion ($n = 28$), and (4) low social anxiety/control ($n = 34$).

The self-compassion writing task was a derivative of the technique utilized by Leary et al. (2007); however, it was revised to focus on work-specific experiences. Participants were instructed to write about a negative work event that they had previously experienced that made them feel bad about themselves. This latter instruction is important, as Neff (2003b) has noted that self-compassion is most relevant in circumstances that provoke feelings of shame and self-criticism. Specifically, the instructions read: "This part of the study focuses on negative work events and their effects… think about a time when you made a horrible mistake at work that made you feel especially bad about yourself." The participants received three prompts to induce self-compassionate responses. The self-kindness prompt asked them to "write a paragraph expressing kindness to [themselves] in the same way [they] might express kindness for someone close to [them]"; the common humanity prompt instructed participants to "list some of the ways in which other people have experienced similar events to the one [they] described"; the mindfulness prompt requested participants to "list the emotions [they] felt during this event and explain (objectively as possible) why [they] felt that emotion".

The control condition was intended to account for any effects resulting from writing about a negative event, but without inducing any sense of self-compassion. Participants received the same instructions to write about a negative work event in which they made a horrible mistake as well as three similar prompts: "write a paragraph describing your role in this event," "who else was involved in this event?", and "describe your feelings about this event."

Immediately after the writing task, participants completed the manipulation check items. The manipulation check consisted of two brief questions that participants responded on a 7-point Likert scale: (1) "looking back, how self-critical were you when writing about your mistake?" (1 = not at all self-critical to 7 = extremely self-critical) and (2) "to what extent did you write about your mistake compassionately?" (1 = not at all compassionately to 7 = extremely compassionately).

Following the manipulation check, participants underwent an anxiety induction, which was implemented through an upcoming 3-min speech task about why they should be hired for a job. Participants were also told the following: "This is an important topic because research has shown that performance in interviews is correlated with whether applicants are offered the position. In addition, how well people perform in mock job interview situations is highly predictive of how well they typically perform in real life and whether they will obtain future jobs." They were given 3 min to prepare their speech and then were asked to complete the anticipatory anxiety measures. Finally, participants were informed they were not required to give the speech and fully debriefed.

Measures

There were baseline measures of depression, self-compassion, and self-esteem. The *Beck Depression Inventory* (BDI–II; Beck et al. 1996) is a widely used 21-item scale with good psychometric properties that evaluates cognitive, affective, somatic, and motivational symptoms of depression during the past 2 weeks. The 26-item *Self-Compassion Scale* (SCS; Neff 2003a) was used to assess baseline levels of self-compassion. The SCS is composed of six subscales: self-kindness (5 items; i.e., "I'm tolerant of my own flaws and inadequacies"), self-judgment (5 items; i.e., "when I see aspects of myself I don't like, I get down on myself"), common humanity (4 items; i.e., "I try to see my failings as part of the human condition"), isolation (4 items; i.e., "when I fail at something that's important to me I tend to feel alone in my failure"), mindfulness (4 items; i.e., "when something upsets me I try to keep my emotions in balance"), and over-identification (4 items; i.e., "when something upsets me I get carried away with my feelings"). The negative subscale items (self-judgment, isolation, and over-identification) are reverse-scored. The SCS has been shown to have consistently high reliability across various populations (total scale α = .91; all subscale αs $\geq$ .76;), and there is strong evidence for its concurrent, predictive, convergent, and discriminate validity (Neff et al. 2017). Finally, a one-item *self-esteem* scale was used: "I have high self-esteem" (Robins et al. 2001). Participants responded on a Likert scale ranging from 1 (*not very true of me*) to 7 (*very true of me*). There is strong support for its validity when compared with longer measures (Robins et al. 2001).

Three measures were used to assess anticipatory anxiety. The *Subjective Units of Distress Scale* (SUDS; Wolpe 1969) is a one-item measure concerning the level of distress the participant is feeling at that moment (*0 = not at all distressed* to *100 = extremely distressed*). The *Spielberger State-Trait Anxiety Inventory–State Version* (STAI-S; Spielberger et al. 1983) is a 20-item measure that assesses how anxious an individual currently feels (i.e., "I am tense"). The STAI-S has high internal consistency (ranging from .83 to .92; Kaplan and Smith 1995), as well as good test-retest reliability. A revised version of the 12-item *Anticipatory Social Behaviors Questionnaire* (ASBQ; Hinrichsen and Clark 2003) was also administered. The ASBQ assesses anticipatory processing such as preparing for the event or imagining worst-case scenarios. The items were revised to refer to the speech task at hand (i.e., "I rehearsed the speech in my mind"; "I tried to plan what I was going to say"). The original ASBQ has high internal consistency (Mills et al. 2013).

Data Analyses

A 2 (self-compassion vs control writing) × 2 (low social anxiety group vs high social anxiety group) MANOVA was conducted. The dependent variable was anticipatory anxiety as assessed by three measures (SUDS, STAI-S, and ASBQ).

Results

Participants' social anxiety, depression, self-compassion, and self-esteem were compared across conditions. There were no significant baseline differences found on the SIAS, SPIN, BDI, SCS, or self-esteem scale (all $F < 1$). As expected, there were significant effects of social anxiety group on these baseline measures (see Table 1). HSA participants reported more social anxiety than LSA participants on the SIAS ($t(116) = -21.52$, $p < .001$) and on the SPIN ($t(116) = -20.05$, $p < .001$). There was a main effect of social anxiety group on depression, such that the HSA participants had greater levels of depression than LSA participants ($t(116) = -6.04$, $p < .001$). There was also a main effect of social anxiety group on self-compassion and self-esteem, such that HSA participants had lower levels of both self-compassion and self-esteem compared to LSA participants ($t(116) = 6.08$, $p < .001$ and $t(116) = 4.07$, $p < .001$, respectively).

A manipulation check was conducted to determine how self-critically, or self-compassionately, participants wrote about their negative work experiences (see Table 2). There was a significant interaction between condition (self-compassion vs control writing) and social anxiety group ($F(2113) = 3.31$, $p = .04$), but this interaction was only significant for the self-compassion item ($F(1114) = 9.87$, $p = .02$), not the self-criticism item ($p = .57$). Looking at the simple

effects, the HSA group wrote significantly more self-compassionately in the self-compassion condition compared to the control writing condition ($p = .04$), but the LSA group did not differ in how self-compassionately they wrote about their experience, regardless of whether they were in the control condition or the SC condition. There was no main effect of anxiety group on how self-critically or self-compassionately participants rated themselves ($p = .99$). As for condition, the multivariate effect was not significant, $F(2113) = 1.64$, $p = .20$. Although the pattern for the self-criticism item appeared to suggest that those in the control condition were more self-critical than those in the self-compassion condition, this univariate effect was not significant, $F(1114) = 2.26$, $p = .14$.

To test the main hypothesis that the self-compassion manipulation would be more effective in reducing anticipatory anxiety for the HSA group compared to the LSA group, a multivariate analysis of variance (MANOVA) was conducted.

Table 1 Baseline descriptive statistics by condition and anxiety group

	Control				Self-compassion			
	HSA (*n* = 26)		LSA (*n* = 34)		HSA (*n* = 30)		LSA (*n* = 28)	
Scale	M	SD	M	SD	M	SD	M	SD
Social anxiety								
SIAS	46.42$_a$	10.43	12.97$_b$	7.01	44.10$_a$	8.67	12.36$_b$	6.55
SPIN	38.35$_a$	8.48	12.62$_b$	6.61	38.33$_a$	6.67	10.21$_b$	6.33
Depression								
BDI-II	17.46$_a$	9.41	9.66$_b$	6.18	18.17$_a$	9.98	8.43$_b$	5.50
Self-compassion								
SCS	2.44$_a$	.56	3.22$_b$	.60	2.62$_a$	.52	3.13$_b$	.61
Self-esteem								
SE	3.88$_a$	1.45	4.94$_b$	1.32	4.07$_a$	1.39	5.07$_b$	1.27

HSA high social anxiety, *LSA* low social anxiety, *SIAS* Social Interaction Anxiety Scale, *SPIN* Social Phobia Inventory, *BDI* Beck Depression Inventory, *SCS* Self-Compassion Scale, *SE* Self-Esteem Scale

Means in the same row with different subscripts significantly differ at $p < .001$

Table 2 Manipulation checks

	Control				Self-compassion			
	HSA (*n* = 26)		LSA (*n* = 34)		HSA (*n* = 30)		LSA (*n* = 28)	
Items	M	SD	M	SD	M	SD	M	SD
Self-criticism	5.04	1.34	4.87	1.32	4.53	1.38	4.64	1.19
Self-compassion	4.21$_a$	1.27	4.77	1.42	4.97$_b$	1.07	4.36	1.55

Note. Mean self-rating scores on self-criticism and self-compassion when writing about negative work experience

HSA high social anxiety, *LSA* low social anxiety

Means in the same row with different subscripts significantly differ at $p < .05$

The main effect of writing condition was not significant ($F < 1$). There was a main effect of anxiety group ($F(3114) = 8.15$, $p < .001$), such that those in the HSA group responded with greater anxiety to the anxiety induction compared to those in the LSA group. The interaction effect of anxiety group by writing condition was significant ($F(3114) = 3.93$, $p = .01$). Looking at the multivariate simple effects, the self-compassion manipulation significantly reduced anxiety for the HSA group ($p = .02$) but not the LSA group ($p = .40$) (see Table 3). An investigation at the univariate level of analysis for each of the dependent measures demonstrated varying effects, as described below.

The interaction effect on the STAI-S displayed a similar pattern to what was found in the MANOVA (see Table 3), such that the self-compassion manipulation significantly reduced anticipatory state anxiety compared to the control condition for the HSA group, but not for the LSA group (see Fig.1). This interaction effect approached significance ($F(3114) = 3.07$, $p = .08$). Looking at the simple effects, for those who were high in social anxiety, those in the self-compassion condition had significantly lower levels of state anxiety compared to those in the control condition ($p = .03$), but there was no significant difference between conditions for those low in social anxiety ($p = .78$). The main effect of condition was not significant ($F(3114) = 1.87$, $p = .175$). There was a main effect of anxiety group ($F(3114) = 24.85$, $p < .001$), such that those in the HSA group scored higher on the STAI-S compared to the LSA group.

For SUDS ratings, the interaction effect was not significant (see Table 3; $F(3114) = .089$, $p = .77$). There was no main effect of condition ($F < 1$). There was a main effect of anxiety group ($F(3114) = 15.92$, $p < .001$), such that the HSA group had higher levels of distress than the LSA group.

For the ASBQ, the interaction of condition by group was not significant ($F(3114) = .93$, $p = .34$), although the pattern was similar; participants who underwent the self-compassion manipulation displayed lower levels of anticipatory processing compared to the control condition in the HSA group (simple effects $p = .18$)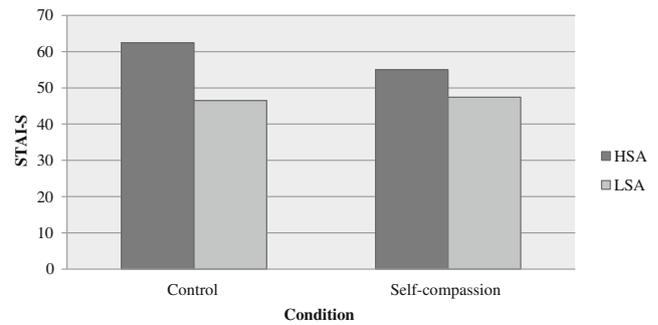, but not in the LSA group (simple effects $p = .98$). There was no main effect of condition ($F < 1$). Once again, there was a main effect of anxiety group ($F(3114) = 9.433$, $p = .003$), such that the HSA group had higher levels of anticipatory processing compared to the LSA group.

Fig.1 Interaction between social anxiety group and writing condition on the State Trait Anxiety Inventory–State (STAI-S) subscale. For those with high social anxiety (HSA), the self-compassion condition reported significantly lower state anxiety than the control condition. Conditions did not differ significantly for those with low social anxiety (LSA)

Discussion

The goal of this study was to examine the relationship between self-compassion and social anxiety. The MANOVA results indicated that those who were more socially anxious were impacted by the self-compassion training to a greater extent compared to those who were low in social anxiety. The high social anxiety group displayed lower levels of anticipatory anxiety towards an upcoming speech task following the self-compassion induction compared to the control condition, while the low social anxiety group was not affected by the self-compassion induction.

Three self-report measures were used to assess thoughts, feelings, and behaviors related to the upcoming speech. Collectively, these three measures were used as an indication of anticipatory anxiety, but results varied depending on the specific measure. The results using the STAI-S were fairly consistent with the MANOVA, with the interaction effect approaching significance. These results are as hypothesized, indicating that self-compassion training is especially effective for those with high levels of social anxiety and suggesting that a self-compassion induction is not as influential for those who are low in social anxiety. It appears that those who are high in social anxiety, however, benefit from being encouraged to adopt a self-compassionate mindset and may apply their new-found self-compassion in upcoming stressful events. It may be that those who are low in social anxiety are sufficiently self-compassionate and as such have less to gain from the self-compassion induction.

The interaction of group by condition was not significant for the SUDS or the ASBQ; only main effects of social anxiety

Table 3 Anticipatory anxiety measures by condition and anxiety group

	Control condition				Self-compassion condition			
	HSA ($n = 26$)		LSA ($n = 34$)		HSA ($n = 30$)		LSA ($n = 28$)	
Measures	M	SD	M	SD	M	SD	M	SD
STAI-S	62.39$_a$	12.02	46.50	15.58	55.03$_b$	10.80	47.41	11.41
SUDS	67.85	21.54	52.74	25.89	66.00	16.00	48.47	23.31
ASBQ	31.42	8.33	26.07	7.42	28.83	6.51	26.04	6.32

HSA high social anxiety, *LSA* low social anxiety, *SUDS* Subjective Units of Distress, *STAI-S* State-Trait Anxiety Inventory–State Version, *ASBQ* Anticipatory Social Behaviours Questionnaire

Means in the same row with different subscripts significantly differ at $p < .05$

group were found on those measures. It is worth considering why there were differences across the three measures. The STAI-S measured state anxiety in response to the social situation at hand (upcoming speech task), and therefore may have been a good representative measure of state social anxiety. The SUDS, on the other hand, is a general one-item measure of distress and perhaps less specific to social anxiety and perhaps less reliable. The ASBQ, too, is less specific to social *anxiety* and more specific to social *behavior.* Although socially anxious people typically engage in more anticipatory processing behaviors and to a greater degree (Clark and Wells 1995), people of varying degrees of social anxiety may engage in such behaviors as well (i.e., "I rehearsed this speech in my mind," "I tried to plan what I am going to say"). In the present study, all participants were instructed to prepare for the speech and therefore would have been thinking about what to say. Therefore, the specificity of the dependent measures to social anxiety varied, with the STAI-S being the most specific. This is a plausible explanation concerning why the results on the dependent measures varied.

The manipulation check analyses supported, in part, the main findings of the present study; there was a significant interaction effect of writing condition by anxiety group for the self-compassion item, indicating that the self-compassion manipulation was effective, but only for those with high levels of social anxiety; those in the LSA group actually wrote slightly more self-compassionately in the *control* condition. This interaction effect supports that socially anxious individuals may have more to gain from self-compassion inductions. The current results support previous speculations made regarding self-compassion and social anxiety (Werner et al. 2012), such that there appears to be a "buffering effect" of self-compassion that highly socially anxious individuals are not benefiting from; the self-compassion induction serves to implement this buffering effect. However, it is unclear why the interaction effect was significant only for the manipulation check item assessing self-compassion, but not significant for the manipulation check item assessing self-criticism. It is noteworthy that findings were in the expected direction for the self-criticism manipulation check item.

Limitations and Future Research

Self-compassion is primarily investigated using the SCS (Neff 2003a) and inductions have typically followed Neff's conceptualization of the self-compassion construct, as in the present study. However, some studies have suggested other interpretations, including that the subscales are independent (Williams et al. 2014), or that the SCS should be composed of two co-existing constructs, self-compassion and self-criticism (Costa et al. 2015). Recently, Neff et al. (2017) demonstrated that a 6-factor correlated model was the best fit across four samples, the two-factor model was not supported, and that it is

appropriate to use a total self-compassion score, thus supporting the conceptualization of self-compassion used in the present study. Future research can develop and evaluate self-compassion inductions based on other conceptualizations of the self-compassion construct.

The prompts used for the self-compassion induction in the present study were intended to follow Neff's conceptualization of the self-compassion construct. The prompts for self-kindness and common humanity likely served their intended purpose. However, the prompt for mindfulness deviated from Neff's conceptualization, although we followed past research (i.e., Leary et al. 2007). It would have been more consistent if we had asked participants to be aware of their emotions with acceptance and balance. Future research should take this approach if the goal is to induce self-compassion following Neff's conceptualization. Further, the prompts used for the control condition were intended to represent a baseline and were neutral in nature (e.g., "write a paragraph describing your role in this event"). However, for some participants, it is possible that such a prompt could have induced self-criticism.

The present sample was recruited from the general student population, and different anxiety groups were created based on cut-off scores on the SIAS (Mattick and Clarke 1998) and SPIN (Connor et al. 2000). Two measures were used in an attempt to more accurately and validly define groups. The means in our high social anxiety sample are similar to scores seen in samples of patients with SAD; however, without a diagnostic interview, we are not able to indicate to what extent participants in the high social anxiety group may have met criteria for SAD. Future studies could focus on manipulating self-compassion and replicating the current results within clinical samples. Further, the technique of creating two dichotomous groups of high and low social anxiety based on a continuous measurement has been criticized; future research can examine the impact of self-compassion inductions across the whole spectrum of social anxiety.

The present study focused solely on the effect of self-compassion on anticipatory anxiety. Future research can examine anxiety in relation to a social stressor participants are actually required to face, allowing for the examination of anxiety experienced during the task, rather than just anticipatory anxiety. Also, this type of design would allow for the examination of the impact of self-compassion on other important mechanisms in the maintenance of social anxiety, such as post-event processing. Further, comparing a self-compassion induction to other active inductions (e.g., mindfulness, distraction) is an important direction for future research. Finally, it would have been preferable to assess state anxiety at baseline to ensure that there were no pre-existing differences across conditions. However, participants did not differ on other measures of anxiety at baseline, and they were randomly assigned to condition.

The present study supports that not only do socially anxious individuals have lower levels of self-compassion, but that they are receptive to self-compassion training. It is noteworthy that self-compassion was induced in relation to a past work difficulty, and this self-compassion induction carried forward affecting anxiety for an upcoming speech. Future research can evaluate the degree to which socially anxious individuals benefit from programs that incorporate self-compassion, such as mindfulness and acceptance-based therapies. Future research can also evaluate whether self-compassion training offers a promising approach to counteract the self-compassion depreciation that may occur among people with SAD. Werner et al. (2012) found a negative correlation between self-compassion and age among those with SAD; healthy individuals, on the other hand, tended to improve on their levels of self-compassion over their lifetime. Individuals prone to social anxiety could find themselves in a "vicious circle" of reciprocating action between their high anxiety and deteriorating self-compassion. Future research can evaluate whether an absence of self-compassion contributes to the etiology of SAD and whether self-compassion training could be a fundamental component of an optimal treatment regime.

Author Contributions EH: collaborated with the study design, data analyses and writing of the paper; collected data. NK: collaborated with the study design, data analyses and writing of the paper.

Compliance with Ethical Standards

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Conflict of Interest The authors declare that they have no conflicts of interest.

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