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Wilfrid Laurier University, blac7100@mylaurier.ca

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MOVING FORWARD WITH SELF-COMPASSION:
AN EXAMINATION OF SELF-COMPASSION, SOCIAL ANXIETY,
AND POST-EVENT PROCESSING

by

Rebecca A. Blackie

Bachelor of Arts (Honours), Cape Breton University, 2011

Master of Arts, Wilfrid Laurier University, 2013

DISSERTATION

Submitted to the Department of Psychology

in partial fulfillment of the requirements for

Doctor of Philosophy in Psychology

Wilfrid Laurier University

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DECLARATION OF CO-AUTHORSHIP/PREVIOUS PUBLICATION

At the time of submitting this dissertation, the first manuscript has been accepted for publication in *Psychological Reports* and the second manuscript has been accepted for publication in *Mindfulness*. The third manuscript has been submitted to a peer-reviewed journal and is under review. Dr. Nancy L. Kocovski serves as a co-author on all three manuscripts.

ABSTRACT

Post-event processing (PEP) refers to a negative and prolonged rumination following anxiety-inducing social situations and is posited to maintain social anxiety. Because PEP is characterized by thoughts that are judgmental, recurring, and preoccupying, those who engage in PEP appear to lack self-compassion. Self-compassion can be conceptualized as a supportive and open attitude toward negative experiences, with the recognition that these experiences are universal. The purpose of the present research was to examine self-compassion in the context of PEP. In the first manuscript, we found support across two, separate samples ($N = 156$ undergraduates; $N = 150$ individuals from the community seeking self-help for social anxiety and shyness) for the negative relationship between self-compassion and PEP. In the second manuscript ($N = 98$ socially anxious undergraduates), we found that those assigned to a self-compassion condition following a speech experienced less PEP one day later, compared to those in both the negative rumination and writing control conditions. In the third manuscript ($N = 66$ undergraduates), we found that negative, compared to positive, speech feedback heightened PEP when dispositional self-compassion was low, but not when it was high. Taken together, these findings suggest that self-compassion is relevant to PEP, can be induced as a means of limiting PEP, and continues to buffer against PEP amongst those high on the trait, even after receiving negative performance feedback. Given these findings, clinicians may consider self-compassion as part of treatment protocols for social anxiety and PEP.

DEDICATION

This dissertation is dedicated to my parents. Without the constant support from my mother, Diane Toomey, and my father, James Blackie, this dissertation would not have been possible. Thank you for all your love, kindness, and encouragement along the way.

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I would like to extend my deepest gratitude to my advisor, Dr. Nancy Kocovski. It has been a pleasure getting to know you and working with you these past number of years. During this time, you continually encouraged me to move toward my goals in a patient, understanding, and compassionate manner. Thank you for being both a teacher and a mentor.

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FORMAT AND STATEMENT OF ORIGINALITY

This dissertation follows the multiple manuscript format, in which each manuscript is intended to stand on its own. This dissertation includes a general introduction, three manuscripts, and a general discussion. Given this format style, there are some redundancies in the literature review for each manuscript. The content contained in this dissertation is my own original work, except where reference has been made.

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CHAPTER 1

GENERAL INTRODUCTION

**MOVING FORWARD WITH SELF-COMPASSION:
AN EXAMINATION OF SELF-COMPASSION, SOCIAL ANXIETY,
AND POST-EVENT PROCESSING**

According to the American Psychiatric Association (2013), social anxiety disorder can be conceptualized as an overwhelming fear of one or more types of social situations involving the potential of being negatively evaluated by others. It is further postulated that the distress typically stems from fear of displaying anxious symptoms or appearing in an unfavourable or embarrassing manner. The fear is irrational or excessive, interfering with normal functioning (American Psychiatric Association, 2013). Although social anxiety disorder represents a clinical diagnosis, research supports the view that social anxiety exists on a continuum, with an increased severity of impairment associated with an increased number of social fears (Stein, Torgrud, & Walker, 2000).

Post-Event Processing

As posited in cognitive models (Clark, 2001; Clark & Wells, 1995; Rapee & Heimberg, 1997), social anxiety may persist, in part, due to post-event processing (PEP). PEP can be conceptualized as a type of repetitive negative thinking following anxiety-inducing social situations, with thoughts that are typically persistent, interfering, and judgmental (Blackie & Kocovski, 2017a). According to Clark and Wells (1995), PEP occurs when an individual conducts a detailed review of how they believe a past social anxiety-inducing event unfolded. The event is reviewed in detail and is guided by negative thoughts and feelings and anxious symptoms that were most salient during the situation. Because of this focus on negative thoughts and feelings, ambiguous social information (e.g., audience members who remain neutral or display few non-verbal cues) may be re-interpreted in a more negative manner. For instance, socially anxious individuals may come to believe the ambiguous social information represents tangible evidence of one's own failure. Clark and Wells (1995) also postulate that engaging in

PEP about recent social scenarios elicits memories of other perceived social inadequacies, consequently confirming negative self-assumptions surrounding social situations. Across a number of studies, research has shown that PEP is positively associated with social anxiety and that PEP is higher amongst those with heightened social anxiety and those with social anxiety disorder than those with lower social anxiety and healthy controls (for a review, see Brozovich & Heimberg, 2008).

Post-Event Processing in Social Anxiety

Given the negative characteristics involved in PEP, it may perpetuate social anxiety over time. For instance, research has shown that PEP is predictive of increased anxiety surrounding upcoming social situations (Blackie & Kocovski, 2016), particularly when PEP involves negative mental imagery (Brozovich & Heimberg, 2013). Higher PEP immediately after a conversation with a confederate was associated with less positive predictions of one's own performance for a second task, one week later (Dannahy & Stopa, 2007). Additionally, when socially anxious individuals were assigned to engage in PEP involving negative mental imagery, it led them to interpret ambiguous social situations in a more threatening or anxiety-provoking manner, compared to those assigned to a control condition (Brozovich & Heimberg, 2013). Furthermore, engaging in PEP following a speech performance led to the maintenance of state anxiety and unconditional negative beliefs about oneself in social situations (e.g., "I'm always socially awkward"), compared to being distracted from PEP (Wong & Moulds, 2009).

The role of PEP in maintaining social anxiety over time has been supported in clinical trials. Price and Anderson (2011) examined the role of PEP on change in socially anxious symptoms during the course of an eight-week treatment for individuals with

social anxiety disorder. Participants were randomly assigned to one of two cognitive behavioural therapy conditions: individual-based therapy with virtual reality exposure or group-based therapy with group members as exposure. They found that higher PEP over the course of treatment was associated with slower reductions in socially anxious symptoms, irrespective of treatment condition. McEvoy, Mahoney, Perini, and Kingsep (2009) found a positive association between changes in socially anxious symptoms and PEP following a seven-week treatment of cognitive behavioural therapy for individuals with social anxiety disorder.

Other forms of rumination have also shown associations with social anxiety. As previously mentioned, PEP can be thought of as a type of repetitive negative thinking following social situations. Repetitive negative thinking refers to the process of focusing on past, current, and anticipated self-referent, negative experiences (Ehring et al., 2011; McEvoy, Mahoney, & Moulds, 2010). Repetitive negative thinking is a transdiagnostic process, occurring across a variety of mental disorders, and may take the form of anxious worry, depressive rumination, stress-reactive rumination following traumatic events, among several others (see Watkins, 2008). Although the different forms of repetitive negative thinking share similar features with one another, the conceptualizations vary from one construct to another. In past research, Kocovski, Fleming, and Rector (2009) examined whether changes in the general tendency to ruminate were associated with changes in social anxiety following mindfulness and acceptance-based group therapy for individuals with social anxiety disorder. Although change in social anxiety from mid-treatment to post-treatment was not predicted by change in rumination from pre-treatment to mid-treatment, overall changes in rumination were positively associated with overall

changes in social anxiety. There has been mixed evidence, however, for other forms of rumination, namely depressive rumination, predicting or mediating the effect of treatment of socially anxious symptoms (e.g., Brozovich et al., 2015; Goldin et al., 2016).

Interventions for Post-Event Processing

Taken together, the aforementioned findings illustrate the importance of PEP in social anxiety, and it is therefore necessary to examine effective means of limiting this post-mortem analysis. For instance, research has shown that cognitive behavioural therapy (Abbott & Rapee, 2004; Hedman et al., 2013; McEvoy, Mahoney, Perini, & Kingsep, 2009; Price & Andersen, 2011; Spence, Donovan, March, Kenardy, & Hearn, 2017) and mindfulness-based therapies (Goldin et al., 2016; Kocovski, Fleming, Hawley, Huta, & Antony, 2013) aimed at reducing social anxiety were effective in reducing PEP and other forms of rumination.

There has also been support for strategies specifically aimed at reducing PEP. In past research, a brief distraction period following a speech task led to less PEP (Blackie & Kocovski, 2016) and more positive affect during the post-event period (Kocovski, MacKenzie, & Rector, 2011), although other research has shown that distraction actually led to increased levels of PEP (Rowa, Antony, Swinson, & McCabe, 2014). However, this dissimilar finding may be understandable, given that Rowa, et al. (2014) distracted participants for a shorter interval of time and employed a different type of distraction than Blackie and Kocovski (2016) and Kocovski et al. (2011). Whereas Blackie and Kocovski and Kocovski et al. had participants solve anagrams for a period of 10 minutes, Rowa et al. had participants listen to a three-minute audio recording and report when they heard certain noises. Additionally, participants in the distraction condition in Rowa and

colleagues' study (Rowa et al., 2014) were higher on baseline social anxiety, which they suggest may have contributed to their unexpected finding. In other research, Cassin and Rector (2011) found that mindfulness, compared to distraction and control, led to more positive affect and decreases in distress following a PEP induction. Additionally, Shikatani, Antony, Kuo, and Cassin (2014) examined PEP following a speech task and found that participants assigned to the cognitive restructuring condition (i.e., challenged negative thoughts surrounding their speech) and mindfulness condition experienced less PEP than those assigned to the control condition. Furthermore, PEP did not significantly differ between the two experimental conditions in that study.

An alternative strategy for reducing PEP may be through self-compassion. Given that PEP is characterized by thoughts that are repetitive, preoccupying, and judgmental, those who engage in PEP seem to lack self-compassion following anxiety-provoking social situations. However, those who treat themselves compassionately may feel less need to dwell on past social situations they believe went poorly. Self-compassion may also represent a useful alternative to interventions that are unappealing to or ineffective for certain individuals. As such, it may be beneficial to examine self-compassion in relation to PEP.

Self-Compassion

Self-compassion refers to an acknowledgement of painful experiences, a recognition that many others experience similar circumstances, and a willingness to lessen these painful experiences through self-kindness (Neff, 2003a). According to Neff (2003a), self-compassion consists of three bipolar elements: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identified.

The first aspect of self-compassion is self-kindness. Self-kindness refers to a warm and understanding attitude toward oneself during difficult times. It involves being patient with oneself when faced with failure or inadequacy, such as not living up to one's own standards and expectations in social situations. Self-kindness contrasts with self-judgment, which refers to treating oneself in a harsh or scornful manner. Being kind and supportive to oneself may allow one to move forward, rather than being crippled or immobilized by one's own thoughts.

Self-compassion also entails common humanity, which involves the ability to recognize that painful experiences are a common aspect of the human experience. In contrast, isolation involves underestimating the extent to which others experience similar, negative experiences. Rather than perceiving negative events as isolated to oneself, such experiences are recognized as occurring across all humanity. Feeling alone in failures and negative experiences may perpetuate negative thoughts and feelings about oneself in social situations. However, when one recognizes that others face similar experiences, it may help one realize that failure and imperfection are universal.

The final aspect of self-compassion is mindfulness. This refers to an acknowledgment of and openness to negative thoughts and experiences, and is contrasted with being over-identified, which refers to dwelling on and over-emphasizing negative experiences. When one is over-identified with negative thoughts and experiences, one may increasingly shift one's focus to the negative experience, potentially leading one to become consumed by it. Being overidentified with negative thoughts and experiences may use up cognitive resources, limiting awareness of possible disconfirming evidence.

For instance, being over-identified with perceived negative aspects of past social situations may limit one's ability to remember social situations that went well.

Mindfulness in the context of self-compassion differs from general mindfulness. General mindfulness refers to a disposition to engage in purposeful and non-judgmental awareness of the present moment (Kabat-Zinn, 2003). It involves an awareness of thoughts, feelings, and emotions as they arise within consciousness (Brown & Ryan, 2003). Whereas self-compassionate mindfulness refers to maintaining balanced awareness in the context of failure and inadequacy, general mindfulness refers to an attentive awareness of all experiences (Neff & Dahm, 2015). As such, it is possible to engage in general mindfulness without engaging in self-compassionate mindfulness. As mentioned by Neff and Dahm (2015), an individual can be mindful while eating a raisin by noticing its taste, shape, texture, size, etc. However, self-compassionate mindfulness would not be possible in this context.

It is important to note that the qualities of self-compassion do not promote complacency (Neff, Hsieh, & Dejitterat, 2005). Self-compassion involves accepting ourselves for who we are in the present moment, while also recognizing our potential for growth and improvement. Neff, Hsieh, and Dejitterat (2005) examined self-compassion in relation to other coping strategies amongst students who wrote an exam and perceived their grade as a failure. They found that self-compassion was positively associated with acceptance and reinterpretation and growth (e.g., learning and growing from a negative situation) and negatively associated with focusing on negative emotions, denial, and disengagement. Neff et al. suggest that this motivation for improving does not result from self-disapproval or the desire to heighten one's self-image. Indeed, self-compassion is

negatively related to self-handicapping (Petersen, 2014) and positively related to intrinsic motivation and mastery goals in academic settings (Neff, Hsieh, & Dejitterat, 2005).

Measuring Self-Compassion

Self-compassion can be measured using the *Self-Compassion Scale* (Neff, 2003b), which includes the possibility of using total self-compassion scores or subscale scores representing the bipolar qualities reviewed above. The factor structure of the self-compassion scale was first examined in a scale development paper consisting of two studies (Neff, 2003b). An exploratory factor analysis was conducted in the first study, and, using a separate sample, two confirmatory factor analyses were examined in the second study. Based on the findings from the exploratory factor analysis, six factors emerged, with factor loadings ranging from .57 to .80. The factor inter-correlations ranged in absolute values from $r = .46$ to $r = .91$, with strongly negative factor correlations between self-kindness and self-judgment ($r = -.81$) and mindfulness and over-identified ($r = -.77$), and moderately negative between common humanity and isolation ($r = -.50$). Based on the findings from the confirmatory factor analyses, both the correlated six-factor model and the hierarchical model (six-factor model with a single, higher-order factor representing total self-compassion) provided a good fit to the data.

There has been some debate in the literature as to whether or not sub-scale scores, total-scale scores, or both may be used when measuring self-compassion. For instance, Muris (2016) suggested that when using the *Self-Compassion Scale* (Neff, 2003b), the negatively worded items representing self-judgment, isolation, and over-identified with negative thoughts (items that are reverse scored before computing a total score) should be excluded from total self-compassion scores. There have also been mixed findings with

respect to the factor structure of the scale. For instance, there has been support for a unidimensional model, a six-factor model, and a hierarchical factor model. However, the majority of these studies were based on validating translations of the scale (Neff, 2016). In an English-speaking sample, Williams et al. (2014) examined the fit of unidimensional, six-factor, and hierarchical factor models for the scale. They found that a six-factor solution provided the best fit to the data.

In response to the aforementioned findings, Neff and colleagues (Neff, Whittaker, & Carl, 2017) examined the factor structure of the *Self-Compassion Scale* (Neff, 2003b) across a series of studies. Several competing models were examined using confirmatory factor analyses: a unidimensional model, a correlated two-factor model (positively-worded items on one factor and negatively-worded items on a second factor), a correlated six-factor model, a hierarchical factor model (each item loading on its intended self-compassion factor, and each of the six factors loading on a higher-order factor representing total self-compassion), and a bifactor model (each item loading on its intended self-compassion factor, as well as a general factor representing total self-compassion). The models were assessed across four, separate samples: undergraduate, community, meditator, and clinical (major depressive disorder). Based on the findings, the unidimensional, two-factor, and hierarchical factor models showed a relatively poor fit to the data. The six-factor model displayed good fit across all samples and bifactor model displayed good fit across the undergraduate, community, and meditator samples, but not the clinical sample. Across the four samples, the six-factor model had factor inter-correlations ranging in absolute value from .44 to .97, with strongly negative correlations between self-kindness and self-judgment ($r = -.56$ to $-.82$), common humanity and

isolation ($r = -.46$ to $-.54$), and mindfulness and over-identified ($r = -.57$ to $-.78$) factors. Taken together, these findings suggest that both sub-scale and total scale scores may be used across various samples when measuring self-compassion.

Post-Event Processing and Self-Compassion

Given the features of self-compassion, it may be relevant to PEP. More specifically, those who are aware of and open to difficult past social situations, recognize them as universally occurring, and treat themselves supportively may feel less need to passively dwell on these events. Past research has shown that self-compassion is negatively related to other forms of repetitive negative thinking. For instance, self-compassion is negatively associated with general rumination (dwelling on various thoughts, experiences, and concerns; Neff & Vonk, 2009), as well as depressive rumination (dwelling on the symptoms, causes, and consequences of depression; Raes, 2010). Additionally, research has shown that higher trait self-compassion predicted greater expectations of remaining calm after participants imagined themselves in an embarrassing social situation (Leary, Tate, Adams, Allen, & Hancock, 2007, study 2). Given these findings, we expected that self-compassion would be relevant to PEP.

Experimental investigations have found that inducing self-compassion is effective in reducing negative processes associated with PEP, namely anticipatory and state anxiety. For instance, among those high in social anxiety, those assigned to a self-compassion writing condition experienced less state anxiety in anticipation of delivering a speech compared to those assigned to a writing control condition (Harwood & Kocovski, 2017). Additionally, self-compassion training amongst women, in the form of a 10-minute exercise over four consecutive days, was effective in reducing subjective and

physiological responses to stress during a speech compared to those assigned to both a no-intervention control condition and a placebo control condition, involving instructions for effective problem solving, judging, and thinking (Arch et al., 2014). Furthermore, following a negative mood induction in which participants were encouraged to engage in depressive rumination, those assigned to a self-compassion writing condition experienced more positive affect than those assigned to a distraction condition (Oudou & Brinker, 2015). Based on these findings, we expected that a self-compassion induction would be effective in reducing PEP.

Because PEP may become more intense under various circumstances, it is important to examine how resilient self-compassion is in protecting against it. In past research, Zou and Abbott (2012) had participants deliver a speech performance and then examined the effect of feedback on PEP. Amongst anxious individuals, those who received moderate or more negative speech feedback scores engaged in greater PEP than those who received positive feedback scores. However, self-compassion may buffer against the effect of feedback on PEP. Leary et al. (2007, study 3) had participants engage in a performance-type of situation in which they delivered a three-minute video-recorded introduction, and were then randomly assigned to receive either positive or moderate feedback scores. The positive feedback condition consisted of an average rating of 6 out of 7 across several characteristics, whereas the moderate feedback condition consisted of an average rating of 4 out of 7. In other words, those in the moderate feedback condition received less favourable scores than those in the positive feedback condition. Nonetheless, amongst those in the moderate score condition, higher levels of self-compassion were associated with lower levels of negative affect. Given this finding,

self-compassion may protect against PEP even when receiving unfavourable performance feedback following an anxiety-inducing social event.

Overview of Research Studies

In the first manuscript (Blackie & Kocovski, 2017b), we conducted two studies to examine the relevance of self-compassion, and the self-compassion subscales, to post-event processing. These relationships were examined using two different samples, namely an unselected undergraduate student sample and a sample of individuals seeking self-help for social anxiety and shyness. This study provided the initial information necessary to understand the relationship between self-compassion and PEP, demonstrating that PEP is not only related to the negative self-compassion subscales (over-identified, isolation, and self-judgment), but is also negatively related to the positive self-compassion subscales (mindfulness, common humanity, and self-kindness).

In manuscript 2 (Blackie & Kocovski, 2017c), we induced state self-compassion following a speech and examined its effect on post-event processing, as well as individuals' willingness to engage in hypothetical, future-oriented social situations. We also examined a possible mechanism through which self-compassion exerted its effect on post-event processing, namely self-perceptions of performance. The findings from this study illustrate that self-compassion may be a feasible option for limiting post-event processing.

In the third manuscript (Blackie & Kocovski, 2017d), we examined the circumstances under which self-compassion buffered against PEP. We examined whether performance feedback (positive versus negative), provided in the form of speech scores, interacted with trait self-compassion in predicting post-event processing. This study

allowed us to understand whether performance feedback served as a boundary condition for the influence of trait self-compassion on PEP, or whether heightened trait self-compassion protects against PEP following negative performance feedback.

CHAPTER 2

MANUSCRIPT 1

**EXAMINING THE RELATIONSHIPS AMONG SELF-COMPASSION,
SOCIAL ANXIETY, AND POST-EVENT PROCESSING**

Abstract

Post-event processing refers to negative and repetitive thinking following anxiety provoking social situations. Those who engage in post-event processing may lack self-compassion in relation to social situations. As such, the primary aim of this research was to evaluate whether those high in self-compassion are less likely to engage in post-event processing and the specific self-compassion domains that may be most protective. In study 1 ($N = 156$ undergraduate students) and study 2 ($N = 150$ individuals seeking help for social anxiety and shyness), participants completed a battery of questionnaires, recalled a social situation, and then rated state post-event processing. Self-compassion negatively correlated with post-event processing, with some differences depending on situation type. Even after controlling for self-esteem, self-compassion remained significantly correlated with state post-event processing. Given these findings, self-compassion may serve as a buffer against post-event processing. Future studies should experimentally examine whether increasing self-compassion leads to reduced post-event processing.

Introduction

Social anxiety is manifested by an overwhelming fear of social situations, whereby the possibility of negative evaluation from others may occur. According to cognitive models (e.g., Clark & Wells, 1995), social anxiety may be maintained by several factors, including post-event processing (PEP). PEP refers to a type of rumination in which socially anxious individuals conduct a detailed and negative review following anxiety-provoking social situations. PEP is associated with various negative characteristics, including upward counterfactual thought (Kocovski, Endler, Rector, & Flett, 2005), interference with concentration (Rachman, Gruter-Andrew, & Shafran, 2000), negative self-perceptions (Makkar & Grisham, 2011), negative affect (Kashdan & Roberts, 2007), negative performance appraisals (Holzman & Valentiner, 2016), and anxiety for future social situations (Blackie & Kocovski, 2016). Those who engage in PEP tend to be very critical of themselves and seem to lack self-compassion in relation to social situations. As such, the primary purpose of the present study was to examine the relationship between self-compassion and PEP.

Self-compassion can be conceptualized as openness to and acceptance of one's own pain, the desire to ease one's pain with kindness, and an understanding that one's failures and shortcomings are a common characteristic of the human experience (Neff, 2003a). According to Neff (2003a), self-compassion consists of three bipolar qualities: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus overidentification. Self-kindness versus self-judgment refers to a kind and understanding attitude toward oneself in instances of pain or failure, rather than being judgmental and critical. Common humanity versus isolation refers to perceiving one's

negative experiences as part of the human condition, rather than experiences isolated to oneself. Mindfulness versus overidentification refers to being aware of one's own pain and suffering, but without dwelling on it. As mentioned by Neff and Dahm (2015), it is important to note that self-compassion does not involve disregarding or dismissing negative thoughts or experiences. Rather, it involves being aware of such experiences without becoming consumed by them, and doing so with kindness and recognition of common humanity.

Given the core qualities of self-compassion, it may be relevant to social anxiety and PEP. Those who treat themselves kindly, recognize that social inadequacies are shared by others, and maintain a balanced perspective of difficult social situations may be less anxious about portraying themselves in an embarrassing or unfavorable manner. Similarly, those who treat themselves this way may engage in less repetitive, negative thinking about social situations they believed went poorly. Werner et al. (2012) found that individuals with social anxiety disorder (SAD) reported significantly less self-compassion than healthy controls, exhibiting greater self-judgment, isolation, and overidentification and less self-kindness, common humanity, and mindfulness. Within the SAD group, one of the two social anxiety measures correlated with self-judgment and isolation, but neither measure correlated with the positively worded subscales or with total self-compassion, possibly due to a restricted range in social anxiety. However, self-compassion negatively correlated with core cognitive aspects of SAD, namely fear of negative evaluation and fear of positive evaluation. Despite the mixed findings reported by Werner and colleagues, self-compassion has been linked to social anxiety in other studies. Potter, Yar, Francis, and Schuster (2014) found that self-compassion negatively

correlated with social anxiety and also mediated the relationship between parental criticism and offspring social anxiety. Furthermore, there has been support for the utility of inducing self-compassion on socially anxious symptoms. Women who underwent a 10-minute daily self-compassion meditation over a period of four days experienced significantly reduced physiological and subjective distress responses during a social evaluative speech task than those in the control conditions (Arch et al., 2014). In addition, Harwood and Kocovski (2017) found that socially anxious students who were instructed to write self-compassionately reported lower levels of anticipatory anxiety compared to those in a control writing condition.

Given that social anxiety may be maintained by cognitive processes, including PEP, it is important to examine self-compassion in this context. To our knowledge, no research to date has examined the relationship between self-compassion and PEP. However, self-compassion has been examined in relation to other forms of repetitive negative thinking, including trait rumination, the general tendency to dwell over things (Neff & Vonk, 2009), as well as depressive rumination/brooding (Raes, 2010). Furthermore, Leary, Tate, Adams, Allen, and Hancock (2007, study 2) found that following an imagined embarrassing social event, those with higher trait self-compassion predicted behaving more calmly than those with lower trait self-compassion. Leary and colleagues also manipulated self-compassion (study 5), and found that those assigned to a self-compassion condition reported significantly less negative affect after recalling a negative event involving failure or embarrassment, compared to those in the self-esteem and control conditions. Given these findings, self-compassion may be relevant to PEP.

When examining PEP, a potentially important factor to consider may be the type of situation that elicited it. In most studies, PEP is higher following performance situations than social interactions (Beazley, Glass, Chambless, & Arknoff, 2001; Kiko et al., 2012; Kocovski & Rector, 2007), although one study found opposite results (Fehm, Schneider, & Hoyer, 2007). Given that performance situations may evoke more PEP, self-compassion may be more relevant in these types of events than in interactions. The degree of PEP experienced for a third type of social situation, being observed in public (e.g., walking down a busy street, eating in front of others), has not yet been examined, but it likely evokes comparatively less PEP. Self-compassion likely serves as a protective factor for situations that elicit higher levels of PEP, but is likely less relevant for situations that result in low levels of PEP. Self-compassion will not serve as a protective factor if there is not anything to protect against. However, when situations evoke stronger PEP for most individuals, being high on self-compassion may be a protective factor, whereas being low on self-compassion may be detrimental.

Potential moderators of the relationship between self-compassion and PEP may also be important to consider. Kiko et al. (2012) found that situational anxiety was one of the best predictors of PEP, regardless of the type of social situation. In addition, other research has shown that the level of importance placed on the event was positively associated with event-level stress (Nezlek, Holas, Rusanowska, & Kretjz, 2016). Therefore, these factors may play an important role. Seemingly, events that are trivial and evoke only mild anxiety likely produce low levels of PEP, regardless of dispositional levels of self-compassion. Individuals would likely not dwell on situations that are not meaningful or not difficult (evoke little anxiety). In other words, the relationship between

self-compassion and PEP may be reduced for situations that are unimportant and evoke little anxiety, as there likely is not enough variability in PEP. However, when events are important and anxiety provoking, individuals may be able to keep their thoughts about the event in perspective and have low levels of PEP when high in self-compassion, but not when low on self-compassion.

Study 1

Given the potential benefit of self-compassion on socially anxious symptoms, as well as its association with rumination and affect, the primary aim of Study 1 was to examine the relationship between self-compassion and trait and state PEP. Trait PEP refers to the general tendency to engage in PEP following social situations, whereas state PEP refers to PEP following a specific social situation (Blackie & Kocovski, 2017a).

As a first step, to build on the work of Werner et al. (2012) and Potter et al. (2014), we also sought to examine the relationship between social anxiety and self-compassion. In our nonclinical student sample, we hypothesized that social anxiety and trait and state PEP would negatively correlate with total self-compassion, as well as the self-kindness, common humanity, and mindfulness subscales, and positively correlate with the self-judgment, isolation, and over-identified subscales. Given that performance situations may elicit higher PEP, it was expected that self-compassion and its subdomains would be more strongly related to state PEP in performance situations than in interactions or being observed in public. Finally, it was hypothesized that state anxiety and situation importance would moderate the relationship between self-compassion and state PEP. Specifically, self-compassion and state PEP would be negatively related to one another

when situations are anxiety provoking and important, but not when situations evoke mild anxiety and are trivial.

Method

Participants

A sample of 161 undergraduate university students completed this study for course credit. Participants were recruited online through the university's psychology participation pool. Five outliers (≥ 3 standard deviations from the mean) were removed (1.86%). The remaining 156 participants ranged in age from 17 to 29 years ($M = 19.66$, $SD = 2.13$), with the majority identifying as female (76.28%) and unmarried (93.59%). Participants identified themselves as White (75.00%), Asian (16.67%), African Canadian (2.56%), Middle Eastern (2.56%), and other (3.21%). The demographic questionnaire can be found in Appendix A.

Measures

Social Interaction Anxiety Scale (Appendix B). This 20-item scale assesses the extent to which individuals experience anxiety while interacting or socializing with others. Items are rated on a scale ranging from 0 to 4, with total scale scores ranging from 0 to 80. Higher scores are indicative of higher social anxiety. The social interaction anxiety scale (SIAS) has very good psychometric properties (e.g., convergent, discriminant/ divergent validity) and differentiates clinical samples of individuals with SAD from nonclinical samples (Mattick & Clarke, 1998). The internal consistency and test-retest reliability have been excellent in past research (Mattick & Clarke, 1998). The internal consistency in the present study was also excellent (see Table 1).

Table 1

Study 1 and Study 2 Descriptive Statistics

Construct/Measure	Study 1 (<i>N</i> = 156)			Study 2 (<i>N</i> = 150)		
	M	SD	α	M	SD	α
Social Interaction Anxiety (SIAS)	27.83	13.79	.93	/	/	/
Social Phobia Inventory (SPIN)	/	/	/	44.41	14.92	.93
Single Item Self-Esteem scale (SISE)	/	/	/	2.93	1.58	n/a
Self-Compassion Scale (SCS)						
Total SCS	75.89	15.19	.92	67.73	13.00	.89
Self-kindness	14.58	3.83	.82	12.99	3.76	.80
Self-judgment	16.12	4.20	.85	18.67	3.36	.77
Common humanity	12.40	3.26	.79	10.69	3.15	.80
Isolation	12.42	3.14	.76	15.08	2.99	.68
Mindfulness	12.42	2.89	.75	11.14	2.87	.77
Over-identified	12.97	3.32	.78	15.47	2.67	.64
Post-Event Processing Inventory (PEPI)						
Total PEPI-Trait	34.29	9.45	.93	46.29	9.45	.93
Intensity	12.56	4.73	.92	18.83	4.45	.89
Frequency	12.55	3.19	.82	15.34	3.53	.81
Self-judgment	9.17	2.79	.82	12.12	2.39	.85
Total PEPI-State	33.39	10.10	.93	44.03	11.38	.94
intensity	12.45	4.88	.92	18.05	5.04	.91
frequency	11.78	3.62	.83	14.43	4.18	.90
self-judgment	9.18	2.89	.81	11.55	3.02	.86

Note. Data for state post-event processing in Study 1 (*n* = 133) and Study 2 (*n* = 133)

reflect the number of participants who reported on social-evaluative situations.

Post-Event Processing Inventory (Appendix C). The post-event processing inventory (PEPI) contains trait (PEPI-T) and state (PEPI-S) forms, with each form consisting of 12 items, represented by three factors (frequency, intensity, and self-judgment). On each version of the scale, these three factors are represented by the global domain of PEP, thereby supporting the use of subscale scores or total PEP scores. Items on the PEPI are rated on a five-point scale, and higher subscale and total scale scores represent higher trait or state PEP. Both forms of the PEPI have very good psychometric properties (e.g., convergent, discriminant/divergent, incremental, predictive validity) and the PEPI-T had very good test-retest reliability (Blackie & Kocovski, 2017a). The composite reliability of the PEPI-T and PEPI-S was excellent in past research (Blackie & Kocovski, 2017a). Reliability for the subscale scores and total scores on the PEPI-T and PEPI-S ranged from very good to excellent in the present study (see Table 1).

Self-Compassion Scale (Appendix D). This 26-item questionnaire assesses three bipolar dimensions of self-compassion: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus overidentification. Subscale scores and total scale scores may be used (Neff, Whittaker, & Karl, 2017). In past research (Neff, 2003b), the self-compassion scale (SCS) displayed very good psychometric properties (convergent validity, discriminant/divergent validity, test-retest reliability). Internal consistency of the total SCS and subscales ranged from good to excellent in past research (e.g., Neff, 2003b), as well as in the present study (see Table 1).

Questionnaire on Recalled Situation. After recalling a recent social situation (Appendix E), participants indicated the extent to which (a) they were able to remember the situation, (b) they were able to remember the thoughts they had following the

situation, (c) they experienced state anxiety during the situation, and (d) the situation was important to them (Appendix F). Items were assessed on a five-point scale ranging from 1 (not at all) to 5 (extremely).

Procedure

After obtaining informed consent for this online study, participants completed a demographics questionnaire and measures of social anxiety (SIAS), trait PEP (PEPI-T), and self-compassion (SCS). They then recalled and described an anxiety-provoking social situation that occurred within the last two weeks. For this task, participants could recall any type of social evaluative situation. Participants were instructed to briefly describe the situation in a sentence or two, and were also instructed to indicate where they were and who they were with when the event took place. Participants were given as much time as they required to complete this task. They then completed the questionnaire on the recalled situation and completed the PEPI-S as an assessment of the extent to which they engaged in state PEP about the situation.

The first author of the present research categorized the recalled situations into performances, interactions, or being observed by others. The author was blind to all other information (e.g., scores on self-compassion, social anxiety, PEP, etc.) while categorizing the situation types. A coding scheme was created to categorize the situation types. Performances were classified as situations in which an individual carried out or accomplished a goal-oriented task in front of others (e.g., presentation, public speech, music recital, etc.). Interactions were classified as situations that involved a reciprocal dialogue between two or more individuals (e.g., meeting new people at a party, going on a date, etc.). Situations that involved being observed by others were those in which the

individual believed they were on display or within the public eye, but were not engaged in a goal-oriented task (e.g., walking through a crowded mall, standing in an elevator with strangers, eating in a large cafeteria, etc.). Nonevaluative social situations were those that lacked the potential of being negatively evaluated by others in social settings (e.g., taking the wrong bus, getting lost in a new city, etc.). A second rater (undergraduate student) categorized a random 25% of the situations. This rater was also blind to all other information. There was 100% agreement between the raters.

Results and Discussion

All data were screened for univariate outliers. Unexpectedly, five participants indicated they were not at all able to remember the recalled situation. These five participants were classified as outliers on this item, and as previously mentioned, were removed from the dataset. Table 1 provides descriptive statistics and internal consistencies for all measures.

Social anxiety and trait PEP

As hypothesized, total self-compassion scores were negatively correlated with social anxiety and trait PEP (see Table 2). In addition, both social anxiety and trait PEP positively correlated with self-judgment, isolation, and overidentification, and negatively correlated with self-kindness and mindfulness, but not common humanity.

State PEP

Participants were asked to recall an anxiety-provoking social situation that occurred within the last two weeks and report their current levels of state PEP. However, 17 individuals listed situations that were not social evaluative (e.g., losing a wallet), three

Table 2

Study 1 and Study 2 Correlations for Self-Compassion, Social Anxiety, and Trait Post-Event Processing

Construct/Measure	Self-Compassion Scale (SCS)						Total SCS
	Self-kindness	Self-judgment	Common humanity	Isolation	Mindfulness	Over-identified	
Study 1							
<i>Bivariate Correlations</i>							
Social Anxiety	-.27***	.38***	-.02	.43***	-.17*	.35***	-.36***
Trait PEP	-.26**	.53***	.02	.53***	-.16*	.60***	-.48***
Study 2							
<i>Bivariate Correlations</i>							
Social Anxiety	-.26**	.33***	-.27***	.40***	-.30***	.40***	-.43***
Trait PEP	-.36***	.34***	-.20*	.33***	-.25***	.38***	-.43***
<i>Partial Correlations: Controlling Self-Esteem</i>							
Social Anxiety	-.02	.11	-.09	.29***	-.10	.31***	-.21*
Trait PEP	-.19*	.30***	-.04	.22***	-.09	.30***	-.27***

Note. Social Anxiety assessed using Social Interaction Anxiety Scale in Study 1 and the Social Phobia Inventory in Study 2. Trait PEP

assessed using the Post-Event Processing Inventory - Trait. Self-esteem assessed using the Single-Item Self-Esteem scale.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

listed future-oriented situations (that had not yet occurred), and three did not list any situation. These 23 individuals were thus excluded from analyses pertaining to state PEP.

On average, the extent to which participants could remember the recalled situation was fairly high ($M = 4.08$, $SD = 0.95$), with 93.23% indicating a response of moderately to extremely well. Participants experienced moderate state anxiety during the event ($M = 3.35$, $SD = 1.04$) and reported on situations that were moderately important ($M = 3.24$, $SD = 1.24$). Without accounting for situation type, state PEP negatively correlated with total self-compassion, and the self-kindness and mindfulness subscales, and positively correlated with the self-judgment, isolation, and overidentification subscales. Unexpectedly, however, common humanity and state PEP were not significantly correlated (see Table 3).

Situation type

Participants listed situations that could be largely classified as performance ($n = 49$) or social interaction ($n = 79$) events. Only five individuals listed situations that involved being observed in public, and they were therefore not analyzed separately.

Independent samples t tests were used to compare the performance and interaction groups on a number of variables related to the recalled situation. Those who recalled an interaction versus a performance did not significantly differ on their ability to remember the situation, total PEP, or the PEP factors (all $ps > .08$). However, those who recalled a performance ($M = 3.65$, $SD = 1.21$; $M = 3.58$, $SD = 1.15$) placed more importance on the event ($t(126) = 2.68$, $p = .01$; partial $\eta^2 = .05$) and experienced marginally greater anxiety during the situation ($t(126) = 1.96$, $p = .052$; partial $\eta^2 = .03$) than those who recalled an interaction ($M = 3.05$, $SD = 1.22$; $M = 3.21$, $SD = 0.98$), respectively.

Table 3

Study 1 and Study 2 Correlations between Self-Compassion and State Post-Event Processing

State PEP (PEPI-S)	Self-Compassion Scale (SCS)						Total SCS
	Self-kindness	Self-judgment	Common humanity	Isolation	Mindfulness	Over-identified	
Study 1							
<i>Bivariate Correlations</i>							
All Situations ($n = 133$)	-.21***	.43***	.09	.46***	-.20*	.45***	-.37***
Performance ($n = 49$)	-.39**	.53***	-.03	.45***	-.39*	.50***	-.50***
Interaction ($n = 79$)	-.10	.41***	.11	.53***	-.07	.46***	-.35***
Study 2							
<i>Bivariate Correlations</i>							
All Situations ($n = 133$)	-.31**	.32***	-.30***	.33***	-.29***	.30***	-.42***
Performance ($n = 57$)	-.48***	.37**	-.42*	.39***	-.45***	.31*	-.54***
Interaction ($n = 51$)	-.23	.33*	-.16	.24	-.14	.35**	-.34**
<i>Partial Correlations: Controlling Self-Esteem</i>							
All Situations ($n = 133$)	-.17*	.20*	-.20*	.25***	-.16	.23**	-.30***
Performance ($n = 57$)	-.36**	.21	-.28*	.23	-.30*	.16	-.40***
Interaction ($n = 51$)	-.09	.21	-.09	.18	-.02	.29*	-.21

Note. All situations in Study 1 = performance ($n = 49$), interaction ($n = 79$), and observation ($n = 5$). All situations in Study 2 =

performance ($n = 57$), interaction ($n = 51$), and observation ($n = 25$). Self-esteem (SE) assessed using the Single-Item Self-Esteem

Scale. PEPI-S = Post-Event Processing Inventory – State.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

For both types of situations, state PEP negatively correlated with total self-compassion, and positively correlated with the self-judgment, isolation, and overidentification factors (see Table 3). However, state PEP negatively correlated with self-kindness and mindfulness only for performance situations, and not for interaction situations. Contrary to expectations, common humanity did not significantly correlate with state PEP, regardless of situation type.

Moderators of Self-compassion and State PEP

Separate hierarchical regression analyses were conducted to examine whether state anxiety and situation importance moderated the relationship between state PEP and self-compassion (as well as the self-compassion subscales). The analyses presented below include all participants ($n = 133$) who listed social evaluative situations (social interaction, performance, and observation). All predictor variables were mean-centered prior to entering in the regression.

State Anxiety. For each analysis, social anxiety, self-compassion (or the self-compassion subscale), and state anxiety were added in the first step of the regression, and the interaction term between state anxiety and self-compassion (or the self-compassion subscale) was added in step two. State PEP was the criterion variable in each analysis. Contrary to expectations, none of the analyses were significant (all $ps > .18$).

Situation Importance. Only self-kindness and mindfulness significantly interacted with situation importance; none of the remaining analyses were significant (all $ps > .09$).

Self-kindness subscale. The first step of the regression was significant ($R^2 = .29$, $F(3, 129) = 17.56$, $p < .001$) and included significant main effects of social anxiety ($\beta =$

.40, $p < .001$) and situation importance ($\beta = .28$, $p < .001$), but not self-kindness ($\beta = -.12$, $p = .11$). Step 2 was also significant ($F(4, 128) = 14.86$, $p < .001$) and added increased variance in PEP ($\Delta R^2 = .03$, $\Delta F(1, 128) = 5.09$, $p = .03$). The interaction significantly predicted PEP ($\beta = -.17$, $p = .03$). Using simple slopes for high (+1SD) and low (-1SD) situation importance, self-kindness significantly and negatively predicted PEP when situations were important ($\beta = -.28$, $p = .01$), but not when they were unimportant ($\beta = .05$, $p = .66$).

Mindfulness subscale. Step 1 of the regression was significant ($R^2 = .31$, $F(3, 129) = 18.45$, $p < .001$), and there were main effects of social anxiety ($\beta = .41$, $p < .001$), situation importance ($\beta = .28$, $p < .001$), and mindfulness ($\beta = -.17$, $p = .02$). The second step was also significant ($F(4, 128) = 16.73$, $p < .001$) and added additional variance in PEP ($\Delta R^2 = .04$, $\Delta F(1, 128) = 7.52$, $p = .01$). The interaction term significantly and negatively predicted PEP ($\beta = -.20$, $p = .01$). Simple slopes for high (+1SD) and low (-1SD) importance indicated that mindfulness significantly predicted PEP when situations were important ($\beta = -.36$, $p < .001$), but not when they were trivial ($\beta = .03$, $p = .75$).

Given the aforementioned findings, self-compassion may serve as a protective mechanism against social anxiety and PEP, and self-kindness and mindfulness may be most protective against PEP when situations are important. These findings provide initial information about the relationship between self-compassion and PEP using a sample of unselected undergraduate students. However, it is important to examine these relationships among individuals to whom social anxiety and PEP may be most relevant. In addition, given the relationship between self-compassion and self-esteem (e.g., Neff,

2003b), it is unclear whether the correlations from study 1 would remain significant when holding self-esteem constant.

Study 2

The primary purpose of study 2 was to investigate the relationship between self-compassion and PEP using a community sample of individuals seeking help for social anxiety and shyness. The secondary aim was to examine the association between self-compassion and PEP while statistically controlling for self-esteem. It was expected that the same pattern of correlations would emerge between self-compassion and trait and state PEP (as well as self-compassion and social anxiety) that were hypothesized in study 1. Moreover, we expected these correlations would remain significant even when controlling for self-esteem.

Method

Participants

Individuals interested in receiving self-help for social anxiety and shyness were invited to participate in this study. Participants were recruited via poster and online advertisements. The poster advertisements were displayed throughout the university (e.g., common study areas, Student Wellness Centre, etc.) and more broadly in the city. The online advertisements were posted through classified advertising websites (Kijiji and Craigslist). Upon completion of the study, participants were compensated with a \$24 (CAD) Amazon gift card (or a prorated amount for those who did not complete the full study).

A total of 164 individuals took part in this study. However, nine participants (5.49%) did not complete the relevant trait measures and there were five outliers (3.05%)

in the dataset. Therefore, data from these 14 participants were excluded from the analyses. The remaining 150 participants in this study ranged in age from 17 to 51 years ($M = 23.77$, $SD = 6.58$), with the majority identifying as student (83.11%), female (74.32%), and unmarried (80.41%).

Measures

The SCS (Neff, 2003b) and the PEPI (Blackie & Kocovski, 2017a) were described in study 1. The internal consistency for total scores on the SCS and the subscale scores ranged from good to very good in the present study (see Table 1). Internal consistency for total scores on the PEPI-T and PEPI-S, as well as the respective subscale scores ranged from very good to excellent in the present study (see Table 1).

Social Phobia Inventory (Appendix G). This 17-item measure assesses fear, avoidance, and symptoms of anxiety surrounding interpersonal and public situations. The measure employs a five-point scale (ranging from 0 to 4), and higher score represents higher social anxiety. In past research, the social phobia inventory (SPIN) has been shown to be a valid (e.g., convergent and discriminant validity, sensitive to treatment changes, etc.) and reliable (test-retest reliability, internal consistency) assessment tool (Connor et al., 2000). The internal consistency of the SPIN in the present study was very good (see Table 1).

Single-Item Self-Esteem Scale (Appendix H). This one-item measure assesses global self-esteem. Using a seven-point scale (1 = not very true of me, 7 = very true of me), participants rate the extent to which they agree with the statement, “I have high self-esteem.” The single-item self-esteem scale (SISE) correlates highly with the Rosenberg self-esteem scale (Rosenberg, 1965), and these two scales correlate at similar

magnitudes with a number of related constructs, such as measures of personality and psychological well-being (Robins, Hendin, & Trzesniewski, 2001). The test-retest reliability of the measure was very good in prior research (Robins et al., 2001).

Procedure

After providing informed consent, participants completed a demographics questionnaire and measures of social anxiety (SPIN), trait PEP (PEPI-T), self-compassion (SCS), and self-esteem (SISE). After completing these baseline measures, participants recalled and described an anxiety-provoking social situation that occurred within the last two weeks (same procedure as in study 1), and then completed a measure of state PEP (PEPI-S). The entire study was conducted online. Recalled situations were categorized by the first author using the same coding scheme outlined in study 1. A random 25% of the situations were categorized by a second rater (undergraduate student), who also followed the same procedures. There was 100% agreement between the raters.

Results and Discussion

Descriptive statistics and internal consistencies can be found in Table 1.

Social Anxiety and Trait PEP

As expected, self-compassion total-scale scores negatively correlated with social anxiety (see Table 2) and remained significant even when controlling for self-esteem. Also as expected, social anxiety positively correlated with self-judgment, isolation, and overidentification, and negatively correlated with self-kindness, common humanity, and mindfulness. However, when controlling for self-esteem, only the isolation and over-identified subscales remained significantly correlated with social anxiety.

Consistent with hypotheses, trait PEP negatively correlated with total self-compassion. In addition, trait PEP was negatively correlated with self-kindness, common humanity, and mindfulness, and positively correlated with self-judgment, isolation, and overidentification. After controlling for self-esteem, PEP remained significantly correlated in the hypothesized direction with most aspects of self-compassion, with the exception of common humanity and mindfulness.

State PEP

Following the same procedure from study 1, participants recalled a recent anxiety-provoking social situation and reported on PEP. However, 17 individuals listed inapplicable situations (not social evaluative, $n = 3$; future oriented, $n = 2$; avoided situation, $n = 5$; no situation listed, $n = 7$) and were thus excluded from the following analyses.

For all situation types, state PEP negatively correlated with total self-compassion, as well as the self-kindness, common humanity, and mindfulness subscales, and positively correlated with the self-judgment, isolation, and overidentification subscales (see Table 3). Moreover, these correlations remained significant even when controlling for self-esteem, with the exception of the mindfulness subscale.

Situation type

The majority of participants listed situations that were categorized as performance ($n = 57$) or interaction ($n = 51$) events. Although 25 individuals listed situations that involved being observed in public, this subsample was too small to analyze separately. Therefore, correlations are provided only for performances and interactions. Using independent samples t tests, we found there were no significant differences between the

performance and interaction groups on state PEP or the PEP subscales (all $ps > .21$; all partial $\eta^2s < .02$).

With respect to performance situations, self-compassion and its subscales correlated with state PEP in the anticipated directions. Even when controlling for self-esteem, state PEP remained significantly and negatively correlated with self-kindness, common humanity, mindfulness, and total self-compassion for performances. Interestingly, however, state PEP was no longer significantly (and positively) correlated with the self-judgment, isolation, and overidentification factors after controlling for self-esteem. For interaction situations, state PEP was negatively related to total self-compassion and positively related to the self-judgment and overidentification factors. However, none of the other self-compassion subscales were significantly correlated with state PEP. When controlling for self-esteem, only the overidentification self-compassion factor remained significantly correlated with state PEP for interactions.

The findings from the present study provide additional support for study 1. As expected, self-compassion and the self-compassion subscales significantly correlated with PEP in the hypothesized directions. Unique to the present study, however, was the assessment of self-esteem. Even after controlling for self-esteem, trait and state PEP remained significantly and negatively correlated with self-compassion. Furthermore, the majority of the self-compassion subscales remained significantly correlated with trait PEP (except common humanity and mindfulness) and all self-compassion subscales (except mindfulness) remained significantly correlated with state PEP. Also similar to study 1 was that self-compassion appeared most relevant to state PEP for performance situations, rather than interactions. Taken together, self-compassion may serve as a buffer

against PEP, beyond that attributed to self-esteem, and may be most protective for situations that are performance based.

General Discussion

The primary purpose of the present research was to examine the relationship between self-compassion and PEP. As expected, both trait PEP and state PEP were negatively correlated with total self-compassion scores. All self-compassion subscales correlated with trait and state PEP in the expected directions, although there was mixed evidence for the relationship between PEP and common humanity. Importantly, the majority of the correlations between self-compassion, as well as the self-compassion subscales, and trait and state PEP remained significant even after controlling for self-esteem. With respect to state PEP, we found that self-compassion and its respective subscales correlated with PEP at different magnitudes for different types of social situations. This latter finding may be partially explained by the level of importance individuals placed on the social situation.

As an initial step in the present research, we examined the relationship between self-compassion and social anxiety. However, given that social anxiety may be maintained by PEP, it is important to examine self-compassion in this context, which was the primary purpose of the present research. As expected, those higher in self-compassion tended to experience lower social anxiety and trait and state PEP. The relationship between self-compassion and social anxiety in the present study was consistent with Potter et al. (2014) and partially consistent with Werner et al. (2012). Although Werner and colleagues found that self-compassion did not actually correlate with their two measures of social anxiety, self-compassion negatively correlated with core features of

SAD, fear of negative and positive evaluation. With respect to PEP, our finding is consistent with other studies in which self-compassion was negatively related to other forms of repetitive, negative thinking (e.g., Neff & Vonk, 2009; Raes, 2010). However, we also examined trait and state PEP, as well as social anxiety, in relation to the self-compassion domains. As expected, higher trait and state PEP and social anxiety were associated with greater self-judgment, isolation, and overidentification, and less self-kindness and mindfulness, and mixed support for common humanity.

The findings from the present research may suggest that in addition to the presence of a negative cognitive style, a lack of a positive one is an important factor in social anxiety and PEP. It may be important to consider whether diminished positive qualities, such as self-compassion, are a contributing factor to social anxiety and PEP, and whether self-compassion acts as a protective factor. Relating to oneself in a compassionate manner may also be important to other processes outlined in cognitive models of social anxiety (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997). For instance, a self-compassionate mindset may lessen socially anxious individuals' tendencies to hold negatively distorted self-perceptions of performance.

Because self-compassion and self-esteem are moderately correlated with one another (e.g., Neff, 2003b), an additional aim of the present research was to show that self-compassion remained significantly and negatively correlated with trait and state PEP, as well as social anxiety, when holding self-esteem constant. The findings from study 2 confirmed this hypothesis (self-esteem was not measured in study 1). In addition, most self-compassion subscales remained significantly correlated with trait and state PEP and social anxiety, even after controlling for self-esteem. These findings add support to

Neff's (2003a) notion that self-compassion is a construct separable from self-esteem, and may further suggest that self-compassion is a stronger buffer against PEP and social anxiety.

Given that performance situations often elicit more PEP (e.g., Kiko et al., 2012; Kocovski & Rector, 2007), we expected that self-compassion would be most strongly related to state PEP in these types of situations than in interactions. For both types of situations, state PEP negatively correlated with total self-compassion. With respect to the self-compassion domains, only the subscales representing a lack of self-compassion (self-judgment, isolation, and overidentification) were relevant to PEP for interactions, whereas all self-compassion subscales were relevant to PEP for performances (although the evidence for common humanity varied across the two studies). This different pattern of correlations for social interactions versus presentations may be partially explained by differences on other variables, namely state anxiety and situational importance.

In study 1, we found that participants who recalled performance situations rated the event as more important and experienced greater state anxiety than those who recalled interactions. However, only situational importance moderated the relationship between state PEP and aspects of self-compassion. Irrespective of situation type, state PEP was negatively correlated with self-kindness and mindfulness for situations deemed important, but not trivial. In other words, those possessing heightened levels of these traits may have been better able to keep negative thoughts about the event in perspective, regardless of situational importance. Taken together, the findings from study 1 suggest that when situations are important, self-kindness and mindfulness may serve to protect against PEP.

Another variable expected to play a role in the relationship between self-compassion and state PEP was state anxiety. Consistent with past research (Kiko et al., 2012), state anxiety was associated with state PEP, but it did not moderate the relationship between self-compassion and PEP. However, this finding may be reasonable given that those low on trait self-compassion likely approach social situations with higher anxiety to begin with, and vice versa. It can be examined in future research whether state anxiety serves as a possible moderator of the relationship between self-compassion and PEP by randomly assigning individuals to situations with differing levels of threat.

Although the correlates of self-compassion and its domains were mostly consistent across the two studies, the correlates of common humanity were mixed. More specifically, common humanity was not significantly correlated with PEP or social anxiety in study 1, but was significantly and negatively correlated with these variables in study 2. In past research, common humanity was not related to depression, worry, or quality of life (Van Dam et al., 2011). Further, in Werner et al.'s (2012) study, common humanity was the only self-compassion subscale not correlated with at least one of the two measures assessing fear of evaluation (fear of negative evaluation or fear of positive evaluation). However, in that study, common humanity was significantly higher among healthy controls than individuals with SAD. Perhaps the ability to recognize that others also experience feelings of failure and inadequacy may be diminished at heightened or clinical levels of social anxiety, but not at lower or nonclinical levels. Study 2 of the present research was conducted using a sample of individuals seeking self-help for social anxiety and shyness. Therefore, it is possible that common humanity was more relevant to PEP and social anxiety for these participants, compared to the unselected student

sample in study 1. Nonetheless, given the mixed evidence for the correlates of common humanity, it is important to examine these relationships in future studies.

Taken together, being compassionate toward oneself during the post-event period may help to break the ruminative cycle (i.e., PEP) that maintains social anxiety. Our findings suggest that PEP interventions may benefit by including components involving self-compassion. Increasing self-kindness, common humanity, and mindfulness and reducing self-judgment, isolation, and overidentification may help reduce PEP. However, it is important to experimentally investigate whether self-compassion lowers PEP, and how self-compassion compares to other strategies. In previous research, distraction led to lower PEP (Blackie & Kocovski, 2016) and mindfulness led to increased positive affect post-event (Cassin & Rector, 2011). Therefore, it would be important to investigate how self-compassion compares to these strategies, as well as others aimed at reducing PEP, and under what circumstances and for whom certain strategies work best. Other avenues of research involve experimentally investigating which specific components of self-compassion (self-kindness, common humanity, or mindfulness) are most fruitful in limiting PEP. Treatment providers could use this information to determine the specific components of self-compassion that require the greatest cultivation during treatment.

Limitations

Participants in the present research chose and reported on a social-evaluative situation that occurred within two weeks prior to participating in the respective study. Therefore, they may have rated PEP in relation to a situation that occurred anywhere from 1 to 14 days prior to the study. We believed it was necessary to allow a two-week timeframe and flexibility on the situation type so that most participants could select a

relevant event. However, it would have been preferable to expose participants to a social situation and assess PEP after a specified number of days. In addition, in study 1, social interaction anxiety was assessed, but not social performance anxiety. Given that we examined interaction and performance situations, it would have been preferable to include both types of measures. However, several items on the SIAS (Mattick & Clarke, 1998) may apply to performances and presentations (e.g., ‘I feel I’ll say something embarrassing when talking’’).

The findings from the present research are based on an unselected student sample (study 1) and a sample of individuals seeking self-help for social anxiety and shyness (study 2). Only 5 participants in study 1 and 25 in study 2 listed a situation that involved being observed in public, and we therefore were unable to conduct analyses for this type of situation. Perhaps more individuals would have listed situations in which they were observed in public had we used a clinical sample. Finally, the correlations between self-compassion and state PEP for different situation types were based on relatively small sample sizes.

Conclusion

Understanding the specific areas of self-compassion that are related to PEP may provide insightful treatment information. In the present research, we found that self-compassion was significantly, negatively correlated with trait and state PEP. All self-compassion domains were related to the degree to which participants engaged in PEP after their social event, with mixed evidence for common humanity. Importantly, self-compassion remained significantly and negatively related to PEP, even after controlling for self-esteem. Efforts aimed at increasing self-kindness, mindfulness, and common

humanity and decreasing self-judgment, over-identification, and isolation, may be fruitful in limiting the post-mortem analysis following anxiety-provoking social situations.

However, experimental investigations are necessary to determine whether self-compassion serves as a buffer against PEP.

CHAPTER 3

MANUSCRIPT 2

**FORGIVE AND LET GO: EFFECT OF SELF-COMPASSION ON
POST-EVENT PROCESSING IN SOCIAL ANXIETY**

Abstract

Post-event processing refers to negative and repetitive thinking following anxiety-provoking social 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.

Introduction

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 & Wells, 1995; Rapee & Heimberg, 1997), and research has shown it is related to a number of maladaptive processes, including negative performance appraisals (Holzman & Valentiner, 2016), negative affect (Kashdan & Roberts, 2007), and anxiety for future social situations (Blackie & 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 & Kocovski, 2017b).

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 being over-identified, 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 & 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 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 & 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 (2017b) 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 & Kocovski, 2016; Brozovich & 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, Hsieh, & Dejitterat, 2005). Additionally, it has been posited in cognitive models (e.g., Clark & Wells, 1995;

Rapee & 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 & 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 (SPIN: $M = 32.90$, $SD = 9.03$; SIAS: $M = 43.02$, $SD = 8.24$) 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 three minutes 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; Appendix I). 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; Appendix J), 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 (Appendix K). 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 & Kocovski, 2016). Participants in all conditions spent 10 minutes 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 ($\alpha = .82$).

Social Interaction Anxiety Scale (Mattick & 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 & Clarke, 1998). The internal consistency and test–retest reliability have been excellent in past research (Mattick & Clarke, 1998). The internal consistency in the present study was also excellent ($\alpha = .90$).

Beck Depression Inventory-II (Beck, Steer, & Brown, 1996; Appendix L). 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 ($\alpha = .90$).

Self-Compassion Scale-Short Form (Raes, Pommier, Neff, & Van Gucht, 2011; Appendix M). 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-identified. 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 ($\alpha = .87$).

State–Self-Compassion Scale-Short Form (Appendix N). 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 ($\alpha = .88$).

Subjective Units of Distress Scale (Wolpe, 1969; Appendix O) 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, Hendin, & Trzesniewski, 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 .61 across six assessments (Robins et al., 2001).

State Self-Esteem Scale-Performance Subscale (Heatherton & Polivy, 1991; Appendix P) 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 ($\alpha = .89$).

Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988; Appendix Q). 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, $\alpha = .91$; negative subscale, $\alpha = .87$).

Post-Event Processing Inventory (Blackie & Kocovski, 2017a) 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, $\alpha = .90$; PEPI-S, $\alpha = .94$).

Willingness to Communicate (McCroskey, 1992; Appendix R) 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 ($\alpha = .93$).

Manipulation Check (Appendix S). 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 two days.

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, $t(97) = 5.05$, $p < .001$.

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 Interaction Anxiety (SIAS)	30.83	7.59	33.80	9.71	34.10	9.60	1.20	.03
Social Phobia Inventory (SPIN)	41.03	6.60	44.63	8.13	43.40	9.58	1.50	.03
Depression (BDI-II)	13.88	9.57	15.84	9.70	16.00	7.66	0.55	.01
Trait Post-Event processing (PEPI-T)	34.39	8.27	36.71	8.39	38.31	7.33	2.01	.04
Self-Compassion (SCS)	33.47	7.58	31.41	9.02	30.10	7.06	1.42	.03
Self-Esteem (SISE)	4.64	1.32	4.21	1.49	4.06	1.12	1.62	.03
State anxiety before speech (SUDS)	52.03	23.21	51.55	23.48	57.77	19.87	0.36	.01
State anxiety during speech (SUD)	61.35	22.03	59.61	23.47	70.13	19.78	1.53	.03

Note. 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.

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 were less over-identified 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 ($F(12, 182) = 1.80, p = .05$, 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.

Table 2

Follow-Up 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 disapproving of my speech.	2.24	1.21	2.79	0.93	2.74	1.12	2.63	.05
2. I thought about how most others probably gave a better speech.	1.44 _a	1.16	2.06 _{ab}	1.09	2.26 _b	1.46	3.89*	.08
3. I was preoccupied by negative thoughts about my speech.	1.62 _a	1.26	2.36 _b	1.14	2.06 _{ab}	1.21	3.27*	.06
4. I was supportive and nice to myself in relation to my speech.	2.47 _a	1.02	1.51 _b	1.12	1.81 _b	1.05	7.10**	.13
5. I reminded myself that many people have hard times giving speeches.	2.68 _a	1.04	1.73 _b	1.23	2.03 _b	1.17	5.99**	.11
6. I considered all aspects of my speech (positive and negative).	3.00 _a	1.06	2.18 _b	1.18	2.32 _b	1.14	5.17**	.10

Note. Means sharing a common subscript are not statistically different at $p < .05$ according to Tukey HSD post-hoc tests. * $p \leq .05$. **

$p \leq .01$.

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)	17.35 _a	5.67	14.00 _b	6.14	13.77 _b	6.22	3.67**	.07
Positive affect (PANAS – positive)	28.71	6.82	24.29	9.34	25.42	8.36	2.63	.05
Negative affect (PANAS – negative)	17.76	7.27	19.66	6.75	21.26	7.12	2.60	.05
State self-compassion (S-SCS-SF)	42.75 _a	8.70	34.63 _b	7.89	36.68 _b	10.11	4.76**	.14
Post-event processing (PEPI-S)	25.88 _a	10.61	33.69 _b	10.14	34.26 _b	12.54	5.86**	.11
Willingness to engage in social situations (WTC)	63.45 _a	23.39	51.25 _b	17.43	51.13 _b	21.84	3.73*	.07

Note. Means sharing a common subscript 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.

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

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 not significantly differ from one another. As such, this brief intervention continued to have effects 24 hours 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 one 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. 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 (see Figure 1). With respect to the direct effect, self-compassion (compared to control) led to decreased levels of post-event

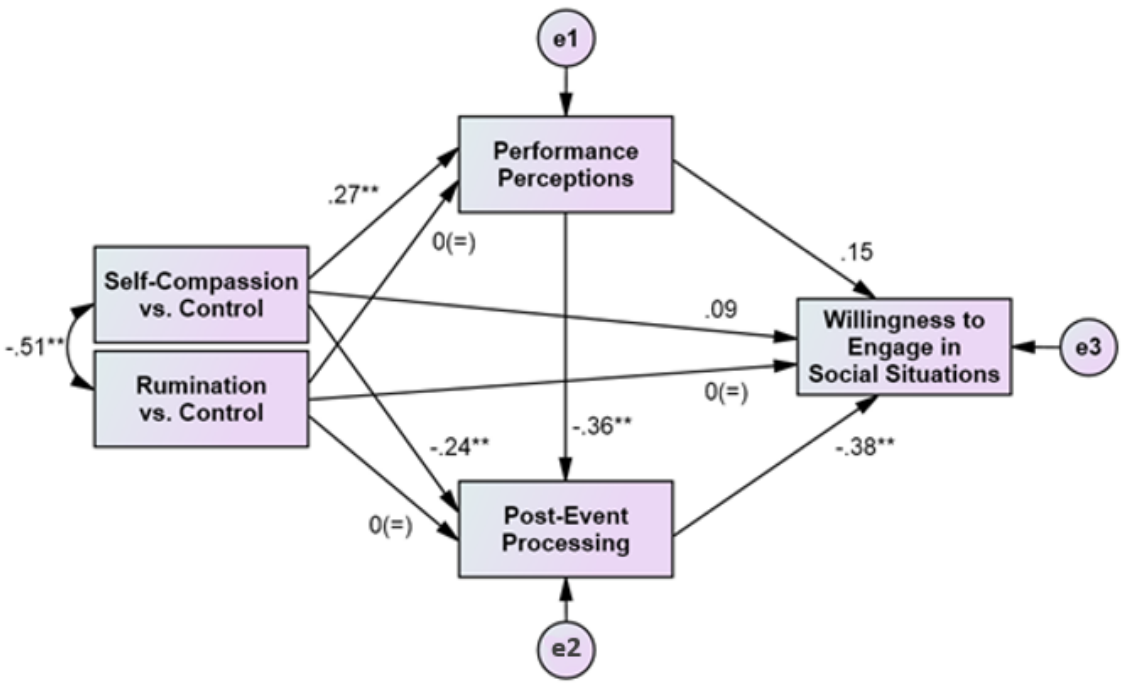


Figure 1. A multiple mediation model with direct effects of condition on performance perceptions, and direct and indirect effects on post-event processing and willingness to engage in social situations. Conditions were dummy coded, such that self-compassion = 1 and control = 0, and rumination = 1 and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

** $p \leq .01$.

processing one 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 (see Figure 1). 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 one 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 & 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 one 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 & 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 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 & Wells, 1995; Rapee & 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 anxiety-inducing social event may be less likely to even approach future social situations. Similarly, in past research, PEP predicted more anxiety for future social situations (Blackie & 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 anxiety-

provoking social 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 & Kocovski, 2017) and in the present study increased positive performance perceptions and decreased PEP, it should also be examined in relation to other factors (e.g., safety behaviours) in cognitive models of social anxiety (e.g., Clark & Wells, 1995; Rapee & 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 & Kocovski, 2016) and more positive thoughts during the post-event period (Kocovski, MacKenzie, & Rector, 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 (Oudou & 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 being over-identified, 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.

CHAPTER 4

MANUSCRIPT 3

**TRAIT SELF-COMPASSION AS A BUFFER AGAINST POST-EVENT
PROCESSING FOLLOWING PERFORMANCE FEEDBACK**

Abstract

Post-event processing (PEP) refers to a prolonged and negative rumination following anxiety-provoking social events. Because PEP may maintain social anxiety over time, it is important to reduce this repetitive, negative thinking. Past research has shown that PEP can be reduced through self-compassion. As such, the primary purpose of the present study was to examine the circumstances under which self-compassion buffers against PEP. Given that PEP may be exacerbated by negative performance feedback, we examined whether self-compassion would buffer against PEP under these circumstances (i.e., receiving negative performance feedback). Participants ($N = 66$) provided an impromptu speech and were randomly assigned to receive either positive or negative speech feedback. As expected, negative performance feedback led to significantly more PEP than positive feedback. However, whereas this effect was particularly pronounced amongst those low on self-compassion, there were no significant differences between conditions on PEP amongst those high on self-compassion. The findings from the present study suggest that trait self-compassion serves to limit PEP in situations where negative performance feedback is provided. This work builds on the benefits of self-compassion in the context of social stress.

Introduction

Post-event processing (PEP) can be conceptualized as a negative rumination following anxiety-provoking social events, and has been implicated in the maintenance of social anxiety (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997). PEP includes a variety of negative characteristics, such as thoughts that are recurring, preoccupying, and judgmental, and is associated with negative outcomes, such as negative performance appraisals (Dannahy & Stopa, 2007; Zou & Abbott, 2012), increased negative affect (Kashdan & Roberts, 2007), and increased state anxiety for subsequent social situations (Blackie & Kocovski, 2016).

Although a variety of factors may predict or exacerbate PEP, internal factors, such as predispositions, thoughts, behaviors, etc. have been the focus of most research. For instance, past research has shown that PEP may be influenced by baseline social anxiety (Kocovski & Rector, 2007), fear of negative evaluation (Penney & Abbot, 2015), negative self-imagery (Makkar & Grisham, 2011), in-situation state anxiety (Kiko et al., 2012), safety behaviors (e.g., avoiding eye contact, drinking alcohol to reduce anxiety, holding presentation notes tightly to prevent appearance of shaking, etc.; Helbig-Lang, von Auer, Neubauer, Murray, & Gerlach, 2016), self-focused attention (Helbig-Lang et al., 2016; Gaydukevych & Kocovski, 2012), and negative self-perceptions of performance (Dannahy & Stopa, 2007; Perini, Abbott, & Rapee, 2006). However, external or situational factors may also play an important role in predicting PEP.

Given that fear of negative evaluation from others is a core feature of social anxiety, feedback or performance appraisals from others may be especially predictive of PEP. For instance, Zou and Abbott (2012) examined how participants with social anxiety

disorder and healthy controls responded to receiving feedback from others following a social interaction. Amongst socially anxious individuals, but not healthy controls, receiving a moderate score led to significantly more PEP than receiving a positive score. Given these findings, unfavourable performance feedback may exacerbate PEP, and it is therefore important to examine potential protective factors, one of which may be self-compassion.

Self-compassion is a multi-dimensional construct, consisting of bipolar components of self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identified (Neff, 2003a). When presented with difficult times, those who are self-compassionate exhibit self-kindness. This involves treating oneself in an understanding and patient manner, and can be contrasted with self-judgment, which involves treating oneself in a manner that is critical or contemptuous. Another core feature of self-compassion is common humanity. Common humanity involves recognizing that negative experiences, such as feelings of failure or inadequacy, are simply part of being human. On the other hand, one who exhibits isolation underestimates the extent to which others experience similar feelings, and therefore believes one is alone in failures and shortcomings. The final element of self-compassion is mindfulness, which involves a receptive attitude toward one's painful experiences without dwelling on them. Mindfulness is contrasted with being over-identified, in which one over-exaggerates or becomes consumed by negative thoughts and experiences.

Recent research suggests that self-compassion may serve as a buffer against PEP. For instance, Blackie and Kocovski (2017b) found that higher trait self-compassion was associated with less PEP in a sample of unselected undergraduate students, as well as a

sample of individuals seeking self-help for social anxiety and shyness. Leary et al. (2007, study 2) had participants read a vignette describing an embarrassing social situation and found that higher trait self-compassion predicted greater expectations of remaining calm, had the event taken place. Self-compassion has also shown negative relationships with other types of repetitive negative thinking, including depressive rumination (Raes, 2010), as well as the tendency to ruminate at a more general level (Neff & Vonk, 2009).

Importantly, Blackie and Kocovski (2017c) illustrated that inducing state self-compassion amongst socially anxious individuals was effective in reducing PEP. In that study, socially anxious individuals delivered an impromptu speech and were then randomly assigned to a 10-minute self-compassion, negative rumination, or writing control condition. Those in the self-compassion writing condition responded to prompts designed to elicit the three core aspects of self-compassion (self-kindness, common humanity, and mindfulness). Those in the rumination condition were encouraged to engage in PEP about their speech and those in the control condition completed a writing task in which they reflected on their speech. The following day, participants in the self-compassion condition reported less PEP and greater willingness to engage in hypothetical future-oriented social situations than those assigned to both the rumination and control conditions (Blackie & Kocovski, 2017c).

Given that self-compassion serves to buffer against PEP, it is important to examine its protective potential in circumstances where PEP may be intensified. As previously mentioned, neutral performance feedback leads to greater PEP than positive feedback. However, self-compassion may protect against this. Leary et al. (2007, study 3) had participants provide a three-minute video-recorded introduction. Participants were

under the impression the video recording was live and transmitted to an individual (observer) in another room. Immediately after, the researcher returned with feedback on the introduction, allegedly provided by the observer. Those who received positive scores received an average rating of 6 out of 7, whereas those who received moderate scores received an average rating of 4 out of 7. Within the moderate speech score condition, negative affect significantly decreased as levels of self-compassion increased. In other words, self-compassion appeared to protect against negative affect amongst those who received neutral feedback, and may therefore be relevant to PEP under similar circumstances.

It is noteworthy that in both Leary et al. (2007) and Zou and Abbott's (2012) studies, moderate feedback led to detrimental outcomes compared to positive feedback. Although in Zou and Abbott's study this was the case only amongst those with social anxiety disorder, in both studies, the moderate feedback consisted of a score that was at or slightly above a passing grade (50%). As mentioned by Zou and Abbott, a score of 50% may be perceived as neither positive nor negative, thereby increasing ambiguity, which has been posited to increase PEP (e.g., Clark & Wells, 1995). Alternatively, although a score of 50% represents the mid-point of a scale, for many individuals this score is more negative than neutral. In most contexts, a score below 50% is indicative of failure. As such, scores at or slightly above 50% are actually closer to failing grades than neutral ones, and may therefore represent feedback that is negative. Therefore, feedback of this nature is herein referred to as negative feedback. The primary purpose of the present study was to examine trait self-compassion as a buffer against PEP after receiving negative performance feedback.

Present Study

To our knowledge, the effect of performance feedback on PEP was experimentally examined in only one study (Zou & Abbott, 2012). Given the limited research, an initial step of the present study was to extend Zou and Abbott's (2012) findings and examine differences on PEP initially after receiving performance feedback (time 1) and again 24-hours later (time 2). This allowed us to examine whether negative feedback had a transitory or longer-lasting effect on PEP. Although Zou and Abbott (2012) assessed PEP several minutes after providing participants with feedback from an interpersonal interaction, this may not have been enough time to elicit ruminative thoughts amongst the healthy controls. Additionally, although the present study used an unselected student sample, we believed that a speech task, rather than interaction, would sufficiently heighten anxiety. Therefore, it was hypothesized that amongst those in the negative feedback condition, PEP would be significantly higher at time 1, and would remain significantly higher 24 hours later (time 2), compared to those in the positive feedback condition. It was also hypothesized that PEP would significantly decrease from time 1 to time 2 amongst those who received positive feedback, but would remain relatively stable amongst those who received negative feedback.

The primary purpose of the present study was to examine self-compassion as a protective factor against PEP for those receiving negative performance feedback. As previously mentioned, higher trait self-compassion is associated with less PEP (Blackie & Kocovski, 2017b), and experimental investigations have shown that self-compassion can also be induced amongst socially anxious individuals as a strategy for limiting this repetitive, negative thinking (Blackie & Kocovski, 2017c). Furthermore, trait self-

compassion may protect against negative affect after receiving more negative than positive performance feedback (Leary et al., 2007, study 3). Therefore, it was hypothesized that even after controlling for social anxiety and situational anxiety, self-compassion would significantly interact with condition (positive vs. negative speech feedback) in predicting PEP at time 1 (several minutes after reviewing the performance feedback), as well as at time 2 (the following day). The simple effects of the interaction were expected to be the same for PEP at both times and are therefore described simultaneously. More specifically, it was hypothesized that those who received negative feedback would engage in significantly more PEP than those who received positive feedback, but only amongst those low in trait self-compassion. Those high in trait self-compassion were expected to keep the negative feedback in perspective, and non-significantly differ from the positive feedback condition on levels of PEP. Additionally, it was hypothesized that amongst those who received negative feedback, PEP would decrease as trait self-compassion increased. However, trait self-compassion was not expected to be associated with PEP amongst those who received positive feedback. In other words, because the positive feedback would not be threatening, it was expected that individuals' PEP in this condition would be relatively low, regardless of dispositional self-compassion.

An additional aim of the present study was to examine whether trait self-compassion protected against negative performance appraisals during the post-event period. Performance appraisals have been posited to play an important role in the maintenance of social anxiety (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997). Additionally, research has shown that PEP and negative performance appraisals during

the post-event period are positively correlated with one another (Abbott & Rapee, 2004; Zou & Abbott, 2012). Given the relationship between PEP and performance appraisals, it was expected that those who received negative feedback would engage in significantly more negative self-perceptions of performance than those who received positive feedback, but only at lower levels of trait self-compassion. It was also expected that negative self-perceptions of performance would significantly decrease as trait self-compassion increased, but only amongst those in the negative feedback condition and not amongst those in the positive feedback condition. These findings were expected to remain significant even when controlling for social anxiety and situational anxiety.

Method

Participants

A total of 66 undergraduate students took part in the present study. Participants ranged in age from 16 – 24 years ($M = 19.06$, $SD = 1.46$), with the majority identifying as female (63.08%) and single/unmarried (90.80%). The breakdown of race/ethnicity was as follows: White (59.10%), Asian (21.21%), African Canadian (7.58%), Middle Eastern (4.54%), mixed/other (1.51%), and unidentified (6.06%).

Measures

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). The SIAS is a 20-item questionnaire used to assess social and interpersonal anxiety. Items are rated on a five-point scale from 0 – 4, with higher total scores representing higher social anxiety. In past research, the scale was shown to be a valid and reliable tool (Mattick & Clarke, 1998). In the present study, the SIAS demonstrated excellent internal consistency ($\alpha = .93$).

Beck Depression Inventory – II (BDI-II; Beck, Steer, & Brown, 1996). This commonly used measure of depression consists of 21 items with higher scores indicative of greater depression. In past research, the scale has shown very good psychometric properties (e.g., Beck, Steer, & Brown, 1996). Internal consistency was excellent in the present study ($\alpha = .91$).

Self-Compassion Scale (SCS; Neff, 2003b). The SCS is a 26-item measure used to assesses the three bipolar aspects of self-compassion: self-judgment versus self-kindness, isolation versus common humanity, and over-identified versus mindfulness. Subscale scores and total-scale scores may be used (Neff, Whittaker, & Karl, 2017). Past research has shown the SCS is a psychometrically sound instrument, with very good reliability and validity (e.g., Neff, 2003b; Neff et al., 2017). The internal consistency for total SCS scores was excellent in the present study ($\alpha = .94$).

Subjective Units of Distress Scale (SUDS; Wolpe, 1969). The SUDS is a single-item measure of state anxiety. The item is rated using a visual analog scale ranging from 0-100. Higher scores are indicative of higher distress.

Post-Event Processing Inventory (PEPI; Blackie & Kocovski, 2017a). The PEPI is a measure of negative rumination following anxiety-provoking social situations. The instrument contains trait (PEPI-T) and state (PEPI-S) forms, each of which are represented by 12 items. On each form, the 12 items are represented by three factors (intensity, frequency, and self-judgment), which in turn are represented by a single, higher-order factor. As such, subscale or total scale scores may be used on each form. Both the PEPI-T and PEPI-S have shown high reliability and validity in previous

research (Blackie & Kocovski, 2017a). Internal consistency of the PEPI-T ($\alpha = .90$) and PEPI-S (time 1, $\alpha = .92$; time 2, $\alpha = .94$) were excellent in the present study.

Negative Self-Perceptions of Performance (Appendix T). For the purpose of the present study, three items were created to assess participants' negative self-perceptions of their speech performance. Because participants in the present study were given pre-determined feedback on specific areas of their speech (eye-contact, clearness of speech, body language, facial expressions, and clarity of argument), we created several items that assessed performance perceptions at a more general level. Participants rated the items in relation to how they felt about their speech: 1) My speech was not well done, 2) I was embarrassed by my performance, and 3) I did not make a good impression. Items were rated on a five-point scale ranging from 0 (strongly disagree) to 4 (strongly agree). Internal consistency for these items was very good ($\alpha = .80$).

Manipulation Check and Believability of Feedback (Appendix U). Using a 5-point scale (1 = strongly disagree, 5 strongly agree), participants rated the extent to which they agreed with the following three items: 1) The speech feedback was positive, 2) The speech feedback was negative, and 3) The speech feedback matched my performance. The first two items were used as a manipulation check and the third item was used to assess the believability of the feedback. As described in the procedure section below, participants were given a feedback score following their speech. To ensure participants could still remember their speech feedback (score) when completing the second part of the study, they were asked to report the total speech score they received at time 1.

Perceptions of the Experimenter (Appendix V). Because the researcher was not blind to condition, participants rated the researcher on several qualities. Using a 5-point

scale (1 = strongly disagree, 5 = strongly agree), participants rated the following items: 1) The researcher was friendly, 2) The researcher seemed to like me, 3) The researcher was cold/alooof, and 4) I felt comfortable with the researcher.

Procedure

The present study consisted of two parts, with the first part being completed in the laboratory and the second part being completed online the following day. The online study recruitment poster informed participants they would deliver a speech and would receive speech feedback (in the form of a score) from the researcher. Participation was compensated with partial course credit.

Upon arriving for part one, participants were provided with informed consent for both parts of the study. Next, they completed a demographics questionnaire and baseline measures of social anxiety (SIAS), depression (BDI-II), trait PEP (PEPI-T), and self-compassion (SCS). Participants were then reminded they would be delivering a video-recorded, impromptu speech, which would be evaluated and scored by the researcher. They were further informed that at a later date, the video-recorded speeches may be evaluated and scored by other researchers. However, they would not receive additional speech feedback, other than that provided to them that day. At this point, participants provided a rating of state anxiety in anticipation of the speech. The researcher then provided speech instructions, indicating that it must be three minutes long, even if that required participants repeating themselves. After selecting a speech topic (“citizens not exercising their right to vote or the rising cost of university tuition”), participants delivered their speech to the researcher, who remained neutral throughout the presentation. Participants then provided a second state anxiety rating (SUDS), indicating

the highest level of anxiety experienced while delivering the speech. Participants were then randomly assigned to receive either positive ($n = 32$) or negative ($n = 34$) speech feedback (speech score).

The speech evaluation form was a revised version of Morgan and Banerjee's (2008), in which participants were rated on five categories: eye-contact, clearness of speech, body language, facial expressions, and clarity of argument. A total speech score was also provided, which was the average score across the five categories (Appendix W). In the present study, the speech scores for the negative feedback condition were 45/100 for eye-contact, 60/100 for clearness of speech, 55/100 for body language, 60/100 for facial expressions, and 55/100 for clarity of argument. Those in the positive feedback condition received scores of 90/100, 100/100, 95/100, 100/100, and 90/100, respectively. This resulted in a total speech score of 55/100 for those in the negative feedback condition and 95/100 for those in the positive feedback condition.

The speech evaluation form was blank, and the researcher wrote the scores with pen or pencil once the participant completed the speech. Prior to providing participants with speech feedback, they were informed the researcher could not discuss their score with them at the present time. Participants were then given two minutes to examine their speech feedback and were told to review the form if they finished before the two minutes passed. Thereafter, the researcher informed participants to sit and wait for a few moments before completing the next part of the study. Once three minutes passed, participants were informed they could move on to the next portion of the study, at which point they provided their first assessment of PEP (PEPI-S).

The second part of the study was completed online one day after delivering the speech in lab. Participants completed an assessment of PEP (PEPI-S), negative performance perceptions, the manipulation check, and perceptions of the researcher. The manipulation check was administered at time 2 to avoid priming participants with the purpose of the study. This also allowed us to determine whether the performance feedback continued to have an effect during the post-event period. Perceptions of the researcher were completed at time 2 as this portion of the study was completed online and allowed for greater anonymity. Following the completion of these measures, participants were fully debriefed. They were informed the feedback was part of a manipulation that was pre-determined before their arrival to the laboratory.

Results

Missing Data

A total of 5.99% of the data were missing. This includes missing data from four participants who prematurely withdrew from time one (2.99% missing), five participants who did not take part in time two (2.64% missing), and partial missing data for the remaining participants (0.36%). Little's multivariate chi-square test (Little & Schenker, 1995) was non-significant ($p = .99$), indicating the data were missing completely at random. As such, the missing parameters were estimated using multiple imputations (5 imputed datasets), and pooled estimates are provided in the analyses¹.

Multiple imputation is a simulation technique in which a set of plausible values are determined based on the observed values from a given participant, as well as the observed relationships amongst other participants. The missing data are replaced by

¹ Analyses were also conducted without the imputed data, and the statistical tests remained significant.

random draws from the set of plausible values. Because the draws are random, the associations within each imputed dataset is different. This also creates variability across the imputed datasets and helps account for uncertainty in the missing values. When statistical analyses are carried out, each imputed dataset is analyzed separately, and the parameter estimates from each imputed dataset are pooled together in the final step. Because the multiple imputation procedure accounts for random variation between each imputed dataset, the standard errors tend to be accurate (Schlomer, Bauman, & Card, 2010).

Baseline Variables and Speech Anxiety

Independent samples *t*-tests were used to examine differences between conditions on variables measured prior to the manipulation (see Table 1). With the exception of depression, there were no significant differences between the positive and negative feedback conditions on these variables. Additionally, a paired-samples *t*-test was used to determine whether the speech induced state, performance anxiety. As expected, state anxiety significantly increased from immediately before ($M = 44.97, SD = 22.77$) to during ($M = 51.58, SD = 25.44$) the speech, $t(65) = -2.03, p = .04$.

Interval Length

Among the 57 participants who took part at time 2, the average time between the first and second part of the study was 1.53 days ($SD = 0.97$). Although the majority of participants completed time 2 within two days (89.48%), several participants completed it three ($n = 3, 5.26\%$), four ($n = 2, 3.51\%$), and six days later ($n = 1, 1.75\%$)². An

² Analyses were also conducted excluding participants who completed the second part of the study three or more days after part one. The statistical tests remained significant.

Table 1

Comparing Feedback Conditions on Variables Measured Prior to the Manipulation

Construct (Measure)	Positive feedback condition		Negative feedback condition		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Social Anxiety (SIAS)	27.72	13.72	22.29	14.64	-1.55
Depression (BDI-II)	15.51	9.63	10.14	8.04	-2.46*
Trait PEP (PEPI-T)	34.39	6.64	31.89	9.65	-1.21
Self-Compassion (SCS)	76.56	18.71	83.88	16.66	1.68
State Anxiety (SUDS) before speech	48.52	21.66	41.63	23.60	-1.23
State Anxiety (SUDS) during speech	50.28	28.48	52.81	22.61	0.40

Note. Pooled estimates (across 5 imputations) are provided in the table. SIAS = Social

Interaction Anxiety Scale. BDI-II = Beck Depression Inventory – II. PEPI-T = Post-

Event Processing Inventory – Trait form. SCS = Self-Compassion Scale. SUDS =

Subjective Units of Distress Scale. * $p < .05$.

independent samples *t*-test indicated there were no significant differences between conditions on the number of days between parts one and two, $t(55) = 0.34, p = .73$.

Manipulation Check and Researcher Qualities

Independent samples *t*-tests were used to examine differences between conditions on the manipulation check items (see Table 2). There were no significant differences between conditions on the extent to which participants believed the speech feedback matched their performance. Additionally, participants in the positive feedback condition rated their speech scores as significantly more positive and less negative than those in the negative feedback condition. As an additional check, participants recalled and reported the speech score (speech feedback) they received from the researcher at time 1.

Participants in the positive feedback condition reported receiving speech scores ranging from 85 – 95 ($M = 93.89, SD = 2.53$), with one reporting a score of 85, four reporting scores of 90, and the remaining reporting scores of 95. Participants in the negative feedback condition reported receiving speech scores ranging from 20 – 60 ($M = 54.11, SD = 6.81$), with one participant reporting a score of 20³, two reporting scores of 60, and the remaining reporting scores of 55. There were no significant differences between conditions on the number of participants who correctly versus incorrectly recalled their speech score, $\chi^2(1) = 0.41, p = .47$. Finally, using independent samples *t*-tests, we found there were no significant differences between conditions on how the researcher interacted with participants (see table 2).

³ Excluding data from this participant made negligible differences in the analyses and was therefore retained in the dataset.

Table 2

Comparing Feedback Conditions on Manipulation Check, Believability of Feedback, and Researcher Qualities

Variable	Positive Feedback Condition		Negative Feedback Condition		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>Manipulation Check and Believability</i>					
The speech feedback was positive	4.58	0.54	2.28	1.11	-8.74***
The speech feedback was negative	1.25	0.58	3.36	1.01	9.59***
The feedback matched my performance	3.56	1.21	3.18	1.40	-1.17
<i>Researcher Qualities</i>					
The researcher was friendly	4.78	0.56	4.46	0.72	-1.86
The researcher seemed to like me	3.96	0.89	3.49	1.04	-1.92
The researcher was cold/aloof	1.13	0.42	1.27	0.62	0.94
I felt comfortable with the researcher	4.55	0.99	4.19	0.83	-1.49

Note. Pooled estimates (across 5 imputations) are provided in table. For unequal error

variances, degrees of freedom were adjusted using the Welch-Satterthwaite method.

*** $p < .001$.

Change in Post-Event Processing across Time

As an initial step in the present study, we examined whether change in PEP from time 1 (immediately after reviewing speech feedback) to time 2 (the following day) was contingent on feedback type. We therefore conducted a 2 (condition: positive feedback, negative feedback) x 2 (time: time 1, time 2) mixed model analysis of variance (ANOVA) on PEP, with time as the within-subjects factor and condition as the between-subjects factor. Trait social anxiety and in-speech state anxiety were added as covariates, but both were non-significant. Re-running the model without these variables made negligible differences on the parameter estimates and associated statistics. Therefore, results are presented for the model that excludes these covariates.

The model included a significant main effect of time ($F(1, 64) = 25.63, p < .001$), with PEP decreasing from time 1 ($M = 30.31, SD = 9.37$) to time 2 ($M = 25.90, SD = 9.92$), but the main effect of condition was non-significant ($F(1, 64) = 2.15, p = .15$). However, the condition by time interaction was significant ($F(1, 64) = 3.96, p = .05$), and we therefore followed up with Tukey HSD post-hoc analyses. As shown in Figure 1, there were no significant differences between the positive ($M = 29.56, SD = 8.16$) and negative ($M = 31.05, SD = 10.45$) feedback conditions on PEP at time 1. However, PEP significantly decreased from time 1 to time 2 among those in the positive feedback condition ($M = 23.45, SD = 8.70; p < .01$), but not among those in the negative feedback condition ($M = 28.35, SD = 10.53; p > .10$). This resulted in time 2 PEP scores that were significantly lower for those in the positive feedback condition than those in the negative feedback condition ($p < .01$).

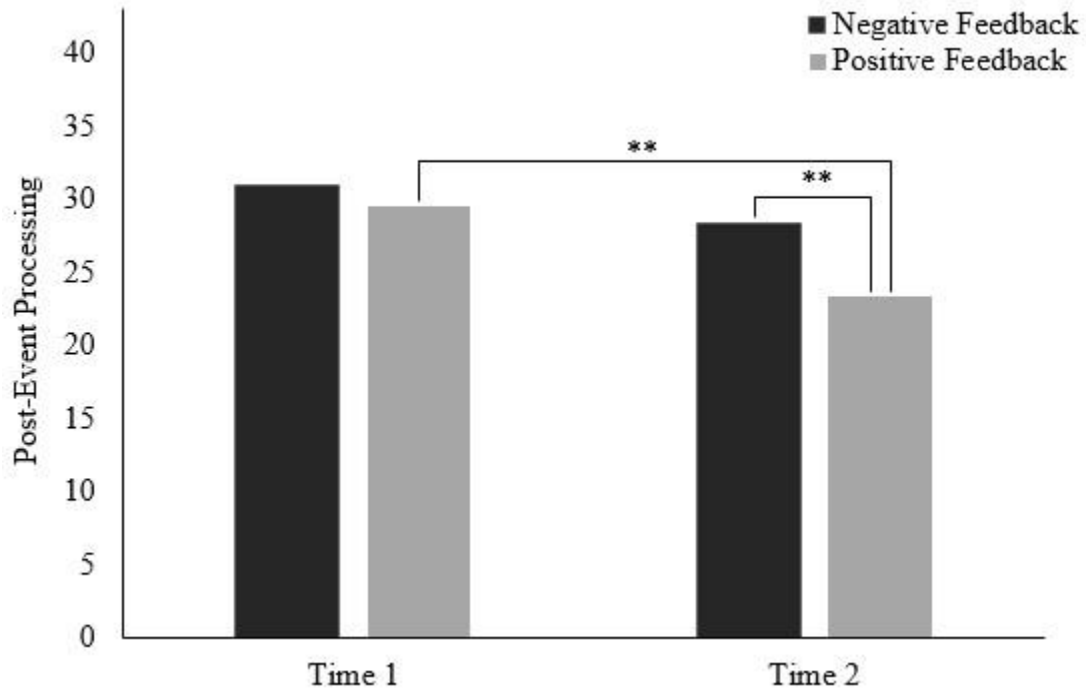


Figure 1. Differences between the Positive and Negative Speech Feedback Conditions across Time on Post-Event Processing. Time 1 post-event processing was assessed immediately after reviewing speech feedback. Time 2 post-event processing was assessed one day after Time 1. Multiple imputations were used to estimate missing data. Pooled estimates (across 5 imputations) are provided in figure. ** $p \leq .01$.

Self-Compassion Moderation Analyses

Separate hierarchical regression analyses were conducted to examine whether trait self-compassion moderated the effect of condition on PEP at time 1 and time 2, as well as negative perceptions of performance at time 2. As an initial step, we mean centered scores on self-compassion. An interaction term was created by multiplying mean-centered self-compassion with the binary-coded condition variable (0 = positive feedback condition, 1 = negative feedback condition). In each analysis, the condition variable and self-compassion were added into the first step of the regression, and the interaction was added into step two.

Post-event processing at time 1. The first step of the regression was significant ($R^2 = .12, p = .02; F(2, 63) = 3.72, p = .02$) and included a significant main effect of self-compassion ($\beta = -0.34, p = .01$), but not condition ($\beta = 0.15, p = .22$). Step two was also significant ($\Delta R^2 = .19, p = .03; F(3, 62) = 4.04, p = .01; \beta = -0.36, p = .03$). As shown in Figure 2a, when self-compassion was low (-1SD), negative speech feedback led to significantly more PEP than positive speech feedback ($\beta = 0.42, p = .01$). However, when self-compassion was high (+1SD), there were no significant differences on PEP between feedback conditions ($\beta = -0.12, p = .48$). Additionally, amongst those who received positive feedback, self-compassion did not significantly predict PEP ($\beta = -0.09, p = .54$), whereas amongst those who received negative feedback, higher self-compassion predicted less PEP ($\beta = -0.63, p = .001$). These findings also remained significant when controlling for baseline social anxiety and in-speech state anxiety.

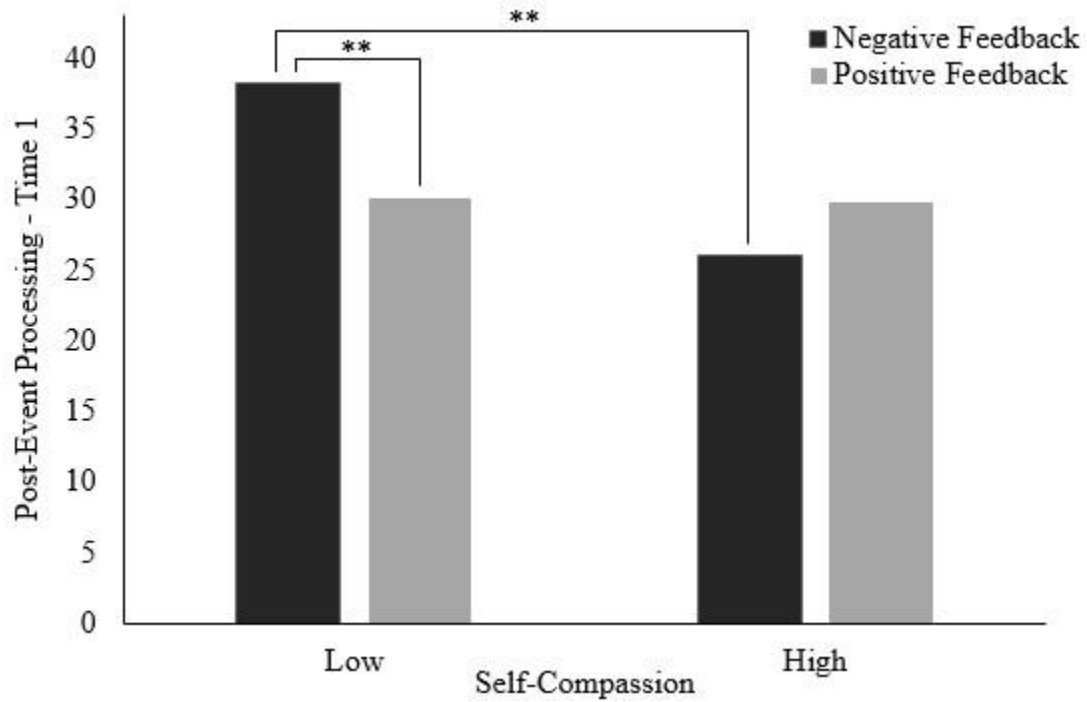


Figure 2a. Trait Self-Compassion Moderating the Effect of Condition on Post-Event Processing at Time 1. Time 1 post-event processing was assessed immediately after reviewing the speech feedback. Low self-compassion refers to scores one standard deviation below the mean. High self-compassion refers to scores one standard deviation above the mean. Multiple imputations were used to estimate missing data. Pooled estimates (across 5 imputations) are provided in figure. ** $p \leq .01$.

Post-event processing at time 2. The first step of the regression ($R^2 = .11, p = .03; F(2, 63) = 3.86, p = .03$) included a significant main effect of condition ($\beta = 0.29, p = .02$), with more PEP following negative feedback than positive feedback, but no significant main effect of self-compassion ($\beta = -0.22, p = .07$). However, step two ($\Delta R^2 = .22, p = .01; F(3, 62) = 5.67, p = .002$) included a significant interaction ($\beta = -0.44, p = .004$), and we followed-up with simple slopes for high (+1SD) and low (-1SD) self-compassion (see Figure 2b). As expected, negative speech feedback led to significantly more PEP than positive speech feedback when self-compassion was low ($\beta = 0.63, p < .001$), but not when self-compassion was high ($\beta = -0.04, p = .82$). Also as expected, higher self-compassion predicted less PEP amongst those who received negative feedback, ($\beta = -0.58, p = .001$), but was not a significant predictor of PEP amongst those who received positive feedback ($\beta = 0.08, p = .59$). These findings also remained significant when controlling for baseline social anxiety and in-speech state anxiety.

Performance Perceptions at time 2. The first step of the regression was significant ($R^2 = .21, p = .001; F(2, 63) = 8.45, p = .001$) and included a significant main effect of condition ($\beta = 0.41, p < .001$), with more negative self-perceptions of performance in the negative feedback condition than positive feedback condition. There was also a significant main effect of self-compassion ($\beta = -0.31, p = .01$), with higher self-compassion predicting less negative perceptions of performance. The change in variance in the second step of the regression was non-significant ($\Delta R^2 = .03, p = .13$).

Discussion

The primary purpose of the present study was to examine the circumstances under which self-compassion buffers against PEP. More specifically, we examined the effect of

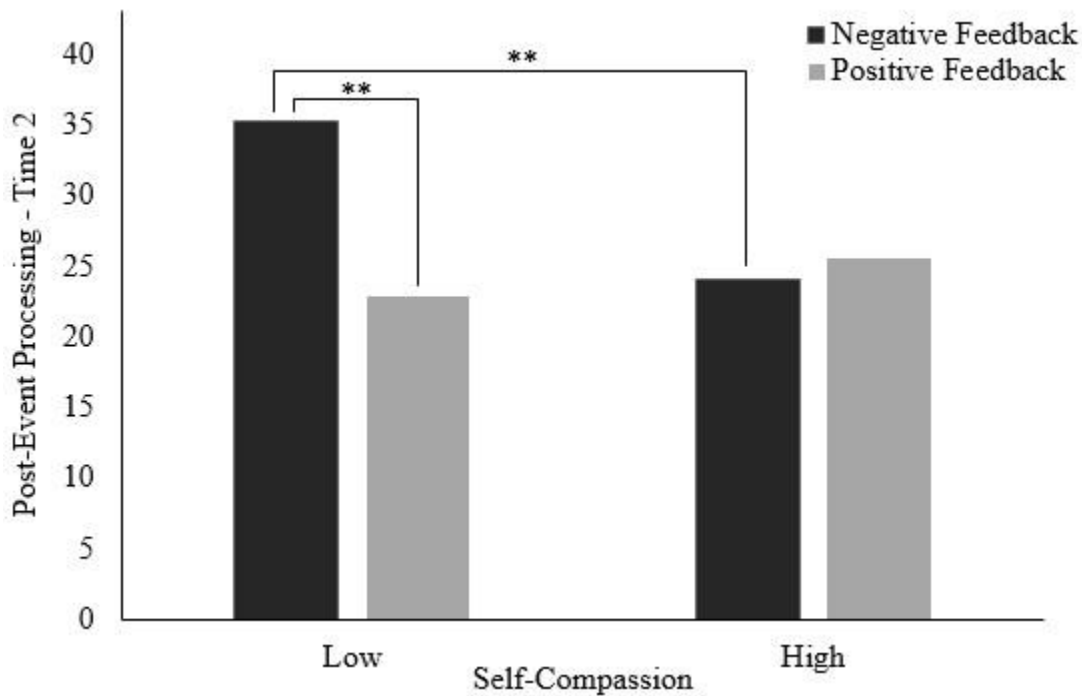


Figure 2b. Trait Self-Compassion Moderating the Effect of Condition on Post-Event Processing. Post-event processing was assessed one day after delivering a speech. Low self-compassion refers to scores one standard deviation below the mean. High self-compassion refers to scores one standard deviation above the mean. Multiple imputations were used to estimate missing data. Pooled estimates (across 5 imputations) are provided in figure. ** $p \leq .01$.

positive and negative performance feedback on PEP and performance appraisals, and whether self-compassion moderated these effects. As expected, negative performance feedback led to significantly more PEP than positive feedback when self-compassion was low, but not when self-compassion was high. Additionally, amongst those who received negative performance feedback, increasing levels of self-compassion were associated with decreasing levels of PEP. As such, heightened self-compassion appears to have buffered against PEP and negative performance appraisals following negative performance feedback. These findings and their implications are further discussed below.

As an initial step in the present study, we examined the effect of performance feedback on PEP. Unexpectedly, there were no significant differences between the positive and negative feedback conditions on PEP at time 1. Although there was a waiting period prior to measuring PEP at time 1, this may not have been enough time for the feedback to sink-in or register. However, negative performance feedback led to significantly greater PEP one day later, compared to positive feedback. Additionally, PEP significantly decreased over time for those in the positive feedback condition, but remained relatively stable for those in the negative feedback condition. These findings add to the growing body of literature on factors that predict heightened levels of PEP. As previously mentioned, the focus of most research has been on internal factors, such as one's own thoughts, behaviours, etc. However, the findings from the present study highlight the importance of examining external or situational factors in relation to PEP.

One way individuals may cope with receiving negative social information is through self-compassion. As hypothesized, trait self-compassion buffered against PEP after receiving negative performance feedback, even after controlling for baseline social

anxiety and situational anxiety. This finding was consistent when assessing PEP immediately after receiving the performance feedback and again one day later. As such, those high on self-compassion appeared to keep the negative performance feedback in perspective, allowing for more equanimous thoughts during the post-event period. Seemingly, treating oneself in a harsh and critical manner may perpetuate feelings of failure, as well as PEP. However, treating oneself in an accepting and understanding manner may allow one to move past negative experiences, reducing the extent to which one dwells or negatively ruminates on the event.

An additional aim of the present study was to examine whether self-compassion protected against negative performance appraisals during the post-event period. To avoid alerting participants to the purpose of the present study, performance appraisals were assessed at time 2, one day after delivering a speech. Unexpectedly, trait self-compassion did not interact with feedback type in predicting negative performance appraisals during the post-event period. As previously mentioned, more negative self-perceptions of performance are associated with increasing levels of PEP (Abbott & Rapee, 2004; Dannahy & Stopa, 2007; Zou & Abbott, 2012), and both have been posited to perpetuate social anxiety (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997). In the present study, heightened trait self-compassion did not appear to buffer against negative performance perceptions. However, this may be understandable given that those high on trait self-compassion may have openly acknowledged the negative performance feedback without becoming defensive.

The findings from the present study may inform strategies for limiting PEP following negative feedback. Future research should manipulate self-compassion and

examine its effect on PEP after receiving performance feedback, as well as other circumstances under which PEP may be exacerbated. Increasing self-compassion in a clinical sample may be especially fruitful, given that those with social anxiety disorder exhibit more PEP (e.g., Gavric, Moscovitch, Rowa, & McCabe, 2017) and less self-compassion (Werner et al., 2012) than healthy controls.

Limitations

The present study did not go without limitations. Perhaps the most notable was that we used an unselected student sample. Although PEP tends to occur amongst those with heightened social anxiety, it can be thought of as existing across a continuum. Given that those with social anxiety disorder exhibit significantly less self-compassion than healthy controls (Werner et al., 2012), it would not have been practical to examine whether heightened trait self-compassion protected against PEP amongst a socially anxious sample. Another noteworthy limitation was that trait self-esteem was not assessed in the present study. Past research has shown a moderate correlation between self-compassion and self-esteem (e.g., Neff, 2003b). Therefore, it would have been beneficial to illustrate that self-compassion buffers against PEP, even while controlling for self-esteem. Additionally, given the relatively small sample size used in the present study, statistical power was likely low. As such, these findings should be interpreted with caution and replicated in future studies.

An additional limitation of the present study was the lack of a control condition, making it unclear whether those low in self-compassion were over-exaggerating the negative feedback, those high in self-compassion were better able to keep it in perspective, or a combination of both. In future studies, both positive and negative

performance feedback should be compared to a true control condition, in which performance feedback is not provided. Although Zou and Abbott (2012) found that negative performance feedback led to greater PEP than positive feedback amongst socially anxious individuals, research suggests that socially anxious individuals also fear positive evaluation (e.g., Weeks, Heimberg, & Rodebaugh, 2008). For socially anxious individuals, it may be that any type of feedback from others, regardless of valance, heightens PEP, but the effect is strongest for negative feedback. Finally, given that the performance feedback was explicitly indicated to participants, it is unclear whether the findings from the present study would extend to more subtle cues, such as expressions of boredom or disinterest (e.g., yawning, sighing, avoiding eye-contact, etc.).

Conclusion

The findings from the present study suggest that trait self-compassion serves to limit PEP, even under circumstances in which this repetitive, negative thinking is exacerbated, namely negative performance feedback. Efforts aimed at increasing self-compassion under these circumstances may be useful in reducing PEP, but should be experimentally investigated amongst socially anxious individuals. Such findings would provide an understanding of whether there are boundary conditions on self-compassion inductions for reducing PEP.

CHAPTER 5

GENERAL DISCUSSION

**THE IMPLICATIONS OF SELF-COMPASSION IN
POST-EVENT PROCESSING**

The purpose of the present research was to examine self-compassion in the context of PEP. In manuscript 1, we found support for the negative relationship between trait self-compassion and PEP in both an undergraduate student sample and a sample of individuals seeking self-help for social anxiety and shyness. In manuscript 2, we induced self-compassion following an anxiety-provoking social situation and found that it led to less PEP one day later, compared to those assigned to a rumination condition and those assigned to a control condition. In manuscript 3, we found that following a speech, those assigned negative performance feedback, compared to positive, experienced higher PEP, but only when trait self-compassion was low, and not when trait self-compassion was high. The findings from these studies illustrate that self-compassion may be an important quality to consider in relation to PEP and may represent a useful strategy for limiting this post-mortem analysis.

Self-Compassion as a Correlate of Post-Event Processing

In manuscript 1, we found that trait self-compassion was negatively related to PEP. Although past research has shown that various negative traits and characteristics are conducive to PEP, diminished self-compassion may also be important to consider. Following difficult social situations, those who are generally self-compassionate may be more easily able to learn from situations and move on, rather than focusing on things that went wrong. This information may be helpful in providing a broader understanding of how individuals think and treat themselves during the post-event period.

Self-Compassion as an Intervention for Post-Event Processing

The findings from manuscript 2 demonstrate that state self-compassion is an effective strategy for limiting PEP. Self-compassion may serve as a useful alternative for

individuals who are resistant to or show little improvement in PEP using current approaches. For example, cognitive restructuring (i.e., challenging negative and unhelpful thoughts following anxiety-inducing social situations) has been found to be effective in reducing PEP (Shikatani, Antony, Kuo, & Cassin, 2014) but may not appeal to or be effective for all individuals. Self-compassion may also be preferential to other strategies for reducing PEP. Although distraction has been shown to reduce PEP (e.g., Blackie & Kocovski, 2016), distraction may prevent individuals from fully processing social information necessary for learning and growing from situations that went poorly. In future research, it would be important to experimentally compare self-compassion to other strategies aimed at decreasing PEP.

Rather than serving as an alternative to current treatment protocols or strategies aimed at reducing PEP, self-compassion may serve as a useful adjunct. For instance, challenging unhelpful thoughts following difficult social situations may be facilitated by maintaining a balanced awareness of the situation (mindfulness), recognizing that others share similar experiences (common humanity), and exhibiting a supportive attitude toward oneself (self-kindness). Self-compassion may also be useful in the context of acceptance and commitment therapy, in which a general goal is to enhance psychological flexibility. Psychological flexibility involves remaining committed toward values-based goals through awareness and acceptance of difficult thoughts and emotions (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Thus, an important aspect of self-compassion and psychological flexibility is how individuals treat themselves or react when experiencing negative thoughts and emotions. As such, self-compassion may be a useful adjunct to

acceptance and commitment therapy. In future research, it would be important to examine the utility of incorporating self-compassion into existing treatments.

In the second manuscript, we found that state self-compassion could be effectively induced amongst participants with heightened social anxiety. Following an anxiety-inducing social situation, a brief, 10-minute self-compassion exercise led to immediate increases in state self-compassion (compared to those assigned to both other conditions) and remained significantly higher 24-hours later. In future studies, it could be examined how fruitful self-compassion exercises are in increasing state self-compassion. Researchers could examine how state self-compassion unfolds over time. This information would provide useful information with respect to how often self-compassion should be practiced in order to reap its benefits. Additionally, it could be examined whether state self-compassion is protective against PEP for different types of social situations. In manuscript 1, we found that trait self-compassion was more strongly related to PEP for performance-based events than for interactions. As such, state self-compassion may be more effective in reducing PEP following performance events than interactions. However, this should be investigated in future studies.

Performance perceptions as mediating variable. Understanding the mechanisms through which specific strategies limit PEP may allow clinicians to improve current treatments by determining how to best target critical processes involved in change. In the second manuscript, we found that treating oneself compassionately following an anxiety-inducing social event led to perceiving one's performance in a more positive manner than would otherwise be the case. Consequently, positive performance perceptions mediated the effect of self-compassion on reducing PEP. Other potential

mechanisms through which self-compassion may exert this effect should also be examined. For instance, past research has shown that greater perfectionism, or excessively high self-standards, surrounding social situations was predictive of greater PEP following anxiety-provoking social events (Brown & Kocovski, 2014). In future studies, it could be examined whether perfectionism serves as a mechanism through which self-compassion exerts its influence on PEP. Rather than ruminating on situations that did not meet one's excessively high standards for social situations, a self-compassionate mindset may allow one to develop more realistic social standards.

Moderators of Trait Self-Compassion and Post-Event Processing

Strategies for limiting PEP may be more or less effective under different circumstances. Therefore, it is important to examine potential boundary conditions for the influence of self-compassion on PEP, and the conditions under which self-compassion buffers against it. In manuscript 3, we found that those high in trait self-compassion tended to engage in less PEP after receiving negative performance feedback. As posited in cognitive models (e.g., Clark & Wells, 1995), socially anxious individuals are fearful of being rejected in social situations. As such, areas of future research may be to examine the utility of self-compassion on reducing PEP after being rejected following an interpersonal interaction or being socially excluded. For instance, past research found that among participants who were ostracized, those who engaged in rumination following the event reported more distress than participants who were distracted from ruminating (Wesselmann, Dongning, Swim, & Williams, 2013). Another option may involve participants interacting with a confederate and then providing bogus feedback. The feedback could indicate that the confederate either did or did not enjoy the interaction

with the participant. It could be examined whether self-compassion is a protective factor against PEP under these types of circumstances, or whether these types of situations represent possible boundary conditions.

Because certain strategies for limiting PEP may work better for some individuals than for others, it is important to examine for whom certain strategies work best. Past research has shown that self-compassion tends to decrease as social anxiety increases (Werner et al., 2012), and that social anxiety is predictive of PEP (Gavric et al., 2017). As such, it is possible that the effect of self-compassion on PEP would be even more pronounced among those with more severe social anxiety, compared to those in manuscript 2, whose social anxiety was elevated compared to the healthy population. Alternatively, however, individuals with more severe social anxiety may have a more difficult time employing a self-compassionate mindset. Therefore, it should be examined whether self-compassion represents a useful strategy for limiting PEP amongst individuals whose social anxiety is more extreme. Other traits and dispositions should also be examined to determine for whom self-compassion may work best for limiting PEP, and for whom other treatments options would be more suitable.

Validity in the Assessment of Self-Compassion

Given the potential benefits of self-compassion in relation to PEP, it is important to consider the validity of the *Self-Compassion Scale* (Neff, 2003b). As previously mentioned, half the items on the scale are negatively worded, representing self-judgment, isolation, and being over-identified with negative thoughts. When computing a total self-compassion score, these items are reverse scored and summed together with items representing self-kindness, common humanity, and mindfulness. In a meta-analysis,

Muris (2016) found that relationships between psychopathology and total self-compassion scores were inflated by including the negatively worded, reverse-scored items. In another meta-analysis, Muris and Petrocchi (2016) found that the negatively-worded items correlated with measures of psychopathology significantly more strongly than the positively-worded items. As such, Muris (2016) suggested the negatively-worded items, when reverse scored, represent a lack of self-criticism, and should not be included in total self-compassion scores. However, Neff (2016) posits that although the six qualities of self-compassion are separable, they interact in a unified manner. For instance, recognizing that others experience feelings of failure and inadequacy can lessen feelings of isolation (Neff, 2016). It is therefore suggested that reverse-scoring the negatively-worded items contributes to a more comprehensive measure of self-compassion, and that total-scale scores are justified.

Although self-criticism may play an important role in psychopathology, diminished self-compassion may also be important to consider. In manuscript 2, we found that eliciting self-kindness, common humanity, and mindfulness following a speech performance was effective in reducing PEP. Similarly, Harwood and Kocovski (2017) and Arch and colleagues (Arch et al., 2014) found that state self-compassion was effective in reducing anxiety prior to an upcoming speech performance. Harwood and Kocovski had participants respond to prompts designed to elicit self-kindness, common humanity, and mindfulness, whereas Arch et al. (2014) used meditations to promote self-kindness and mindfulness. As such, these studies support the beneficial role of self-kindness, common humanity, and mindfulness in social anxiety and PEP.

Limitations

A noteworthy limitation of the present research is the reliance on small sample sizes. With low statistical power (small sample size), there is a decreased likelihood of detecting any true effects (increased chance of type II error) and that any significant findings actually reflect true effects (increased chance of type I error; Button et al., 2013). Furthermore, when true effects are significant, the effect sizes tend to be over-estimated (Button et al., 2013). Therefore, the findings presented in this dissertation warrant caution, and should be replicated in future studies.

An additional limitation includes the narrow range of participants' demographics across the three manuscripts. For instance, the average age across the studies ranged from approximately 18 – 23 years. Werner et al. (2012) found that self-compassion tends to increase with age amongst healthy controls, but decreases with age amongst those with social anxiety disorder. When inducing state self-compassion (manuscript 2), our findings may not extend to older participants with more severe social anxiety, as they may have more difficulty employing a self-compassionate mindset. Additionally, the proportion of females in the present studies tended to be fairly high, ranging from 63% – 76%. In a meta-analysis, it was found that females were significantly less self-compassionate than males (Yarnell et al., 2015). Therefore, it is possible that self-compassion is more protective against PEP among men than women. Although these demographic differences on self-compassion are relatively small, they may be important to consider in both research and clinical contexts.

Conclusion

The findings from these studies suggest that self-compassion may be important to consider when examining ruminative thoughts during the post-event period. Most research has examined how the presence of negative traits and characteristics are instrumental to PEP. However, diminished positive qualities, such as self-compassion, may also be an important contributing factor. Given that self-compassion was effective in reducing PEP, current interventions for reducing PEP may benefit by increasing self-compassion during the post-event period. Finally, although the effectiveness of strategies for reducing PEP may vary depending on differing circumstances, higher trait self-compassion was associated with less PEP even after receiving negative performance feedback following an anxiety-inducing social situation.

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Appendix A
Demographic Questionnaire

Please answer the following questions listed below by writing your response or checking the most appropriate answer.

1. What is your age? _____

2. What is your gender?

Male

Female

Other

3. Which race/ethnicity do you most closely identify with?

White/Caucasian

Asian

Black/African Canadian

First Nations

Other Please specify _____

4. What is your marital status?

Married Separated Divorced

Cohabiting Single Widowed

Appendix B
Social Interaction Anxiety Scale (SIAS)

For each item, please circle the number to indicate the degree to which you feel the statement is characteristic or true for you.

Characteristic	not at all	slightly	moderately	very	extremely
1. I get nervous if I have to speak with someone in authority (teacher, boss).	0	1	2	3	4
2. I have difficulty making eye contact with others.	0	1	2	3	4
3. I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
4. I find difficulty mixing comfortably with the people I work with.	0	1	2	3	4
5. I find it easy to make friends my own age.	0	1	2	3	4
6. I tense up if I meet an acquaintance on the street.	0	1	2	3	4
7. When mixing socially, I am uncomfortable.	0	1	2	3	4
8. I feel tense if I am alone with just one person.	0	1	2	3	4
9. I am at ease meeting people at parties, etc.	0	1	2	3	4
10. I have difficulty talking with other people.	0	1	2	3	4
11. I find it easy to think of things to talk about.	0	1	2	3	4
12. I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13. I find it difficult to disagree with another's point of view.	0	1	2	3	4
14. I have difficulty talking to attractive people of the opposite sex.	0	1	2	3	4
15. I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16. I am nervous mixing with people I don't know well.	0	1	2	3	4
17. I feel I'll say something embarrassing when talking.	0	1	2	3	4
18. When mixing in a group, I find myself worrying I will be ignored.	0	1	2	3	4
19. I am tense mixing in a group.	0	1	2	3	4
20. I am unsure whether to greet someone I know only slightly.	0	1	2	3	4

Appendix C
Post-Event Processing Inventory – Trait form (PEPI-T)

Please rate the extent to which you agree or disagree with the following statements by circling or checking the numbers that correspond with your answer choices. **Please rate each statement with regard to how you generally think following social situations.**

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. After social events, I think about the mistakes I made during the situation.	1	2	3	4	5
2. After social situations, I replay the event over in my mind.	1	2	3	4	5
3. I focus on the negative aspects of social events after they occur.	1	2	3	4	5
4. After social encounters, I think about how poorly the situation went.	1	2	3	4	5
5. After social events, I think about other similar past situations.	1	2	3	4	5
6. I find it difficult to forget about social events after they are over.	1	2	3	4	5
7. I experience recurring thoughts about social events long after they are over.	1	2	3	4	5
8. After social situations, my thoughts about the event interfere with my ability to concentrate.	1	2	3	4	5
9. After social situations, I experience distressing thoughts about the event.	1	2	3	4	5
10. After social situations, I become overwhelmed by my thoughts.	1	2	3	4	5
11. I experience intrusive thoughts about the social situation after the event has occurred.	1	2	3	4	5
12. After social situations, I become preoccupied by my thoughts.	1	2	3	4	5

Subscale Scoring Key:

Self-Judgment: sum items 1, 3, 4

Frequency: sum items 2, 5, 6, 7

Intensity: sum items 8, 9, 10, 11, 12

Total Scale Scoring Key:

Sum all three subscales

Appendix C (continued)
Post-Event Processing Inventory – State form (PEPI-S)

Please rate the extent to which you agree or disagree with the following statements by circling the numbers that correspond with your answer choices. Please rate each statement with regard to your speech.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I thought about the mistakes I made during the event.	1	2	3	4	5
2. After the event, I kept replaying the situation over in my mind.	1	2	3	4	5
3. I generally focused on the negative aspects of the event after it occurred.	1	2	3	4	5
4. I thought about how poorly the situation went.	1	2	3	4	5
5. After the event, I thought about other similar past situations.	1	2	3	4	5
6. I found it difficult to forget about the event after it was over.	1	2	3	4	5
7. I experienced recurring thoughts about the event long after it was over.	1	2	3	4	5
8. My thoughts about the event interfered with my ability to concentrate.	1	2	3	4	5
9. After the event was over, I experienced distressing thoughts about the situation.	1	2	3	4	5
10. After the situation was over, I became overwhelmed by my thoughts.	1	2	3	4	5
11. I experienced intrusive thoughts about the event.	1	2	3	4	5
12. When thinking about the event, I became preoccupied by my thoughts	1	2	3	4	5

Subscale Scoring Key:

Self-Judgment: sum items 1, 3, 4

Frequency: sum items 2, 5, 6, 7

Intensity: sum items 8, 9, 10, 11, 12

Total Scale Scoring Key:

Sum all three subscales

Appendix D
Self-Compassion Scale (SCS)

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale

Almost Never					Almost Always
1	2	3	4	5	

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES:

Self-kindness subscale:

- 5. I try to be loving towards myself when I'm feeling emotional pain.
- 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
- 19. I'm kind to myself when I'm experiencing suffering.
- 23. I'm tolerant of my own flaws and inadequacies.
- 26. I try to be understanding and patient towards those aspects of my personality I don't like.

Self-judgment subscale:

- 1. I'm disapproving and judgmental about my own flaws and inadequacies.
- 8. When times are really difficult, I tend to be tough on myself.
- 11. I'm intolerant and impatient towards those aspects of my personality I don't like.
- 16. When I see aspects of myself that I don't like, I get down on myself.
- 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering

Common humanity subscale:

- 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
- 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
- 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
- 15. I try to see my failings as part of the human condition.

Isolation subscale:

- 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
- 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
- 18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
- 25. When I fail at something that's important to me, I tend to feel alone in my failure.

Appendix D (continued)
Self-Compassion Scale (SCS)

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES:

Mindfulness subscale:

- ___ 9. When something upsets me I try to keep my emotions in balance.
- ___ 14. When something painful happens I try to take a balanced view of the situation.
- ___ 17. When I fail at something important to me I try to keep things in perspective.

- ___ 22. When I'm feeling down I try to approach my feelings with curiosity and openness

Over-identified subscale:

- ___ 2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
- ___ 6. When I fail at something important to me I become consumed by feelings of inadequacy.
- ___ 20. When something upsets me I get carried away with my feelings.
- ___ 24. When something painful happens I tend to blow the incident out of proportion.

Note. This does not reflect the original order of items on the Self-Compassion Scale. The items above are ordered by sub-scale for ease of interpretation. Items were presented to participants in the correct numeric order, and without subscale headings.

Appendix E
Recalled Social Situation

Please think of an **anxiety provoking social situation**
that occurred within the **last 2 weeks**.

Examples of social situations may include, but are not limited to: parties, presentations,
speaking in front of strangers, walking in front of crowds, small talk with people you
don't know, going on a date, job interview, etc.

Please briefly describe the situation:

Please indicate where you were when the situation occurred:

Please indicate who you were with when the situation occurred:

Appendix F
Questionnaire on Recalled Situation

Please answer the following questions in relation to the social situation you recalled.

Item	Not at all	Somewhat	Moderately	Very Much	Extremely
1. How well were you able to remember the situation?	1	2	3	4	5
2. How well were you able to remember the thoughts you had following the situation?	1	2	3	4	5
3. How anxious were you during the situation?	1	2	3	4	5
4. How important was the situation to you?	1	2	3	4	5

Appendix G
Social Phobia Inventory (SPIN)

Please indicate how much the following problems have bothered you during the past week. Circle only one box for each problem, and please be sure to answer all items.

Statement	Not at all	A little	Somewhat	Very much	Extremely
1. I am afraid of people in authority.	0	1	2	3	4
2. I am bothered by blushing in front of people.	0	1	2	3	4
3. Parties and social events scare me.	0	1	2	3	4
4. I avoid talking to people I don't know.	0	1	2	3	4
5. Being criticized scares me a lot.	0	1	2	3	4
6. Fear of embarrassment causes me to avoid doing things or speaking to people.	0	1	2	3	4
7. Sweating in front of people causes me distress.	0	1	2	3	4
8. I avoid going to parties.	0	1	2	3	4
9. I avoid activities in which I am the centre of attention.	0	1	2	3	4
10. Talking to strangers scares me.	0	1	2	3	4
11. I avoid having to give speeches.	0	1	2	3	4
12. I would do anything to avoid being criticized.	0	1	2	3	4
13. Heart palpitations bother me when I am around people.	0	1	2	3	4
14. I am afraid of doing things when people might be watching.	0	1	2	3	4
15. Being embarrassed or looking stupid are among my worst fears.	0	1	2	3	4
16. I avoid speaking to anyone in authority.	0	1	2	3	4
17. Trembling or shaking in front of others is distressing to me.	0	1	2	3	4

Appendix H
Single Item Self-Esteem Scale (SISE)

Please indicate the extent to which the following item applies to you.

Item	Not very true of me						Very true of me
I have high self-esteem	1	2	3	4	5	6	7

Appendix I
Self-Compassion Exercise for Self-Compassion Condition

Please spend 10 minutes on the following exercise. If you finish the exercise before the 10 minutes has passed, please review your answers.

- Write about your experience of giving the speech.
- While doing so, try to write about your experience in a balanced manner, considering all aspects of your speech.
- Please list the positive and negative aspects of your speech.

- Many people become nervous when giving speeches.
- List the ways that other people also experience and react to speeches.

- Sometimes people can be critical of themselves; sometimes even more critical than they would be to a complete stranger.
- Write a paragraph to yourself expressing kindness and understanding about the speech, similar to the way you would sympathize with a friend who had given a speech.

Appendix J
Guided Rumination Exercise for Rumination Condition

Please spend 10 minutes thinking about and providing answers to the following questions. If you finish before the 10 minutes has passed, please review your answers.

What was your speech about?

1. List the anxious symptoms you experienced prior to giving the speech.

2. List the anxious symptoms you experienced during the speech.

3. List any anxious symptoms you are experiencing now.

4. What was it that bothered you the most about how you were feeling before giving the speech?

5. How do you think you could have improved your delivery of the speech? Please list three specific elements.

- i. _____
- ii. _____
- iii. _____

6. How do you think you could have improved the content of your speech? Please list three specific elements.

- i. _____
- ii. _____
- iii. _____

7. How do you think you could have made the speech more interesting?

8. What criticisms might the research assistant have about your performance? Please list five possible criticisms.

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____

Appendix L
Beck Depression Inventory – II (BDI – II)

This questionnaire consists of 21 groups of statements. Please read each group, then pick **one statement** in each group that best describes the way you have been feeling during the **past week**. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure you do not choose more than one statement for any group.

1. Sadness

- 0 I do not feel sad.
- 1 I feel sad much of the time.
- 2 I am sad all the time.
- 3 I am so sad or unhappy that I can't stand it.

2. Pessimism

- 0 I am not discouraged about my future.
- 1 I feel more discouraged about my future than I used to be.
- 2 I do not expect things to work out for me.
- 3 I feel my future is hopeless and will only get worse.

3. Past Failure

- 0 I do not feel like a failure.
- 1 I have failed more than I should.
- 2 As I look back, I see a lot of failures.
- 3 I feel I am a total failure as a person.

4. Loss of Pleasure

- 0 I get as much pleasure as I ever did from the things I enjoy.
- 1 I don't enjoy things as much as I used to.
- 2 I get very little pleasure from the things I used to enjoy.
- 3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- 0 I don't feel particularly guilty.
- 1 I feel guilty over many things I have done or should have done.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6. Punishment Feelings

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7. Self-Dislike

- 0 I feel the same about myself as ever.
- 1 I have lost confidence in myself.
- 2 I am disappointed in myself.
- 3 I dislike myself.

8. Self-Criticalness

- 0 I don't criticize or blame myself more than usual.
- 1 I am more critical of myself than I used to be.
- 2 I criticize myself for all my faults.
- 3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance

10. Crying

- 0 I don't cry anymore than I used to.
- 1 I cry more than I used to.
- 2 I cry over every little thing.
- 3 I feel like crying, but I can't.

11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I am more restless or wound up than usual.
- 2 I am so restless or agitated it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

Appendix L (continued)
Beck Depression Inventory – II (BDI – II)

12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to be.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- 0 I have not experienced any changes in my sleeping pattern.
- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.
- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.
- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in Appetite

- 0 I have not experienced any change in my appetite.
- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.
- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.
- 3a I have no appetite at all.
- 3b I crave food all the time.

19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

20. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

21. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

Appendix M
Self-Compassion Scale – Short form (SCS-SF)

Please read each statement carefully before answering. For each item, please indicate how often you behave in the stated manner.

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES:

Statement	Almost Never				Almost Always
1. When I fail at something important to me I become consumed by feelings of inadequacy.	1	2	3	4	5
2. I tend to be understanding and patient towards those aspects of my personality I don't like.	1	2	3	4	5
3. When something painful happens I try to take a balanced view of the situation.	1	2	3	4	5
4. When I'm feeling down, I tend to feel like most other people probably happier than me.	1	2	3	4	5
5. I try to see my failings as part of the human condition.	1	2	3	4	5
6. When I'm going through a very hard time, I give myself the caring and tenderness I need.	1	2	3	4	5
7. When something upsets me I try to keep my emotions in balance.	1	2	3	4	5
8. When I fail at something that's important to me, I tend to feel alone in my failure.	1	2	3	4	5
9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.	1	2	3	4	5
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	1	2	3	4	5
11. I'm disapproving and judgmental about my own flaws and inadequacies.	1	2	3	4	5
12. I'm intolerant and impatient towards those aspects of my personality I don't like.	1	2	3	4	5

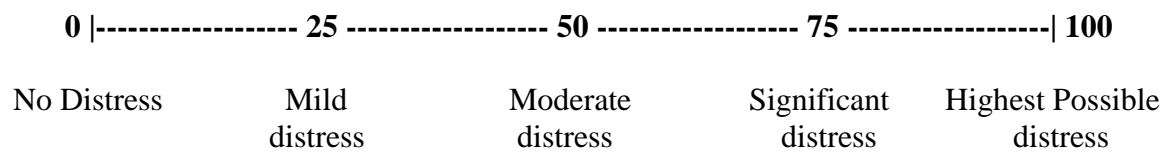
Appendix N
State - Self-Compassion Scale – Short form (State – SCS-SF)

Please rate each statement with respect to how you reacted or behaved
since delivering your speech.

Statement	Almost Never				Almost Always
1. When I thought about my speech, I became consumed by feelings of inadequacy.	1	2	3	4	5
2. I was understanding and patient towards those aspects of my speech I didn't like.	1	2	3	4	5
3. After my speech I tried to take a balanced view of the situation.	1	2	3	4	5
4. When I was feeling down about my speech, I tended to feel like most other people probably gave a better speech than me.	1	2	3	4	5
5. I tried to see my speech flaws as part of the human condition.	1	2	3	4	5
6. After my speech, I gave myself the caring and tenderness I needed.	1	2	3	4	5
7. When thoughts about the speech upset me, I tried to keep my emotions in balance.	1	2	3	4	5
8. When I thought about my speech inadequacies, I tended to feel alone in my failure.	1	2	3	4	5
9. When thinking about my speech, I tended to obsess and fixate on everything that was wrong.	1	2	3	4	5
10. When feeling inadequate about my speech, I tried to remind myself that feelings of inadequacy are shared by most people.	1	2	3	4	5
11. I was disapproving and judgmental about my speech.	1	2	3	4	5
12. I was intolerant and impatient towards aspects of my speech I didn't like.	1	2	3	4	5

Appendix O
Subjective Units of Distress Scale (SUDS)

Please record your level of distress at this moment.



Level of distress from 0 – 100

Appendix P
State Self-Esteem Scale – Performance subscale

This is a questionnaire designed to measure what you are thinking at this moment. There is of course, no right answer for any statement. The best answer is what you feel is true of yourself at the moment.

Since giving my speech...	Not at all	A little Bit	Somewhat	Very Much	Extremely
1. I feel confident about my abilities.	0	1	2	3	4
2. I feel frustrated or rattled about my performance.	0	1	2	3	4
3. I feel I had trouble understanding things.	0	1	2	3	4
4. I feel as smart as others.	0	1	2	3	4
5. I felt confident that I understood things.	0	1	2	3	4
6. I feel I have less performance ability compared to others.	0	1	2	3	4
7. I feel like I hadn't done well.	0	1	2	3	4

Appendix Q
Positive and Negative Affect Schedule (PANAS)

This scale consists of a number of words that describe different feelings and emotions.
Read each item and then list the number from the scale below next to each word.

Please indicate the extent to which you felt this way **right now, in this moment**.

Item	Very slightly/ Not at all	A Little	Moderately	Quite a bit	Extremely
1. Interested	1	2	3	4	5
2. Distressed	1	2	3	4	5
3. Excited	1	2	3	4	5
4. Upset	1	2	3	4	5
5. Strong	1	2	3	4	5
6. Guilty	1	2	3	4	5
7. Scared	1	2	3	4	5
8. Hostile	1	2	3	4	5
9. Enthusiastic	1	2	3	4	5
10. Proud	1	2	3	4	5
11. Irritable	1	2	3	4	5
12. Alert	1	2	3	4	5
13. Ashamed	1	2	3	4	5
14. Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5
17. Attentive	1	2	3	4	5
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

Appendix R
Willingness to Communicate scale (WTC)

Below are twenty situations in which a person might choose to communicate or not to communicate. Presume you have completely free choice. Indicate the percentage of times you would choose to communicate in each type of situation. Indicate in the space at the left what percent of the time you would choose to communicate.

0 = never, 100 = always

- ___ 1. Talk with a service station attendant.*
- ___ 2. Talk with a physician.*
- ___ 3. Present a talk to a group of strangers.
- ___ 4. Talk with an acquaintance while standing in line.
- ___ 5. Talk with a salesperson in a store.*
- ___ 6. Talk in a large meeting of friends.
- ___ 7. Talk with a police officer.*
- ___ 8. Talk in a small group of strangers.
- ___ 9. Talk with a friend while standing in line.
- ___ 10. Talk with a waiter/waitress in a restaurant.*
- ___ 11. Talk in a large meeting of acquaintances.
- ___ 12. Talk with a stranger while standing in line.
- ___ 13. Talk with a secretary.*
- ___ 14. Present a talk to a group of friends.
- ___ 15. Talk in a small group of acquaintances.
- ___ 16. Talk with a garbage collector.*
- ___ 17. Talk in a large meeting of strangers.
- ___ 18. Talk with a spouse (or girl/boy friend).*
- ___ 19. Talk in a small group of friends.
- ___ 20. Present a talk to a group of acquaintances.

Note. * = filler item. Filler items are non-scored items.

Appendix S
Manipulation Check for Manuscript 2

Please answer the following questions based on the thoughts you experienced or how you behaved in the **last 10 minutes**.

During the last 10 minutes...	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I was judgmental and disapproving of my speech performance.	0	1	2	3	4
2. I thought about how most others probably gave a better speech.	0	1	2	3	4
3. I was preoccupied by negative thoughts about my speech.	0	1	2	3	4
4. I was supportive and nice to myself in relation to my speech.	0	1	2	3	4
5. I reminded myself that many people have a hard time giving speeches.	0	1	2	3	4
6. I considered all aspects of my speech (positive and negative).	0	1	2	3	4

Appendix T
Negative Self-Perceptions of Performance

Please answer the following questions in relation to the speech you provided yesterday.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My speech was not well done.	0	1	2	3	4
2. I was embarrassed by my performance.	0	1	2	3	4
3. I did not make a good impression.	0	1	2	3	4

Appendix U
Manipulation Check and Believability of Feedback for Manuscript 3

Please rate the following items in relation to the speech you provided yesterday.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The speech feedback was positive.	1	2	3	4	5
2. The speech feedback was negative.	1	2	3	4	5
3. The speech feedback matched my performance.	1	2	3	4	5

Please indicate the speech score you received yesterday (during part one of this study).

Appendix V
Perceptions of the Experimenter

Please rate the following items based on your experience with the researcher yesterday.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The researcher was friendly.	1	2	3	4	5
2. The researcher seemed to like me.	1	2	3	4	5
3. The researcher was cold/aloof.	1	2	3	4	5
4. I felt comfortable with the researcher.	1	2	3	4	5

Appendix W
Speech Evaluation Form for Speech Feedback Manipulation

Listed below are your speech scores across 5 different categories. A total speech score has also been provided, which is your average across the 5 categories.

1. Eye contact: ____/100
(Positive feedback condition: 90/100)
(Negative feedback condition: 45/100)

2. Clearness of speech: ____/100
(Positive feedback condition: 100/100)
(Negative feedback condition: 60/100)

3. Body language: ____/100
(Positive feedback condition: 95/100)
(Negative feedback condition: 55/100)

4. Facial expressions: ____/100
(Positive feedback condition: 100/100)
(Negative feedback condition: 60/100)

5. Clarity of argument: ____/100
(Positive feedback condition: 90/100)
(Negative feedback condition: 55/100)

Total speech score: ____/100
(Positive feedback condition: 95/100)
(Negative feedback condition: 55/100)

Note. Information appearing in parentheses was hand written on the evaluation form, according to experimental condition.