**UNIVERSITY OF SOUTHAMPTON**

FACULTY OF SOCIAL, HUMAN AND MATHEMATICAL SCIENCES

School of Psychology

# An Investigation of the Impact of a Brief Self-Compassion Intervention for Self-Criticism

by

**Rachel Elliman**

Thesis for the degree of Doctor of Clinical Psychology

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## ABSTRACT

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# AN INVESTIGATION OF THE IMPACT OF A BRIEF SELF-COMPASSION INTERVENTION FOR SELF-CRITICISM

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The first part of this thesis is a review of the literature comparing the constructs of self-compassion and self-esteem, to address the question of whether self-compassion offers greater protection than self-esteem in challenging situations. This includes correlational studies, exploring associations between trait self-compassion, trait self-esteem and a range of outcomes in challenging situations, as well as experimental studies, investigating the impact of experimentally induced state self-compassion and state self-esteem in challenging situations. The overall pattern of results provides some support for the idea that self-compassion does offer greater protection than self-esteem and this review considers theoretical explanations as to why this might be the case. However, the discussion highlights a number of methodological limitations and suggests that there is a need for more experimental research on this topic.

The second part of this thesis is an empirical paper investigating the impact of a self-compassion intervention for self-criticism. After completing a self-criticism induction task, participants received a self-compassion intervention, a thought challenging intervention, or no intervention (control group). The overall pattern of results shows that the self-compassion intervention had a beneficial impact on state self-esteem, affect, and effort ratings, in comparison with the other two conditions. The thought challenging intervention also offered some protection against the negative effects of self-criticism on state self-esteem and affect. The measure employed to assess performance was problematic, preventing conclusions from being drawn. The discussion makes links to theory and previous research, as well as considering the limitations of this study and potential avenues for future research.

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## Declaration of Authorship

I, Rachel Elliman, declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

An Investigation of the Impact of a Brief Self-Compassion Intervention for Self-Criticism

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. Either none of this work has been published before submission, or parts of this work have been published as: [please list references below]:

Signed: Rachel Elliman

Date: 22.05.2016

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I would also like to thank my family and friends for their support.

# Chapter 1: Literature Review

## Does Self-Compassion Offer Greater Protection Than Self-Esteem in Challenging Situations?

### 1.1 Introduction

Psychologists are interested in personality traits that are associated with psychological wellbeing, and which might offer protection against mental health problems and enhance resilience in adverse life circumstances. Self-esteem is one such trait that has been promoted for many years; however, self-compassion has recently been proposed as an alternative (Neff, 2003a). The present literature review compares self-esteem and self-compassion, focusing specifically on research that compares the two constructs in challenging situations in order to address the question of whether self-compassion offers greater protection than self-esteem. This is a claim that has been made in the self-compassion literature (Neff, 2011) and recent research in this area has sought to compare the two constructs in order to address this claim.

#### 1.1.1 Self-Esteem

For many years, the construct of self-esteem has been considered a key element of psychological wellbeing; enhancing self-esteem has been an aim of interventions within and beyond the field of clinical psychology (Baumeister, Campbell, Krueger, & Vohs, 2003). An early definition described self-esteem as the ratio of successes to pretensions (James, 1890). Although the construct has been described in a number of different ways over the years, it is generally considered to represent a global self-evaluation (Rosenberg, 1965). High self-esteem is associated with a range positive outcomes, such as happiness and optimism (Taylor & Brown, 1988), whereas low self-esteem is considered to be a risk factor for mental health problems, such as depression (Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009).

There is a vast body of literature on self-esteem which has been translated into a range of interventions applied in different settings. Many have focused on enhancing self-esteem with the aim of protecting against the negative outcomes associated with low self-esteem, including the large-scale California Task Force to Promote Self-Esteem and

Personal and Social Responsibility (1990). Within the field of clinical psychology, Fennell (1997; 2006) developed a protocol for overcoming low self-esteem based on Cognitive Behavioural Therapy (CBT).

However, there are increasing concerns with the focus on promoting self-esteem. Firstly, a critical review of the perceived benefits of self-esteem challenges the view that high self-esteem causes better outcomes, and suggests that high self-esteem is itself an outcome rather than a cause of enhanced performance (Baumeister et al., 2003). Secondly, although the positive feelings associated with high self-esteem may not be problematic in themselves, there are costs associated with the things people do in order to pursue feelings of high self-esteem. For example, people can become self-focused and compete with others to be seen as superior which can detrimentally affect relationships, and people can be threatened by negative feedback which impedes their ability to confront and learn from their weaknesses (Crocker & Parks, 2004). Finally, there is an association between high self-esteem and narcissism, an undesirable character trait associated with holding an inflated self-view (e.g., Neff, 2003b). Due to increasing dissatisfaction with the pursuit of self-esteem to enhance well-being, Neff (2003a) proposed the construct of self-compassion as an alternative way of relating to the self. She argues that self-compassion offers similar benefits to self-esteem, such as positive self-feelings, without the drawbacks described above.

### 1.1.2 Self-Compassion

Self-compassion describes the process of extending compassion towards the self, specifically by applying the three key components of self-kindness, common humanity, and mindfulness (Neff, 2003a; 2003b) Self-kindness describes being kind and understanding towards the self rather than critical and judgmental. Common humanity involves identifying with others, and considering one's experiences as being part of the larger human experience. Mindfulness, in the context of self-compassion, describes the process of acknowledging painful thoughts and feelings, but holding them in a balanced awareness rather than over identifying with them (Neff, 2003a). All three components are considered to be required for a self-compassionate frame of mind (Neff, 2009). High self-compassion is associated with a range of positive outcomes, including greater life

satisfaction, whereas low self-compassion is associated with depression and anxiety (Neff, 2003b).

Interventions involving the process of extending compassion towards the self have been developed within the field of clinical psychology. Compassion-Focused Therapy (CFT; Gilbert, 2009a) was originally developed for people high in shame and self-criticism, a process implicated in a number of psychological disorders. People high in shame and self-criticism typically experience great difficulty in generating positive feelings towards themselves and the focus of CFT is training people to do this, in order to bring about affective change (Gilbert & Irons, 2005). The idea of self-compassion has been around for a long time in Buddhist practices, but is a relatively new development in Western psychology (Neff, 2003a; Gilbert, 2009b).

### 1.1.3 Similarities and Differences

Self-compassion and self-esteem are both attitudes towards the self and they are significantly correlated (Neff, 2003b), which raises the question of whether they are genuinely separate constructs. Neff (2003a) argues that the two constructs are theoretically distinct: self-esteem is based on self-evaluations, whereas self-compassion is a way of relating to the self that is independent of self-evaluations. She suggests that high correlations are to be expected as levels of self-compassion will impact on feelings of self-worth and therefore will influence self-esteem in a positive direction (Neff, 2011). There is a growing body of evidence to support this claim that the two are distinct constructs.

Barnard and Curry (2011) proposed four different reasons for viewing self-esteem and self-compassion as distinct constructs. Firstly, the correlations between self-compassion and self-esteem range from $r = .58$ (Leary, Tate, Adams, Allen, & Hancock, 2007) to $r = .68$ (Neff & Vonk, 2009), which are not high enough to suggest that they are identical. Secondly, they show distinct patterns of correlations with other variables; for example, self-esteem is positively correlated with narcissism and self-compassion is not (Neff, 2003b). Thirdly, self-compassion predicts additional variance beyond self-esteem on a number of variables related to psychological wellbeing and distress (Neff & Vonk, 2009). Finally, there are indications that average levels of self-compassion and self-

esteem are differentially impacted by culture; an international study by Neff, Pisitsungkagarn, and Hsieh (2008) found that American participants reported highest levels of self-esteem whereas Thai participants reported highest levels of self-compassion.

The two constructs can also be distinguished at a physiological level in terms of their underlying affect regulation systems (Depue & Morrone-Strupinsky, 2005; Gilbert & Irons, 2005). Self-compassion is associated with the positive emotions of the contentment/social safeness system, which evolved with attachment behavior in mammals and is linked to the hormone oxytocin, which has a soothing effect on physiology, whereas self-esteem is associated with the drive system which motivates us to seek out important resources and is linked to the hormone dopamine (Gilbert, 2009b).

As well as arguing that the two constructs are distinct, Neff (2011) proposed that self-compassion offers more protection than self-esteem in challenging situations, as it offers a positive way of relating to the self that is not contingent on meeting certain standards; people can be self-compassionate even when life is not going well. Neff's (2011) review cites some early evidence for this, drawing on the limited number of published studies available at the time (Leary et al., 2007; Neff, Kirkpatrick, & Rude, 2007; Neff & Vonk, 2009).

Neff's (2011) review cites studies comparing trait self-compassion and trait self-esteem (Leary et al., 2007; Neff et al., 2007; Neff & Vonk, 2009), as well as one study which considered the impact of experimentally induced state self-compassion and state self-esteem (Leary et al., 2007). Neff et al. (2007) measured levels of anxiety after participants completed a mock job interview, designed to present an ego-threat. Higher trait self-compassion was associated with less anxiety in this situation even after controlling for trait self-esteem, whereas trait self-esteem was not associated with anxiety ratings. Neff and Vonk (2009) also examined associations between trait self-compassion and trait self-esteem on ego-focused reactivity using a variety of outcome measures. Both higher self-compassion and self-esteem were associated with less ego-focused reactivity, and self-compassion consistently explained unique variance beyond self-esteem. In their second study, they also found that self-compassion explained unique variance beyond

self-esteem on positive feeling states. Leary et al. (2007) conducted a series of five studies; two of which considered associations between trait self-compassion and trait self-esteem and participants' responses to unpleasant events. This included imagining hypothetical scenarios involving failure and humiliation and then rating how they would feel, what they would think and what they would do in these scenarios. Higher trait self-compassion and trait self-esteem were both associated with more adaptive responses, including less negative affect, fewer negative thoughts, and greater behavioural equanimity. However, self-compassion explained additional variance beyond self-esteem. In the next study, they examined whether trait self-compassion and self-esteem would moderate participants' reactions to receiving either positive or negative feedback from an observer. Self-compassion moderated the relationship between the type of feedback and participants' reactions; lower self-compassion was associated with more negative affect in the negative feedback condition compared to the positive feedback condition. Self-esteem did not have a moderating effect. Self-compassion also moderated the relationship between trait self-esteem and participants' affective reaction to the negative feedback condition; higher levels of self-compassion were associated with less negative affect in participants low in self-esteem. Participants low in self-compassion and self-esteem had the most negative reactions to the negative feedback. The authors explain that people who are high in self-compassion may be less affected by experience of failure; the common humanity aspect self-compassion involves recognition that failure is a common experience. Additionally, the mindfulness component enables people to hold difficult experiences in mindful awareness, rather than overidentifying with them.

Finally, in an experimental study, Leary et al. (2007) compared the effects of a self-compassion induction with a self-esteem induction after prompting participants to recall a negative life event. Participants who completed the self-compassion induction reported less negative affect, even though they were more likely to attribute the cause of a negative event to the kind of person they are. This led the authors to suggest that inducing state self-compassion enables people to accept shortcomings without this having an adverse effect on their emotional state. This was the first study to indicate that inducing state self-compassion could be more beneficial than inducing self-esteem in challenging

life situations, although a clear need for more research to support this conclusion was highlighted (Leary et al., 2007; Neff, 2011).

### 1.1.4 Aim of the Present Review

The present review aims to address the question of whether self-compassion offers greater protection than self-esteem in challenging situations that present some kind of threat to the self. This suggestion by Neff (2011) was based on research conducted between 2003 and 2011 that compared the two constructs (Leary et al., 2007; Neff et al., 2007; Neff & Vonk, 2009). The present review focuses on the literature published since 2011 to establish whether the more recent evidence supports or refutes the proposal that self-compassion is more protective than self-esteem in challenging situations. Theoretically, it is expected that this claim will be supported by the literature, as self-compassion represents a positive stance towards the self which is not dependent on positive self-evaluations in the way that self-esteem is; all three components of self-compassion could offer protection in challenging situations (Neff, 2003a; 2011). Additionally, based on the findings of the previous research in this area, it is expected that the evidence base will provide further support for the idea that self-compassion offers greater protection that self-esteem in challenging situations.

The present review considers articles which consider the protective value of self-compassion and self-esteem in a range of situations identified by the authors as presenting a specific challenge in some way, as described in the inclusion and exclusion criteria section below. It is a broad term that covers real life events that can present challenges, such as living with a physical disability, as well as laboratory-based situations designed to be challenging, such as being evaluated by others. Further detail regarding exactly how each study was considered by the authors to represent a challenging situation is provided in the results section. Additionally, brief detail about each challenging situation is provided in Table 1 for quick reference.

The current review focuses on two different types of research. Firstly, correlational studies that examine associations between trait self-compassion, trait self-esteem, and participants' responses to challenging situations, some of which are real life challenging situations and some of which are experimentally-induced. This includes

research exploring the strength of correlations between trait self-compassion, trait self-esteem, and participants' responses to challenging situations, as well as regression analyses examining trait self-compassion and trait self-esteem as predictors of participants' responses. Four studies included in this review also investigated whether self-compassion moderates the relationship between other variables and one study investigated whether self-esteem moderates the relationship between other variables. These findings are discussed as they provide useful information about the protective value of trait self-compassion and trait self-esteem, although they do not directly compare the two constructs.

The experimental studies included in this review consider the impact of inducing state self-compassion and state self-esteem on participants' responses to challenging situations. All of the challenging situations are experimentally induced, although some are based on real life situations, e.g., asking participants to think about a regret experience. The correlational research exploring associations between self-compassion, self-esteem, and participants' responses to challenging situations is limited as it does not address the direction of causality. Experimental research is important as it helps to establish whether inducing self-compassion leads to more adaptive responses to challenging situations than inducing self-esteem.

## 1.2 Method

### 1.2.1 Search Strategy

A systematic search of the literature was conducted on 13th February 2016, using Web of Science and PsycINFO (via EBSCO). The search terms 'self-compassion*' AND 'self-esteem' were entered in the 'subject' field on PsycINFO and the 'topic' field on Web of Science. Results were filtered on language (English) on both databases, and publication (peer-reviewed) on PsycINFO. The abstracts of all articles were screened and then full-text articles were reviewed. See Figure 1 for a flowchart showing the search strategy employed.

### 1.2.2 Inclusion and Exclusion Criteria

The inclusion criteria were as follows:

1. The study included an experimenter-defined "challenging situation" (see Table 1 for details of the range of situations)
2. The challenging situation was specific, either involving a real-life situation considered to present a challenge, or an experimentally-induced situation designed to be challenging
3. The study included measures of trait self-compassion and trait self-esteem (in correlational studies) to compare the effects of these constructs in challenging situations OR
4. The study included inductions of state self-compassion and state self-esteem (in experimental studies) to compare the effects of these inductions in challenging situations

All studies included in this review met criteria 1, 2 and either 3 or 4. The studies considering the effects of trait self-compassion and self-esteem are discussed separately to the studies comparing the effects of induced state self-compassion and self-esteem.

The exclusion criteria were as follows:

1. The study was off-topic, i.e., the primary focus was not self-compassion or self-esteem

2. The article was published prior to 2011, as two reviews published in 2011 considered research up to this date (Barnard & Curry, 2011; Neff, 2011)
3. The article was a review or meta-analysis
4. The article was not published in a peer-reviewed journal.

### 1.2.3 Data Extraction

As can be seen in Figure 1, the initial search retrieved a total of 57 articles. After screening the abstracts, 28 articles remained and were subjected to a review of the full text.

Of the five review articles that were excluded, two are relevant to the present review and are summarized in the introduction (Barnard & Curry, 2011; Neff, 2011). The other three review articles are not relevant to the present review.

After reviewing the full-text articles, it was discovered that five articles focused only on self-compassion, and self-esteem was not mentioned at all. Therefore, these articles were excluded. A total of eight articles were excluded due to not relating to challenging situations. Of these eight articles, four did not make any reference to the situation presenting a challenge. One considered relationships between self-compassion, self-esteem and ways of relating to others, one focused on age as a moderator of relationships between self-compassion, self-esteem and other variables relating to mental health, one focused on the mediating role of cognitions, and one focused on relationships between self-compassion, self-esteem and integrative self-knowledge and mental health in a sample of Iranian Muslims. The other four articles excluded for this reason broadly considered relationships between trait self-compassion, trait self-esteem and other variables in the context of developmental periods, such as adolescence and ageing, suggesting that these periods could potentially be challenging. However, these kinds of author-identified challenging situations were not considered specific enough for inclusion in the present review.

A further three articles were excluded which employed correlational methodology but did not include a measure of trait self-esteem, or did not reference the measure of trait

self-esteem used. After the process of screening abstracts and reviewing full-text articles, a total of 13 articles remained.

Of the 13 articles included in the present literature review, four included more than one study, and therefore a total of 19 studies are discussed. It is of note that one study was excluded from the review at this stage due to using correlational methodology but not employing measures of trait self-esteem or self-compassion (Zheng & Chen, 2016).

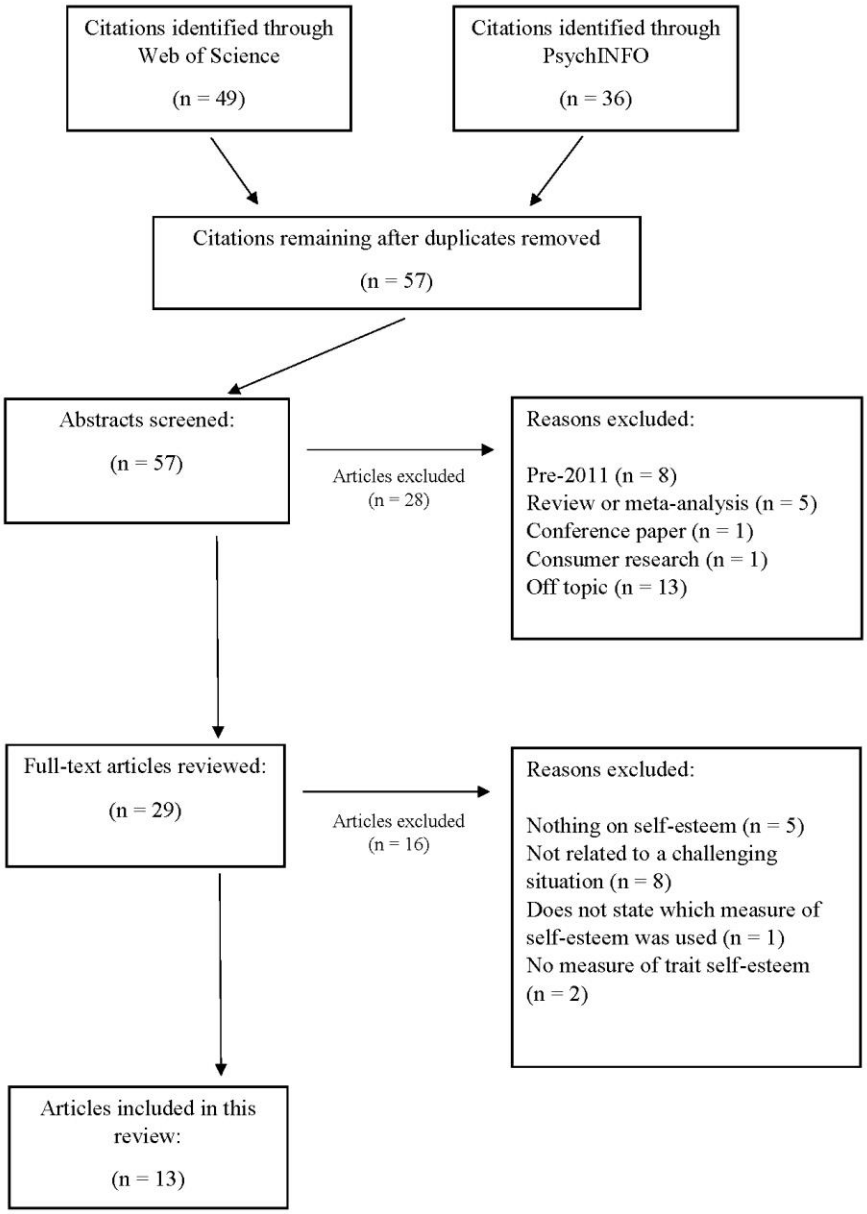


*Figure 1. Flowchart showing the systematic search strategy*

## 1.3 Results

### 1.3.1 Study Characteristics

Table 1 displays the key characteristics of all studies included in the present review, including the relevant statistics. A total of 13 studies used correlational methodology to explore associations between trait self-compassion, trait self-esteem and other variables in a range of challenging situations. A total of six studies (within three articles) used an experimental design to compare the impact of experimentally induced state self-compassion with experimentally induced state self-esteem.

### 1.3.2 Measures

All of the correlational studies used the Self-Compassion Scale (SCS; Neff, 2003b), or the Self-Compassion Scale – Short Form (SCS-SF; Raes, Pommier, Neff, & Von Gucht, 2011), to measure trait self-compassion. Within the SCS there are six subscales from which an overall self-compassion score can be computed. The six subscales relate to the positive and negative aspects of the three components of self-compassion as follows: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. Most research uses the SCS to provide an overall self-compassion score. However, one study within this review also considered the subscales separately in analyses (Wasylkiw, MacKinnon, & MacLellan, 2012). All studies used the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) to measure trait self-esteem. Detail of the various outcome measures used to examine people's responses to challenging situations are provided in Appendix A. Some studies required participants to provide ratings of emotions, thoughts or behaviours rather than using standardised measures. In these cases, the rating scales used are briefly described in Table 1.

Table 1.

*Key Characteristics of Studies Included in the Present Review*

| Author (year) | Aims | Design/Sample | Challenging situation | Measures | Results |
|---|---|---|---|---|---|
| Breines and Chen (2012): Study 1 | To investigate the impact of a SC induction on incremental beliefs (compared with a SE induction and control condition) after thinking about a personal weakness | Cross-sectional Experimental 68 students | Thinking of a personal weakness | Writing task to assess for incremental beliefs (score of 0 = absence of incremental beliefs, 1 = some evidence of incremental beliefs, 2 = strong evidence of incremental beliefs); Measure of positive affect (rate items on a scale of 1-7) | There were significant differences in incremental beliefs between conditions, $F(2,65) = 3.64$, $p < .05$, $\eta p^2 = .10$. Participants in the SC condition expressed more incremental beliefs ($M = .89$, $SD = .55$) than participants in the SE condition, ($M = .58$, $SD = .44$, $p < .05$) and control condition ($M = .55$, $SD = .36$, $p < .05$). Differences in beliefs between the SE and control conditions were not significant ($p > .05$). There were no significant differences in positive affect between conditions ($p > .05$) and the effect of condition on beliefs remained significant after controlling for positive affect ($p < .05$). |
| Breines and Chen (2012): Study 2 | To investigate the impact of a SC induction on motivation to make amends following a moral transgression (compared with a SE induction and control condition) | Cross-sectional Experimental 91 students | Thinking of a moral transgression | Desire to make amends (rate statements on a scale of 1-7, higher score indicates greater desire to make amends); Measure of positive affect (rate items on a scale of 1-7) | There were significant differences in desire to make amends between conditions, $F(2,88) = 4.38$, $p < .05$, $\eta p^2 = .09$. Participants in the SC condition reported greater motivation to make amends ($M = 4.97$, $SD = 1.04$) than those in the SE condition ($M = 4.11$, $SD = 1.27$, $p < .05$) and control condition ($M = 4.36$, $SD = 1.18$, $p < .05$). Differences between the SE and control conditions were not significant ($p > .05$). There were no significant differences in positive affect between conditions ($p > .05$) and the effect of condition on desire to make amends remained significant after controlling for positive affect ($p < .05$). |

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|---|---|---|---|---|---|
| Breines and Chen (2012): Study 3 | To investigate the impact of a SC induction on self-improvement behavior (compared with a SE induction and control condition) after failing a test | Cross-sectional Experimental 86 students | Failing a test | Time spent studying for a second attempt at a test (in seconds); Test performance (scored out of 10, higher scores indicate better performance) | There were significant differences in time spent studying between conditions, $F(2,83) = 3.12$, $p < .05$, $\eta p^2 = .07$. Participants in the SC condition spent significantly more time studying ($M = 306.5$, $SD = 236.95$) than those in the control condition ($M = 203.2$, $SD = 101.09$, $p < .05$). Differences in time spent studying between the SC condition and SE condition ($M = 229.9$, $SD = 119.15$) were not significant ($p = .09$) and differences between the SE and control conditions were not significant ($p > .05$). Study time was positively correlated with performance on the second test ($r = .37$, $p <. 01$). The pattern of results suggests that test results of participants in the SC condition ($M = 7.4$, $SD = 2.06$) were higher than test results of those in the SE condition ($M = 6.9$, $SD = 2.21$) and the control condition ($M = 7.0$, $SD = 1.95$) although there were no significant differences between conditions ($p > .05$). |
| Breines and Chen (2012): Study 4 | To investigate the impact of a SC induction on social comparison preferences (compared with a SE induction and control condition) when thinking about a personal weakness | Cross-sectional Experimental 73 adults | Thinking of a personal weakness | Choice of social comparison (upward, compared to lateral or downward); Measure of motivation to improve (rate statements on a scale of 1-7) Measure of positive affect (rating one item 'content' on a scale of 1-7) | Participants in the SC condition were most likely to engage in upward social comparisons as opposed to downward or lateral social comparisons, $\chi^2(2) = 6.91$, $p < .05$, $\eta p^2 = 06$. When examining contrasts between conditions, differences between the SC and control conditions were significant, $\chi^2(2) = 6.77$, $p < .01$, $\eta p^2 = 10$. Differences between the SC and SE conditions were not significant although they were in the expected direction, $\chi^2(2) = 2.18$, $p = .14$, $\eta p^2 = 10$. There were significant differences between conditions in ratings of motivation to improve, $F(2,70) = 4.00$, $p < .05$, $\eta p^2 = 11$. Participants in the SC condition reported more motivation to improve ($M = 4.37$, $SD = .43$) than participants in the SE |

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|---|---|---|---|---|---|
| | | | | | condition ($M$ = 4.00, $SD$ = .48) and control conditions ($M$ = 3.90, $SD$ = .66).<br>There were no significant differences in positive affect between conditions ($p > .05$). |
| Breines et al. (2014) | To examine the relationship between SC, SE, and interleukin-6 (IL-6) responses to stress | Cross-sectional<br>Correlational<br>41 adults | Trier Social Stress Test (experimentally induced performance situation) | SCS<br>RSES<br>Subjective distress (rated on a scale of 1-5)<br>IL-6 response | SC was a predictor of IL-6 response on day 1, $\beta$ = -.40, $p$ = .013, accounting for 16% of the variance in IL-6 response, $R^2$ = 0.16, $F(1,36) = 6.80$, $p$ = .013.<br>When all covariates were entered simultaneously, SC remained a predictor, $\beta$ = -.94, $p$ = .003. SE was not a predictor ($p > .05$).<br>SC was not a predictor of IL-6 response on day 2, $\beta$ = .02, $p$ = .13. However, SC predicted increase in baseline IL-6 from day 1 to day 2, $\beta$ = -.40, $p$ = .02. |
| Breines et al. (2015) | To examine the relationship between SC, SE, and salivary alpha-amylase (sAA) responses to stress | Cross-sectional<br>Correlational<br>33 adults | Trier Social Stress Test (experimentally induced performance situation) | SCS<br>RSES<br>Subjective distress (rated on a scale of 1-5)<br>sAA response | SC correlated with sAA response on day 1 and day 2, $r$ = -.46 and $r$ = -.38 respectively (both $p$s < .05).<br>SE was not correlated with sAA response on day 1 or day 2 (both $p$s > .05).<br>SC was a predictor of day 1 sAA response, $\beta$ = -.58, $p$ = .007, accounting for approximately 21% of the variance in sAA response, $R^2$ = .21, $F(1,31) = 8.27$, $p$ = .007.<br>When SE was entered, SC remained a predictor, $\beta$ = -.58, $p$ = .011, whereas SE was not a predictor, $\beta$ = .18, $p$ = .40, $\Delta R^2$ = .02, $F(1,30) = .72$, $p$ = .40.<br>Similarly, when subjective distress was entered, SC remained a predictor, $\beta$ = -.47, $p$ = .007, whereas subjective distress was not a predictor, $\beta$ = .09, $p$ = .59, $\Delta R^2$ = .01, $F(1,30) = .30$, $p$ = .59.<br>SC was also a predictor of day 2 sAA response, $\beta$ = -.38, $p$ = .03, accounting for approximately 15% of |

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|---|---|---|---|---|---|
| | | | | | the variance in sAA response, $R^2$ = .15, $F$(1,30) = 5.19, $p$ = .03.<br>When SE was entered, SC remained a predictor, $\beta$ = -.64, $p$ = .005. SE was not a predictor, $\beta$ = .40, $p$ =.066, $\Delta R^2$ = .10, $F$(1,29) = .3.66, $p$ = .066.<br>Similarly, when subjective distress was entered, SC remained a predictor, $\beta$ = -.38, $p$ = .03, whereas subjective distress was not a predictor, $\beta$ = .02, $p$ = .92, $\Delta R^2$ = .00, $F$(1,29) = .002, $p$ = .97. |
| Hayler and Dorstyn (2014) | To examine factors that enhance resilience in adults with spina bifida | Cross-sectional<br>Correlational<br>97 adults with spina bifida | Living with a physical disability (real life) | SCS<br>RSES<br>CD-RISC 10<br>DASS-21 | SC and SE were correlated with resilience, $r$ = .40 and $r$ = .36 respectively, as well as depression, $r$ = -.63 and $r$ = -.58, anxiety, $r$ = -.39 and $r$ = -.36, and stress, $r$ = -.39 and $r$ = -.41, (all $p$s < .01).<br>A multiple regression found neither SC nor SE were predictors of resilience, $\beta$ = .19 and $\beta$ = .10 respectively (both $p$s > .05). The only significant predictor of resilience was distress (total DASS-21 score), $\beta$ = -.26, $p$ < .05. The total variance explained by the model as a whole was 23%, $R^2$ = .23, $F$(5,94) = 5.23, $p$ = .01. |
| Kelly, Vimalakathan, and Carter (2014) | To examine the contribution of SE, SC and fear of SC to eating disorder pathology | Cross-sectional<br>Correlational<br>155 female students and 97 females with an eating disorder | Body image and eating behavior in women (real life) | SCS-SF<br>RSES<br>EDE-Q<br>FCS<br>BMI | In a multiple regression in the student sample, SC was the strongest predictor of global eating disorder pathology (EDE-Q), $\beta$ = -.50, $p$ < .001. BMI was also a predictor, $\beta$ = .32, $p$ <.001. SE and fear of self-compassion (FCS) were not significant predictors, $\beta$ = .03 and $\beta$ = .11 respectively (both $p$s > .05). In a multiple regression in the patient sample, fear of self-compassion was the strongest predictor of global eating disorder pathology, $\beta$ = .74, $p$ < .001. SE was also a predictor, $\beta$ = -.40, $p$ <.05. SC and BMI were not significant predictors, $\beta$ = .16 and $\beta$ = .26 respectively (both $p$s > .05). |

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| Kelly, Vimalakathan, and Miller (2014) | To examine relationships between SC, SE, BMI and eating disorder pathology and body image flexibility | Cross-sectional Correlational 153 female students | Body image and eating behavior in women (real life) | SCS<br>RSES<br>EDE-Q<br>BI-AAQ<br>BMI | SC correlated with body image flexibility (BI-AAQ) and eating disorder pathology (EDE-Q), $r$ = .41 and $r$ = -.41 respectively. SE also correlated with body image flexibility and eating disorder pathology, $r$ = .39 and $r$ = -.33 respectively (all $p$s < .001).<br>In a hierarchical regression analysis predicting body image flexibility, SE was a predictor at step 1, $\beta$ = .46, $p$ < .001, $R^2$ = .15. SC and BMI were predictors at step 2, $\beta$ = .41 and $\beta$ = -.30 respectively (both $p$s < .001), $\Delta R^2$ = .11. SE was no longer significant at step 2, $\beta$ = .15, $p$ = .178. The interaction between SC and BMI was significant at step 3, $\beta$ = .19, $p$ = .04, $\Delta R^2$ = .02.<br>A simple slopes analysis showed that there was a relationship between BMI and body image flexibility for participants with low SC, $\beta$ = -.53, $p$ < .001, but not for participants with high SC, $\beta$ = -.15, $p$ = .202.<br>For global eating disorder pathology, SE was a predictor at step 1, $\beta$ = .40, $p$ < .001, $R^2$ = .10. SC and BMI were predictors at step 2, $\beta$ =.-.54 and $\beta$ = .37 respectively (both $p$s < .001), $\Delta R^2$ = .16. SE was no longer a significant predictor at step 2, $\beta$ = .01, $p$ = .694. The interaction between SC and BMI was significant at step 3, $\beta$ =.-.20, $p$ = .045, $\Delta R^2$ = .02.<br>A simple slopes analysis showed that there was a relationship between BMI and global eating disorder pathology for participants with low SC, $\beta$ = .61, $p$ < .001, but not for participants with high SC, $\beta$ = .22, $p$ = .079. |

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| Krieger, Hermann, Zimmerman, and grosse Holtforth (2015) | To investigate the effect of SC and SE on the relationship between perceived stress and momentary affect | Cross-sectional Correlational 101 non-clinical participants (majority students) | Stress in daily life (real life) | SCS<br>RSES<br>Perceived stress (ratings of stress in eight domains on a scale of 1-10, higher scores indicate greater stress)<br>Positive and negative affect (ratings of mood adjectives on a scale of 1-5, higher scores indicate greater positive and negative affect) | Separate multilevel analyses showed that SC was associated with both positive affect and negative affect, *B* = .27, *SE B* = .10, and *B* = -.34, *SE B* = .06, respectively (both *p*s < .01). Similarly, SE was associated with positive affect, *B* = .23, *SE B* = .12, *p* < .05, and negative affect, *B* = -.39, *SE B* = .10, *p* < .001. Both SC and SE were associated with perceived stress, *B* = -.37, *SE B* = .14, and *B* = -.49, *SE B* = .22, respectively (both *p*s < .05). When both SC and SE were included in the same model to control for the shared variance, SC remained significantly associated with positive affect *B* = .26, *SE B* = .13, *p* < .05, and negative affect *B* = -21, *SE B* = .09, *p* < .05. However, SE was no longer associated with positive affect, *B* = .02, *SE B* = .14, *p* > .05, or negative affect, *B* = -.29, *SE B* = .15, *p* > .05. Neither SC nor SE were associated with perceived stress in a combined model, *B* = -.15, *SE B* = .18, and *B* = -.36, *SE B* = .29, respectively (both *p*s > .05). There was significant variance in the slope between stress and affect. In a multilevel model predicting negative affect, there was a significant interaction between SC and perceived stress, *B* = -.16, *SE B* = .07 *p* < .001, but not between SE and perceived stress, *B* = .07, *SE B* = .07 *p* > .05. A simple slopes test revealed that the relationship between stress and negative affect was stronger for participants low in SC, slope = .34, *t*(97) = 8.06, *p* < .001, than for participants high in SC, slope = .21, *t*(97) = 8.28, *p* < .001. |

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| Mosewich, Kowalski, Sabiston, Sedgwick, and Tracy (2011) | To investigate trait SC and SE as predictors of self-conscious emotions and self-evaluative processes | Cross-sectional Correlational 151 young female athletes | Body image and performance in young female athletes (real life) | SCS<br>RSES<br>TOSCA-A<br>SPAS<br>OEQ<br>OBC-Y<br>PFAI-S<br>FNE<br>Authentic and Hubristic Pride Scales | Respectively, SC and SE were correlated with guilt-free shame proneness, $r$ = -.39 and $r$ = -.34, shame-free guilt proneness, $r$ = .26 and $r$ = .21, authentic pride, $r$ = .42 and $r$ = .72. Only SE was correlated with hubristic pride, $r$ = -.24. Both SC and SE were correlated with social physique anxiety (SPAS), $r$ = -.37 and $r$ = -.52, objectified body consciousness (OBC-Y), $r$ = -.54 and $r$ = -.54, fear of failure (PFAI-S), $r$ = -.57 and $r$ = -.51, and fear of negative evaluation (FNE), $r$ = -.48 and $r$ = -.47 (all $p$s < .05). Neither SC nor SE correlated with obligatory exercise total score (OEQ) ($p$s > .05).<br>A series of hierarchical regression analyses were conducted to explore the influence of SC beyond SE. SE was entered in step 1 and SC in step 2. SE was a predictor of shame in step 1, $\beta$ = -.29, $p$ < .01, $R^2$ = .08, $p$ < .01, but not in step 2, $\beta$ = -.15, $p$ > .05, whereas SC was a predictor in step 2, $\beta$ = -.22, $p$ < .05, $\Delta R^2$ = .03, $p$ < .01.<br>SE was a predictor of guilt-free shame in step 1, $\beta$ = -.34, $p$ < .01, $R^2$ = .12, $p$ < .01, but not in step 2, $\beta$ = -.17, $p$ > .05, whereas SC was a predictor, $\beta$ = -.28, $p$ < .05, $\Delta R^2$ = .05, $p$ < .05.<br>SE was a predictor of shame-free guilt in step 1, $\beta$ = .21, $p$ < .01, $R^2$ = .05, $p$ < .01, but not in step 2, $\beta$ = .09, $p$ > .05, whereas SC was a predictor, $\beta$ = .21, $p$ < .05, $\Delta R^2$ = .03. $p$ < .05.<br>SE was a predictor of OBC-Y in step 1, $\beta$ = -.54, $p$ < .01, and in step 2 but the coefficient was reduced, $\beta$ = -.34, $p$ < .01. SC was a predictor, $\beta$ = -.33, $p$ < .01, $\Delta R^2$ = .05, $p$ < .01. |

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| | | | | | SE was a predictor of PFAI-S in step 1, $\beta$ = -.51, $p$ < .01, $R^2$ = .26, $p$ < .01, and in step 2 but the coefficient was reduced, $\beta$ = -.26, $p$ < .01, SC was a predictor in step 2, $\beta$ = .41, $p$ < .01, $\Delta R^2$ = .11, $p$ < .01.<br>SE was a predictor of FNE in step 1, $\beta$ = -.47, $p$ < .01, and in step 2 but the coefficient was reduced, $\beta$ = -.28, $p$ < .01, SC was a predictor in step 2, $\beta$ = -.31, $p$ < .01, $\Delta R^2$ = .11, $p$ < .01.<br>SC did not explain unique variance beyond self-esteem in guilt proneness, authentic pride, hubristic pride, SPAS or OEQ. |
| Peterson (2014) | To investigate the influence of SC and SE on two self-protection strategies (self-handicapping and sandbagging) | Cross-sectional<br>Correlational<br>173 students | Use of protection strategies in performance situations (real life) | SCS<br>RSES<br>SHS<br>SBS | SC was correlated with self-handicapping, $r$ = -.47, and sandbagging, $r$ = -.38. SE was also correlated with self-handicapping, $r$ = -.53, and sandbagging, $r$ = -.35, (all $p$s < .01).<br>In a hierarchical regression for sandbagging, age and gender were entered in step 1. Age was not a predictor, $\beta$ = .15, $p$ > .05, whereas gender was a predictor, $\beta$ = -.20, $p$ < .05, $R^2$ = .06, $F$(2,169) = 4.90, $p$ < .01.<br>SE was a predictor of self-handicapping in step 2, $\beta$ = -.51, $p$ < .001, $\Delta R^2$ = .24, $F$(3,168) = 24.12, $p$ < .001. SC was a predictor in step 3, $\beta$ = -.21, $p$ < .05, $\Delta R^2$ = .03, $p$ < .01, $F$(4,167) = 20.07, $p$ < .001.<br>Similarly, in a hierarchical regression for self-handicapping, age and gender were entered in step 1. Age was not a predictor, $\beta$ = -.07, $p$ > .05, whereas gender was a predictor, $\beta$ = -.16, $p$ < .05, $R^2$ = .04, $F$(2,169) = 3.07, $p$ < .05.<br>SE was a predictor of sandbagging in step 2, $\beta$ = -.33, $p$ < .001, $\Delta R^2$ = .10, $F$(3,168) = 8.90, $p$ < .001. |

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| | | | | | SC was a predictor in step 3, $\beta$ = -.25, $p$ < .05, $\Delta R^2$ = .03, $p$ < .01, $F$(4,167) = 8.56, $p$ < .001. |
| Pisitsungkagarn, Taephant, and Attasaranya (2013) | To investigate whether SC moderates the relationship between body image satisfaction and SE | Cross-sectional<br>Correlational<br>302 female students | Body image in young women (real life) | SCS<br>RSES<br>BAS | Both SC and SE were correlated with body image satisfaction, $r$ = .32 and $r$ = .40 respectively (both $p$s < .01).<br>In a multiple regression, body image satisfaction and SC were both predictors of SE, $\beta$ = .29, $p$ < .001, and $\beta$ = .34, $p$ < .001, respectively, $R^2$ = .26, $F$(3,298) = 35.48, $p$ < .001.<br>Their interaction was significant, $\beta$ = .11, $p$ < .05 and a simple slopes analysis showed that the relationship between body image satisfaction and SE was stronger for participants with low SC, $\beta$ = .39, $p$ < .001, than for participants with high SC, $\beta$ = .18, $p$ < .05. |
| Reis et al. (2015) Study 1 | To investigate the relationship between SC, SE, and responses to difficult hypothetical and recalled sport situations | Cross-sectional<br>Correlational<br>101 female athletes | Difficult sporting situations (both real life and experimentally induced) | SCS<br>RSES<br>NPI<br>Responses to hypothetical situations (ratings of how likely they would be to think, feel or behave in a particular way)<br>Responses to recalled situation (ratings of the degree to which they reacted in each of nine ways, the extent to which | Hypothetical scenario: After controlling for the influence of SE and narcissism (NPI), SC was correlated with total negative affect, $r$ = -.40, catastrophizing thoughts, $r$ = -.30, personalizing thoughts, $r$ = -.32, and behavioural equanimity, $r$ = .28 (all $p$s < .05), but not equanimous thoughts or humourous thoughts (both $p$s > .05). SE was not correlated with any of the responses after controlling for the influence of SC and narcissism.<br>Recalled scenario: After controlling for the influence of SE and narcissism, SC was correlated with negative emotions, including sadness, $r$ = -.31, anxiety, $r$ = -.31, anger, $r$ = -.34, and self-conscious emotions, $r$ = -.48 (all $p$s < .01). After controlling for SC and narcissism, SE was not correlated with any negative emotions (all $p$s > .05). After controlling for SE and narcissism, SC was correlated |

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| | | | | they thought six thoughts, and felt 16 emotions) | with 4/9 behavioural reactions in the hypothesized direction, including 'I tried to be kind to myself,' $r$ = .38, $p$ < .01. After controlling for SC and narcissism, SE was correlated with 1/9 of the behavioural reactions, namely, 'I gave myself time to come to terms with it,' $r$ = -.21, $p$ < .05. After controlling for SE and narcissism, SC was correlated with 4/5 thoughts in the hypothesized direction, including 'I seem to have bigger problems than most people do,' $r$ = -.23, $p$ < .05. After controlling for SC and narcissism, SE was not associated with any of the thoughts (all $p$s > .05). |
| Reis et al. (2015) Study 2 | To evaluate the effectiveness of a brief SC induction on reactions to difficult hypothetical sport situations (compared to an SE induction and a control group) | Cross-sectional Experimental 59 female athletes | Difficult sporting situations (hypothetical) | SCS<br>RSES<br>NPI<br>Responses to a difficult hypothetical sporting situation (from study 1 and repeated in study 2) | A MANOVA showed no effect of group, Wilks' Lambda = .69, $F$(12,96) = 1.66, $p$ = .09, time, Wilks' Lambda = .87, $F$(6,48) = .122, $p$ = .31, or time by group interaction, Wilks' Lambda = .75, $F$(12,96) = 1.27, $p$ = .25.<br>This was followed up with a series of hierarchical regression analyses. SE was entered in step 1, induction group in stage 2, and SC was entered in step 3. The outcomes considered were behavioural equaminity, four different kinds of thoughts (catastrophizing, personalizing, equanimous, humourous) and negative affect. There were no significant predictors of catastrophizing thoughts or humourous thoughts.<br>SE was a predictor of equanimous thoughts in step 1, $\beta$ = .37, $p$ < .01, $R^2$ = .14. $p$ < .01. However, induction was not a predictor at step 2, $\beta$ = -.11, $p$ > .05, $\Delta R^2$ = .01. $p$ > .05, and SC was not a predictor at step 3, $\beta$ = .12, $p$ > .05, $\Delta R^2$ = .01. $p$ > .05.<br>SE was a predictor of personalizing thoughts in step 1, $\beta$ = -.33, $p$ < .05, $R^2$ = .11. $p$ < .05. Induction was |

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| | | | | | not a predictor at step 2, $\beta = .17$, $p > .05$, $\Delta R^2 = .03$. $p > .05$. SC was a predictor at step 3, $\beta = .41$, $p < .05$, $\Delta R^2 = .10$. $p < .05$.<br>SE was a predictor of behavioural equanimity in step 1, $\beta = .38$, $p < .01$, $R^2 = .14$. $p < .01$. Induction was not a predictor at step 2, $\beta = .05$, $p > .05$, $\Delta R^2 = .00$. $p > .05$. SC was a predictor at step 3, $\beta = .43$, $p < .05$, $\Delta R^2 = .11$, $p < .05$.<br>SE was a predictor of negative affect in step 1, $\beta = -.37$, $p < .01$, $R^2 = .13$. $p < .01$. Induction was not a predictor at step 2, $\beta = .09$, $p > .05$, $\Delta R^2 = .01$. $p > .05$. SC was a predictor at step 3, $\beta = -.46$, $p < .01$, $\Delta R^2 = .12$, $p < .01$. |
| Wasylkiw, Mackinnon, and Maclellan (2012): Study 1 | To examine the relationship between SC, SE, and women's body image | Cross-sectional Correlational 142 female students | Body image in women (real life) | RSES<br>SCS<br>BSQ<br>BAS<br>BES | SC and SE were correlated with all indexes of body image, including body shape concerns (BSQ), $r = -.49$ and $r = -.41$ respectively, body appreciation (BAS), $r = .60$ and $r = .54$ respectively, and weight concerns (BES), $r = .48$ and $r = .42$ respectively (all $p$s $< .01$).<br>Hierarchical regression analyses were conducted to examine predictors of these three measures. SE was entered in step 1 and SC was entered in step 2.<br>For the BSQ, SE was a predictor in step 1, $\beta = -.41$, $p < .01$, $R^2 = .17$. $p < .01$. In step 2, SC was a predictor, $\beta = -.40$, $p < .01$, and SE was no longer a predictor, $\beta = -.13$, $p > .05$, $\Delta R^2 = .08$. $p < .01$.<br>For the BAS, SE was a predictor in step 1, $\beta = .54$, $p < .01$, $R^2 = .29$. $p < .01$. In step 2, SC was a predictor, $\beta = .43$, $p < .01$, and SE remained a |

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| | | | | | predictor but the coefficient was reduced, $\beta = .24$, $p < .05$, $\Delta R^2 = .09$. $p < .01$.<br>For weight concerns, SE was a predictor in step 1, $\beta = .42$, $p < .01$, $R^2 = .18$. $p < .01$. In step 2, SC was a predictor, $\beta = .37$, $p < .01$, and SE was no longer a predictor, $\beta = .17$, $p > .05$, $\Delta R^2 = .07$. $p < .01$. |
| Wasylkiw, Mackinnon, and Maclellan (2012): Study 2 | To examine the relationship between self-compassion and women's body image, Also, to explore whether SC predicts eating behavior | Cross-sectional Correlational 189 female students | Body image and eating behavior in women (real life) | SCS (including separate analysis of the six subscales)<br>RSES<br>BSQ<br>RRRS (restrictive eating and eating guilt subscales)<br>CES-D | In a hierarchical regression analysis, SE was a predictor of body preoccupation (BSQ) in step 1, $\beta = -.52$, $p < .01$, $R^2 = .26$. $p < .01$.<br>SC did not predict additional variance when added at step 2, $\beta = -.11$, $p > .05$, $\Delta R^2 = .01$. $p > .05$.<br>When the SCS subscales were entered individually at step 2, self-judgment was the only significant predictor, $\beta = .25$, $p < .01$, $\Delta R^2 = .07$. $p < .01$.<br>SE was a significant predictor of restrictive eating in step 1, $\beta = -.18$, $p < .05$, $R^2 = .03$, $p < .05$. However, neither SE nor SC were predictors at step 2, $\beta = -.18$, $p > .05$, and $\beta = -.01$, $p > .05$, respectively, $\Delta R^2 < .01$. $p > .05$.<br>SE was a significant predictor of eating guilt in step 1, $\beta = -.39$, p < .01, $R^2 = .15$, $p < .01$. In step 2, SC was a predictor, $\beta = -.21$, $p < .01$, and SE remained a predictor but the coefficient was reduced, $\beta = -.26$, $p < .05$, $\Delta R^2 = .03$. $p < .05$. |
| Zhang and Chen (2016): Study 2 | To investigate whether SC (compared with SE) predicts greater personal | Cross-sectional Correlational 125 adults | Thinking of regret experiences (real life) | SCS<br>RSES<br>Positive, negative and self-conscious | SC was correlated with negative affect and self-conscious emotions, $r = -.22$ and $r = -.27$ respectively. SE was also correlated with negative affect and self-conscious emotions, $r = -.39$ and $r = -.32$ respectively (all $p$s < .05). SC was correlated |

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| | improvement (PI) following regret experiences | | | emotions (rated on scale of 1-7); Self- and observer-reported self-improvement (rating scale of 1-4, higher scores indicate greater self-improvement motivation) | with positive affect, $r = .19$, $p < .05$, but SE was not, $r = 11$, $p > .05$. However, the correlations between SC and positive affect, negative affect and self-conscious emotions became non-significant after controlling for SE in analyses (all *p*s > .05). Both SC and SE were correlated with self-reported personal improvement, $r = .32$ and $r = .27$ respectively (both *p*s < .05). SC was correlated with observed-reported personal improvement, $r = .21$, $p < .05$, but SE was not, $r = .03$, $p > .05$. In a multiple regression analysis, SC was a predictor of both self-reported and observer-reported personal improvement, $\beta = .27$ and $\beta = .33$ respectively (both *p*s < .05). SE was not a significant predictor of either self-reported personal improvement, $\beta = .11$, or observer-reported personal improvement, $\beta = -.19$, (both *p*s > .05). |
| Zhang and Chen (2016): Study 3 | To investigate if a SC induction leads to increased personal improvement following regret experiences (compared to a SE induction and control group) | Cross-sectional Experimental 400 students | Thinking of a regret experience (real life) | State self-compassion (4-items of SCS); Positive, negative and self-conscious emotions (rated on scale of 1-7); Measure of motivation to improve (rate statements on a scale of 1-7; higher scores indicate greater motivation to improve) | There were significant differences between conditions on motivation to change, $F(2,394) = 5.51$, $p = .004$. Participants in the SC condition reported more motivation to improve ($M = 5.19$, $SD = 1.07$) than those in the SE condition ($M = 4.76$, $SD = 1.10$, $p = .001$) and control condition ($M = 4.92$, $SD = 1.07$, $p = .035$). Differences between the SE and control conditions were not significant ($p = .22$). There were significant differences between conditions on negative affect, $F(2,394) = 4.22$, $p = .015$. Participants in the SC condition reported less negative affect ($M = 3.19$, $SD = 1.51$) than those in the SE condition ($M = 3.65$, $SD = 1.53$, $p = .014$) and those in the control condition ($M = 3.66$, $SD = 1.49$, $p = .011$). Differences between the SE and control conditions were not significant ($p > .05$). |

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| | There were significant differences between conditions in self-conscious emotions, $F(2,394) = 5.03$, $p = .007$. Participants in the SC condition reported lower self-conscious emotions ($M = 3.70$, $SD = 1.60$) than those in the control condition ($M = 4.29$, $SD = 1.59$, $p = .003$) and participants in the SE condition also reported lower self-conscious emotions ($M = 3.84$, $SD = 1.64$) than those in the control condition ($p = .023$). Differences between the SC and SE conditions were not significant ($p > .05$). There were no differences between conditions on positive affect $F(2,394) = 0.74$, $p > .05$. |

*Note.* SC = self-compassion; SE = self-esteem; SCS = Self-Compassion Scale; RSES = Rosenberg Self-Esteem Scale; CD-RISC-10 = Connor Davidson Resilience Scale; DASS-21 = Depression, Anxiety and Stress Scales; EDE-Q = Eating Disorder Examination Questionnaire; FCS = Fear of Compassion Scale; BMI = body mass index; BI-AAQ = Body Image Acceptance and Action Questionnaire; TOSCA-A = Test of Self-Conscious Affect for Adolescents; SPAS = Social Physique Anxiety Scale; OEQ = Obligatory Exercise Questionnaire; OBC-Y = Objectified Body Consciousness Scale for Youth; PFAI = Performance Failure Appraisal Inventory; FNE = Fear of Negative Evaluation Scale; SHS = Self-Handicapping Scale; SBS = Sandbagging Scale; BAS = Body Appreciation Scale; BES = Body Esteem Scale; RRRS = Revised Rigid Restraint Scale; CES-D = Center for Epidemiological Studies Depression Scale.

### 1.3.3 Correlational Studies

The 13 correlational studies included in the present review considered a range of challenging situations. Five studies broadly related to performance situations, five studies were related to body image and eating behavior in women, one study considered perceived stress in daily life, one study considered living with a physical disability, and one considered regret experiences. Two of the correlational studies were conducted as precursors to experimental studies (Reis et al., 2015; Zheng & Chen, 2016). The individual studies are described below and the strengths and limitations of the studies are discussed. Sample sizes were deemed to be adequate when they exceeded 50 + 8m (where m is the number of independent variables), a rule of thumb suggested by Tabachnick and Fidell (2014) for calculating sample sizes required for regression analyses.

Two of the five studies that focused on performance situations considered physiological stress responses to a laboratory based stressor involving one's performance being evaluated by others (Breines et al., 2014; Breines et al., 2015), one study considered the use of self-protection strategies typically employed to maintain self-esteem in performance situations (Peterson, 2014), one study considered self-conscious emotions and the use of maladaptive self-evaluative processes in female athletes (Mosewich, Kowalski, Sabiston, Sedgwick, & Tracy, 2011) and one study considered female athletes' responses to difficult sporting situations (Reis et al., 2015).

In both studies that considered physiological stress responses (Breines et al., 2014; Breines et al., 2015), participants were exposed to a laboratory based stressor on two consecutive days. The Trier Social Stress Test (TSST; Kirschbaum, Pirke, & Hellhammer, 1993) involves making a speech and completing an arithmetic task in front of judges. Two different markers of the biological stress response were considered: interleukin-6 (IL-6), a marker of inflammation considered to be associated with stress (Breines et al., 2014), and salivary alpha-amylase (sAA), a marker of sympathetic nervous system activation (Breines et al., 2015). Both studies found that self-compassion was a significant negative predictor of the biological stress response on day one, and remained so after controlling for potential covariates including self-esteem and subjective

distress, which were not themselves significant predictors. On day two, Breines et al. (2015) found that self-compassion remained a significant predictor of sAA response to the TSST. Breines et al. (2014) found that self-compassion was not a significant predictor of IL-6 responses on day two. However, participants lower in self-compassion showed an increase IL-6 from baseline on day one to baseline on day two, suggesting a carryover of the stress response from day one.

These are important studies which employ physiological measures of stress rather than relying on self-report measures. However, both studies are limited by the small sample sizes which may affect the reliability of the findings. The use of the Trier Social Stress Test ensures consistency in the challenge experienced. However, participants would have known there were would be no real implications and it is a possibility that they may not have experienced the test to be as stressful as they would a real-life event.

Peterson (2014) studied two self-protection strategies that are typically used in performance situations when one's competence is being evaluated. Self-handicapping describes the way people report or create impairments to their performance to protect perceived competence and maintain self-esteem. For example, using alcohol or drugs so that performance is impaired. Sandbagging involves attempts to reduce expectations of others so that subsequent performance will be evaluated more positively in light of lowered expectations. For example, by claiming to have not revised for an exam. Both strategies can be helpful in maintaining self-esteem in moderation, but can have negative consequences if overused. Peterson (2014) found that both self-esteem and self-compassion were negatively correlated with the use of these self-protection strategies. However, self-compassion predicted additional variance beyond that of self-esteem in the use of both strategies.

Although the sample size was adequate, this study was conducted with a young student sample, predominantly of psychology students and the findings may not generalise to other populations. Additionally, the findings may be affected by the social desirability bias due to the reliance on self-report measures; participants may not have wanted to admit using self-protection strategies. It is also possible that participants were not able to accurately report how often they use protection strategies in performance

situations. Such research could be improved by employing more objective measures of the use of self-protection strategies, e.g., by observing participants' behavior.

Mosewich et al. (2011) considered associations between trait self-esteem, trait self-compassion, and outcome measures of self-conscious emotions and self-evaluative processes in a sample of female athletes. Social comparison and evaluation are common in female athletes and these processes are connected to the experiencing of self-conscious emotions. Mosewich et al. (2011) measured proneness to experiencing shame and guilt, both of which are self-conscious emotions that occur when an internal standard has been violated. Whereas guilt is typically focused on a specific behavior and can be adaptive, shame is based on an evaluation of the whole self. It can be a particularly painful emotion to experience and is less likely than guilt to lead to reparative behaviours (Tangney & Dearing, 2002). Due to high correlations between shame and guilt proneness, they included measures of shame-free guilt proneness, and guilt-free shame proneness, to control for the shared variance in the two emotions. They also measured both authentic pride, which is typically based on specific behavior, and hubristic pride, which is based on an evaluation of the whole self. The former is considered to be more adaptive (Tracy & Robins, 2007). Measures of self-evaluative processes included performance-related and body image-related thoughts and behaviours. This included the Fear of Negative Evaluation Scale (FNE; Leary, 1983) and the Social Physique Anxiety Scale; SPAS; Hart et al., 1989). Table 1 lists all outcomes measures used by Mosewich et al. (2011).

Mosewich et al. (2011) found that self-compassion was negatively correlated with guilt-free shame proneness, social physique anxiety, objectified body consciousness, fear of failure and fear of negative evaluation. Self-compassion was positively correlated with shame-free guilt proneness and authentic pride. Self-esteem showed a similar pattern of correlations with all variables, the only exception being that self-esteem was negatively correlated with hubristic pride and self-compassion was not correlated with this. Neither self-compassion nor self-esteem were correlated with obligatory exercise.

Although the patterns of correlations were similar, self-compassion accounted for unique variance beyond that of self-esteem on measures of shame and shame-free guilt proneness and guilt-free shame proneness, as well as the self-evaluative processes of

objectified body consciousness, fear of failure, and fear of negative evaluation. However, self-compassion did not explain unique variance beyond self-esteem in guilt proneness, authentic or hubristic pride, social physique anxiety, or obligatory exercise.

The study by Mosewich et al. (2011) employed a sample of young female athletes, reasoning that this population may experience particular issues with self-conscious emotions and self-evaluation. Although the sample size was adequate for the regression analyses, the researchers considered 11 different outcomes (to assess a range of self-conscious emotions and self-evaluative processes) in separate regression models without controlling for this in the analyses, increasing the risk of making a type 1 error. Therefore, the findings should be interpreted with caution. The assumption that young female athletes experience challenges relating to self-conscious emotions and self-evaluative processes may not always be the case and the researchers suggest that that the study should be followed up by examining the role of trait self-compassion in more objectively challenging specific sport situations, such as a failure event.

Reis et al. (2015) considered more specific challenges in a sample of female athletes, exploring the relationship between trait self-compassion, trait self-esteem and a range of responses to difficult sporting situations, including both a hypothetical scenario (imagining being responsible for your team losing a competition) and a recalled scenario (thinking about the worst thing that has happened to you in sport during the past year). For the hypothetical scenario, participants rated the likelihood that they would respond in certain ways, including what they would think, how they would feel, and what they would do. For the recalled scenario participants, rated how they actually responded, in terms of their thoughts, feelings, and behavior.

In the hypothetical scenario, after controlling for self-esteem and narcissism, self-compassion was negatively related to catastrophizing thoughts (such as ‘this is awful’), and personalizing thoughts (such as ‘I am such a loser’). Self-compassion was also negatively associated with negative affect and positively associated with behavioural equanimity (reflecting a calm and composed response, rather than an overly reactive one). Although self-esteem showed a similar pattern of correlations with the scenario

responses, the associations became non-significant after controlling for self-compassion and narcissism.

Similar results were reported for the recalled scenario. After controlling for self-esteem and narcissism, self-compassion was negatively related to negative affect and self-conscious emotions, and positively related to 4/9 of the more adaptive behavioural reactions (such as 'I tried to be kind to myself'), as well as 4/5 of the more adaptive thoughts (such as 'everyone has a bad day now and then'). Again, self-esteem showed similar patterns of correlations, but these were all non-significant after controlling for self-compassion and narcissism, with the exception of one of the behavioural reactions.

The sample size in the study by Reis et al. (2015) is adequate although there are some issues relating to the outcome measures used. Firstly, it is possible that participants may have responded in a way that was socially desirable that may not reflect how they would actually respond in real life. Secondly, asking participants to rate statements to indicate how they would respond is very similar to the measure of trait self-compassion employed, which asks participants to rate statements to indicate how they typically act towards themselves in difficult times. Therefore, the fact that trait self-compassion is associated with participants' responses to the difficult sporting scenarios is unsurprising due to the high degree of overlap in item content between the measures and may represent a bias towards finding self-compassion to be associated with more adaptive responses. Thirdly, the outcome measures involved asking participants to rate statements and the psychometric properties of such measures are not reported. Finally, this study employed a range of outcome variables without controlling for these in the analyses, increasing the risk of making a type 1 error.

Samples of female participants only were also considered in all studies relating to body image and eating behavior. The authors of these studies explain that body image concerns and maladaptive eating behavior, such as restrained eating, are particularly relevant to women. Five studies within four articles explored relationships between self-compassion, self-esteem and body image or eating behaviour in women. Culturally defined standards regarding the way women should look have been described as unrealistic and, for most women, unachievable (Wasylkiw et al., 2012). Consequently,

dissatisfaction with body image is so common that it is considered normal (Pisitsungkagarn, Taephant, & Attasaranya, 2013). Kelly, Vimalakanthan, and Miller (2014) explain how the 'thin ideal' is significantly lower than the average woman's weight, and having an elevated BMI can be a source of stress and stigma. Wasylkiw et al. (2012) describe a well-documented link between self-esteem and women's body concerns, with low self-esteem being both a predictor and a consequence of body image concerns.

Both self-compassion and self-esteem were positively associated with body image satisfaction (Pisitsungkagarn et al., 2013; Wasylkiw et al., 2012) and body image flexibility, a concept from Acceptance and Commitment Therapy (ACT) describing mindful acceptance of concerns rather than positive evaluations (Kelly, Vimalakanthan, & Miller, 2014). Additionally, both self-compassion and self-esteem were negatively associated with eating disorder pathology (Kelly, Vimalakanthan, & Miller, 2014), as well as eating guilt (Wasylkiw et al., 2012). Kelly, Vimalakathan, and Carter (2014) did not report correlations.

Although both self-compassion and self-esteem were significantly correlated with the outcome variables described above, hierarchical regression analyses found that self-compassion explained additional variance beyond that of self-esteem. The predictive value of self-esteem on global eating disorder pathology and body image flexibility became non-significant or substantially reduced when self-compassion was entered into the regression (Kelly, Vimalakanthan, & Miller, 2014). Wasylkiw et al. (2012) found that self-compassion predicted unique variance beyond that of self-esteem on all measures relating to body image in their first study and eating guilt, but not restrictive eating, in their second study. The self-judgment subscale of the SCS, rather than total SCS score, explained additional variance beyond self-esteem in body preoccupation in their second study. This is the only study that separated the subscales of the SCS in the analysis. Future research considering the subscales of the SCS individually could reveal more about the specific mechanisms underlying the benefits associated with self-compassion.

In addition to trait self-compassion and trait self-esteem, Kelly, Vimalakanthan, and Carter (2014) also considered fear of self-compassion as a potential predictor of

eating disorder pathology in a sample of female students and a sample of females with a diagnosed eating disorder. Gilbert and Proctor (2006) noticed that some people are fearful of self-compassion, and this may be as important as a lack of self-compassion if it causes people to actively resist being self-compassionate (Gilbert, McEwan, Matos, & Rivis, 2011). In a multiple regression analysis, self-compassion was the strongest predictor of eating disorder pathology in a student sample, and fear of self-compassion was not a significant predictor. However, the opposite pattern was observed in the patient sample. Self-compassion was not a significant predictor, self-esteem was a significant predictor, and fear of self-compassion emerged as the strongest predictor of eating disorder pathology. This is the only study that considered the relevance of being fearful of being self-compassionate. Future research could continue to investigate the relevance of this construct, as it may be important to consider when developing interventions to enhance self-compassion.

One of the studies on body image considered self-esteem as an outcome rather than a predictor in the regression analyses. Pisitsungkagarn et al. (2013) showed that both self-compassion and body image satisfaction were significant predictors of self-esteem. A moderation analysis found that the association between body image satisfaction and self-esteem differed according to levels of self-compassion; the relationship was stronger in participants with low self-compassion and weaker in those with high self-compassion (Pisitsungkagarn et al., 2013). Kelly, Vimalakanthan, and Miller (2014) also found that self-compassion moderated the relationship between BMI and body image flexibility, and between BMI and eating disorder pathology; relationships were weaker or non-significant in women high in self-compassion.

All studies relating to body image concerns and eating behavior in women relied on the use of self-report measures and all were cross-sectional, correlational studies so the direction of causality is not clear. The sample sizes were adequate however, they were homogenous as they were mostly made up of undergraduate students, with the exception of Kelly, Vimalakanthan, and Carter (2014) who also considered a sample of participants with a diagnosed eating disorder. Pisitsungkagarn et al. (2013) used a sample of Thai

undergraduate students which increases confidence that findings may be generalisable across diverse cultures.

Finally, in addition to the studies exploring the challenges of performance situations, and the challenges faced by women in relation to body image, three studies considered challenges that are faced by people in real life on a regular basis, including stress (Krieger, Hermann, Zimmermann, & grosse Holtforth, 2015), regret experiences (Zheng & Chen, 2016), and the physical and psychosocial challenges faced by people with a physical disability (Hayter & Dorstyn, 2014).

Both self-esteem and self-compassion were positively associated with positive affect and negatively associated with negative affect and perceived stress in a sample of students who provided regular reports of perceived stress and affect over a period of 14 days (Krieger et al., 2015). When the shared variance of trait self-compassion and self-esteem was removed, only self-compassion remained associated with positive and negative affect. Additionally, in a moderation analysis, Krieger et al. (2015) found that the relationship between perceived stress and negative affect was stronger in participants low in trait self-compassion compared to participants high in self-compassion.

The use of smart phones in the data collection process enabled participants to record their stress and affect levels regularly, which may have resulted in greater accuracy in their ratings of perceived stress and negative affect. Although the sample size was adequate, it was a homogenous sample of younger, educated participants and the results may not generalise to the wider population. Finally, as with all studies employing correlational methodology, the direction of causality is not clear.

Regret experiences are a common life experience, and although some people find these experiences extremely difficult to manage, others are able to use regret experiences as an opportunity to learn and develop. Zheng and Chen (2016) asked participants to write about a personal regret experience and then provide ratings of positive and negative affect, self-conscious emotions, and personal improvement, by rating agreement with statements such as ‘I have grown as a person because of this regret.’ Additionally, observers rated participants’ written statements for signs of personal improvement. After writing about a personal regret, both trait self-compassion and trait self-esteem were

negatively correlated with negative affect and self-conscious emotions. Self-compassion, but not self-esteem, was positively correlated with positive affect. However, after controlling for self-esteem in the analyses, the associations became non-significant. Self-compassion was associated with greater self-reported and observer-reported personal improvement, and these associations remained significant after controlling for self-esteem. Self-esteem was associated with self-reported personal improvement but not observed-reported personal improvement. In multiple regression analyses, trait self-compassion predicted self-reported and observer-reported personal improvement, whereas self-esteem was not a significant predictor of either self-reported or observer-reported personal improvement.

The sample in this study was not limited to students; Zheng and Chen (2016) recruited adults across the life span and therefore the results are more likely to generalise to the wider population than other studies in this review. The inclusion of an observer-reported measure of personal improvement is also a strength. Although two observers rated participants' written statements about their regret, inter-rater reliability statistics are not reported. Additionally, this measure could still be affected by the social desirability bias, as participants' written statements could be influenced by concerns about how they believe that others may view them.

Finally, one correlational study included in the present review used a sample of adults with spina bifida to consider associations between trait self-compassion, trait self-esteem, and resilience when faced with a physical disability. Hayter and Dorstyn (2014) found that both self-compassion and self-esteem were positively correlated with resilience, and negatively correlated with psychological distress. However, a multiple regression analysis showed that psychological distress was the only unique predictor of resilience; neither self-compassion nor self-esteem were significant predictors. The overall model only explained 23% of the variance in resilience which suggests there are other important predictors which were not considered in this study.

The majority of studies in the present review used student samples and Hayter and Doystyn's (2014) study is important because it considers the impact of trait self-esteem and trait self-compassion in a sample of people with a physical disability. The sample

size is adequate; however, it was still relatively homogenous and not representative of all types of physical disability, as it specifically considered adults with spina bifida. Additionally, participants were recruited from an online support group and so the results may be biased towards adults with spina bifida who have greater functional abilities and access to support.

### 1.3.4 Experimental Studies

A total of six studies (within three articles) used an experimental design to compare the impact of experimentally induced state self-compassion with experimentally induced state self-esteem on a range of outcomes in challenging situations. Two articles employed correlational methodology in initial studies to establish associations between self-compassion and other variables before following up these findings with studies using experimental design (Reis et al., 2015; Zheng & Chen, 2016). Some of the experimental studies made use of participants' own real-life examples of challenging situations (e.g., reflecting on a personal weakness), some used experimental manipulations (e.g., failing a difficult test), and some used a combination of the two.

Four studies conducted by Breines and Chen (2012) considered different aspects of self-improvement motivation following challenging situations. The challenging situations included thinking about personal weaknesses, reflecting on moral transgressions, and failing a test. Zheng and Chen (2016) also focused on personal improvement following a real-life regret experience, whereas Reis et al. (2015) considered responses to a hypothetical difficult sporting situation.

The self-compassion inductions varied somewhat across the studies. All focused on inducing self-compassion according to Neff's (2003a) definition, but they did not all explicitly induce the three components each time. All self-esteem inductions focused on self-validation rather than self-compassion. However, the self-esteem inductions also varied across studies. For example, in one study Breines and Chen (2012) asked participants to write a paragraph about their positive qualities and things they have done that they are proud of; in another study they embedded the self-esteem and self-compassion inductions into the task instructions, reminding participants that they must be intelligent if they got into Berkeley (in the self-esteem induction) and reminding

participants not to be hard on themselves as lots of people have difficulty with this test (in the self-compassion induction).

The results obtained by Breines and Chen (2012) across all four studies showed that participants who completed the self-compassion induction reported greater self-improvement motivation than participants allocated to the control group (either positive distraction or no intervention). This included expressing more incremental beliefs (described by the authors as beliefs that something is changeable rather than fixed) when thinking about a personal weakness, expressing a greater desire to make amends following a moral transgression, spending more time studying for a second attempt after a test after failing the first time, and choosing to engage in upward social comparisons, which is considered to reflect greater self-improvement motivation. In two of the four studies, participants who completed the self-compassion induction reported greater self-improvement motivation than those who completed the self-esteem induction. Similarly, Zheng and Chen (2016) found that the self-compassion induction resulted in lower negative affect ratings and more personal improvement than the self-esteem induction. Additionally, both the self-compassion and self-esteem inductions led to lower ratings of self-conscious emotions compared to the control condition. There were no differences in participants' ratings of positive affect between conditions in any of the studies by Breines and Chen (2012) or Zheng and Chen (2016); the authors suggest that this shows that the increase in self-improvement motivation was not caused by an increase in positive affect (Breines & Chen, 2012).

Zheng and Chen (2016) used a sample of adults which increases the generalizability of the results. However, the majority of studies by Breines and Chen (2012) relied on samples of undergraduate students which may affect the generalizability of results. A variety of challenging situations were considered across studies and this is a strength. They made use of participants' own difficult experiences as well as inducing the experience of failure and assessed self-improvement motivation in a variety of ways. Rather than employing standardised outcome measures, participants rated statements indicating how they would respond. Psychometric properties are not reported and this is a limitation. Although some relied on self-report measures and may be affected by the

social desirability bias, one of the studies by Breines and Chen (2012) considered participants' behavior as an outcome measure (time spent studying after failing a test). Further research employing such outcome measures would be helpful in assessing the impact of self-compassion and self-esteem inductions.

Unlike the other experimental studies reported in the present review, Reis et al. (2015) did not find significant differences between conditions in a sample of female athletes after controlling for trait self-compassion, trait self-esteem, and narcissism. In this study, all participants were asked to imagine being responsible for their team losing an athletics competition. Participants allocated to the self-compassion condition responded to three prompts reflecting the three components of self-compassion, including writing a paragraph expressing kindness and concern towards themselves in the same way that they might to a friend who had undergone a similar experience, reflecting self-kindness. Participants allocated to the self-esteem condition responded to three prompts designed to make them feel good about themselves, including writing positive characteristics that indicate they are competent and valuable. Finally, participants in a writing control condition were instructed to 'really let go and explore their deepest emotions' in the context of the hypothetical scenario. Reis et al. (2015) compared participants' responses from a previous study with their responses in the present study, expecting that the responses of participants who completed the self-compassion induction would improve. However, there were no improvements over time, or differences between conditions. When followed up with a hierarchical regression analysis considering predictors of responses, self-esteem was a predictor of behavioural equanimity (a calm and composed response, rather than an overly reactive one), personalizing thoughts, equanimous thoughts and negative affect. Self-compassion emerged as a stronger predictor of these outcomes, with the exception of equanimous thoughts. Neither self-compassion nor self-esteem predicted humourous or catastrophizing thoughts. Experimental condition did not emerge as a predictor of any of the responses.

A key limitation of this study is the use of a hypothetical scenario that participants had already been exposed to in a previous study. It is unlikely this would compare to a real-life event, or even an experimentally-induced difficult event. Participants rated

statements to indicate how they would respond in this situation and the psychometric properties of these measures are not reported. Participants may have responded in a way that is socially desirable and this may not reflect how they would actually respond in real life. Additionally, as discussed previously in relation to the first study by Reis et al. (2015), there is a high degree of overlap in item content between the measure of trait self-compassion, which asks participants to rate statements to indicate how they typically act towards themselves in difficult times, and the outcome measures, which asked participants to rate statements to indicate how they would respond to a difficult sporting situation. Therefore, the fact that trait self-compassion was the only significant predictor of responses in a regression is unsurprising due to the similarities between the trait and state measures. Finally, all experimental studies compared self-compassion inductions with self-esteem inductions and did not consider the potential benefits of inducing both constructs.

## 1.4 Discussion

The aim of the present review was to consider research comparing self-compassion and self-esteem in order to address the question of whether self-compassion offers greater protection in challenging situations. This is a theoretical idea based on Neff's (2003a; 2011) conceptualization of, and consideration of the impact of self-compassion, and to date there has not been a review of the evidence to support or refute this idea. The present review was intended to fill that gap and included correlational studies that looked at associations between trait self-compassion, trait self-esteem, and other variables in challenging situations, as well as experimental studies that looked at the impact of experimentally induced self-compassion and self-esteem on a range of outcome variables in challenging situations. Overall, the correlational and experimental studies provide a pattern of evidence which supports the proposal that self-compassion offers greater protection than self-esteem. However, there are some exceptions to this pattern of support and the evidence as a whole has a number of methodological limitations, which are discussed below. The discussion will also consider theoretical explanations for why self-compassion might offer greater protection than self-esteem in challenging situations.

### 1.4.1 Correlational Studies

As discussed in the introduction, the first studies to compare trait self-compassion and trait self-esteem found that trait self-compassion was associated with less anxiety when faced with an ego threat (Neff et al., 2007), less ego-focused reactivity (Neff & Vonk, 2009) and more adaptive reactions to negative events (Leary et al., 2007) compared to trait self-esteem. The correlational studies in the present review extend these findings, by considering the relationships between trait self-compassion, trait self-esteem, and a wide range of outcomes in a variety of challenging situations. The outcomes included measures of emotional, cognitive, and behavioural responses, physiological stress responses, resilience, self-improvement, and a range of measures broadly assessing body image satisfaction and eating disorder pathology. The range of outcome measures is a strength as it tests the generalisability of the results.

The findings can be grouped according to statistical methods employed in the studies. Firstly, there are correlations, looking at associations between trait self-

compassion, trait self-esteem, and the range of outcome variables noted above. Secondly, there are regression analyses, looking at the predictive value of trait self-compassion and trait self-esteem, and finally there are moderation analyses, looking at whether higher self-compassion lessens the impact of negative relationships between other variables.

The majority of correlational studies showed that higher levels of self-esteem and self-compassion are associated with more adaptive responses (emotional, cognitive, and behavioural) in challenging situations. Specifically, correlations showed that higher levels of both self-esteem and self-compassion were associated with higher ratings of positive affect, and lower ratings of negative affect (Krieger et al., 2015; Reis et al., 2015; Zheng & Chen, 2016) including shame (Mosewich et al., 2011). Self-compassion and self-esteem were both associated with increased resilience and reduced distress (Hayter & Dorstyn, 2014). In terms of cognitive responses, higher levels of self-esteem and self-compassion were associated with fewer unhelpful thoughts, such as personalizing thoughts (Reis et al., 2015). Both were associated with reduced engagement in self-evaluative processes (Mosewich et al., 2011). With regard to behavioural responses, higher levels of self-esteem and self-compassion were associated with increased behavioural equanimity (Reis et al., 2015), reduced use of maladaptive self-protection strategies (Peterson, 2014), and increased self-improvement motivation (Zheng & Chen, 2016). Finally, higher levels of self-esteem and self-compassion were associated with increased satisfaction with body image (Pisitsungkagarn, et al., 2013; Wasylkiw et al., 2012) and body image flexibility (Kelly, Vimalakanthan & Miller, 2014) and reduced eating disorder pathology and eating guilt (Wasylkiw et al., 2012).

There were a few exceptions. For example, higher levels of self-compassion, but not self-esteem, were associated with a reduction in physiological stress responses (Breines et al., 2014; Breines et al., 2015). Additionally, for some of the cognitive and behavioural responses considered by Reis et al. (2015), self-compassion showed associations while self-esteem did not. For example, higher levels of self-compassion were associated with increased use of some of the more adaptive behavioural responses and fewer catastrophizing thoughts. Interestingly, although higher levels of self-compassion and self-esteem were associated with increased self-reported self-

improvement, only self-compassion showed the same association with observer-reported self-improvement (Zheng & Chen, 2016), which highlights one of the potential disadvantages of self-report measures.

Although correlational analyses indicated that both self-compassion and self-esteem might be protective, self-compassion often explained additional variance beyond self-esteem in the majority of hierarchical regression analyses. It also emerged as a stronger predictor than self-esteem in multiple regression analyses, or continued to show significant associations with variables after controlling for self-esteem, which was not always the case for self-esteem after controlling for self-compassion. These findings are consistent with the suggestion that self-compassion offers greater protection. A notable exception is the study by Hayter and Dorstyn (2014), which found that, although both trait self-esteem and self-compassion were positively associated with resilience and negatively associated with psychological distress, neither emerged as significant predictors of resilience in adults with spina bifida. This was the only study conducted with a sample of participants with a physical disability and suggests that more research is needed before drawing conclusions about the protective value of trait self-compassion in this population. Another exception is the study by Kelly, Vimalakathan and Carter (2014) who found that trait self-esteem and fear of self-compassion (rather than trait self-compassion) were predictors of eating disorder pathology in a sample of females with a diagnosed eating disorder.

Four studies that examined the predictive value of self-compassion and self-esteem in regression analyses went on to investigate the role of self-compassion as a moderator of relationships between other variables. These studies consistently showed that these relationships were weaker for people high in self-compassion compared with people low in self-compassion. This included the relationship between body image satisfaction and self-esteem (Pisitsungkagarn et al., 2013), BMI and body image flexibility, BMI and eating disorder pathology (Kelly, Vimalakanthan & Miller, 2014), and perceived stress and negative affect (Krieger et al., 2015). By comparison, Krieger et al. (2015) found that self-esteem did not moderate the relationship between perceived stress and negative affect. The results of the moderation analyses suggest that people

higher in self-compassion are less affected by the potential negative effects of being dissatisfied with their appearance or weight, and are less affected by perceived stress in their daily lives. As only one study considered self-esteem as a potential moderator, it is impossible to draw conclusions about the additional protective value of self-compassion over self-esteem from these results. It would be interesting to consider the potential moderating effects of self-esteem in future research.

Why might self-compassion offer more protection than self-esteem in challenging situations? Self-compassion is a way of relating to the self that is independent of self-evaluations (Neff, 2003a). On the other hand, self-esteem reflects positive or negative feelings about the self that are based on self-evaluations (Rosenberg, 1965). High self-esteem may offer protection in challenging situations, as viewing the self in a positive light more generally could limit the impact of a single negative event (Peterson, 2014). However, the desire to maintain a positive self-evaluation, and the positive affect associated with this, may result in challenging situations being experienced as more threatening. Self-compassion offers a way of experiencing positive affect towards the self, without needing to hold a positive self-evaluation, so challenging situations are not experienced as being as threatening (Peterson, 2014). These are conceptual ideas that should be tested empirically to advance our understanding of the reasons why self-compassion has generally emerged as a stronger predictor of participants' responses to challenging situations than self-esteem in the literature examined for this review.

All three components of self-compassion could potentially explain why self-compassion may offer more protection in the face of threats to the self than self-esteem. However, most of the research under review used the SCS as a global measure of trait self-compassion rather than considering the subscales individually and so at the moment this speculation is purely theoretical. Of the three components of self-compassion, 'common humanity' stands out as the most distinctive compared to the processes involved in self-esteem. A core feature of self-esteem is the evaluation of the self in relation to others, whereas the 'common humanity' component of self-compassion involves the complete opposite, namely the identification of the self with others and the recognition that all humans face adversity and suffer. Crucially it acknowledges the

imperfect nature of the human condition. This aspect of self-compassion appears relevant to all of the challenging situations considered in this review. Keeping the imperfect nature of the human condition in mind and being aware of the fact that we all have similar struggles could really reduce the sense of threat in situations where people have not performed well, are dissatisfied with their appearance, or have done something that they regret. The other two components of self-compassion, namely self-kindness and mindfulness, do potentially offer protection, although it is less clear how they are distinct from the processes underpinning self-esteem. Self-evaluations may vary along a continuum of self-criticalness to self-kindness and so it may be possible for people to evaluate themselves in a way that is more in line with self-kindness than self-judgment, and also to hold self-evaluations in mindful awareness, rather than over-identifying with them.

### 1.4.2 Limitations of Correlational Studies

Theoretically, the reasons as to why self-compassion might be more beneficial than self-esteem make sense. However, these studies do not present clear evidence that self-compassion *causes* better outcomes in challenging situations. This is one of the limitations of cross-sectional, correlational studies and a number of authors identified a need for experimental studies to back up the conclusions.

All correlational studies in the present review used the SCS (or the short-form of the SCS) to measure trait self-compassion, and the RSES to measure trait self-esteem. The advantages of this are that there was consistency in how the constructs of trait self-compassion and trait self-esteem were defined and measured across studies and the results of studies are directly comparable. However, by only employing one measure to assess the constructs of self-compassion and self-esteem, there is a lack of convergent validity. This could be dealt with by utilizing alternative measures of self-compassion and self-esteem.

Additionally, the SCS asks people to respond to statements indicating how they typically act towards themselves in difficult times. The wording of the statements is very similar to some of the measures employed by studies in the present review to assess participants' responses to challenging situations. This is a particular issue in the studies

by Reis et al. (2015) as discussed in the results section. Therefore, the fact that self-compassion emerged as a stronger predictor of participants' responses to challenging situations could be an artefact due to the overlap in item content between the measure of trait self-compassion and some of the outcome measures. This could be tested empirically by including both other self-report measures as well as observational, behavioural, and physiological measures that tap into self-compassion but do not rely on self-report.

Finally, as most of the correlational studies relied entirely on the use of self-report measures, there is a possibility that the associations reported are a reflection of the way that people rate themselves, rather than how they would actually respond in challenging situations. People may respond in a way that portrays themselves in a positive light, reflecting the social desirability bias. Interestingly, a study showing that self-esteem was not associated with more adaptive outcomes was one that did not rely on self-report outcome measures, instead using physiological markers of stress as outcome variables (Breines et al., 2015). This raises questions about whether people high in self-esteem are more likely to rate themselves as responding in more adaptive ways when this does not reflect reality. This is one of the drawbacks of research on high self-esteem that was identified by Baumeister et al. (2003). The study by Zheng and Chen (2016) also draws attention to this issue. They reported that higher levels of self-compassion and self-esteem were associated with more self-reported self-improvement, but only self-compassion was associated with more observer-reported self-improvement. Future research should take this into account and not rely on self-report outcome measures. Another solution would be to control for impression management, an individual's tendency to present a favourable impression of themselves, in the analyses. For example, by using a measure such as the short form of the Balanced Inventory of Desirable Responding (BIDR-16; Hart, Ritchie, Hepper, & Gebauer, 2015).

### 1.4.3 Experimental Studies

The present review poses the question of whether self-compassion offers greater protection than self-esteem in challenging situations. The experimental studies focused on state self-compassion and state self-esteem, and compared experimentally induced

self-compassion with experimentally induced self-esteem in a range of challenging situations.

As discussed in the introduction, the first study to consider the impact of experimentally induced self-compassion and self-esteem found that participants reported less negative affect after thinking about a negative event, as well as being more likely to take responsibility for the negative event following a self-compassion induction (Leary et al., 2007). This led the authors to suggest that self-compassion may facilitate people's ability to cope with negative events. This proposal is supported by the present review, as the majority of the experimental studies found that participants who completed a self-compassion induction reported better outcomes than participants who completed a self-esteem induction. This included a reduction in negative affect (Zheng & Chen, 2016) and greater self-improvement motivation (Breines & Chen, 2012; Zheng & Chen, 2016).

Theoretically, all three components of self-compassion could lead to reductions in the degree of negative affect experienced in the challenging situations. Firstly 'self-kindness' could help by encouraging people to extend kindness and understanding towards themselves in times of difficulty. Secondly, 'common humanity' could help by reminding people of the imperfect nature of the human condition, and of the fact that others struggle too. Finally, 'mindfulness,' involves noticing painful thoughts and emotions, by stepping back and creating some distance from them. The possible reasons why more self-improvement was observed following the self-compassion induction compared to the self-esteem induction are somewhat different. Self-esteem is based on self-evaluations; confronting negative aspects of the self and difficult life experiences may threaten self-esteem and lead to avoidance in an attempt to maintain feelings of high self-esteem. On the other hand, self-compassion involves acknowledging both positive and negative aspects of the human experience (Neff & Vonk, 2009), therefore providing a safe and non-judgmental space for people to confront the less positive aspects of the self (Breines & Chen, 2012). The self-compassion inductions reflected this, whereas the self-esteem induction did not confront the challenging situation in the same way, and instead attempted to enhance participants' self-evaluations by prompting them to think about their positive qualities.

### 1.4.4 Limitations of Experimental Studies

The benefits reported following the self-compassion induction may have occurred because self-compassion is easier to induce than self-esteem. Inducing state self-esteem by improving self-evaluations may not be easy to do in challenging situations, such as when people are asked to think about their biggest regret (Zheng & Chen, 2016). Self-compassion, by contrast, does not require people to improve their self-evaluations, and for this reason it may be easier to enhance (Neff, 2003a). Some of the studies included manipulation checks which confirmed that the self-compassion induction was successful (Breines & Chen, 2012; Zhang & Chen, 2016). However, there were no manipulation checks for the self-esteem induction and therefore it is not clear whether this induction was successful in leading to higher state self-esteem. Including manipulation checks for both self-compassion and self-esteem would directly address the question of whether self-compassion is easier to induce, which may be part of the reason why it is protective in challenging situations.

There was one exception to the pattern of results regarding the benefits of experimentally induced self-compassion in comparison with self-esteem. Reis et al. (2015) found that there were no differences between conditions, although in a follow-up regression analysis, trait self-compassion emerged as a predictor of participants' responses to challenging sport situations. However, as previously discussed, this finding may have been influenced by the wording of the measures assessing participants' responses, as these were similar to the measure of trait self-compassion. Nonetheless, levels of trait self-compassion may affect people's ability to engage in self-compassion inductions and to benefit from the effects of these. In particular, clinical populations may experience more difficulties in being self-compassionate (Gilbert & Irons, 2005) and so longer-term interventions may be required. All experimental studies included in this review used non-clinical samples, predominantly of students, and it is unclear whether brief self-compassion intervention would lead to any benefits in clinical populations. There is a need for more research needed using a range of populations, including those for whom taking a self-compassionate stance may be more difficult.

A final limitation of the experimental studies regards the variations in the experimental inductions. The self-esteem inductions involved thinking of positive qualities with the overall aim of self-validation. The self-compassion inductions included short prompts to reflect on or write about events in a way that induces self-kindness, mindfulness and common humanity. However, some of the studies used self-compassion inductions that did not explicitly address all three aspects of self-compassion as defined by Neff (2003). For example, in one study, Breines and Chen (2012) encouraged participants to reflect on a personal weakness from a compassionate and understanding perspective. This appears to reflect the self-kindness aspect of self-compassion without the mindfulness or common humanity aspects. Interestingly this induction was found to lead to beneficial effects. However, the variations in the self-compassion inductions across studies limit the possibility of drawing clear conclusions. Future research could induce the three components separately in a systematic way. This would provide useful information about the specific mechanisms underlying the benefits of inducing self-compassion.

### 1.4.5 Limitations of the Review

The present review considers whether the evidence to date supports the claim that self-compassion provides greater protection that self-esteem in challenging situations. Most of the studies investigating this claim directly compared self-compassion and self-esteem in such situations. However, this may be too simplistic. Some authors have suggested that self-compassion and self-esteem may be beneficial in distinct ways (Peterson, 2014) and this requires further investigation. Additionally, both self-compassion and self-esteem may have moderating effects and this should be tested in future research. Some of the studies are biased towards self-compassion as they considered self-compassion as a moderator but not self-esteem (e.g., Pisitsungkagarn et al., 2013).

A systematic search was conducted to identify articles considering the protective value of self-compassion and self-esteem in challenging situations, as described in the method section. This process would have benefitted from having a second researcher complete the process in order to ensure that the process is transparent and replicable,

particularly in identifying which articles met the criterion of being a challenging situation.

There was substantial variation in the kinds of challenging situations considered by the studies in this review. This is not necessarily a limitation as it provides useful information about whether the effects generalise across a range of situations and shows that there are not boundary conditions of the effects. However, in some studies, the authors made assumptions about what would constitute a challenging situation for a group of people without checking whether this is the case. Some situations may have been experienced as much more challenging than others. For example, some studies subjected participants to a stressful situation in the laboratory or asked them to recall a specific event that had been challenging (e.g. Reis et al., 2015). Other studies considered more general challenges, such as the challenges that women may experience in relation to their physical appearance (e.g., Pisitsungkagarn et al., 2013) or in sport (e.g., Mosewich et al., 2011). These studies are not as well controlled as those which focused on a specific challenging event in a laboratory setting and it is possible that these situations are not experienced as challenging by some people.

### 1.4.6 Conclusion

The theoretical idea that self-compassion offers greater protection than self-esteem in challenging situations is supported to some degree by a growing body of evidence that is discussed in this review. The correlational studies showed that higher levels of both self-compassion and self-esteem were associated with more adaptive responses in challenging situations. However, self-compassion explained additional variance beyond self-esteem in many of the studies, indicating that it does offer more protection. These findings are limited as they do not address the direction of causality so we cannot be sure that having higher levels of trait self-compassion or self-esteem actually causes people to respond in more adaptive ways. Another serious limitation is reliance on the use of self-report measures, raising the possibility that the associations observed are a reflection of the way people rate themselves on measures. The experimental studies included in this review support the findings of the correlational studies and address the direction of causality, showing that experimentally induced self-

compassion generally leads to better outcomes, including lower ratings of negative affect and increased self-improvement, when compared with experimentally induced self-esteem in challenging situations, although participants' responses to self-compassion inductions may be influenced by levels of trait self-compassion. Although the experimental studies have contributed to the question of whether self-compassion offers more protection than self-esteem in challenging situations, only a small number of studies were included, limiting the possibility of drawing firm conclusions at this stage. There is a clear need for more experimental studies, and studies that include a variety of samples, including clinical samples of people who may find being self-compassionate more challenging.

The question of whether self-compassion offers more protection than self-esteem has been addressed in research directly comparing the constructs. However, as suggested by some authors, they may both be beneficial in distinct ways (Peterson, 2014; Hayter & Doyston, 2014) or they may have moderating effects (Leary et al., 2007). Further research testing these suggestions could lead to appropriately targeted interventions.

# Chapter 2: Empirical Paper

## An Investigation of the Impact of a Brief Self-Compassion Intervention for Self-Criticism

### 2.1 Introduction

This paper focuses on the process of self-criticism, and evaluates the impact of a brief self-compassion intervention for self-criticism. This is compared with a thought challenging intervention derived from Cognitive-Behavioural Therapy (CBT), as well as a control group, who did not receive any intervention.

#### 2.1.1 Self-Criticism

Self-criticism is a process that most of us engage in from time to time. It may involve thinking that we should have done something differently, or blaming ourselves for something that has happened. Self-criticism can be relatively harmless if it is transient, only occurs in some situations, and has a minimal impact on mood. However, for some people self-criticism becomes excessive, persistent, and significantly impacts on mood. Clinically, self-criticism is a transdiagnostic process and can play a role in many psychological disorders (Gilbert & Irons, 2005).

The cognitive model of emotional disorder describes self-criticism as a negative self-evaluation that directly impacts on mood (Beck, 1976). It is particularly problematic in people with low self-esteem and the cognitive model of low self-esteem cites self-criticism as a key process that leads to low mood and maintains low self-esteem (Fennell, 1997). In this model self-criticism is typically addressed through the process of identifying and recording self-critical thoughts, questioning their validity, and generating more balanced alternatives (Beck, Rush, Shaw, & Emery, 1979; Fennell, 1997). Changes in thinking are expected to be accompanied by changes in emotional state and behaviour (Fennell, 1998). Although there is some evidence for the effectiveness of CBT for low self-esteem based on Fennell's (1997) model (e.g., McManus, Waite, & Shafran, 2009; Waite, McManus, & Shafran, 2012), the process of self-criticism has been linked to poorer treatment outcomes in CBT more generally (Rector, Bagby, Segal, Joffe, & Levitt, 2000). Although people who are high in self-criticism do seem able to generate

alternatives to their self-critical thoughts, this does not always lead to the desired emotional shifts. This has been described by Lee (2005) as the 'heart-head lag', and may be a contributory factor in poorer outcomes for people who report high levels of self-criticism.

The relative lack of success using more traditional CBT approaches, such as cognitive re-appraisal, has led to the development of new approaches directly aimed at helping individuals to overcome self-criticism. One of these focuses on compassion and offers a new and promising approach to treating this seemingly intractable clinical problem.

### 2.1.2 Compassion

Compassion is typically considered to be something that we direct towards others. However, compassion can also be directed towards the self, and recent developments in Western psychological approaches have focused on the difficulties that some people can experience in doing this. There are two overlapping approaches that consider the importance of compassion. One of these is Compassion-Focused Therapy (CFT; Gilbert, 2009), an integrated therapeutic approach originally developed for people with high levels of shame and self-criticism. CFT is based on the notion that there are three affect regulation systems underpinning human emotion and behaviour (Depue & Morrone-Strupinsky, 2005). The first is a threat protection system that enables us identify threats in the environment and helps to keep us safe. The second is a drive system that directs us towards seeking out desirable resources and rewards, and is associated with feelings of excitement and pleasure. Third, is a soothing system, which is associated with caring for others and experiencing feelings of contentment and safety. These three systems can become unbalanced, particularly in people who may not have had experiences of being cared for by others in earlier life. This lack of balance often takes the form of the threat system becoming overactive and the soothing system becoming underactive. This pattern can contribute to the onset and maintenance of affective disorders (Gilbert & Irons, 2005). Compassionate Mind Training (CMT; Gilbert, 2009a) was developed to help people re-balance the system by learning skills that would help them to extend compassion towards the self (Gilbert, 2009b).

This paper focuses on the construct of self-compassion as defined by Neff (2003a). Over the past decade, in parallel with the development of CFT, there has been a surge of interest in the construct of self-compassion, described by Neff (2003a) as the process of 'being open to and moved by one's own suffering, experiencing feelings of caring and kindness towards oneself, taking an understanding, non-judgmental attitude toward one's inadequacies and failures, and recognising that one's experience is part of the common human experience' (Neff, 2003b, p. 224). This definition incorporates the three components that are thought to underlie self-compassion. Firstly, 'self-kindness', which involves extending kindness and understanding towards the self, rather than self-criticism. Secondly, 'mindfulness', which involves being open to one's experiences and holding difficult thoughts and feelings in balanced, non-judgmental awareness, rather than over-identifying with them. Finally, 'common humanity', which describes viewing one's own experience as part of the larger human experience, rather than in isolation (Neff, 2003a). Part of Neff's contribution to the field resides in her development of a trait measure of self-compassion, the Self-Compassion Scale (SCS; Neff 2003b), which has facilitated research into the construct.

Since Neff conceptualised self-compassion in 2003 (Neff, 2003a: 2003b), the benefits associated with higher levels of trait self-compassion have been explored in a growing body of research. Two recent meta-analyses document consistent associations between higher levels of self-compassion and lower levels of psychopathology (Macbeth & Gumley, 2012) and increased psychological wellbeing (Zessin, Dickhauser, & Garbade, 2015). The latter meta-analysis included intervention studies and reports some evidence for a causal relationship between self-compassion and wellbeing; interventions which increase self-compassion are accompanied by an increase in wellbeing. It is of note that the exact mechanisms underpinning the observed benefits of self-compassion are not clear. Theoretically, all three components could be relevant independently, although Neff (2003a) suggests that they interact with and enhance one another in the case of self-compassion.

Self-compassion was originally presented as an alternative to self-esteem (Neff, 2003a). Both constructs involve taking a positive attitude towards the self. However, self-esteem is a form of self-evaluation that is contingent on meeting certain standards,

whereas self-compassion is a way of relating to the self positively in all circumstances (Neff & Vonk, 2009). According to this view, because self-compassion does not depend on holding a positive self-view, it should be easier to enhance than self-esteem (Neff, 2003a). Consequently, self-compassion may be beneficial in clinical settings when working with people high in self-criticism, who have difficulty evaluating themselves positively.

In a series of studies of particular relevance to clinical psychology, Leary et al. (2007) investigated the impact of trait self-compassion on people's reactions to unpleasant situations (including hypothetical, experimentally induced, and real life unpleasant events). In their first study, they found that people higher in self-compassion were able to be kind to themselves and experienced less negative affect when reflecting on something bad that had happened, even when they considered it to be their fault. They also compared the effects of trait self-compassion with trait self-esteem, and found that higher self-compassion was consistently associated with less negative affect following unpleasant situations compared to higher self-esteem. Self-compassion was a stronger predictor of more adaptive cognitive, emotional, and behavioural responses than self-esteem when imagining scenarios involving failure and social embarrassment (study two). Unlike people high in self-esteem, people high in self-compassion were less defensive when faced with an interpersonal threat (study three); people low in both self-compassion and self-esteem showed the most negative reactions in this scenario. Finally, Leary et al. (2007) considered whether self-compassion could be experimentally induced. In this study participants recalled a real-life event that made them feel bad about themselves. Those allocated to the self-compassion condition completed a task which prompted them to write about the three components of self-compassion in relation to the event they recalled, whereas those in the self-esteem condition responded to prompts designed to enhance self-esteem, which included writing about their positive characteristics and reasons why the event was not entirely their fault and did not indicate anything about the kind of person they are. Participants in the self-compassion condition reported significantly less negative affect than participants in the self-esteem condition or the control groups (which did not differ from each other). This was despite the fact that participants in the self-compassion group were significantly more likely to consider that

the event occurred ‘because of the kind of person I am’. The authors suggested that self-compassion enables people to acknowledge their flaws and take responsibility for their actions without experiencing an increase in negative affect as a result.

Similar studies investigating the impact of experimentally induced self-compassion compared with experimentally induced self-esteem in challenging situations have documented benefits associated with self-compassion. These benefits include greater self-improvement motivation after thinking about a personal weakness or moral transgression (Breines & Chen, 2012) and more personal improvement and reduced negative affect after thinking about a regret experience (Zheng & Chen, 2016). However, Reis et al. (2015) found that, after controlling for trait self-compassion in a sample of female athletes, experimentally induced self-compassion did not result in any improvements in participants’ responses to challenging sporting situations compared with experimentally induced self-esteem. At the moment, it is impossible to draw clear conclusions due to the small number of experimental studies and there is a need for more research in this area.

### 2.1.3 Aims of the Present Study

This study aims to investigate the impact of a brief self-compassion intervention for self-criticism compared with a brief thought challenging intervention and a no-intervention control on the outcome variables of positive and negative affect, state self-esteem, performance, and effort. The impact of experimentally induced self-compassion has not been directly compared with other clinical interventions specifically targeting self-criticism. The self-compassion intervention is adapted from the work of Neff (2003a) and aims to encourage participants to take a compassionate stance towards their weaknesses. The thought challenging intervention is taken from the CBT for low self-esteem protocol (Fennell, 1997; Fennell, 2009). The thought challenging intervention is intended to guide participants to consider alternative perspectives and change their thinking (Fennell, 1998), so they are not so critical towards themselves therefore improving their self-view. A control group was included to assess the impact of self-criticism alone.

The positive affect that results from holding a positive self-view is cited as one of the benefits of high self-esteem compared with low self-esteem (Baumeister, Campbell, Krueger, & Vohs, 2003). The present study employs a measure of state self-esteem (McFarland & Ross, 1982) that considers affective outcomes associated with temporary fluctuations in self-esteem. Additionally, this study employs a separate mood questionnaire, designed to independently assess positive and negative affect (Watson, Clark, & Tellegan, 1988). In order to ensure that there are no systematic differences between groups in preexisting levels of self-esteem or self-compassion, all participants completed measures of trait self-esteem and trait self-compassion at baseline.

The suggestion of whether self-compassion might lead to passivity or lowering of standards, or whether it might be associated with less desirable qualities such as self-indulgence or laziness, is acknowledged by Neff (2003a) and Neff, Kirkpatrick, and Rude (2007). However, Neff (2003a) explains that, while self-compassion does not involve harsh self-judgment and self-criticism, it does not mean that failings are not noticed. Rather, self-compassion should enhance self-awareness and optimal functioning in a non-threatening way. Research to date has supported this proposal (Breines & Chen, 2012; Leary et al., 2007; Williams, Stark, & Foster, 2008; Zheng & Chen, 2016). The present study also considers the impact of self-compassion on performance and effort on a task in order to add to the literature in this area.

### 2.1.4 Hypotheses

It is hypothesised that, when compared with the thought challenging intervention, the self-compassion intervention will offer more protection against the potential negative effects of self-criticism on state self-esteem and affect, preventing a decrease in feelings associated with high self-esteem and positive affect, and preventing an increase in feelings associated with low self-esteem and negative affect. It is hypothesised that participants in the control condition who complete the self-criticism induction without either intervention will show reduced affect and state self-esteem in comparison to both interventions, due to the impact of self-criticism on affect (Beck, 1976). It is also hypothesised that participants who complete the self-compassion intervention will apply more effort and perform better on an anagram task than participants in the thought-

challenging and control conditions due to the emerging research that self-compassion enhances motivation (e.g., Breines & Chen, 2012; Zheng & Chen, 2016).

## 2.2 Method

Ethical approval was obtained from the School of Psychology Ethics Committee (see Appendix B). Mean and standard deviation scores for the measures used in the present study are displayed in Tables 2, 3, and 4 in the results section.

### 2.2.1 Design

The experiment was conducted in two stages. In the first stage, participants completed the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) online. Due to ethical concerns about inducing self-criticism in people experiencing low mood, participants scoring 15 or above (indicating moderately severe depression) or 1 or above on the question relating to suicidal ideation were excluded from participating. In the second stage of the study, participants attended an individual session. This part of the study employed a mixed model design with one between-subjects factor (condition) and one within-subjects factor (time). The between-subjects factor had three levels (thought challenging, self-compassion, and control). The within-subjects factor had two levels (pre- and post-intervention). The dependent variables were state self-esteem, affect, and performance and effort on an anagram task. Participants were assigned randomly to one of the three conditions using a computerised block randomisation programme.

### 2.2.2 Measures

*Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001).* The PHQ-9 is the 9-item depression self-report module of the full PHQ. Respondents indicate how often they have experienced symptoms of depression over the past two weeks on a scale ranging from 0 (not at all) to 3 (nearly every day). The total score can range from 0-27 and cut off scores of 5, 10, 15, and 20 are used to indicate mild, moderate, moderately severe, and severe depression respectively. It is a valid and reliable measure of depression severity (Kroenke, et al., 2001). This measure was employed to screen for low mood in the present study.

*Rosenberg Self Esteem Scale (RSES; Rosenberg, 1965).* This is a ten-item scale assessing trait self-esteem (see Appendix C) which asks people to respond to statements

on a scale ranging from 0 (strongly disagree) to 3 (strongly agree). This includes positively worded items, such as 'I feel that I have a number of good qualities' and negatively worded items which are reverse scored, such as 'I certainly feel useless at times.' Total scores range from 0-30 and a higher total score indicates higher trait self-esteem. This widely used measure has acceptable internal consistency and good test-retest reliability (Rosenberg, 1965). Internal consistency was good across all groups in the present sample (lowest $\alpha$ = .84, highest $\alpha$ = .89).

*Self-Compassion Scale (SCS; Neff, 2003b).* The SCS asks respondents how they typically act towards themselves in difficult times (see Appendix D). Respondents rate 26 statements such as 'when times are really difficult, I tend to be tough on myself' on a scale ranging from 1 (almost never) to 5 (almost always). Six factors have been identified that map onto positive and negative aspects of the three components of self-compassion described above. A total score can be calculated which involves reverse scoring negatively worded items. Total scores range from 26-130 with higher scores indicating higher levels of self-compassion. The scale has good test-retest reliability and internal consistency (Neff, 2003b). Internal consistency was good across all groups in the present sample (lowest $\alpha$ = .89, highest $\alpha$ = .93).

*State Self-Esteem Scale (SSES; McFarland & Ross, 1982).* This is a 12-item measure of high and low self-esteem (see Appendix E). The scale was developed from a factor analysis of mood adjectives which identified three principal factors of positivity, negativity, and self-esteem (McFarland & Ross, 1982). The SSES is comprised of the items that loaded onto the self-esteem factor. Although these are described as mood adjectives, they are not pure measures of mood but rather a range of constructs comprising both cognitive and affective components of self-esteem. There are five adjectives relating to low self-esteem (inadequate, incompetent, stupid, worthless, and ashamed) and seven relating to high self-esteem (pride, competent, confident, smart, resourceful, effective, and efficient), which respondents rate on a scale ranging from 1 (not at all) to 11 (extremely). In the present study, these are described as 'feelings of low self-esteem' and 'feelings of high self-esteem' respectively. Total scores can be calculated for each subscale and range from 5-77 for the feelings of low self-esteem

subscale and 7-77 for the feelings of high self-esteem subscale. Internal consistency was good across all groups in the present sample for the feelings of high self-esteem subscale at time 1 and time 2 (lowest $\alpha$ = .90, highest $\alpha$ = .92), as well as the feelings of low self-esteem subscale at time 1 and time 2 (lowest $\alpha$ = .88, highest $\alpha$ = .91).

*Positive and Negative Affect Scale (PANAS; Watson et al., 1988).* This is a 20-item measure of positive and negative affect (see Appendix F). Respondents rate the extent to which they feel particular emotions (10 positive and 10 negative) on a scale ranging from 1 (very slightly or not at all) to 5 (extremely). Total scores can be calculated for both the positive subscale and the negative subscale and range from 10-50. Both scales have been reported to have good internal consistency (Crawford & Henry, 2000). Internal consistency was good across all groups in the present sample for the positive affect subscale at time 1 and time 2 (lowest $\alpha$ = .82, highest $\alpha$ = .94). Internal consistency for the negative affect subscale was good for the thought challenging group ($\alpha$ = .78) and the self-compassion group ($\alpha$ = .87). However, the value of Cronbach's alpha was slightly below acceptable levels for the control group at time 1 ($\alpha$ = .65). Calculating Cronbach's alpha with items removed did not raise the value to an acceptable level. At time 2, internal consistency was good for both the thought challenging condition ($\alpha$ = .84) and the control condition ($\alpha$ = .84). However, internal consistency in the self-compassion condition dropped below acceptable levels ($\alpha$ = .59). Again, calculating Cronbach's alpha with items removed did not raise the value to an acceptable level.

### 2.2.3 Anagram Task

In addition to the measures described above, participants completed an anagram task which was developed to assess performance and effort. Previous research has used anagrams as a method of assessing performance (e.g., Shah, Higgins, & Friedman, 1998). In order to create this task a total of 120 four-letter anagrams were retrieved online. The letters could be rearranged to make at least one other four-letter word. The word frequencies of the solutions were found online from the Corpus of Contemporary American English (www.wordfrequency.info); these were all in the top 10,000 most frequently used words in the English language. The words were then arranged into a list from most frequent to least frequent and were then allocated either to list A or list B

alternately, in order to create two different anagram tasks for participants to complete pre- and post-experiment. An independent samples *t* test revealed that there were no significant difference in mean word frequencies between the two lists ($p > .05$) indicating that the lists should be of a similar difficulty. The task was programmed in Microsoft Visual Studio C#. Participants completed five practice trials before the main task. Anagrams were presented one at a time in a random order and participants were required to complete as many anagrams as possible in three minutes. Participants had the opportunity to skip anagrams and these anagrams were re-presented if participants reached the end of the word list in under three minutes. When the task ended, participants viewed a screen that prompted them to rate how much effort they applied on the anagram task on a Likert scale ranging from 0 (no effort at all) to 10 (maximum effort).

### 2.2.4 Participants

The participants were undergraduate students at a local university, who received course credits or payment for their time. A total of 253 participants completed the online screening questionnaire (PHQ-9), at which stage 42 were excluded due to low mood. The researcher contacted all eligible participants to invite them to participate in the study. A total of 70 participants attended an individual session and completed the study. Participants comprised 59 females and 11 males aged between 18 and 35 ($M = 20.01$, $SD = 2.73$). There were no significant differences in the age of participants in the three conditions, $F(2, 67) = 1.15$, $p = .322$, $\eta^2 = .03$, and no significant differences in gender between conditions, $\chi^2(2) = 1.67$, $p = .435$, $r = .15$.

### 2.2.5 Procedure

The experiment was advertised on a University research system (Appendix G) and was described as a study looking at the impact of different thinking styles. Participants followed a link to complete a short screening questionnaire (PHQ-9). Those who were not eligible to participate due to their PHQ-9 scores were sent a copy of a debriefing statement via email explaining the reasons for this (see Appendix H). This debrief also provided contact details of organisations that they may wish to contact for support. Those who were eligible to participate were sent an email inviting them to attend an individual session to take part in the study.

When participants attended the individual session, they read the information sheet (Appendix I) which explained that they would be asked to complete a number of questionnaires and tasks as part of a study investigating the impact of different thinking styles. All participants had the opportunity to ask questions before signing the consent form (Appendix J). Following this, all participants completed a questionnaire pack comprising the pre-experiment measures of trait self-esteem (RSES), self-compassion (SCS), state self-esteem (SSES), and mood (PANAS). They also completed the anagram task and provided an effort rating on a computer.

A self-criticism induction was completed by all participants. The researcher asked participants to think of a time when they had been critical of themselves and to tell the researcher a bit about what the situation involved. The researcher advised participants that they did not need to go into detail, or disclose anything to the researcher if they did not feel comfortable doing so. A short conversation followed to ensure that participants were able to think of a time when they had been self-critical. Participants then answered questions relating to this on a worksheet (see Appendix K) including how they felt and what they thought about themselves. They were also asked to rate how bad they considered the situation to be and how self-critical they were on a scale of 1-10 (where 1 = not at all and 10 = extremely). If participants provided ratings of less than 5 on either of these rating scales then they were asked to think of another time when they had been critical of themselves, in order to ensure the self-criticism induction was effective and similar across participants. Following this, participants completed either a thought challenging intervention, a self-compassion intervention, or if they had been allocated the control condition then they completed the post-experiment measures immediately after the self-criticism induction.

Participants allocated to the thought challenging condition listened to a recording which guided them through the thought challenging intervention. This asked them to identify a self-critical thought, generate evidence for and against the thought, consider other perspectives and advice they would give to someone else in the same situation. The duration of the recording was 2 minutes 14 seconds, however participants were advised to pause the recording to write down their answers to each question on a worksheet, and so

the duration of this task varied between participants (see Appendix L and M for the transcript of the recording and the thought challenging worksheet respectively).

Participants allocated to the self-compassion condition listened to a recording which involved a brief mindful breathing exercise, followed by prompts to engage in self-kindness and common humanity (see Appendix N for the transcript). The duration of the recording was 4 minutes 36 seconds.

Participants in both the thought challenging and self-compassion conditions completed all post-experiment measures immediately after the interventions. Participants were then given a copy of the debriefing statement (see Appendix O). The researcher offered all participants the opportunity to complete a brief mood repair task if they felt distressed. See Figure 2 for a flowchart detailing the study procedure.

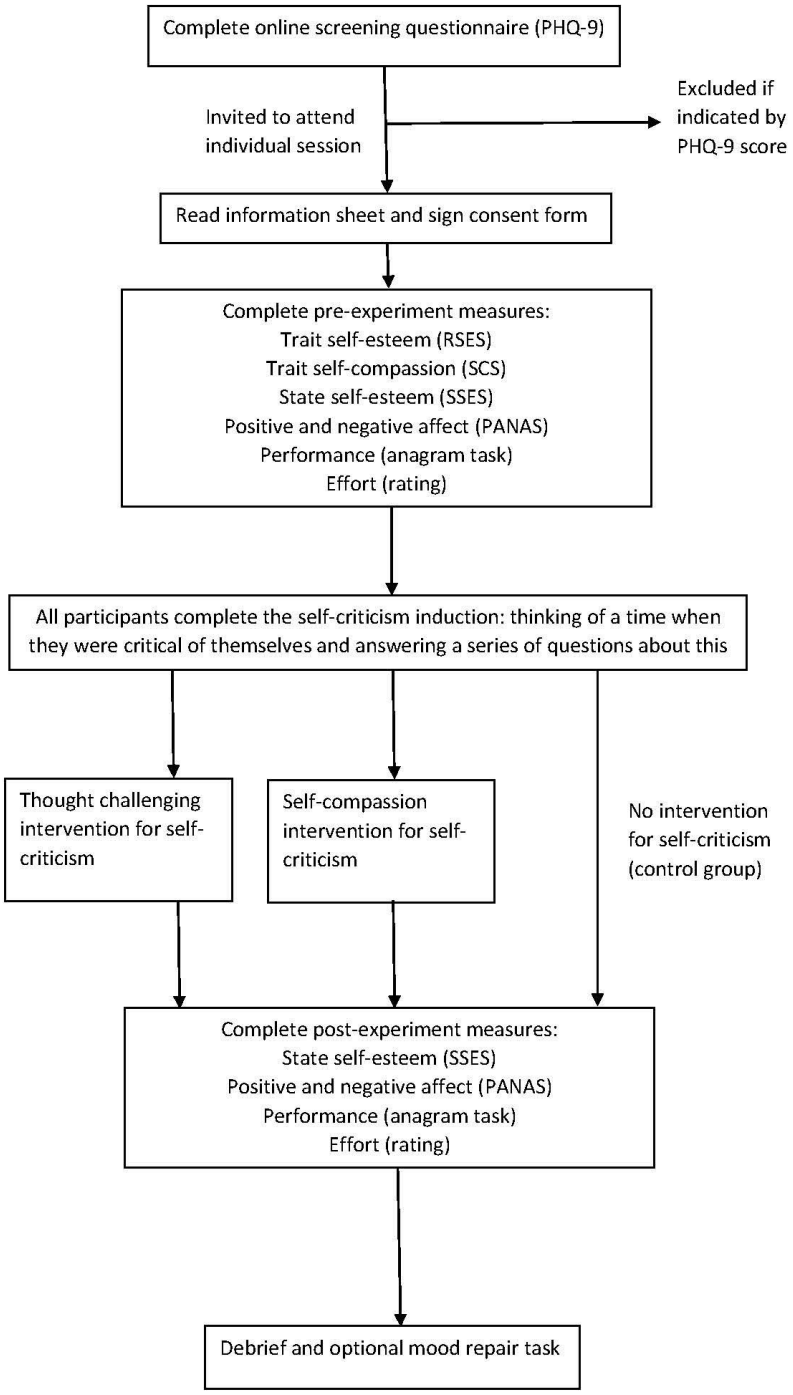



*Figure 2. Flowchart showing the study procedure*

## 2.3 Results

Statistical analyses were conducted using SPSS version 22. A priori power calculations using G*Power version 3 (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that a sample size of 81 would be required for a small effect size, with 80% power, and 95% significance level. A total of 70 participants completed the study.

### 2.3.1 Preliminary Analyses

All data were checked for outliers using boxplots; where outliers were identified these were adjusted by changing the score to the next highest or lowest scores in the distribution plus or minus one as recommended by Tabachnick and Fidell (2014). Normality was assessed by calculating *z* scores for skewness and kurtosis. The majority of *z* scores were within the range of -1.96 to +1.96, indicating that skewness and kurtosis values are not significantly different from 0 at $p < .05$. The highest *z* score of 2.13 is only slightly outside of this range and below the cut off of +/- 2.58, which is not significantly different from 0 at $p < .01$ (Field, 2013). The assumption of homogeneity of variance assessed using Levene's test was met with the exception of feelings of low self-esteem subscale of the SSES and the negative affect subscale of the PANAS at time 2. It was not considered necessary to transform the data as ANOVA is robust to the violation of parametric assumptions (Howell, 2004).

One-way ANOVAs showed that there were no significant differences between the three groups in trait self-esteem at baseline, $F(2,67) = 1.87$, $p = .163$, $\eta^2 = .05$, or trait self-compassion at baseline, $F(2,67) = 2.12$, $p = .129$, $\eta^2 = .06$. Mean and standard deviation scores for these measures are displayed in Table 2. As there were no significant differences between groups on measures of trait self-esteem or trait self-compassion at baseline, it was not considered necessary to enter these variables into the analysis as covariates.

Table 2.

*Mean and Standard Deviation Scores for the Measures of Trait Self-Esteem and Trait Self-Compassion*

| Measure | Thought Challenging ($n$ = 24) | Self-Compassion ($n$ = 23) | Control ($n$ = 23) |
|---|---|---|---|
| Rosenberg Self-Esteem Scale | 19.00 (2.90) | 21.17 (4.66) | 20.26 (3.91) |
| Self-Compassion Scale | 72.13 (16.22) | 81.17 (15.98) | 77.39 (13.02) |

### 2.3.2 Manipulation checks

Ratings provided by participants regarding how bad the event was and how self-critical they were served as manipulation checks for the self-criticism induction. One participant provided a rating of below 5 regarding how self-critical they were. This participant was asked to recall another time they had been critical of themselves due to the low rating, which they did and subsequently provided a rating of above 5 relating to their new example. Although there is a possibility that this participant provided this rating knowing that this was required, re-running the analyses excluding this participant did not alter the pattern of results and therefore the data were included. One-way ANOVAs also revealed that there were no significant differences between conditions in participant ratings of how bad the situation was, $F(2,67) = .89$, $p = .415$, $\eta^2 = .03$, or how self-critical they were, $F(2,67) = .02$, $p = .980$, $\eta^2 = .01$. Mean and standard deviation scores for the ratings are displayed in Table 3.

Table 3.

*Mean and Standard Deviation Scores for Participants Ratings of the Event*

| Measure | Thought Challenging (*n* = 24) | Self-Compassion (*n* = 23) | Control (*n* = 23) |
|---|---|---|---|
| How bad the event was (0-10) | 7.04 (1.57) | 7.17 (1.44) | 7.57 (1.12) |
| How self-critical they were (0-10) | 8.58 (1.06) | 8.65 (1.30) | 8.61 (1.16) |

The worksheets completed by the 24 participants allocated to the thought challenging condition indicated that they had engaged well in the intervention, providing thoughtful and logical responses. In relation to the first question, whether the self-critical thought is an opinion or fact, the majority of participants answered that it was an opinion, although some considered that it was 'a bit of both' or 'an opinion based on facts.' Some participants considered their self-critical thoughts to be facts, such as 'I should have tried harder.' All participants were able to generate evidence for and against the self-critical thought, with some participants giving more examples of evidence for and against than others. All participants were able to generate an alternative way of viewing the situation and many considered that it was an experience they could learn from. Finally, participants answered the question of what advice they would give to someone in a similar situation. Some participants gave practical advice, such as 'don't leave things to the last minute.' Others used this as an opportunity to be kinder and more forgiving, suggesting that advice they might give to others would be 'don't beat yourself up over it' and 'don't be too harsh on yourself.' This shows some degree of overlap with the self-compassion intervention. There was no formal manipulation check employed for the self-compassion intervention.

### 2.3.3 Main Analysis

Data from the SSES, PANAS, anagram task, and effort ratings were analysed using mixed-model ANOVAs, with condition as the between-subjects factor and time as the within-subjects factor. Where post hoc analyses were required to follow up significant

interactions, one-way ANOVAs were used to assess for differences between conditions at each time point, with Tukey post hoc tests as required. Paired samples *t* tests were used to assess differences from time 1 to time 2 for each of the three conditions. The Bonferroni correction was applied due to the multiple comparisons being made and the corrected *p* value was 0.01 (0.05/5). Mean and standard deviation scores for these outcome measures for each condition at both time points are displayed in Table 4.

Table 4.

*Mean and Standard Deviation Scores for the Outcome Measures at Time 1 and Time 2*

| | Thought Challenging ($n$ = 24) | | Self-Compassion ($n$ = 23) | | Control ($n$ = 23) | |
|---|---|---|---|---|---|---|
| Measure | Time 1 | Time 2 | Time 1 | Time 2 | Time 1 | Time 2 |
| SSES (feelings of high self-esteem) | 47.21 (10.64) | 43.89 (11.11) | 49.91 (11.05) | 55.13 (7.52) | 48.91 (9.77) | 42.09 (12.12) |
| SSES (feelings of low self-esteem) | 14.00 (5.99) | 17.50 (9.77) | 13.09 (5.43) | 9.74 (4.70) | 14.39 (7.19) | 21.61 (10.18) |
| PANAS (positive affect) | 29.38 (6.29) | 27.88 (7.34) | 32.57 (6.17) | 36.39 (5.66) | 34.26 (8.06) | 29.43 (9.43) |
| PANAS (negative affect) | 13.20 (2.65) | 14.42 (3.30) | 12.43 (2.45) | 11.78 (1.94) | 14.30 (3.25) | 18.26 (5.45) |
| Total anagrams correct | 15.45 (7.88) | 19.38 (10.35) | 15.91 (7.54) | 18.73 (7.26) | 16.60 (6.74) | 18.60 (8.34) |
| Effort rating | 8.29 (1.23) | 7.79 (1.74) | 8.08 (1.28) | 8.57 (1.08) | 8.52 (1.44) | 8.83 (1.27) |

*Note.* SSES = State Self-Esteem Scale; PANAS = Positive and Negative Affect Scale.

### 2.3.4 State Self-Esteem (SSES)

There was no main effect of time on feelings of high self-esteem, $F(1,67) = 2.31$, $p = .133$, $\eta p^2 = .03$. Participants scores at time 1 ($M = 48.66$, $SD = 10.41$) were similar to those at time 2 ($M = 46.99$, $SD = 11.81$).

There was a main effect of condition, $F(2,67) = 4.25$, $p = .018$, $\eta p^2 = .11$. Pairwise comparisons revealed that participants in the self-compassion condition had higher feelings of high self-esteem scores ($M = 52.52$, $SE = 1.97$) than those in the thought challenging condition ($M = 45.54$, $SE = 1.93$, $p = .014$); and those in the control condition ($M = 45.50$, $SE = 1.97$, $p = .014$). There were no differences in feelings of high self-esteem scores between the thought challenging and control conditions ($p = .988$).

A significant time by condition interaction emerged, $F(2,67) = 10.75$, $p < .001$, $\eta p^2 = .24$. One-way ANOVAs showed that there were no differences between conditions at time 1 on feelings of high self-esteem scores, $F(2,67) = .40$, $p = .672$, $\eta^2 = .01$, although there were differences between conditions at time 2, $F(2,67) = 10.58$, $p < .001$, $\eta^2 = .24$. Post hoc analyses showed the differences were between the thought challenging and self-compassion conditions ($p = .001$) and the self-compassion and control conditions ($p < .001$). Differences between the thought challenging and control conditions at time 2 were not significant ($p = .828$).

Paired samples *t* tests showed that there were no significant differences from time 1 to time 2 on feelings of high self-esteem scores for participants in the thought challenging condition, $t(23) = 1.50$, $p = .147$, $d = .30$. However, there were significant differences for participants in the self-compassion condition from time 1 to time 2, $t(22) = -2.98$, $p = .007$, $d = -.62$, and for participants in the control condition, $t(22) = 4.36$, $p < .001$, $d = .91$. The mean and standard deviation scores displayed in Table 4 show that the scores of participants in the self-compassion condition increased from time 1 to time 2, while scores of participants in the control condition decreased from time 1 to time 2. Figure 3 also displays this pattern of results.

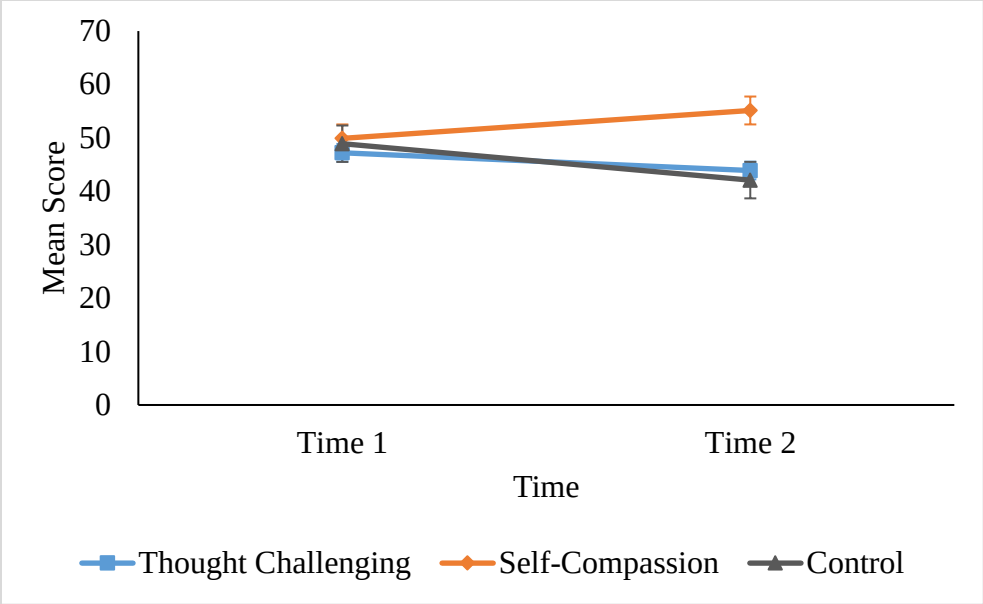



*Figure 3.* Mean scores on the feelings of high self-esteem subscale of the SSES. Error bars represent standard errors.

There was a main effect of time on feelings of low self-esteem, $F(1,67) = 9.09$, $p = .004$, $\eta p^2 = .12$. Participants' scores at time 1 ($M = 13.83$, $SD = 6.18$) were lower than those at time 2 ($M = 16.30$, $SD = 9.81$).

There was a main effect of condition, $F(2,67) = 5.75$, $p = .005$, $\eta p^2 = .15$. Pairwise comparisons revealed that participants in the self-compassion condition had lower feelings of low self-esteem scores ($M = 11.41$, $SE = 1.40$) than those in the thought challenging condition ($M = 15.75$, $SE = 1.37$, $p = .030$) and those in the control condition ($M = 18.00$, $SE = 1.38$, $p = .001$). There were no differences in feelings of low self-esteem scores between the thought challenging and control conditions ($p = .254$).

A significant time by condition interaction emerged, $F(2,67) = 14.24$, $p < .001$, $\eta p^2 = .30$. One-way ANOVAs showed that there were no differences between conditions at time 1 on feelings of low self-esteem, $F(2,67) = .27$, $p = .768$, $\eta^2 = .01$, although there were differences between groups at time 2, $F(2,67) = 11.29$, $p < .001$, $\eta^2 = .25$, and post hoc analyses showed the differences were between the thought challenging and self-compassion conditions ($p = .008$) and the self-compassion and control conditions ($p$

<.001). Differences between the thought challenging and control conditions at time 2 were not significant ($p$ = .238).

Paired samples $t$ tests showed that there were no significant differences from time 1 to time 2 on feelings of low self-esteem for participants in the thought challenging condition after applying the Bonferroni correction, $t(23) = -2.12$ $p = .045$, $d = -.43$. However, there were significant differences for participants in the self-compassion condition from time 1 to time 2, $t(22) = 3.72$, $p = .001$, $d = .78$, and for participants in the control condition, $t(22) = -4.69$, $p < .001$, $d = -.98$. The mean and standard deviation scores displayed in Table 4 show that feelings of low self-esteem decreased for participants in the self-compassion condition from time 1 to time 2, whilst these feelings increased from time 1 to time 2 for participants in the control group. Although the pattern of results shows that the scores of participants in the thought challenging condition also increased from time 1 to time 2, this did not reach significance after applying the Bonferroni correction. Figure 4 displays this pattern of results.

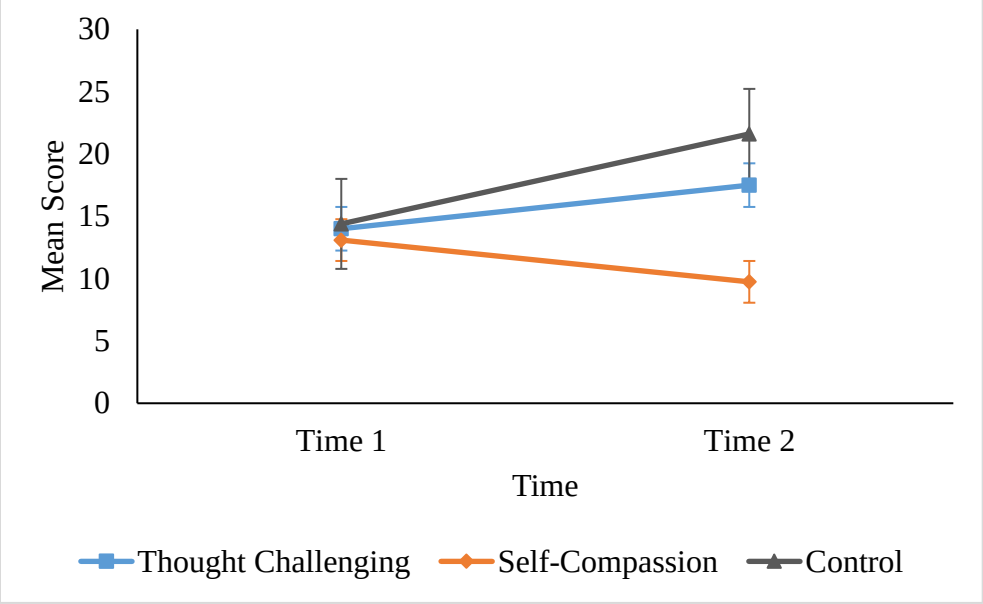



*Figure 4.* Mean scores on the feelings of low self-esteem subscale of the SSES. Error bars represent standard errors.

### 2.3.5 Affect (PANAS)

There was no main effect of time on positive affect, $F(1,67) = .93$, $p = .337$, $\eta p^2 = .01$; participants' scores at time 1 ($M = 32.03$, $SD = 7.09$) were similar to those at time 2 ($M = 31.19$, $SD = 8.39$).

There was a main effect of condition, $F = 5.07$, $p = .009$, $\eta p^2 = .13$. Pairwise comparisons revealed that participants in the self-compassion condition had higher positive affect scores ($M = 34.48$, $SE = 1.32$) than those in the thought challenging condition ($M = 28.63$, $SE = 1.29$, $p = .002$). There were no differences in positive affect scores of participants in the control condition ($M = 31.85$, $SE = 1.32$) and those in the self-compassion condition ($p = .162$) or those in the thought challenging condition ($p = .085$).

A significant time by condition interaction emerged, $F = 8.43$, $p = .001$, $\eta p^2 = .20$. One way ANOVAs showed that there were no differences between conditions at time 1 on positive affect, $F(2,67) = 3.06$, $p = .054$, $\eta^2 = .08$, although there were differences between groups at time 2, $F(2,67) = 8.21$, $p = .001$, $\eta^2 = .20$, and post hoc analyses showed the differences were between the thought challenging and self-compassion conditions ($p = .001$) and the self-compassion and control conditions ($p < .008$). Differences between the thought challenging and control conditions at time 2 were not significant ($p = .764$).

Paired samples *t* tests showed that there were no significant differences from time 1 to time 2 on positive affect for participants in the thought challenging condition, $t(23) = .99$, $p = .331$, $d = -.43$. However, there were significant differences for participants in the self-compassion condition from time 1 to time 2, $t(22) = -2.86$, $p = .009$, $d = -.60$, and for participants in the control condition, $t(22) = 2.98$, $p = .007$, $d = .62$. The mean and standard deviation scores displayed in Table 4 show that positive affect increased for participants in the self-compassion condition from time 1 to time 2, whilst positive affect decreased from time 1 to time 2 for participants in the control group. Figure 5 displays this pattern of results.

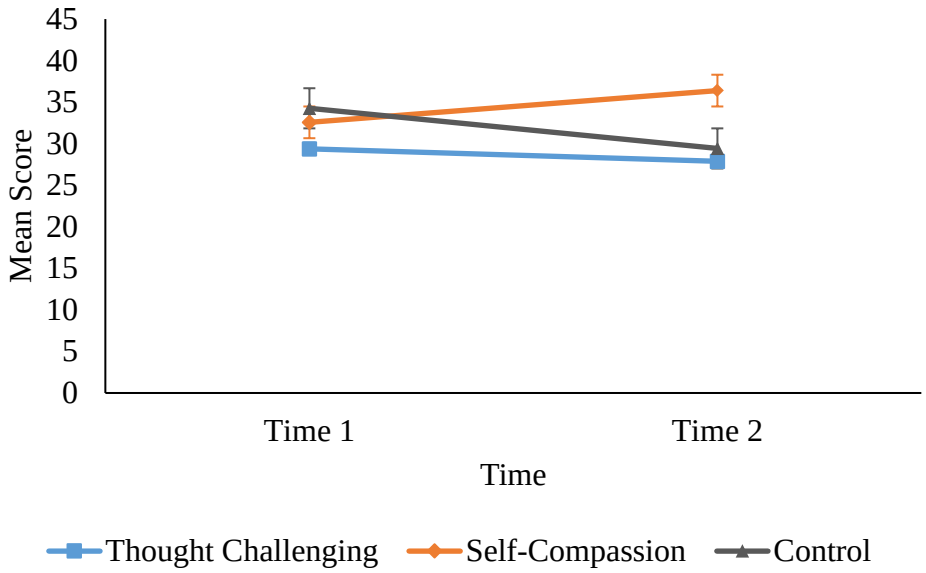



*Figure 5.* Mean scores on the positive affect subscale of the PANAS. Error bars represent standard errors.

There was a main effect of time on negative affect, $F(1,67) = 13.62$, $p < .001$, $\eta p^2 = .17$; participants scores at time 1 ($M = 13.31$, $SD = 2.87$) were lower than those at time 2 ($M = 14.80$, $SD = 4.63$).

There was a main effect of condition, $F(2,67) = 12.12$, $p < .001$, $\eta p^2 = .27$. Pairwise comparisons revealed that participants in the self-compassion condition had lower negative affect scores ($M = 12.09$, $SE = .61$) than participants in the thought challenging condition ($M = 13.81$, $SE = .59$, $p = .046$) and participants in the control condition ($M = 16.28$, $SE = .61$, $p < .001$). Participants in the thought challenging condition had lower negative affect scores than those in the control condition ($p = .005$).

A significant time by condition interaction emerged, $F = 11.04$, $p < .001$, $\eta p^2 = .25$. One way ANOVAs showed that there were no differences between conditions at time 1 on negative affect, $F(1,67) = 2.58$, $p = .083$, $\eta^2 = .07$, although there were differences between groups at time 2, $F(2,67) = 16.79$, $p < .001$, $\eta^2 = .33$. Post hoc analyses showed the differences were between the thought challenging and control conditions ($p = .003$) and the self-compassion and control conditions ($p < .001$). The

difference between the thought challenging and self-compassion conditions did not reach statistical significance ($p$ = .051).

Paired samples $t$ tests showed that there were no significant differences from time 1 to time 2 on the negative affect subscale of the PANAS for participants in the thought challenging condition, $t(23) = -1.83$, $p$ = .080, $d$ = -.37, or the self-compassion condition, $t(22) = 1.61$, $p$ = .112, $d$ = .33. However, there were significant differences in scores on the negative affect subscale of the PANAS for participants in the control condition, $t(22) = -4.30$, $p$ = .001, $d$ = .90. The mean and standard deviation scores displayed in Table 4 show that negative affect increased for participants in the control condition from time 1 to time 2. Figure 6 displays the overall pattern of results.

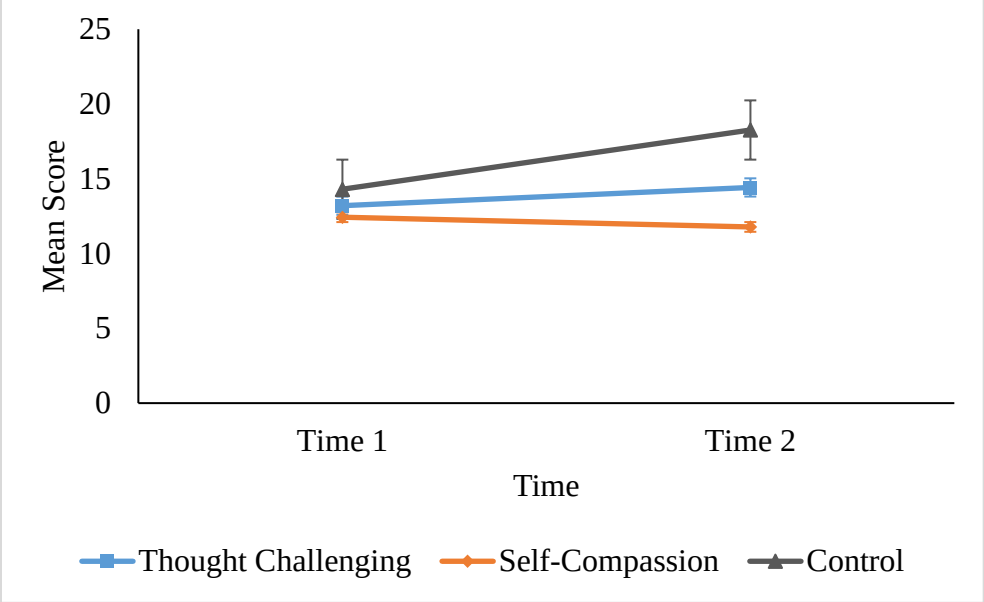



*Figure 6.* Mean scores on the negative affect subscale of the PANAS. Error bars represent standard errors.

### 2.3.6 Performance: Anagram Task

There was a main effect of time on total number of anagrams correct, $F(1,67) = 22.28$, $p < .001$, $\eta p^2 = .25$. Participants' scores at time 1 ($M$ = 15.99, $SD$ = 7.32) were lower than those at time 2 ($M$ = 18.91, $SD$ = 8.65).

There was no main effect of condition, $F(2,67) = .01$, $p = .992$, $\eta p^2 = .00$, and no time by condition interaction, $F(2,67) = .82$, $p = .447$, $\eta p^2 = .02$. Means and standard deviations for the total number of anagrams correct for each group at both time points are displayed in Table 4.

### 2.3.7 Effort Ratings

There was no main effect of time on effort ratings, $F(1,67) = .74$, $p = .394$, $\eta p^2 = .01$; participants' effort ratings at time 1 ($M = 8.30$, $SD = 1.31$) were similar to those at time 2 ($M = 8.39$, $SD = 1.45$).

There was no main effect of condition, $F(2,67) = 1.44$, $p = .245$, $\eta p^2 = .041$. The effort ratings of participants in the self-compassion condition ($M = 8.33$, $SE = .27$) were similar to those in the thought challenging condition ($M = 8.04$, $SE = .26$, $p = .449$) and those in the control condition ($p = .360$). There were no differences in effort ratings between participants in the thought challenging and control conditions ($p = .095$).

There was a significant time by condition interaction, $F(2,67) = 7.62$, $p = .001$, $\eta p^2 = .19$. One way ANOVAs showed that there were no differences between conditions at time 1 on effort ratings, $F(2,67) = .63$ , $p = .538$, $\eta^2 = .02$, although there were differences between groups at time 2, $F(2,67) = 3.50$, $p = .036$, $\eta^2 = .09$. Post hoc analyses showed the differences were between the thought challenging and control conditions ($p = .036$). There were no differences between the thought challenging and self-compassion conditions ($p = .148$) or the self-compassion and control conditions ($p = .803$).

Paired samples *t* tests showed that there were no significant differences from time 1 to time 2 on effort ratings for participants in the thought challenging condition, $t(23) = 2.15$, $p = .043$, $d = 0.44$, or the control condition, $t(22) = -1.67$, $p = .110$, $d = 0.35$. However, there were significant differences in of effort ratings of participants in the self-compassion condition from time 1 to time 2, $t(22) = -3.45$, $p = 002$, $d = -0.72$. The mean and standard deviation scores displayed in Table 5 show that effort ratings of participants in the self-compassion condition increased from time 1 to time 2. Figure 7 displays this pattern of results.

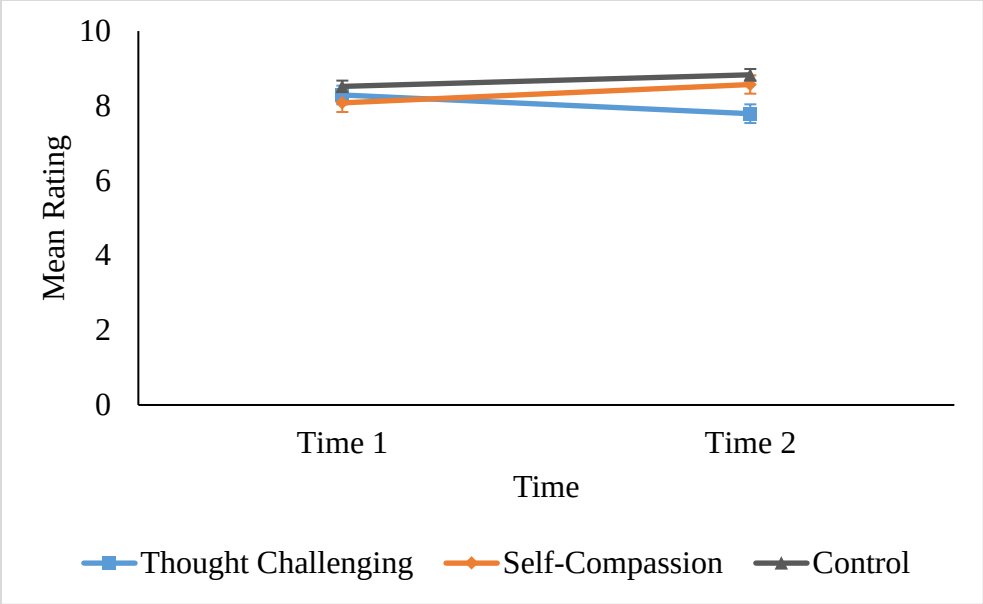



*Figure 7.* Mean effort ratings. Error bars represent standard errors.

## 2.4 Discussion

The aim of the study was to investigate the impact of a brief self-compassion intervention for self-criticism. This was compared with a thought challenging intervention, as well as a control group who did not receive any intervention. The overall pattern of results demonstrates clear benefits of the self-compassion intervention on outcomes of affect and state self-esteem, as well as effort, contributing to the literature regarding the benefits of brief self-compassion interventions, and furthering correlational research by addressing the issue of causality.

The expected detrimental impact of self-criticism is clearly demonstrated in the present study. Feelings of high state self-esteem and positive affect decreased and feelings of low self-esteem and negative affect increased for participants in the control group who only completed the self-criticism induction. These results serve as a manipulation check and as evidence that participants engaged with the self-criticism induction, as well as enabling comparisons with the two interventions.

As hypothesised, the self-compassion intervention protected against the negative effects of self-criticism on both affect and state self-esteem. It might have been expected that the self-compassion intervention would be protective by preventing a decrease in state self-esteem. However, the results suggest that the benefits of the self-compassion intervention extend to enhancing state self-esteem, specifically increasing feelings associated with high self-esteem, such as pride and confidence, and decreasing feelings associated with low self-esteem, such as stupidity and worthlessness. A similar pattern of results was observed with regards to the impact of self-compassion on positive affect; the self-compassion intervention led to an increase in positive affect. Although there was not a decrease in negative affect, there was no change, indicating that the self-compassion intervention offered protection against the negative impact of self-criticism on negative affect. Similarly, there were no differences in scores on the measures of state self-esteem or affect for participants allocated to the thought challenging intervention, suggesting that this intervention offered protection against the negative impact of self-criticism, although it did not extend to enhancing state self-esteem or positive affect as the self-compassion intervention did.

There were no differences between the conditions on the anagram task used as a measure of performance; participants in all conditions showed an improvement on this measure from time one to time two suggesting practice effects. However, participants in the self-compassion condition indicated that they had applied more effort on the anagram task at time two than time one, unlike participants in the thought challenging or control conditions, whose ratings did not change. This finding provides some support for the view that self-compassion does not lead to complacency, rather that it may enhance effort.

Overall, the findings support the view that self-compassion is a construct that is helpful in times of adversity. People were still able to be compassionate towards themselves even when thinking about a time when they had been critical of themselves, which typically involved making a mistake, failing a piece of work, or thinking that they had let themselves or others down in some way. The self-compassion intervention did not explicitly prompt people to change the content of their self-critical thoughts and overall self-evaluation, rather it focused on the way people relate to these thoughts (Leary et al., 2007). Although self-compassion is unlikely to get rid of self-judgments and self-critical thoughts, it may lessen the negative impact of these. The initial prompt in the self-compassion intervention induced a mindful perspective, creating some distance from self-critical thoughts any uncomfortable feelings that people might otherwise get caught up in. Participants were then prompted to extend kindness and understanding towards themselves, as they might to a friend. According to Neff (2003a), this is the opposite of harsh self-criticism. Finally, participants were reminded of the imperfect nature of the human condition, which is likely to have provided a safe context for people to consider the less positive aspects of the self (Breines & Chen, 2012).

The pattern of results is similar to that of Leary et al. (2007) and Zheng and Chen (2016), who found that, after thinking of a past event that made participants feel badly about themselves or a regret experience, participants who completed the self-compassion induction reported less negative affect than those who completed the control condition. However, the present study showed that the self-compassion and thought challenging interventions had the same impact on negative affect, although the effects of the self-

compassion intervention extended to decreasing feelings associated with low self-esteem and increasing positive affect and feelings associated with high self-esteem. The thought challenging intervention, although protective, did not show the same benefits as the self-compassion intervention on participants' levels of state self-esteem, positive affect and effort. People high in self-criticism do not always experience affective change despite their efforts in challenging self-critical thoughts (Lee, 2005) and thought challenging may work less well for self-critical thoughts compared with other thoughts. Self-compassion, on the other hand, should be easier to enhance than self-esteem in challenging situations (Neff, 2003). Nevertheless, it is important to note that the thought challenging intervention was effective in preventing the decrease in state self-esteem and affect observed in the control group.

It is interesting that, although the self-compassion intervention seemed to offer protection against negative affect, it did not lead to a decrease in negative affect in the way that it did for feelings of low self-esteem. This may be explained by the fact that the self-compassion intervention did not seek to directly change or get rid of difficult feelings, rather it encouraged participants to take a mindful perspective on these feelings and to be kind of themselves whilst experiencing them. Although there is overlap on the measures of negative affect and feelings of low self-esteem, the items on the feelings of low self-esteem subscale are generally more linked to judgments (e.g. feeling incompetent) rather than negative affect itself (e.g. feeling upset). Encouraging self-kindness and reminding participants of the imperfect nature of the human condition may lead to a decrease in feelings of low self-esteem, rather than negative affect itself. However, the discrepancy could also be explained by the questionable reliability of the scale employed to measure negative affect in the present study. The internal consistency of the negative affect subscale of the PANAS was below acceptable levels for the self-compassion condition at time two. It is possible that the self-compassion intervention could have had more of an impact on particular scale items compared with the other items. Although further analyses did not indicate this is the case, as calculating Cronbach's alpha with items removed from the scale did not raise the value to acceptable levels, it remains a possibility that the self-compassion intervention might have had a variable impact on negative affect. This could be because, unlike thought challenging

interventions which aim to modify cognitions to reduce the associated negative affect, self-compassion interventions encourage the acceptance of difficult thoughts and feelings, which may have the effect of reducing aspects of negative affect for some people but not for others.

It is of note that, although there were similarities between the measures of affect and state self-esteem used in this study and some items feature on both questionnaires, the SSES is based on feelings associated with self-esteem (e.g., pride, shame) which are considered to be distinct from feelings of positive and negative affect (McFarland & Ross, 1982). Although the SSES subscales correlated with the PANAS subscales at both time points, all correlations are below .8, suggesting that these subscales are measuring distinct constructs and that multicollinearity is not an issue (Field, 2013).

The measure of performance employed in the present study was problematic and may not be valid. Although anagram tasks have been used to measure performance in previous research (e.g., Shah et al., 1998), the task was not related to the self-criticism induction in the present study. Breines and Chen (2012) used a range of methods to assess self-improvement motivation, including asking participants to rate their desire to make amends after a moral transgression, and recording time spent revising after failing a test. Measures such as these may have been more appropriate, particularly as they relate directly to the challenging situation in question.

Some previous research has relied upon hypothetical or experimentally induced challenging situations and a strength of the present study is that it made use of participants' real life examples of a time when they were self-critical. Participant ratings of how self-critical they were, plus the aforementioned changes in state self-esteem and affect observed in participants in the control condition, strongly suggest that the self-criticism induction was effective. However, the task instructions did not specify that participants' examples of the time when they had been self-critical needed to be within a certain time period. It is likely that there would have been some variability between participants in the length of time that had passed since the time when this occurred, with some participants thinking of a recent time and some thinking of a time in the past. This is a limitation of the present study and subsequent research could control for the amount

of time that has passed since the event occurred. For example, by asking participants to think of a time when they have been self-critical over the past week. Additionally, the present study did not control for whether the event or situation that caused the person to be self-critical had been resolved or not. It is possible that participants who thought of more recent, unresolved events may have been more negatively impacted by the self-criticism induction than participants who thought of an event that occurred in the past which has been resolved.

The self-compassion and thought challenging interventions that followed were considered to be accurate representations of these interventions; the self-compassion intervention specifically addressed the three components of self-compassion as defined by Neff (2003) and the thought challenging intervention was specific to the intervention developed by Fennell (1997) for addressing self-criticism in the context of low self-esteem. The method of challenging self-critical thoughts employed in the present study was slightly different to the self-esteem inductions employed by Leary et al. (2007) and Breines and Chen (2012), which generally involved instructing participants to focus on their positive qualities. However, the overall aim of enhancing participants' self-evaluations was the same. The thought challenging intervention could have been improved by asking participants to reformulate the original self-critical thought after having worked through the thought challenging worksheet to consolidate the process, as this is common practice in CBT. Asking participants to reformulate the original self-critical thought or asking them to rate their belief in the self-critical thought at the beginning and end of the thought challenging intervention could have functioned as a useful manipulation check for this intervention, to ensure that participants were fully engaged in the intervention and that it had achieved the intended consequences. For the same reason, it would have been useful to include a manipulation check for the self-compassion intervention. A measure of state self-compassion, such as the recently developed Self-Compassion and Self-Criticism Scale (SCSC; Falconer, King, & Brewin, 2015) could be employed for this purpose. However, in the context of the present study this could have been excessive, as participants had recently completed the SCS as a trait measure at the beginning of the study. It might be more appropriate to ask participants a series of three questions to check that they had been able to engage in the mindfulness,

self-kindness, and common humanity aspects of the self-compassion intervention. It would be useful to include manipulation checks in future research. Neff (2003) has suggested that self-compassion is easier to enhance than self-evaluations in challenging situations and the inclusion of manipulation checks would also help to test this suggestion.

There was some degree of overlap in the content of the thought challenging and self-compassion interventions. The thought challenging intervention instructed participants to write down 'advice you would give to someone else in this situation.' The self-compassion intervention instructed participants to 'think about someone you care about and imagine them being in a similar situation, think about how you would respond to them.' The specific function of these instructions differed according to the intervention as follows. The former was an aspect of the thought challenging intervention that had the function of prompting participants to generate another perspective on the situation in order to enhance their self-evaluation. The latter was an aspect of the self-compassion intervention that specifically related to the self-kindness component; encouraging participants to extend kindness and understanding towards themselves, rather than self-judgement or self-criticism (Neff, 2003a).

Similarly, the interventions could be argued to overlap as they both involve the process of creating distance from thoughts. For example, Beck et al. (1979) note that the process of recording self-critical thoughts as they occur can help create distance from their effect. Observing the contents of thoughts in a way that creates some distance is also a feature of mindfulness (Shapiro, Carlson, Astin, & Freddman, 2006) which was a part of the self-compassion intervention in the present study. Although there are drawbacks to the interventions overlapping slightly, particularly in relation to developing an understanding of the exact mechanisms underpinning the observed benefits, it was considered necessary for the interventions to be structured this way in order to maintain fidelity to their theoretical underpinnings (Neff, 2003a; Fennell, 1997).

Another limitation of the thought challenging intervention is that participants allocated to this condition completed the intervention at their own pace. This is problematic as some participants may have spent more time engaged in this task than

others. From viewing the thought challenging worksheets, some participants appeared to have spent more time completing the intervention, e.g., by generating a number of responses to the question regarding evidence against the self-critical thought. Although the duration of the self-compassion intervention was consistent, as all participants listened to the same recording which guided them through the intervention in the presence of the researcher, the period of time between the self-criticism induction and the post-experiment questionnaires differed between groups. This part of the present research could potentially be improved by specifying a fixed amount of time for participants to spend engaged in each of the interventions or engaged in the self-criticism induction for those in the control group. However, this would potentially compromise the authenticity of the intervention and would not be so much of an accurate reflection of how these interventions might be conducted in clinical practice. It was also considered that asking participants to complete questionnaires immediately after the different interventions would be preferable in capturing the immediate effects of the self-criticism induction and the two interventions.

Another issue relating to the timing is that there was only a short time period between completion of the pre- and post-experiment questionnaires and tasks for all participants, but particularly for participants in the control group, who only completed the self-criticism induction. It is a possibility that participants would have been able to recall their previous responses to questionnaire items. Although the questionnaires that participants completed pre- and post-experiment are state measures which are designed to be administered frequently, the use of a computerized questionnaires with a sliding response scale rather than a numerical response scale would have reduced the likelihood of participants recalling their exact previous responses.

The question of which specific mechanisms contribute to the benefits of self-compassion interventions has been raised a number of times in the literature. It is not clear which of the three components of self-compassion causes the changes observed when employing an intervention that combines three components (Leary et al., 2007). This is true of the present study and theoretically all three components of self-compassion could have contributed to the benefits observed. Barnard and Curry (2011) identify a

need for more research on the components of self-compassion, suggesting intervention studies investigating the impact of the three components separately. This could be done by instructing participants to engage in either a brief intervention focused solely on mindfulness, common humanity, or self-kindness, and assessing the impact of these separate interventions. Additionally, research to date comparing experimentally induced self-compassion with experimentally induced self-esteem has been conducted with student samples and this is a limitation. Self-criticism is particularly high in people with low self-esteem, a reason that it is specifically targeted in the CBT for low self-esteem protocol (Fennell, 1997). This research found that a brief self-compassion intervention offered protection against the negative effects of self-criticism when compared with a thought challenging intervention and a no-intervention control group in a student sample, rather than a sample of people identified as being high in self-criticism or low self-esteem. Due to ethical concerns about inducing self-criticism in people with low mood, participants reporting low mood were excluded from participating in the present study. Consequently, it could be argued that the sample may be biased towards people who are less self-critical, due to the link between self-criticism and low mood (Fennell, 1997). The next step would be to conduct similar research using a sample of people identified as being high in self-criticism or low in self-esteem to see if self-compassion can be equally beneficial in this group of people.

The present study did not take account of whether participants had previous exposure to therapy and this is problematic as it may have impacted participants' responses to the self-criticism induction and the interventions. For example, participants who have had CBT would be familiar with the process of thought challenging and may have engaged in this process even if allocated to the self-compassion or control condition. However, as participants in the self-compassion condition listened to a recording which guided them through the intervention, the risk of them engaging in another form of intervention was reduced. Similarly, by asking participants to complete the post-experiment questionnaires immediately after the self-compassion intervention (and immediately after the self-criticism induction for participants allocated to the control condition) the risk of participants engaging in another process were reduced. Nevertheless, it would be important to control for this in future research.

Despite the issues relating to the use of a student sample, experimental research using non-clinical samples is important in enabling the study of specific processes that can cause psychological distress, such as self-criticism. By developing an understanding of the impact of self-criticism, as well as what might help to counteract the negative impact of self-criticism on various outcome measures, effective clinical interventions can be developed and refined. In the present study, both the thought challenging and self-compassion interventions offered protection against the negative impact of self-criticism; participants allocated to these conditions consistently showed better outcomes than those allocated to the control condition who only experienced the self-criticism induction. Additionally, participants who completed the self-compassion intervention showed better outcomes on the majority of measures than those who completed the thought challenging intervention. There was a degree of overlap between the two interventions, and the self-compassion intervention was comprised of three distinct components, so it is not clear which specific mechanisms were responsible for the benefits observed. It is also a possibility that some people may respond differently to the two interventions; some may benefit more from the thought challenging intervention and others may benefit more from the self-compassion intervention, or certain aspects of the self-compassion intervention. If this was found to be the case, then the two different interventions could potentially be combined or used flexibly in clinical practice when working with the transdiagnostic problem of self-criticism.

To conclude this chapter, the present study found that a brief self-compassion intervention for self-criticism led to improvements in affect and state self-esteem, as well as self-reported effort applied on an anagram task. A brief thought challenging intervention offered some degree of protection against the negative effects of self-criticism on these outcome variables in comparison to a control group. The findings should be interpreted in light of the methodological limitations of the study described above. Future research should investigate the mechanisms of self-compassion and the use of self-compassion interventions in diverse samples, to determine whether the benefits of the self-compassion intervention are observed across different groups.

## Appendix A: Table of Measures

Table 1.

*Measures Used in Studies Included in the Literature Review*

| Title of Measure | Abbreviation | Response scale | Reference |
|---|---|---|---|
| Authentic and Hubristic Pride Scales | None | Participants indicate the extent to which they generally experience a number of feelings related to pride. Higher scores indicate greater feelings of pride. | Tracy and Robins (2007) |
| Body Appreciation Scale | BAS | Participants rate the extent to which they agree with 13 statements on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater body image satisfaction. | Avalos, Tylka, and Wood-Barcalow (2005) |
| Body Esteem Scale | BES | Participants indicate the extent to which they have positive or negative feelings about different parts or functions of their body. Higher scores on the weight concern subscale (the only subscale used by Wasylkiw, Mackinnon & Maclellan, 2012) indicate fewer weight concerns. | Franzoi and Shields (1984) |
| Body Image Acceptance and Action Questionnaire | BI-AAQ | Participants rate the extent to which they are able to tolerate negative body-related thoughts and feelings. Higher scores indicate greater body image flexibility. | Sandoz, Wilson, Merwin, and Kellum (2013) |

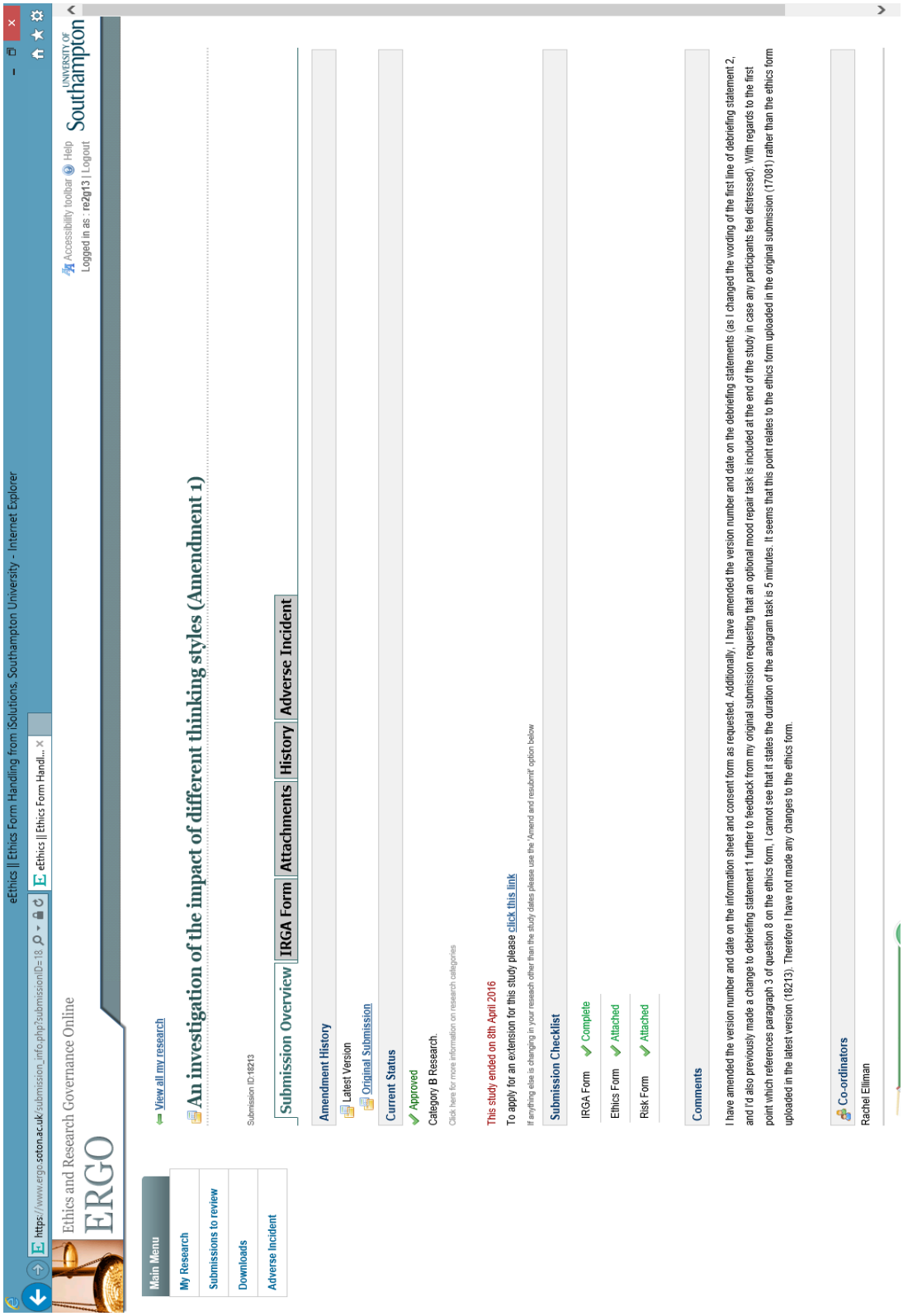
| | | | |
|---|---|---|---|
| Body Shape Questionnaire (16-item) | BSQ | Participants rate the frequency of feelings and behaviours over the past four weeks on a 6-point scale, ranging from 1 (never) to 6 (always). Total scores range from 16-96 and higher scores indicate more concerns about weight/shape. | Evans and Dolan (1993) |
| Center for Epidemiological Studies Depression Scale | CES-D | Participants indicate how often they have experienced emotional states. Higher scores indicate higher frequency and severity of depressive symptoms. | Radloff (1977) |
| Connor Davidson Resilience Scale | CD-RISC 10 | Participants indicate the degree to which statements are true of them. Higher scores indicate a greater capacity to change and cope with adversity. | Campbell-Sills and Stein (2007) |
| Depression, Anxiety and Stress Scales | DASS-21 | Participants rate the frequency and severity of symptoms of depression, anxiety and stress. Higher scores indicate greater symptomatology. | Henry and Crawford (2005) |
| Eating Disorder Examination Questionnaire | EDE-Q | Participants report on the frequency of weight concerns, shape concerns, eating concerns and dietary restraint over the past month. Higher scores indicate greater eating pathology. | Fairburn and Beglin (1994) |

| | | | |
|---|---|---|---|
| Fear of Compassion Scale | FCS | The fear of self-compassion subscale of the FCS was used by Kelly, Vimalakanthan and Carter (2014). Higher scores indicate a greater fear of self-compassion. | Gilbert, McEwan, Matos, and Rivis (2011) |
| Fear of Negative Evaluation Scale (12-item) | FNE | Participants respond to statements regarding apprehension at the prospect of being negatively evaluated. A composite score is calculated from the mean of item responses. Higher scores indicate greater fear of negative evaluation. | Leary (1983) |
| Narcissistic Personality Inventory | NPI | Participants read pairs of statements consisting of one narcissistic statement and one non-narcissistic statement and select the one that best represents their personality. Higher scores indicate higher levels of narcissism. | Raskin and Hall (1979) |
| Objectified Body Consciousness Scale for Youth | (OBC-Youth) | Participants respond to statements on three subscales relating to body surveillance, body shame and appearance control beliefs. A composite score reflects mean scores of response items and higher scores indicate greater objectified body consciousness. | Lindberg, Hyde, and McKinley (2006) |
| Obligatory Exercise Questionnaire | OEQ | Participants respond to statements regarding attitudes and activities relating to personal exercise. Higher composite | Pasman and Thompson (1988) |

| | | | |
|---|---|---|---|
| | | scores indicate greater obligation to exercise. | |
| Performance Failure Appraisal Inventory | PFAI-S | Participants respond to statements regarding fear of failure. The mean of item responses constitutes the overall fear of failure score. Higher scores indicate greater fear of failure. | Conroy, Willow, and Metzler (2002) |
| Revised Rigid Restraint Scale | RRRS | Participants rate 12 items relating to restrictive eating and eating guilt to indicate how often each item describes them on a scale ranging from 1 (never) to 5 (always). Total scores for the two subscales are calculated and higher scores indicate more restrictive eating and eating guilt. | Adams and Leary (2007) |
| Rosenberg Self-Esteem Scale | RSES | Participants rate the extent to which they agree with statements about how they feel about themselves. Higher scores indicate higher self-esteem. | Rosenberg (1965) |
| Self-Compassion Scale | SCS | Participants respond to statements regarding how they typically act towards themselves in difficult times. Higher total scores indicate higher levels of trait self-compassion. | Neff (2003) |
| Social Physique Anxiety Scale | SPAS | Participants respond to statements regarding the degree of anxiety | Hart, Leary, and Rejeski (1989) |

| | | | |
|---|---|---|---|
| | | experienced due to the perception of his or her physique being evaluated or observed, indicating the degree to which the statements are true for them. Higher composite scores indicate greater social physique anxiety. | |
| Self-Handicapping Scale | SHS | Participants rate statements relating to self-handicapping, indicating how true the statements are of them. Higher scores indicate more self-handicapping behaviour. | Jones and Rhodewalt (1982) |
| Sandbagging Scale | SBS | Participants rate statements relating to sandbagging, indicating how true the statements are of them. Higher scores indicate more sandbagging behaviour. | Gibson and Sachau (2000) |
| Test of Self-Conscious Affect for Adolescents | TOSCA-A | Participants respond to scenarios indicating how they would feel. There are different subscales, including shame and guilt. Shame-free guilt and guilt-free shame can be calculated from partial correlations. Higher scores indicate greater proneness to shame or guilt. | Tangney, Wagner, Gavlas, and Gramzow (1991) |

# Appendix B: Ethical Approval



## Appendix C: Rosenberg Self-Esteem Scale (RSES)

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

| | | | | | |
|---|---|---|---|---|---|
| 1. | On the whole, I am satisfied with myself. | SA | A | D | SD |
| 2.* | At times, I think I am no good at all. | SA | A | D | SD |
| 3. | I feel that I have a number of good qualities. | SA | A | D | SD |
| 4. | I am able to do things as well as most other people. | SA | A | D | SD |
| 5.* | I feel I do not have much to be proud of. | SA | A | D | SD |
| 6.* | I certainly feel useless at times. | SA | A | D | SD |
| 7. | I feel that I'm a person of worth, at least on an equal plane with others. | SA | A | D | SD |
| 8.* | I wish I could have more respect for myself. | SA | A | D | SD |
| 9.* | All in all, I am inclined to feel that I am a failure. | SA | A | D | SD |
| 10. | I take a positive attitude toward myself. | SA | A | D | SD |

## Appendix D: Self-Compassion Scale (SCS)

### HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

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 |

_____ 1. I'm disapproving and judgmental about my own flaws and inadequacies.

_____ 2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____ 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.

_____ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.

_____ 5. I try to be loving towards myself when I'm feeling emotional pain.

_____ 6. When I fail at something important to me I become consumed by feelings of inadequacy.

_____ 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.

_____ 8. When times are really difficult, I tend to be tough on myself.

_____ 9. When something upsets me I try to keep my emotions in balance.

_____ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____ 11. I'm intolerant and impatient towards those aspects of my personality I don't like.

_____ 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____ 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____ 14. When something painful happens I try to take a balanced view of the situation.

_____ 15. I try to see my failings as part of the human condition.

_____ 16. When I see aspects of myself that I don’t like, I get down on myself.

_____ 17. When I fail at something important to me I try to keep things in perspective.

_____ 18. When I’m really struggling, I tend to feel like other people must be having an easier time of it.

_____ 19. I’m kind to myself when I’m experiencing suffering.

_____ 20. When something upsets me I get carried away with my feelings.

_____ 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.

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

_____ 23. I’m tolerant of my own flaws and inadequacies.

_____ 24. When something painful happens I tend to blow the incident out of proportion.

_____ 25. When I fail at something that's important to me, I tend to feel alone in my failure.

_____ 26. I try to be understanding and patient towards those aspects of my personality I don't like.

## Appendix E: State Self-Esteem Scale

For each of the items, please circle the number on the scale that best represents how you feel right now.

1. Pride

1 2 3 4 5 6 7 8 9 10 11

Not at All Extremely

2. Inadequate

1 2 3 4 5 6 7 8 9 10 11

Not at All Extremely

3. Competent

1 2 3 4 5 6 7 8 9 10 11

Not at All Extremely

4. Confident

1 2 3 4 5 6 7 8 9 10 11

Not at All Extremely

5. Incompetent

1 2 3 4 5 6 7 8 9 10 11

Not at All Extremely

6. Stupid

1 2 3 4 5 6 7 8 9 10 11

Not at All Extremely

7. Worthless

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not at All | | | | | | | | | | Extremely |

8. Smart

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not at All | | | | | | | | | | Extremely |

9. Resourceful

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not at All | | | | | | | | | | Extremely |

10. Effective

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not at All | | | | | | | | | | Extremely |

11. Ashamed

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not at All | | | | | | | | | | Extremely |

12. Efficient

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not at All | | | | | | | | | | Extremely |

## Appendix F: Positive and Negative Affect Scale (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. **Indicate to what extent you feel this way right now, that is, at the present moment**

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Very Slightly or Not at All | A Little | Moderately | Quite a Bit | Extremely |

| | |
|---|---|
| _____ 1. Interested | _____ 11. Irritable |
| _____ 2. Distressed | _____ 12. Alert |
| _____ 3. Excited | _____ 13. Ashamed |
| _____ 4. Upset | _____ 14. Inspired |
| _____ 5. Strong | _____ 15. Nervous |
| _____ 6. Guilty | _____ 16. Determined |
| _____ 7. Scared | _____ 17. Attentive |
| _____ 8. Hostile | _____ 18. Jittery |
| _____ 9. Enthusiastic | _____ 19. Active |
| _____ 10. Proud | _____ 20. Afraid |

## Appendix G: Study Advert

eFolio Advert

I am a final year DClinPsy student investigating the impact of different thinking styles.

If you would like to participate in this study, you will firstly be required to complete an online questionnaire to determine whether you are eligible to participate. This will take approximately 5 minutes and you will receive one credit for doing this.

If you are eligible to participate, you will then be invited to attend an individual session which will take up to an hour. You will receive 12 credits or £8 for your participation in this part of the study. During this session you will be asked to complete some questionnaires and participate in a number of different tasks, which may be written or computerised. You may experience some transient emotional discomfort as a result of one of the tasks looking at self-criticism as a thinking style.

Your participation in this study is voluntary and you may withdraw at any time without penalty. All data is confidential.

If you would like to participate, please click on the link to complete the online questionnaire. If you are eligible to participate, you will be contacted by the researcher via email regarding this. If you are not eligible to participate then you will be emailed a copy of a debriefing statement explaining this.

Please contact me if you have any questions. My email address is re2g13@soton.ac.uk

## Appendix H: Debriefing Statement 2

# Debriefing Statement 2 (Version 2, 22/11/15)

Study Title: An investigation of the impact of different thinking styles

Researcher: Rachel Elliman

ERGO Study ID number: 18213

Thank you for completing a screening questionnaire regarding the above study.

This study is investigating the impact of different thinking styles. One of the tasks in this study involves inducing self-criticism. Because of this, we ask all participants to complete a mood questionnaire. We know that self-criticism can lead to low mood so we are excluding anyone who is reporting current symptoms of low mood.

It is normal to experience fluctuations in mood and it may be that this is something that passes without having an impact on your life. However, if you have been feeling like this most days and you have lost interest or pleasure in life activities, you may wish to consider contacting one of the organisations below for more support:

Enabling Services at the University of Southampton: Support for students experiencing mental health problems
www.southampton.ac.uk/edusupport

Steps 2 Wellbeing: A free confidential NHS service for people aged 18+
www.steps2wellbeing.co.uk

If you are feeling very distressed or suicidal then please contact your GP and request an emergency appointment, or go to your nearest Accident and Emergency Department.

You can also contact the Samaritans on 08457909090

If you have any further questions or comments then please email me:
re2g13@soton.ac.uk

If you have any concerns or complaints, you can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Contact number: 02380594663, email address: slb1n10@soton.ac.uk

## Appendix I: Information Sheet

# Participant Information Sheet (Version 2, 22/11/15)

Study Title: An investigation of the impact of different thinking styles

Researcher: Rachel Elliman

ERGO Study ID number: 18213

**Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.**

What is the research about?

*I am a final year DClinPsy student investigating the impact of different thinking styles on various outcome measures.*

Why have I been chosen?

*You have been chosen because you responded to an advert regarding participation in this study and completed an online screening questionnaire which indicated that you are eligible to participate.*

What will happen to me if I take part?

*If you choose to take part you will be asked to complete a number of questionnaires and tasks in an individual session which will take up to one hour.*

Are there any benefits in my taking part?

*While it is not considered that there are any direct benefits of taking part, your participation will help us to understand more about this topic. You may also find the study interesting.*

Are there any risks involved?

*You may experience some transient emotional discomfort as a result of one of the tasks looking at the impact of a self-critical thinking style. Aside from this, is not considered that there are any risks involved.*

Will my participation be confidential?

*Your data is confidential. You will be assigned a participant number and your name will not be attached to any of the questionnaires. You will not be identifiable in the final report. In line with the Data Protection Act/University policy, data will be stored securely. Questionnaire data will be transferred to a password protected document and hard copies of the questionnaires will be destroyed.*

What happens if I change my mind?

*Your participation is voluntary and you may withdraw from the study at any time without penalty. However, it may not be possible to remove your data after the data has been analysed.*

What happens if something goes wrong?

*If you have any concerns or complaints, you can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Contact number: 02380594663, email address: slb1n10@ soton.ac.uk*

Where can I get more information?

*If you have any questions or require any further information, please do not hesitate to contact me. My email address is re2g13@soton.ac.uk*

What do I need to do now?

*If you are happy to participate, please complete the consent form.*

## Appendix J: Consent Form

# CONSENT FORM (Version 2, 22/11/15)

Study title: An investigation of the impact of different thinking styles

Researcher name: Rachel Elliman

ERGO Study ID number: 18213

*Please **initial** the box(es) if you agree with the statement(s):*

| | |
|---|---|
| I have read and understood the information sheet (version 2, 22/11/15) and have had the opportunity to ask questions about the study | ☐ |
| I agree to take part in this research project and agree for my data to be used for the purpose of this study | ☐ |
| I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected | ☐ |

Name of participant (print name)……

Signature of participant……

Date……..

## Appendix K: Self-Criticism Induction Worksheet

1. Think about exactly what happened (you do not need to write this down)

2. Please write down the main emotion you felt at the time? E.g. sadness, anger, fear

3. Please write down one or two of the thoughts you had about yourself at the time. This could be what you were saying to yourself or what was running through your mind at the time. You may have been calling yourself names or telling yourself that you should have done better, for example.

4. Do you have an image of yourself in the situation? Please write yes or no. If so, focus on this for a moment.

5. Do you have an image of others in the situation? Please write yes or no. If so, focus on this for a moment.

6. Please rate how bad you consider the situation was on a scale of 1-10 (where 1 = not at all bad, and 10 = extremely bad):

   1 2 3 4 5 6 7 8 9 10

7. Please rate how self-critical you were in the situation on a scale of 1-10 (where 1 = not at all self-critical, and 10 = extremely self-critical):

   1 2 3 4 5 6 7 8 9 10

## Appendix L: Transcript of Thought Challenging Recording

Please bring to mind the self-critical thoughts that you came up with in the previous task. Please pause the recording to write one of these self-critical thoughts down in the space provided.

(pause)

One way to address these thoughts is to challenge them, and to develop more balanced self-evaluations. Our thoughts and evaluations are often opinions, rather than facts, and it can be helpful to challenge them, particularly if they cause distress.

(pause)

Ask yourself if the thought could be an opinion you hold about yourself rather than a fact. Please pause the recording to indicate whether you think the thought is an opinion or fact by writing this in the space provided.

(pause)

Take a moment to consider the evidence *for* the self-critical thought you came up with. What is the evidence in favour of what you think about yourself? Please pause the recording to write down your answer.

(pause)

Now take a moment to consider the evidence *against* the self-critical thought. What is the evidence against what you think about yourself? Please pause the recording to write down your answer.

(pause)

Are there other ways of viewing the situation that might be more helpful? Please pause the recording to write down your answer.

(pause)

What advice would you give to someone else in this situation, if they were having similar thoughts about themselves? Please pause the recording to write down your answer. This is the final question so you can now remove the headphones.

## Appendix M: Thought Challenging Worksheet

This is a prompt sheet to accompany the recording. Please write down your answers to the questions asked during the recording in the space provided below. You can pause the recording to write down your answers. There are no right or wrong answers to the questions as they are based on your experience.

| | |
|---|---|
| Thought | |
| Fact or opinion? | |
| Evidence FOR | |
| Evidence AGAINST | |
| Any other ways of viewing the situation? | |
| Advice you would give to someone else? | |

## Appendix N: Transcript of Self-Compassion Recording

Bring your focus to your breathing. Pay attention to your breath as you breathe in, and breathe out.

(pause)

Bring to mind the self-critical thoughts that you wrote down in the previous task

(pause)

If the thoughts or feelings are unpleasant, notice that this is a moment of suffering, and that it will pass

(pause)

Notice any thoughts or feelings that arise without judging or trying to change them, just gently bring your focus back to your breathing. Breathing in, and breathing out. Continue to do this until you hear the next instruction.

(longer pause)

Next think about someone who you really care about and imagine them being in a similar situation, being critical of themselves. Think about how you would respond to them.

(pause)

Often people are kinder to others than they are to themselves. Try to avoid using harsh, judgemental or critical language towards yourself and replace what you say with words that are kinder, more understanding, more encouraging and more supportive.

(pause)

Now think back to your situation, acknowledge that it is a difficult situation, and try to be kind and understanding towards yourself, as you would be to someone you really care about.

(pause)

Finally, take a moment to consider the imperfect nature of the human condition; we all make mistakes and struggle in our lives.

(pause)

Sometimes when people are in a difficult situation they can feel that they are the only one experiencing this. Others will have had similar experiences and struggled in similar ways. You are not alone in this.

This is the end of the recording. Please remove the headphones.

## Appendix O: Debriefing Statement 1

# Debriefing Statement (Version 2, 22/11/15)

Study Title: An investigation of the impact of different thinking styles
Researcher: Rachel Elliman
ERGO Study ID number: 18213

Thank you for participating in this study looking at the impact of different thinking styles on a number of outcome measures.

We are particularly interested in the impact of self-criticism as a thinking style. Self-criticism is considered to be problematic as it can lead to low mood and contribute to low self-esteem (Fennell, 1997). Cognitive Behavioural Therapy (CBT) is an evidence-based treatment for a number of mental health problems. One aspect of CBT involves challenging and finding alternatives to self-critical thoughts. However, more recently, the concept of self-compassion has been presented as an alternative way of working with self-criticism. Drawing on Buddhist philosophy, self-compassion is a relatively new concept in Western psychology. Neff (2003a) defines the three basic components of self-compassion as self-kindness, common humanity, and mindfulness.

The first task was designed to induce self-criticism; you were asked to think of a time when you have been critical of yourself, and answer some questions about this. You were then allocated to one of three conditions. The first condition involved finding alternatives to self-critical thoughts, which is based on CBT. The second condition was based on self-compassion, and the third condition was a control condition; if you were allocated to this condition then you did not complete the CBT or self-compassion exercise. We are interested in the impact of each of these conditions on mood, self-esteem, performance and effort.

We hope that this research will help us develop a better understanding of effective ways of working with self-criticism.

Please let me know if you feel distressed by any part of this study and you will be given the opportunity to complete a visualisation exercise designed to improve mood.

If you have any further questions or comments then please email me: re2g13@soton.ac.uk

If you have any concerns or complaints, you can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Contact number: 02380594663, email address: slb1n10@soton.ac.uk

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## Glossary of Terms

| | |
|---|---|
| $\alpha$ | Cronbach's alpha |
| $\beta$ | Standardised regression coefficient |
| *B* | Unstandardised regression coefficient |
| *F* | F ratio |
| *M* | Mean |
| *n* | Sample size |
| $\eta^2$ | Eta squared – measure of strength of relationship |
| $\eta p^2$ | Partial eta squared – measure of strength of relationship |
| *p* | Probability of results occurring by chance |
| *r* | Pearson's product-moment correlation coefficient |
| $R^2$ | Variance explained by predictors in regression |
| $\Delta R^2$ | Change in overall variance explained by adding a predictor variable |
| *SD* | Standard deviation |
| *SE* | Standard error |
| $\chi^2$ | Chi-square test statistic |

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