Examining the Relationships Among Self-Compassion, Social Anxiety, and Post-Event Processing

Rebecca A. Blackie and Nancy L. Kocovski
Department of Psychology, Wilfrid Laurier University, Waterloo, Canada

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.

Keywords
Self-compassion, post-event processing, rumination, social anxiety, self-esteem

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 (evoking less 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, 2017).

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 overidentification 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%).

Measures

Social interaction anxiety scale. 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).

Post-event processing inventory. 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, 2017). The composite reliability of the PEPI-T and PEPI-S was excellent in past research (Blackie & Kocovski, 2017). 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. 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).

**Table 1.** Study 1 and study 2 descriptive statistics.

<table>
<thead>
<tr>
<th>Construct/Measure</th>
<th>Study 1 (N = 156)</th>
<th>Study 2 (N = 150)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>SIAS</td>
<td>27.83</td>
<td>13.79</td>
</tr>
<tr>
<td>SPIN</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>SISE</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>SCS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total SCS</td>
<td>75.89</td>
<td>15.19</td>
</tr>
<tr>
<td>Self-kindness</td>
<td>14.58</td>
<td>3.83</td>
</tr>
<tr>
<td>Self-judgment</td>
<td>16.12</td>
<td>4.20</td>
</tr>
<tr>
<td>Common humanity</td>
<td>12.40</td>
<td>3.26</td>
</tr>
<tr>
<td>Isolation</td>
<td>12.42</td>
<td>3.14</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>12.42</td>
<td>2.89</td>
</tr>
<tr>
<td>Overidentified</td>
<td>12.97</td>
<td>3.32</td>
</tr>
<tr>
<td><strong>PEPI</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total PEPI-T</td>
<td>34.29</td>
<td>9.45</td>
</tr>
<tr>
<td>Intensity</td>
<td>12.56</td>
<td>4.73</td>
</tr>
<tr>
<td>Frequency</td>
<td>12.55</td>
<td>3.19</td>
</tr>
<tr>
<td>Self-judgment</td>
<td>9.17</td>
<td>2.79</td>
</tr>
<tr>
<td>Total PEPI-S</td>
<td>33.39</td>
<td>10.10</td>
</tr>
<tr>
<td>Intensity</td>
<td>12.45</td>
<td>4.88</td>
</tr>
<tr>
<td>Frequency</td>
<td>11.78</td>
<td>3.62</td>
</tr>
<tr>
<td>Self-judgment</td>
<td>9.18</td>
<td>2.89</td>
</tr>
</tbody>
</table>

PEPI: post-event processing inventory; PEPI-S: PEPI-state; PEPI-T: PEPI-trait; SCS: self-compassion scale; SIAS: social interaction anxiety; SISE: self-esteem; SPIN: social phobia inventory.

Note: Data for state PEP in study 1 (n = 133) and study 2 (n = 133) reflect the number of participants who reported on social-evaluative situations.

**Questionnaire on recalled situation.** 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. 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 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 listed future-oriented situations (that had not yet occurred), and three did not list any situation. These 23 individuals were therefore 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.

Intendent 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 $p$s > .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

### Table 3. Study 1 and study 2 correlations between self-compassion and state PEP.

<table>
<thead>
<tr>
<th>PEPI-S</th>
<th>Self-kindness</th>
<th>Self-judgment</th>
<th>Common humanity</th>
<th>Isolation</th>
<th>Mindfulness</th>
<th>Overidentified</th>
<th>Total SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bivariate correlations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All situations ($n = 133$)</td>
<td>-.21*</td>
<td>.43***</td>
<td>.09</td>
<td>.46***</td>
<td>-.20*</td>
<td>.45***</td>
<td>-.37***</td>
</tr>
<tr>
<td>Performance ($n = 49$)</td>
<td>-.39**</td>
<td>.53***</td>
<td>-.03</td>
<td>.45***</td>
<td>-.39**</td>
<td>.50***</td>
<td>-.50***</td>
</tr>
<tr>
<td>Interaction ($n = 79$)</td>
<td>-.10</td>
<td>.41***</td>
<td>.11</td>
<td>.53***</td>
<td>-.07</td>
<td>.46***</td>
<td>-.35***</td>
</tr>
<tr>
<td><strong>Study 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bivariate correlations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All situations ($n = 133$)</td>
<td>-.31***</td>
<td>.32***</td>
<td>-.30***</td>
<td>.33***</td>
<td>-.29***</td>
<td>.30***</td>
<td>-.42***</td>
</tr>
<tr>
<td>Performance ($n = 57$)</td>
<td>-.48***</td>
<td>.37***</td>
<td>-.42***</td>
<td>.39***</td>
<td>-.45***</td>
<td>.31*</td>
<td>-.54***</td>
</tr>
<tr>
<td>Interaction ($n = 51$)</td>
<td>-.23</td>
<td>.33*</td>
<td>-.16</td>
<td>.24</td>
<td>-.14</td>
<td>.35**</td>
<td>-.34**</td>
</tr>
<tr>
<td>Partial correlations: controlling SE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All situations ($n = 133$)</td>
<td>-.17*</td>
<td>.20*</td>
<td>-.20*</td>
<td>.25***</td>
<td>-.16</td>
<td>.23**</td>
<td>-.30***</td>
</tr>
<tr>
<td>Performance ($n = 57$)</td>
<td>-.36**</td>
<td>.21</td>
<td>-.28*</td>
<td>.23</td>
<td>-.30*</td>
<td>.16</td>
<td>-.40***</td>
</tr>
<tr>
<td>Interaction ($n = 51$)</td>
<td>-.09</td>
<td>.09</td>
<td>.18</td>
<td>-.02</td>
<td>.29*</td>
<td>.21</td>
<td></td>
</tr>
</tbody>
</table>

PEPI-S: post-event processing inventory–state; SCS: self-compassion scale; SE: self-esteem; SISE: single-item self-esteem scale

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 ($n = 25$). SE assessed using the SISE.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

Unexpectedly, however, common humanity and state PEP were not significantly correlated (see Table 3).
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.

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 (+1SD; $\beta=-.28$, $p=.01$), 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, 2017) 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.** 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.** 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 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 overidentification 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 \( p_s > .21 \); all partial \( \eta^2 s < .02 \)).
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, overidentification, and isolation, may be fruitful in limiting the postmortem analysis following anxiety-provoking social situations. However, experimental investigations are necessary to determine whether self-compassion serves as a buffer against PEP.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship and/or publication of this article: This work was supported by the Social Sciences and Humanities Research Council of Canada (SSHRC) in the form of a doctoral fellowship awarded to the first author, by the Ministry of Research and Innovation (ER09-06-227; second author) and from a grant partly funded by Laurier operating funds (second author).

References


Author Biographies

**Rebecca A. Blackie** is a doctoral student at Wilfrid Laurier University, Waterloo, Ontario, Canada. She is interested in post-event processing following anxiety provoking social situations, and the potential strategies that may lessen this type of negative repetitive thinking.

**Nancy L. Kocovski** is an associate professor in the Department of Psychology at Wilfrid Laurier University. Her research focuses on social anxiety, mindfulness and acceptance-based treatments, and cognitive behavior therapy.