

Forgive and Let Go: Effect of Self-Compassion on Post-Event Processing in Social Anxiety

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Abstract Post-event processing refers to negative and repetitive thinking following socially anxious situations and has been posited as a maintaining factor in social anxiety. One strategy for reducing post-event processing may be through self-compassion, which was the primary purpose of the present study. An additional aim was to examine the effect of self-compassion on willingness to engage in future social scenarios. Socially anxious undergraduates ($N = 98$) provided an impromptu speech and were randomly assigned to a self-compassion, rumination, or control condition. Participants completed measures of post-event processing and willingness to engage in social situations the following day. As expected, self-compassion immediately following a speech led to less post-event processing the next day, as well as greater willingness to engage in future social situations. There was also support for a mediation model illustrating the mechanisms through which self-compassion exerted its effects on these two outcomes. Taken together, these findings demonstrate the utility of self-compassion on reducing the negative and repetitive thinking that serves to maintain social anxiety and increasing willingness to partake in future social events.

Keywords Self-compassion · Social anxiety · Post-event processing · Rumination · Performance perceptions

Post-event processing (PEP) can be conceptualized as a negative and prolonged rumination following social situations among those with social anxiety. This detailed review tends

to involve negative self-representations that are formed based on how the individual believes they appeared to others. This repetitive form of thought has been implicated in the maintenance of social anxiety (e.g., Clark 2001; Clark and Wells 1995; Rapee and Heimberg 1997), and research has shown it is related to a number of maladaptive processes, including negative performance appraisals (Holzman and Valentiner 2016), negative affect (Kashdan and Roberts 2007), and anxiety for future social situations (Blackie and Kocovski 2016). It is therefore important to investigate effective strategies for reducing post-event processing. One potential strategy may be through self-compassion, something that socially anxious individuals seem to lack during the post-event period (Blackie and Kocovski 2017a).

According to Neff (2003a), self-compassion consists of core qualities, including self-kindness, common humanity, and mindfulness. Mindfulness refers to a non-judgmental awareness of one's own pain and suffering. One cannot be self-compassionate if one is closed off from or unaware of painful thoughts and experiences. Mindfulness is contrasted with over-identification, in which one becomes consumed by negative thoughts and experiences. It should be noted that self-compassionate mindfulness differs from the more general construct of mindfulness. General mindfulness refers to awareness of all experiences, regardless of valence, whereas the mindfulness component of self-compassion refers to balanced awareness of negative experiences (Neff and Dahm 2015). Self-compassion also involves common humanity, which refers to the recognition that painful experiences and shortcomings are characteristic of the human experience. Common humanity is contrasted with isolation, in which one perceives inadequacies and negative experiences as being less commonly experienced by others. Finally, self-compassion involves self-kindness. This refers to a warm and caring attitude toward oneself during difficult times or

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when confronted with failure or perceived inadequacies. Self-kindness is contrasted with self-judgment, which involves a harsh and critical attitude toward oneself.

Given the core features of self-compassion, it may be particularly relevant to post-event processing. In previous research, trait self-compassion was negatively related to forms of negative and repetitive thinking, including general rumination (Neff and Vonk 2009) and depressive rumination (Raes 2010). Leary et al. (2007, study 2) had participants read a vignette in which they imagined themselves in an anxiety-provoking and embarrassing social situation. Those who were high on the trait self-compassion predicted they would remain calmer had the event actually taken place, compared to those low on the trait self-compassion. Additionally, Blackie and Kocovski (2017a) found that the trait self-compassion was associated with less state PEP in relation to an anxiety-provoking social situation which participants recalled from memory.

Although the aforementioned findings demonstrate the association of self-compassion with repetitive forms of thinking, including PEP, it has yet to be experimentally investigated whether increasing self-compassion leads to reductions in PEP. However, findings from several studies illustrate beneficial effects of self-compassion on maladaptive processes related to PEP. In one study, self-compassion training over a period of 4 days led to decreased physiological and subjective distress responses during a speech performance, compared to those assigned to attention (placebo) and control conditions (Arch et al. 2014). In another study, Harwood and Kocovski (2017) found that self-compassion led to less anticipatory anxiety among socially anxious individuals. In a study more closely related to PEP, Leary et al. (2007, study 5) had participants recall and describe an event involving failure, rejection, or embarrassment. Those assigned to a self-compassion condition reported significantly less negative affect in relation to the event than those assigned to self-esteem and control conditions. However, the effect of self-compassion on actual PEP has yet to be examined.

Because PEP may have negative implications on a variety of other maladaptive processes, it is also important to examine whether the interventions aimed at reducing PEP extend to these other areas. One area in which PEP is associated with negative consequences is anxiety surrounding upcoming social situations (Blackie and Kocovski 2016; Brozovich and Heimberg 2013). A heightened focus on negative aspects of past social situations (i.e., engaging in PEP) may predict more anxiety or decreased willingness to engage in future social scenarios. However, those who treat themselves compassionately during the post-event period may be less threatened by upcoming social situations. Reductions in PEP, resulting from self-compassion, may partially explain this effect.

Other important areas to examine include the potential mechanisms through which self-compassion exerts its effects

on PEP and willingness to engage in future social situations. In past research, self-compassion has shown positive relationships with self-esteem (Neff 2003b) and self-perceived competence (Neff et al. 2005). Additionally, it has been posited in cognitive models (e.g., Clark and Wells 1995; Rapee and Heimberg 1997) that socially anxious individuals hold negatively distorted perceptions of themselves in relation to social situations. As such, being self-compassionate following an anxiety-provoking social situation, rather than dwelling on self-perceived performance inadequacies, may lead to more realistic performance perceptions. In turn, this may partially explain the effect of self-compassion on PEP and anxiety surrounding upcoming social events.

The primary purpose of the present study was to investigate the effect of self-compassion immediately following a speech on PEP the following day. An additional aim was to examine whether self-compassion led to increased willingness to engage in social situations occurring at a later date and whether this effect could be partially attributed to reductions in PEP. A further aim of the present study was to examine the potential mechanisms through which self-compassion may exert its effects on PEP and willingness to engage in future social situations. It was hypothesized that self-compassion immediately following a speech would lead to more realistic performance perceptions, lower post-event processing 1 day later, and higher willingness to engage in future social scenarios. It was also expected that more positive performance perceptions immediately following the manipulation would partially mediate the effect of self-compassion on PEP 1 day later. Additionally, it was expected that both performance perceptions and PEP would partially mediate the relationship between self-compassion and willingness to engage in future social situations. Finally, although we measured positive and negative affects immediately following the manipulation, there were no a priori hypotheses regarding positive or negative affect.

Method

Participants

University students were pre-screened for elevated levels of social anxiety, as determined by scores of 19 or greater on the Social Phobia Inventory (Connor et al. 2000) and 34 or greater on the Social Interaction Anxiety Scale (Mattick and Clarke 1998). The pre-screening was completed online by students enrolled in first or second year psychology courses and was part of a wider departmental pre-screening procedure. A total of 108 participants took part in the study in exchange for partial course credit. However, six participants prematurely stopped the study prior to or during their speech; two participants were identified as outliers, completing the second part

of the study four or more days later; and two individuals did not participate in the second part of the study. Therefore, data from these ten individuals were excluded from our analyses.

The remaining 98 socially anxious participants ($M = 32.90$, $SD = 9.03$) ranged in age from 17 to 25 years ($M = 18.65$, $SD = 1.13$), with the majority identifying as female (70.41%) and single/unmarried (96.94%). The breakdown of race/ethnicity was as follows: white (61.23%), Asian (18.37%), Indian/south Asian (5.10%), African Canadian (3.06%), Hispanic (3.06%), Middle Eastern (2.04%), mixed (5.10%), and unknown (missing data 2.04%).

Procedure

The present study consisted of two parts, with part 1 being conducted in lab and part 2 being conducted online 1 day later. Partial course credit was provided for participation. Informed consent was obtained from all individual participants included in the study. Participants completed a variety of baseline questionnaires: social anxiety, depression, self-compassion, trait post-event processing, and self-esteem. Participants were then reminded that they would be giving an impromptu speech and were asked to complete a measure of state anxiety. They were informed that the speech must be 3 min long, even if that meant repeating themselves. They were also informed that the speech would be recorded on video camera and rated by a judge at a later date and should therefore do their best to make a good impression. Participants then selected one of two speech topics (citizens not exercising their right to vote or the rising cost of university tuition) and delivered their speech to the video camera, with the researcher present in the room, remaining interested, but neutral. Following this, participants rated their highest level of anxiety experienced during the speech and were randomly assigned to the self-compassion ($n = 34$), rumination ($n = 33$), or control ($n = 31$) condition.

Those assigned to the self-compassion condition completed a modified exercise based on Leary et al. (2007). This exercise included three prompts designed to elicit the three major aspects of self-compassion. The first prompt was designed to elicit mindfulness. Participants were asked to take a balanced perspective and consider all aspects of their speech. Participants were further instructed to list both the positive and negative aspects of their speech. The second prompt elicited common humanity. Participants were first prefaced with a sentence stating that many people become nervous when giving speeches. They were further instructed to list the ways in which other people may react to speeches. The third prompt was designed to elicit self-kindness. For this task, participants were informed that sometimes people can be critical of themselves, sometimes even more critical than they would be to a complete stranger. Participants were then asked to write a paragraph to themselves expressing kindness and understanding, similar to the way they would support a friend who had

just given an impromptu speech. Those assigned to the rumination condition completed a guided rumination form (see Kocovski et al. 2011), which was meant to elicit post-event processing. Example items include, “How do you think you could have improved the delivery of your speech? Please list three specific elements,” and “What possible criticisms might the researcher have about your performance? Please list five specific criticisms.” Those assigned to the control condition were simply asked to write about their experience delivering the speech. No other instructions were provided for this condition. This writing task was chosen as other filler tasks may serve as a distraction, and distraction has been shown to reduce post-event processing (Blackie and Kocovski 2016). Participants in all conditions spent 10 min on their respective exercises.

Immediately following the manipulation, participants completed a manipulation check. They also rated their perceptions of performance surrounding the speech, as well as positive and negative affects. One day later, participants went online and completed the second portion of the study. To determine whether participants continued to treat themselves compassionately during the post-event period, a measure of state self-compassion was administered. Following this, participants completed a measure of state PEP and willingness to engage in hypothetical, future-oriented social situations.

Measures

Social Phobia Inventory (Connor et al. 2000) This 17-item scale measures fear and anxiety surrounding situations involving the potential of negative evaluation from others. Each item is rated on a five-point scale ranging from 0 to 4, with higher scores on the scale representing higher social anxiety. In past research (e.g., Connor et al. 2000), the Social Phobia Inventory (SPIN) has shown good psychometric properties, including good internal consistency and test–retest reliability. The internal consistency of the SPIN was very good in the present study ($\alpha = 0.82$).

Social Interaction Anxiety Scale (Mattick and Clarke 1998) The Social Interaction Anxiety Scale (SIAS) assesses anxiety in relation to interpersonal and interactional situations. The scale consists of 20 items, each rated on a four-point scale, ranging from 0 to 4. Total scale scores range from 0 to 80, with higher scores representing higher social anxiety. The SIAS has demonstrated good psychometric properties in past research (Mattick and Clarke 1998). The internal consistency and test–retest reliability have been excellent in past research (Mattick and Clarke 1998). The internal consistency in the present study was also excellent ($\alpha = 0.90$).

Beck Depression Inventory-II (Beck et al. 1996) The Beck Depression Inventory-II (BDI-II) is a commonly used

measure of depression. The scale consists of 21 items, and higher scores on the scale represent greater depressive symptoms. The BDI-II has demonstrated very good psychometric properties in past research (e.g., Beck et al. 1996). The reliability of the BDI-II was excellent in the present study ($\alpha = 0.90$).

Self-Compassion Scale-Short Form (Raes et al. 2011) The 12-item Self-Compassion Scale-Short Form (SCS-SF) is a shortened version of the original self-compassion scale (Neff 2003b). The questionnaire assesses three bipolar dimensions of self-compassion: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. These three bipolar dimensions are represented by six factors, which, in turn, are represented by a single, higher-order factor. As such, subscale scores or total scale scores may be used. The reliability of the total SCS-SF was very good in the present study ($\alpha = 0.87$).

State-Self-Compassion Scale-Short Form Items on the self-compassion scale-short form (Raes et al. 2011), which was designed to measure trait self-compassion, were modified for the purpose of the present study. The aim was to examine whether participants treated themselves compassionately during the post-event period (1 day later), specifically in relation to their speech. For example, the item “I try to be understanding and patient towards those aspects of my personality I don’t like” was reworded into “I tried to be understanding and patient towards those aspects of my speech I didn’t like.” For another example, the item “When something upsets me, I try to keep my emotions in balance” was modified into “When my speech upset me, I tried to keep my emotions in balance.” The internal consistency was very good ($\alpha = 0.88$).

Subjective Units of Distress Scale (Wolpe 1969) This one-item measure assesses state levels of anxiety. The scale ranges from 0 to 100, with higher scores representing higher distress.

Single-Item Self-Esteem Scale (Robins et al. 2001) This single-item measure assesses global self-esteem. Scores on the scale range from 1 to 7, with higher scores indicating higher levels of self-esteem. Robins et al. (2001) found that the scale correlates highly with the Rosenberg self-esteem scale (Rosenberg 1965) and these two scales correlate at similar magnitudes with a number of related constructs, including measures of personality and psychological health. The test-retest reliability of the measure was very good in prior research, with an estimate of 0.61 across six assessments (Robins et al. 2001).

State Self-Esteem Scale-Performance Subscale (Heatherton and Polivy 1991) This seven-item subscale was used to assess performance perceptions surrounding a

speech. However, one item would not have been applicable and was therefore modified. The item “I feel that I have less scholastic ability right now compared to others” was reworded into “I feel that I have less performance ability right now compared to others.” The reliability was very good in the present study ($\alpha = 0.89$).

Positive and Negative Affect Schedule (Watson et al. 1988) The Positive and Negative Affect Schedule (PANAS) is a 20-item measure commonly used to assess affective states. The scale contains two factors, namely, positive and negative affects, with each containing ten items. Higher scores on each subscale represent higher positive or negative affect. Both subscales had very good internal consistency in the present study (positive subscale, $\alpha = 0.91$; negative subscale, $\alpha = 0.87$).

Post-Event Processing Inventory (Blackie and Kocovski 2017b) The Post-Event Processing Inventory (PEPI) measures repetitive and negative thinking following social situations. The scale contains both trait (PEPI-T) and state (PEPI-S) forms. Each form of the scale contains 12 items, which are represented by three factors (frequency, intensity, and self-judgment). However, on each version of the scale, these three factors are represented by a higher-order factor. Therefore, subscale scores or total PEP scores may be used on each form. The internal consistency for total scores on both forms was excellent in the present study (PEPI-T, $\alpha = 0.90$; PEPI-S, $\alpha = 0.94$).

Willingness to Communicate (McCroskey 1992) This 20-item measure was used to assess willingness to engage in future social scenarios. The questionnaire measures willingness to initiate communication in a variety of hypothetical scenarios (e.g., group discussion, speaking with an acquaintance, public speaking). However, 8 items serve as filler items, distracting attention away from the 12 scored items. Total scores or subscale scores may be used. The subscales consist of willingness to communicate in four common contexts (group discussions, meetings, interpersonal conversations, and public speaking) and with three types of audiences (strangers, acquaintances, and friends). Each item is scored from 0 to 100, representing the probability or percentage of time that individuals would initiate communication in the given context. Total scores on the scale range from 0 to 100, with higher scores representing greater willingness to communicate or willingness to engage in future social scenarios. Reliability for the total scale score was excellent ($\alpha = 0.93$).

Manipulation Check A manipulation check was created for the purpose of the present study and was administered to assess the effectiveness of the self-compassion exercises. The check consisted of six items, which assessed the three bipolar elements of self-compassion. The six items were as follows:

(1) “I was judgmental and disproving of my speech,” (2) “I thought about how most others probably gave a better speech,” (3) “I was preoccupied by negative thoughts about my speech,” (4) “I was supportive and nice to myself in relation to my speech,” (5) “I reminded myself that many people have a hard time giving speeches,” and (6) “I considered all aspects of my speech (positive and negative).” Items were rated on a five-point scale ranging from 0 to 4 (0 = strongly disagree, 4 = strongly agree).

Data Analyses

A multivariate analysis of variance (MANOVA) was used to examine differences across conditions (self-compassion, rumination, and control) on performance perceptions, positive and negative affect, state self-compassion, PEP, and willingness to engage in future social situations. A multiple-mediation model was used to examine the direct and indirect effects of condition on performance perceptions, PEP, and willingness to engage in social situations.

Results

Baseline Variables and Interval Length

Descriptive statistics for baseline variables are provided in Table 1. Several one-way analyses of variance (ANOVAs) were conducted to compare conditions on baseline measures, as well as state anxiety prior to and during the speech (which were administered prior to the manipulation). As expected, there were no significant differences across conditions on these variables. With respect to interval length, the average time between parts 1 and 2 was 1.29 days ($SD = 0.67$), with the majority (92.00%) completing part 2 within 2 days.

Table 1 Descriptive statistics for variables occurring prior to the manipulation

Construct (measure)	Self-compassion		Rumination		Control		<i>F</i>	Partial η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Social anxiety (SPIN)	30.83	7.59	33.80	9.71	34.10	9.60	1.20	0.03
Social anxiety (SIAS)	41.03	6.60	44.63	8.13	43.40	9.58	1.50	0.03
Depression (BDI-II)	13.88	9.57	15.84	9.70	16.00	7.66	0.55	0.01
Trait PEP (PEPI-T)	34.39	8.27	36.71	8.39	38.31	7.33	2.01	0.04
Self-compassion (SCS)	33.47	7.58	31.41	9.02	30.10	7.06	1.42	0.03
Self-esteem (SISE)	4.64	1.32	4.21	1.49	4.06	1.12	1.62	0.03
State anxiety before speech (SUDS-before)	52.03	23.21	51.55	23.48	57.77	19.87	0.36	0.01
State anxiety during speech (SUDS-during)	61.35	22.03	59.61	23.47	70.13	19.78	1.53	0.03

SPIN Social Phobia Inventory, *SIAS* Social Interaction Anxiety Scale, *BDI-II* Beck Depression Inventory-II, *PEPI-T* Post-Event Processing Inventory-Trait form, *SCS* Self-Compassion Scale, *SISE* Single-Item Self-Esteem Scale, *SUDS* Subjective Units of Distress Scale, *before* before the speech, *during* during the speech

Speech Anxiety

To examine whether the speech performance was effective in inducing state anxiety, we conducted a paired-sample *t* test. As expected, state anxiety was significantly higher during ($M = 63.47$, $SD = 22.01$) than prior to ($M = 53.56$, $SD = 22.17$) the speech, $t(97) = 5.05$, $p < .001$.

Manipulation Check

The six manipulation check items were submitted to a one-way MANOVA. There was a significant multivariate effect (Pillai's trace = 0.25 ($F(12, 182) = 1.85$, $p = .04$, partial $\eta^2 = 0.11$), which was followed-up with univariate analyses. Tukey HSD post hoc analyses were used to further assess these differences (see Table 2). All univariate analyses were significant, with the exception of item 1. More specifically, those in the self-compassion condition experienced greater self-kindness, common humanity, and mindfulness than those in both the rumination and control conditions (items 4–6). Additionally, those in the self-compassion condition experienced significantly less isolation (item 2) than those in the control condition (but not rumination condition) and less over-identification with thoughts (item 3) than those in the rumination condition (but not the control condition). Those in the rumination and control conditions did not significantly differ on any items.

Differences Across Conditions on Dependent Variables

A MANOVA was used to examine the effect of condition on performance perceptions, positive and negative affects, state self-compassion, post-event processing, and willingness to engage in future social situations (see Table 3). There was a significant multivariate effect (Pillai's trace = 0.22 ($F(12,$

Table 2 Univariate analyses comparing conditions on the manipulation check

Items	Self-compassion		Rumination		Control		<i>F</i>	Partial η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1. I was judgmental and disproving of my speech.	2.24	1.21	2.79	0.93	2.74	1.12	2.63	0.05
2. I thought about how most others probably gave a better speech.	1.44a	1.16	2.06ab	1.09	2.26b	1.46	3.89*	0.08
3. I was preoccupied by negative thoughts about my speech.	1.62a	1.26	2.36b	1.14	2.06ab	1.21	3.27*	0.06
4. I was supportive and nice to myself in relation to my speech.	2.47a	1.02	1.51b	1.12	1.81b	1.05	7.10**	0.13
5. I reminded myself that many people have hard times giving speeches.	2.68a	1.04	1.73b	1.23	2.03b	1.17	5.99**	0.11
6. I considered all aspects of my speech (positive and negative).	3.00a	1.06	2.18b	1.18	2.32b	1.14	5.17**	0.10

Means sharing a common lowercase indicator are not statistically different at $p < .05$ according to Tukey HSD post hoc tests

* $p \leq .05$; ** $p \leq .01$

182) = 1.80, $p = .05$, partial $\eta^2 = 0.10$), and we therefore followed up with univariate analyses (see Table 3). Performance perceptions, state self-compassion, post-event processing, and willingness to engage in future social events (but not affect) were significant at the univariate level and therefore further assessed using Tukey HSD post hoc analyses.

Performance Perceptions and Affect As shown in Table 3, those in the self-compassion condition experienced significantly more positive performance perceptions (assessed

immediately following the manipulation) than those in the control condition and marginally greater than those in the rumination condition ($p = .06$). However, there were no significant differences across conditions on positive or negative affect immediately following the manipulation.

State Self-Compassion Consistent with hypotheses, those in the self-compassion condition continued to be significantly more self-compassionate during the post-event period (1 day after the speech) than those in both the rumination and control conditions. Those in the rumination and control conditions did

Table 3 Comparing conditions on dependent measures

Construct (measure)	Self-compassion		Rumination		Control		<i>F</i>	Partial η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Performance perceptions (SSES-performance)	17.35a	5.67	14.00b	6.14	13.77b	6.22	3.67**	0.07
Positive affect (PANAS-positive)	28.71	6.82	24.29	9.34	25.42	8.36	2.63	0.05
Negative affect (PANAS-negative)	17.76	7.27	19.66	6.75	21.26	7.12	2.60	0.05
State self-compassion (S-SCS-SF)	42.75a	8.70	34.63b	7.89	36.68b	10.11	4.76**	0.14
Post-event processing (PEPI-S)	25.88a	10.61	33.69b	10.14	34.26b	12.54	5.86**	0.11
Willingness to engage in social situations (WTC)	63.45a	23.39	51.25b	17.43	51.13b	21.84	3.73*	0.07

Means sharing a common lowercase letter are not statistically different at $p < .05$ according to Tukey HSD post hoc tests; however, performance perceptions was only marginally greater in the self-compassion than rumination condition ($p = .06$)

SSES-performance State Self-Esteem Scale-performance subscale, *PANAS* Positive and Negative Affect Schedule, *positive* positive subscale, *negative* negative subscale, *S-SCS-SF* State-Self-Compassion Scale-short form, *PEPI-S* Post-Event Processing Inventory-state form, *WTC* Willingness to Communicate scale

* $p \leq .05$; ** $p \leq .01$

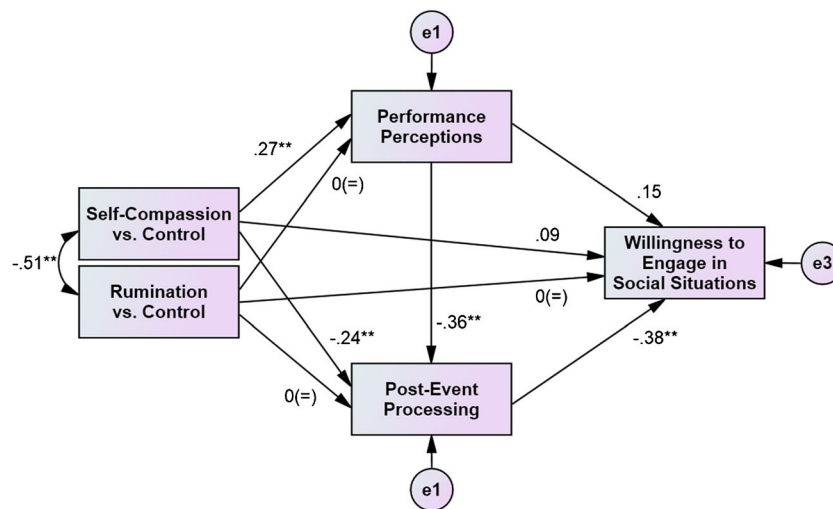


Fig. 1 A multiple-mediation model with direct effects of condition on performance perceptions and direct and indirect effects on post-event processing and willingness to engage in social situations. Conditions were dummy-coded, such that self-compassion = 1 and control = 0 and rumination = 1 and control = 0. 0(=) represents a parameter constrained to

zero. Performance perceptions was assessed using the State Self-Esteem Scale-performance subscale. Post-event processing was assessed using the Post-Event Processing Inventory-state form. Willingness to engage in social situations was assessed using the Willingness to Communicate scale. $**p \leq .01$

not significantly differ from one another. As such, this brief intervention continued to have effects 24 h later (see Table 3).

Post-Event Processing and Willingness to Engage in Social Situations As hypothesized, those in the self-compassion condition reported significantly less PEP 1 day after the speech than those in both the rumination and control conditions. Participants in the self-compassion condition also reported significantly greater willingness to partake in future-oriented, hypothetical social situations than those in both other conditions. The rumination and control conditions did not significantly differ from one another on these two variables (see Table 3).

Multiple-Mediation Model

We conducted a mediation analysis using structural equation modeling (see Fig. 1). Model testing was assessed with Analysis of Moment Structures, version 22 (AMOS; Arbuckle 2013). Although maximum likelihood is the default method of estimation in AMOS, we first examined the normality of the data to determine the appropriateness of this method. In the present study, all univariate skew values were between -0.27 and 0.69 , all kurtosis values were between -1.59 and -0.31 , and Mardia's coefficient of multivariate kurtosis was -3.88 . Given the normality of the data, we proceeded with maximum likelihood estimation. The mediation analysis was conducted with 5000 bootstrap resampling iterations and a 95% confidence interval. The conditions were compared using two binary-coded variables. The first variable compared the self-compassion (1) and control (0) conditions,

and the second variable compared the rumination (1) and control (0) conditions.

Prior to running the mediation, several constraints were placed on the model. Because we did not expect differences between the rumination and control conditions, the direct effects of this condition variable (rumination versus control) on performance perceptions, post-event processing, and willingness to engage in social situations were all set to zero. Additionally, estimating these parameters would have resulted in a just-identified model and we therefore would not have been able to assess model fit. The remaining model parameters were estimated, and the model was an excellent fit to the data. The chi-square showed non-significant lack of fit ($\chi^2(3) = 0.05, p = .99$), and the comparative fit index (CFI) of 1.00, the Tucker-Lewis index (TLI) of 1.12, the standardized root mean square residual (SRMR) of 0.01, and the root mean square error of approximation (RMSEA) of 0.00 were all in the range of excellent model fit.

The direct and indirect effects of condition (self-compassion versus control) on PEP were examined in the mediation model. With respect to the direct effect, self-compassion (compared to control) led to decreased levels of post-event processing 1 day following the speech ($\beta = -0.24, p = .01$), controlling for performance perceptions. As for the indirect effect, self-compassion (compared to control) led to significantly more positive performance perceptions immediately following the manipulation ($\beta = 0.27, p = .01$), which, in turn, predicted decreased levels of post-event processing the following day ($\beta = -0.36, p < .001$). Therefore, self-compassion, compared to control, led to reductions in PEP, and this effect was partially attributed to increases in positive

performance perceptions. The point estimate for the standardized indirect effect of condition on post-event processing was -0.10 (95% CI = $-0.20, -0.03$; $p = .001$). The standardized total effect was -0.34 (95% CI = $-0.51, -0.15$; $p = .001$), and this model accounted for 23% of the variance in post-event processing.

The direct and indirect effects of condition on willingness to engage in future social situations were also examined in the mediation model. Unexpectedly, the direct effect of condition (self-compassion versus control) on willingness to take part in social situations was not significant ($\beta = 0.09, p = .35$) when controlling for performance perceptions and post-event processing. However, condition was indirectly related to willingness to engage in social situations via performance perceptions and post-event processing. Although performance perceptions did not directly predict willingness to engage in social events ($\beta = 0.15, p = .10$), performance perceptions predicted decreased post-event processing (as previously mentioned). In turn, reduced post-event processing predicted increased willingness to take part in social events ($\beta = -0.38, p = .001$). The point estimate for the standardized indirect effect from condition (self-compassion versus control) to willingness to take part in social situations was 0.17 (95% CI = $0.07, 0.30$; $p = .001$). The standardized total effect was 0.26 (95% CI = $0.05, 0.45$; $p = .01$), and the model accounted for 26% of the variance in willingness to engage in social events.

Discussion

In the present study, self-compassion following a speech performance led to less PEP 1 day later, as well as more willingness to engage in future social situations. We also found that self-compassion led to more positive performance perceptions, compared to both other conditions. Additionally, performance perceptions mediated the effect of condition on PEP, and PEP mediated the effect of condition on willingness to engage in future social situations. Moreover, individuals who underwent the brief self-compassion induction following the speech remained significantly more self-compassionate the following day than those in both other conditions. This latter finding may suggest that brief self-compassion interventions may be sufficiently adequate in producing benefits associated with a self-compassionate mindset.

As hypothesized, self-compassion immediately following a speech performance led to less PEP the following day, compared to those in both rumination and control conditions. Additionally, more positive performance perceptions immediately following the speech partially mediated this effect. As previously mentioned, socially anxious individuals tend to view themselves in social situations in a negatively distorted fashion (e.g., Rapee and Lim 1992). However, it appears that

self-compassion allowed these individuals to view themselves in a more realistic and positive manner than would otherwise be the case. In turn, this enhanced the effect of self-compassion on reducing PEP. Although only a brief self-compassion intervention was necessary to reduce PEP 1 day after a speech performance, continuous practice of self-compassion may be especially fruitful in reducing PEP over time. That is, continuing to practice self-compassion during the post-event period may lead to even further reductions in PEP associated with the speech. Eventual adoption of a self-compassionate mindset may lead to global reductions in PEP and should be examined in future studies.

Although there were no differences across conditions on affect immediately following the manipulation, self-compassion had a beneficial effect on performance perceptions, compared to rumination and control. Past research has shown that socially anxious individuals tend to hold more negative and less realistic performance appraisals about themselves than non-socially anxious individuals (Rapee and Lim 1992). However, in the present study, treating oneself in a compassionate manner rather than ruminating on performance inadequacies led to more positive performance perceptions. This finding is similar to past research in that other-compassion increases self-esteem (Mongrain et al. 2011) and that self-compassion is positively associated with self-competence (Neff et al. 2005). In the present study, performance perceptions also served as a mechanism through which self-compassion exerted its effect on PEP.

The findings from the present study may add support to cognitive models of social anxiety (e.g., Clark and Wells 1995; Rapee and Heimberg 1997). More specifically, higher PEP predicted less willingness to engage in future, hypothetical social scenarios. In other words, socially anxious individuals who engaged in PEP following a recent socially anxious event may be less likely to even approach future social situations. Similarly, in past research, PEP predicted more anxiety for future social situations (Blackie and Kocovski 2016). As such, if PEP is severe enough, socially anxious individuals may completely avoid future social situations altogether. These findings highlight the importance of limiting the post-mortem analysis often following socially anxious situations. However, this should be experimentally examined in future research by randomly assigning individuals to engage in PEP or a control exercise and examining the impact on willingness to take part in future social situations. Additionally, given that self-compassion reduced anticipatory anxiety in past research (Harwood and Kocovski 2017) and in the present study increased positive performance perceptions and decreased PEP, it should also be examined in relation to other factors in cognitive models of social anxiety (e.g., Clark and Wells 1995; Rapee and Heimberg 1997).

In future research, it would be important to examine which aspects of self-compassion are most effective in reducing PEP.

Understanding the aspects of self-compassion that are most protective against PEP may lead to insightful treatment information. That is not to say that certain domains of self-compassion should be disregarded in PEP interventions, as the different domains likely work together in a unified manner. However, such information would allow clinicians to determine the areas of self-compassion that should receive the greatest focus during treatment. Additionally, it is possible that socially anxious individuals struggle more with cultivating specific aspects of self-compassion in relation to PEP, compared to other aspects. It would therefore be beneficial to focus additional time targeting these specific aspects of self-compassion during interventions.

Additional areas of future research involve comparing self-compassion to other mechanisms shown to reduce PEP. In past research, it has been shown that distraction leads to less PEP (Blackie and Kocovski 2016) and more positive thoughts during the post-event period (Kocovski et al. 2011). Therefore, it would be important to compare the effectiveness of self-compassion with distraction and other mechanisms aimed at reducing PEP. In a recent study, self-compassion, compared to distraction, led to significantly more positive affect following a negative mood induction (Odou and Brinker 2015). Given this finding, it is possible that self-compassion is more effective than distraction at reducing PEP. However, empirical investigation is warranted.

Limitations

Although participants had elevated levels of social anxiety, a clinical sample is warranted in future research. Given that PEP is higher among individuals with social anxiety disorder, they may have a more difficult time employing a self-compassionate mindset. However, it is also possible that individuals with social anxiety disorder have more to gain from treating themselves in a compassionate manner. Another consideration is that participants in the control condition wrote about their experience giving the speech. Because participants were those with elevated social anxiety, this may have resulted in them writing in a self-critical manner. However, those in the control condition were significantly higher only on isolation and did not differ on self-judgment or over-identification, compared to those in the self-compassion condition. An additional limitation of this study was that affect was assessed immediately following the manipulation. Seemingly, the passage of time is required for participants to actually engage in PEP and for self-compassion to protect against increases in negative affect and decreases in positive affect.

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Author Contributions RAB collaborated with the design and writing of the manuscript, executed the study, and conducted the data analyses. NLK collaborated with the design and writing of the study and edited the final manuscript.

Compliance with Ethical Standards

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the research ethics board of Wilfrid Laurier University and/or the national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in this study.

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

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